"BURN THE CHURCHES, BREAK UP THE BELLS": THE ARCHAEOLOGY OF THE PUEBLO REVOLT REVITALIZATION MOVEMENT IN NEW MEXICO, A.D. 1680-1696

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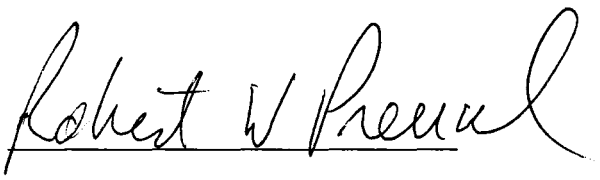

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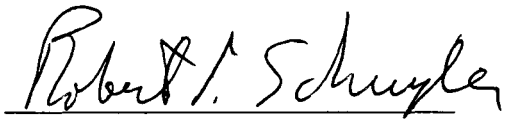

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Dedicated to the Jemez people of the past, present, and future.

T'ebànõ:pa

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ABSTRACT

"BURN THE CHURCHES, BREAK UP THE BELLS":
THE ARCHAEOLOGY OF THE PUEBLO REVOLT REVITALIZATION MOVEMENT IN NEW MEXICO, A.D. 1680-1696

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Robert W. Preucel, Dissertation Supervisor

This dissertation investigates the archaeology of the Pueblo Revolt era (A.D. 1680-1696) in the Jemez Province of New Mexico, and attempts two broad goals. The first is to critically examine the anthropological phenomena of revitalization movements through a study of material culture. The second is to write an archaeological history of the events that occurred in the Jemez Province between the Pueblo Revolt of 1680 and the conclusion of the Spanish reconquest in 1696.

In order to address the stated objectives, this study examines the material culture of four Pueblo villages constructed in the Jemez Province between 1680 and 1696: Patokwa (LA 96), Boletsakwa (LA 136), Cerro Colorado (LA 2048), and Astialakwa (LA 1825). Through analyses of the architecture and ceramic assemblages of these villages the nature, degree, and trajectory of the Pueblo Revolt revitalization movement is

assessed, with a focus on the material signs of nativism (the elimination of foreign influence) and revivalism (the introduction of cultural practices characteristic of previous generations).

The results of these analyses suggest that the revitalization movement flourished among the people of the Jemez Province in the years immediately following the Pueblo Revolt. New iconic architectural forms were created to index the past and emphasize traditional Pueblo social organization, while transformations in ceramic production and exchange attest to the commitment to nativism and revivalism in these communities. By the early 1690s, however, the revivalistic element appears to have lost momentum. A resurgence of nativism in 1696 fueled a second uprising, ending the Pueblo Revolt era.

This study concludes that revitalization movements are highly negotiated and heterogeneous phenomena. The social practices of revitalization often differ from official doctrines, and the actions of followers frequently do not correspond with the words of leaders. Furthermore, the archaeological record underscores the observation that revivalism results in the creation of new forms, rather than the replication of old ones. Finally, the material culture of the Pueblo Revolt era calls attention to the effects these movements can have on long-term cultural development, emphasizing the need to consider revitalization movements in the formulation of general theories of culture change.

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CHAPTER I: INTRODUCTION

The investigation of how and why cultures change is one of the primary endeavors of archaeology, a sub-discipline uniquely positioned within anthropology to explore the phenomena of cultural transformation. The diachronic nature of the archaeological record facilitates and encourages the study of culture change over the *longue durée* (Braudel 1980)—across the decades, centuries, and millennia of human history. As a result, archaeological studies frequently emphasize the lengthy, gradual nature of these transformations through mechanisms of acculturation, diffusion, and evolution. Culture change is not always a protracted and uniform process, however; under certain conditions, rapid reorientations of ideology, social organization, economic relations, and political systems can and do occur. Although anthropologists have identified many such instances of abrupt change in both contemporary societies and those in the distant past, these sudden alterations have not always figured significantly into the formulation of large-scale archaeological theories of culture change. This dissertation seeks to redress this situation through the investigation of the material culture one such drastic shift—the type of deliberate, organized, and rapid transformation of culture that anthropologists have labeled a *revitalization movement* (Wallace 1956).

Anthropological literature is filled with examples of immediate, intentional reorganizations of cultural systems, documented in classic studies of apocalypticism, utopian communities, nativistic movements, millennialism, messianic sects, and cargo cults (Linton 1943; Worsley 1957; Lanternari 1963; Lindstrom 1993; Stewart and Harding 1999; Harkin 2004a). Anthony F. C. Wallace was the first to identify the cross-

cultural causal and processual similarities of these "instantaneous" types of culture change phenomena, coining the term *revitalization movement* to denote any "deliberate, organized, conscious effort by members of a society to construct a more satisfying culture by the rapid acceptance of a pattern of multiple innovations" (Wallace 1970:188).

Over the past fifty years revitalization movements have frequently been viewed as anomalies in the long span of cultural evolution, temporary interruptions in the gradual and inevitable march of culture. According to these assertions, revitalization movements are epiphenomenal occurrences that rarely (if ever) have lasting effects on long-term cultural evolution (White 1949:279). Many of these studies have been influenced by Darwinian evolutionary theory, positing that changes in cultural systems can be regarded as adaptive responses to changing ecological conditions (Binford 1980)—analogous to the slow processes of adaptation to the environment that characterize biological evolution. However, in recent decades evolutionary theorists have hypothesized that descent with change occurs not just gradually over the long term, but also in fits and starts—a phenomenon known as punctuated equilibrium (Gould and Eldridge 1977). According to this hypothesis, biological evolution includes short periods of change in which new forms appear rapidly. A cultural analogue to this evolutionary phenomenon is the revitalization movement—a sudden transformation that can drastically alter the trajectory of cultural developments for centuries thereafter.

Revitalization Movements: Archetypes and Issues

The typical storyline of revitalization movements is a familiar one: in a time of adversity (either real or perceived), a charismatic leader emerges from the masses. This prophet is the recipient of a revelation, and speaks to a disenfranchised community often suffering under a system of oppression, exploitation, and chronic poverty. The message is one of hope, a vision of better days ahead, and a promise of improved lives for those who will heed the call. A new world is possible, the people are told, but only if they consent to change their corrupt ways. A small following develops around the charismatic preacher at first, a core group of disciples who spread the message to the larger populace. Over time the believers grow in number and in zeal as they attempt to construct a paradisiacal future through the invention of a romanticized past. In some cases, the doctrine becomes institutionalized and a new religion is established; more often the movement loses momentum as the promised utopia is not realized, and the leader fades into the shadows of history. Occasionally however, the transformations wrought by revitalization movements have substantial—indeed, world-changing—consequences (Wallace 1956; Graziano 1999:11-13).

Revitalization movements can and do play a pivotal role in the constitution of culture, as demonstrated in the pages that follow. They are not abnormal events but occur with surprising regularity in cultures across the world, at all levels of social complexity, and throughout human history. As Wallace notes: "probably few [humans] have lived who have not been involved in an instance of the revitalization process" (1956:267). Considering the ubiquity of these phenomena, the fact that they have not garnered more attention from anthropologists in recent years is surprising. Yet today, many consider revitalization "to be a concept whose time has come and gone" (Harkin

2004b:xviii). Paradigmatic shifts in the field have steered anthropologists away from the nomothetic systems-based models of human culture that dominated the 1950s and 60s. The popular perception of revitalization movements as anomalous and epiphenomenal has further contributed to their recent obscurity. Thus as anthropology enters the twenty-first century, the study of revitalization seems to some quaint at best, outdated and irrelevant at worst (Harkin 2004b:xviii). Postmodern interpretations have even gone so far as to question the very existence of revitalization movements, suggesting that they have more of a basis in ethnographic fantasy than in emic reality (Lindstrom 1993; Kaplan 1995).

Why then should we bother with this model—particularly if the notion of revitalization is more emblematic of academic caprice than human behavior, as postmodern critics suggest? Although it would be naïve to assume the existence of "revitalization movements" as anything but a Western anthropological model, Wallace's observations have proven useful in reflecting and analyzing recurring patterns of human behavior in diverse cultures around the world (Harkin 2004b:xviii). Still, valid critiques of the corpus of revitalization scholarship have been proffered in recent years. Previous studies have often utilized a synchronic perspective, conceptualizing these movements as transitory and fleeting events. The prevailing focus has been on the causes of revitalization in an attempt to explain (rather than interpret) these phenomena. In the process, anthropologists have discounted and underestimated the enduring effects of these movements. Conventional investigations have also proceeded from the top-down, privileging the words and actions of movement leaders without adequately accounting for the varied practices and responses of non-elites and subaltern followers. Furthermore, the

revitalization model has never garnered significant attention from archaeologists (Fry 1985:128). As a result, the material signs of revitalization have previously been more assumed than investigated, because archaeologists have not critically examined the material culture of documented revitalization movements. Without comprehensive studies of the material correlates of these phenomena, the recognition of a revitalization movement on (or in) the ground remains difficult.

For these reasons, a contemporary re-examination of revitalization movements is needed—precisely because many consider the existing model to be outmoded. The study that follows provides a critical reassessment of revitalization through an examination of the material culture, textual record, and oral traditions surrounding a documented revitalization movement: the Pueblo Revolt of 1680 (Harris 1980:422-23; Wilcox 1981; Ortiz 1994; Reff 1995; Graziano 1999:115-119; Preucel 2000a; Liebmann et al. 2005).

The Pueblo Revolt

After more than 80 years of Spanish colonization and exploitation, the Pueblo Indians of the American Southwest united in an armed revolt with their Athapaskan allies to drive the Europeans from their lands. On August 10, 1680, more than 400 Franciscan priests and Hispanic settlers were executed, missions and haciendas were burned, and the Spanish capital of Santa Fe was besieged. The surviving *españoles* fled Pueblo lands, journeying 300 miles to the south where they reestablished their colonial capitol at El Paso del Norte (present-day Ciudad Juarez, Mexico). Freedom was returned to the

Pueblo peoples, and for a period of 12 years they lived unfettered by the shackles of colonial domination. The Pueblo Revolt of 1680 was thus one of the most successful indigenous insurrections in the history of New World colonialism (Beninato 1990:417).

The Pueblo Revolt was instigated by a coalition of ritual leaders acting under the direction of Po'pay, a Tewa man from San Juan Pueblo (Knaut 1995:167-180). Po'pay was a respected leader among his people (Ortiz 1980:20-21) and reportedly received a communiqué from three supernatural beings who delivered to him plans for the rebellion (Hackett and Shelby 1942 2:246). Po'pay and his followers claimed that the spirits had prophesied a new, millennial existence that could only be inaugurated through the elimination of Spanish influence and the revival of prehispanic Pueblo culture. Following the expulsion of the Spaniards, Po'pay and his disciples toured the newly emancipated villages. Pueblo captives later reported that Po'pay had encouraged the Pueblo people to return to traditional, prehispanic ways of life:

> He commanded all the Indians to break the lands and enlarge their cultivated fields, saying that now they were as they had been in ancient times, free from the labor they had performed for the religious and the Spaniards . . . [Po'pay] ordered in all the pueblos through which he passed that they instantly break up and burn the images of the holy Christ, the Virgin Mary, and the other saints, the crosses, and everything pertaining to Christianity, and that they burn the churches, break up the bells, and separate from the wives whom God had given them in marriage and take whom they desired. In order to take away their baptismal names, the water, and the holy oils, they were to plunge into the rivers and wash themselves with amole, which is a root native to the country, washing even their clothing, with the understanding that there would thus be taken from them the character of the holy sacraments. They did this, and many other things . . . given to understand that this mandate had come from the [three supernatural beings] who emitted fire from their extremities in the said estufa of Taos, and that they thereby returned to the state of their antiquity, as when they came from the lake of Copala; that this was the better life and the one they desired, because the God of the Spaniards was nothing and theirs was very strong, the Spaniard's God being rotten wood. These things were observed and obeyed by all except some who, moved by the zeal of Christians, opposed it, and such persons the said Po'pay

> caused to be killed immediately. He saw to it that they at once erected and rebuilt the houses of idolatry which they call estufas, and made very ugly masks in imitation of the devil in order to dance the dance of the cacina; and he said likewise that the devil had given them to understand that living thus in accordance with the law of their ancestors, they would harvest a great deal of maize, many beans, a great abundance of cotton, calabashes, and very large watermelons and cantaloupes; and that they could erect their houses and enjoy abundant health and leisure. Following what has already been stated, in order to terrorize them further and cause them to observe the diabolical commands, there came to them a pronouncement from the three demons already described, and from El Po'pay, to the effect that he who might still keep in his heart a regard for the priests, the governor, and the Spaniards would be known from his unclean face and clothes, and would be punished. (Hackett and Shelby 1942, 2:247-248)

The revitalization discourse espoused by Po'pay and his followers was thus tri-partite. First, it was *millenarian* in nature, promising the deliverance of an ideal society through revolutionary action. Secondly, it was *nativistic*, advocating the elimination of all foreign influence from the Pueblo world. Lastly, it was *revivalistic*, encouraging the introduction of cultural practices thought to have been characteristic of previous generations but not recently present in Pueblo social groups (Wallace 1956:267; Reff 1995:69-72; Preucel 2000a:10). Spanish documentary evidence (recorded in the course of the exodus to El Paso del Norte and on an abortive attempt at reconquest in 1681) suggests that many of the Pueblo people heeded Po'pay's calls to action, burning missions, smashing church bells, and reviving traditional rituals in an attempt to return to prehispanic ways of life (Hackett and Shelby 1942). Hence the Pueblo Revolt revitalization movement appears to have been successful in initiating the millenarian, nativist, and revivalist agenda early on, and had a significant impact on Pueblo cultures and communities in the months immediately following the Revolt of 1680.

The era of Pueblo independence did not last, however, and in 1692 the Spaniards returned to the region they called the kingdom of New Mexico. After a series of bloody

battles, the Spanish colonial presence was firmly re-established in the northern Rio Grande region by 1694. Following a brief resumption of the nativist agenda two years later, the Pueblo Revolt era (A.D. 1680-1696) came to a close with a final series of battles in the mid-1690s. This latter uprising (known as the Second Pueblo Revolt) was not able to duplicate the successes of its predecessor. The second time around the disparate Pueblo peoples did not unite, nor were the Spaniards expelled. Instead the Pueblos were the ones who fled, some leaving the northern Rio Grande region permanently. Nevertheless, to consider the Pueblo Revolt a failure simply because it did not achieve a permanent end to the colonial occupation of New Mexico ignores the larger effects of these events on Pueblo culture. The enduring legacies of the Pueblo Revolt revitalization movement are the changes in social organization, identity, interaction, and political economy that occurred in the years between 1680 and 1696. These changes were manifested in the settlement patterns, architecture, and ceramics of the villages constructed and inhabited during this tumultuous period. The transformations wrought during the Pueblo Revolt era had momentous impacts on the formation of modern Pueblo culture and society, with the influences of this revitalization movement felt in the Pueblos even down to the present day (Ortiz 1980, 1994; Suina 2002).

Histories of the Pueblo Revolt

Over the past five decades, many scholars of the Spanish colonial borderlands have studied the Pueblo Revolt era (Sando 1979, 1998; Ortiz 1980; Simmons 1980; Espinosa 1988; Jones 1989; Guterrez 1991; Kessell and Hendricks 1992; Kessell et al.

1995, 1998; Knaut 1995; Reff 1995; Riley 1999; Weber 1999; Preucel 2000a, 2000b, 2002a; Wilcox 2001). Anthropological investigations have focused on assimilation and acculturation during this period (White 1942; Dozier 1954; Spicer 1962), while recent debates among historians have explored the causes of the Revolt (Knaut 1995; Weber 1999a). Considering the amount of ink that has been spilled regarding this chapter of Southwestern history, however, it is surprising that the social, ideological, and political contexts of Pueblo resistance remain poorly understood. This lack of knowledge can be attributed to the fact that the primary sources of information for these studies are Spanish colonial military journals (Hackett and Shelby 1942; Kessell and Hendricks 1992; Kessell et al. 1995, 1998) and ecclesiastical correspondence (Espinosa 1988). Relying exclusively upon the textual record results in histories of the Pueblo Revolt written through Spanish eyes, in which Pueblo perspectives are included only via European interlocutors and translators (Weber 1999:9). Yet significant and obvious biases plague these sources, as Spanish officials attempted to rationalize their defeat and justify the reconquest of the region.

Moreover, historical studies of this period have consistently focused on the "bookends" of the Pueblo Revolt era—events leading up to August 10, 1680, and the period of Spanish reconquest (1692-1696). Little documentary evidence exists regarding the years between 1681 and 1692 in New Mexico (Sanchez 1983), because the Spanish colonists were in exile and the Pueblo peoples did not record their histories in writing. Consequently, historians have not previously attempted to reconstruct the years of Pueblo independence (also known as the Spanish Interregnum) that occurred between the Revolt and the reconquest. For this same reason, we also know little about the trajectory and

social practices of revitalization enacted by Pueblo peoples during this period. Did the Puebloans continue to heed Po'pay's revelations in the years following the Spaniards' ouster? How were the calls for millenarianism, nativism, and revivalism enacted, and how did they vary among the Pueblos? And how did the social practices of common Puebloans differ from the proscriptions of Po'pay and the leaders of the movement?

The Pueblo Revolt in the Jemez Province

In order to investigate these questions, this dissertation concentrates on the archaeological record of the Pueblo Revolt era in one specific region of New Mexico, an area known as the Jemez Province. The Jemez Province has been home to communities of Towa-speaking people west of the Rio Grande—the Jemez—since at least the early fourteenth century (Reiter 1938; Ellis 1956; Elliott 1982, 1986a; Kulisheck 2005) and continues to be inhabited by their descendants today. A recurring center of indigenous resistance to Spanish colonization throughout the seventeenth century, the Jemez Province was a primary hub of revitalization during the Pueblo Revolt era. Between 1680 and 1696 four new pueblos were constructed in the Jemez Province—two early in the Revolt period (between 1680 and 1683), one near the midpoint (1689), and one during the denouement (1693-94). Thus the archaeological record of the Jemez Province provides a unique opportunity to examine the development and trajectory of the Pueblo Revolt revitalization movement. Through an examination of settlement patterns, architecture, and ceramics, this dissertation investigates the social practices of

revitalization employed by non-elites as well as the leaders of the revitalization movement in the Jemez Province during the Pueblo Revolt era.

Contributions of this Study

As alluded to above, this dissertation attempts two broad goals, one primarily historical in nature, the other anthropological. The former is to write a history of the events that occurred in the Jemez Province between the Pueblo Revolt of 1680 and the Spanish reconquest of 1692-94. The present study differs from previous histories in that it integrates archaeological evidence with primary texts and oral traditions in a reconstruction of the sixteen years that followed the Pueblo Revolt. The incorporation of material culture allows a glimpse into the events that occurred in the northern Rio Grande between 1680 and 1696, and into the lives of the Pueblo peoples who lived during this turbulent period through the artifacts and architecture they created. Archaeology also provides a unique perspective on this era independent of the Spanish chronicles, overcoming many of the biases and shortcomings inherent in exclusively text-based accounts, providing a new view of the events that transpired in the Jemez Province between 1680 and 1696. Furthermore, an improved understanding of the Revolt period also provides crucial insights into the development of contemporary Pueblo cultures, as this period bridges the Contact-era and modern Pueblo worlds.

The latter, anthropological goal of this dissertation is to critically reexamine the phenomena of revitalization movements via material culture. Through a practice-based

perspective (Bourdieu 1977; Giddens 1984), semiotic theory (Peirce 1992, 1998; Parmentier 1994), and analogies drawn from postcolonial scholarship (Bhabha 1994), it is hoped that this study will advance the interpretation of revitalization movements beyond existing frameworks. Theories of practice and structuration emphasize the roles of individual agents and the recursive processes involved in culture change, developing more nuanced understandings of the invention of tradition that characterizes the revitalization process (Hobsbawm 1983). This approach avoids a myopic focus on pre-revitalization environmental stresses by shifting the analysis from the causes and factors preceding the movement to the revitalization experience itself—the choices and strategies employed by everyday people and the after-effects that continue to shape culture long after their initiation. The introduction of semiotic theory shifts the focus of revitalization scholarship to the diverse ways in which the ideologies of revivalism and nativism were enacted by Pueblo peoples following the Revolt. This enhances previous studies by investigating the social practices of revitalization through the production, interpretation, and re-production of signs of nativism and revivalism. Postcolonial studies provide analogies drawn from modern instances of decolonization that help to explain the confusing, unanticipated, and often counterintuitive patterns of ambivalence and hybridity that characterize the material culture of the Pueblo Revolt era.

This study also differs from preceding investigations by exploring a historically documented revitalization movement through the material culture produced by common persons living in actively revitalizing communities. The archaeological record provides insights into the social practices of revitalization not accessible to conventional ethnographic and historical accounts, which have tended to focus on the words of leaders

rather than the actions of the subaltern members of revitalizing communities. One objective of this dissertation is to use the artifactual record of revitalization in the Jemez Province to proceed from the bottom up, developing an archaeological template of the material culture of revitalization movements. As noted above, the study of revitalization movements has historically received little attention from archaeologists. Though a few investigations have invoked Wallace's model as an explanatory mechanism for rapid transformations in material culture (Ashmore and Sharer 1975; Dahlin 1976; Turnbaugh 1979; Fry 1985; Scott 1991; Bradley 1996), no archaeological project has yet attempted to examine the material correlates of a documented revitalization movement as a primary research question. Starting with an acknowledged example of revitalization—the Pueblo Revolt—this study will establish a baseline from which future archaeological studies can work, "from the known to the unknown" (Nelson 1914:9), in order to assess revitalization in the archaeological record in both prehistoric and historic contexts.

Chapter Summaries

The study outlined above begins with an examination of the intellectual origins, history, and implications of Wallace's model of the revitalization process. Chapter II offers a critical look into the anthropological study of revitalization movements, offering a modified definition of these enigmatic events based on Wallace's studies and examining the variation among revitalization movements across time and space. I go on to explore the history of revitalization studies over the past 100 years, examining the relevance and applicability of revitalization theory in twenty-first century anthropology.

A review of archaeological studies of revitalization movements is presented, as well as a hypothetical model of the material correlates of revitalization movements in the archaeological record. Chapter II concludes with an appraisal of recent critiques of revitalization theory, and suggests new avenues for research on revitalization movements based in practice theory and semiotic anthropology.

Chapter III examines the history and archaeology of the Pueblo Revolt of 1680. Beginning with an assessment of the history of scholarship regarding this era, I consider the trends and intellectual developments of this research in a meta-history of the Pueblo Revolt. This chapter goes on to examine accounts of this period based on alternatives to the textual record—specifically oral traditions and previous archaeological studies. Chapter III concludes with an anthropological history of the Pueblo Revolt, a novel and innovative retelling of the events leading up to August 10, 1680 and the early days of the post-Revolt era, based on the anthropological model of revitalization movements reviewed and developed in the previous chapter.

Chapter IV provides an overview of the study area, the Jemez Province of northern New Mexico. The history of archaeological research in this region is reviewed, and a cultural history of this area is presented, summarizing what is presently thought to be known regarding the human presence in the Jemez Province from 15,000 B.C. through the seventeenth century A.D. Special attention is paid to the years 1680-1696, and a critical review of documentary evidence and oral traditions relating to the events of the Pueblo Revolt period in the Jemez valley is presented.

Chapter V presents architectural data relating to four pueblos constructed in the Jemez Province during the Pueblo Revolt era—Patokwa, Boletsakwa, Cerro Colorado,

and Astialakwa. These sites were investigated by the Guadalupe Mesa Archaeological Project (GMAP), a collaborative research project between the Pueblo of Jemez Department of Resource Protection and the University of Pennsylvania Department of Anthropology, carried out from 2001 to 2005. The methods of documentation employed at each pueblo are reported, followed by a detailed analysis of the architectural data relating to each site. These analyses review previous research, physiographic settings, the history of occupation, site-specific cartographic methodologies, damage resulting from past looting and vandalism, architectural plans and descriptions, room estimates, and any other data relevant to the investigation of the social practices of revitalization during the Pueblo Revolt era at these sites.

Chapter VI examines the ceramic data relating to the Pueblo Revolt period sites of the Jemez Province. It commences with a review of previous scholarship regarding the ceramics of the Jemez Province and the Pueblo Revolt era. An outline of the methods of data collection and analysis employed by the GMAP is presented, and the chapter concludes with an analysis of the ceramic assemblages of Astialakwa, Patokwa, and Cerro Colorado.

Chapter VII presents the interpretation of the GMAP data in light of the Pueblo Revolt revitalization movement. I propose a method of archaeological interpretation based in the semiotics of C.S. Peirce (Peirce 1992, 1998; Preucel and Bauer 2001; Preucel 2006). Ceramic and architectural data from the villages of Patokwa, Boletsakwa, Cerro Colorado, and Astialakwa are compared and contrasted with previous studies of Pueblo Revolt period material culture, elucidating the practices of revitalization enacted in these communities, and suggesting a trajectory for the revitalization movement across

the Pueblo world between 1680 and 1696. I also apply analogies derived from postcolonial studies (primarily Bhabha 1994) to interpret the patterns observed based on accounts of decolonizing resistance and revitalization in ethnographic contexts.

Chapter VIII concludes the study by reviewing the major contributions of this dissertation to the investigation of the Pueblo Revolt specifically and the anthropology of revitalization movements in general. This chapter begins with a chronological overview of the Pueblo Revolt era in the Jemez Province, filling in the gaps in the documentary record from an archaeological perspective. In this alternative history, I highlight the variations in Pueblo behavior that occurred within this period, examining the trajectory of the revitalization movement during the early, middle, and late phases of the Pueblo Revolt era. Moving beyond history, the latter half of the chapter examines the implications of my study for anthropological examinations of revitalization movements across space and time. Finally, I assess the larger implications of this dissertation for the archaeological study of culture change, making a case for the inclusion of revitalization movements in the formulation of any general theory of cultural evolution.

CHAPTER II: THE ANTHROPOLOGY OF REVITALIZATION MOVEMENTS

Over the past half-century, revitalization movements have gained renown among both academics and the general public because they are commonly considered anomalous, exotic, and strange events. A few of the more famous examples include the New Guinea Cargo Cult that attempted to "purchase" Lyndon Johnson (Trompf 1990:72; Lindstrom 1993:1-6), the northern Plains Ghost Dancers and thier ostensibly bulletproof shirts (Mooney 1965 [1896]:42), and the Congolese sect that awaited the announcement of their messiah by a talking dog (Lanternari 1963:24). Yet the perception of these episodes as bizarre and atypical overlooks one of the fundamental features of these phenomena: revitalization movements are remarkably common. They are not limited to fringe cults, exotic locales, or simple societies, but are frequent occurrences across the world, throughout human history, and at all levels of social complexity (Harris 1980). Buddhism, Christianity, Islam, Judaism, and the Church of Jesus Christ of Latter Day Saints all grew out of revitalization movements, while continuing to serve as fonts of modern revitalization phenomena. Clearly revitalization movements can have drastic effects on cultural evolution and history, yet they have not attracted commensurate attention in recent anthropological scholarship, particularly within archaeology. The following chapter will examine the history of revitalization scholarship in the social sciences, including the reasons for this dearth of recent research. It offers a critique of traditional approaches to the examination of revitalization events, and concludes by developing a new model for the archaeological investigation of revitalization movements, based in theories of practice and semiotics.

Defining Revitalization Movements

Wallace coined the phrase "revitalization movement" (1956) to denote any "deliberate, organized, conscious effort by members of a society to construct a more satisfying culture by the rapid acceptance of a pattern of multiple innovations" (Wallace 1970:188). Although not the first to recognize the existence and importance of deliberate attempts to stimulate rapid culture change (see Barber 1941; Linton 1943; Hallowell 1945), Wallace's work did initially identify the fundamental commonalities in cause and process shared by a group of culture change phenomena that had previously been considered under disparate rubrics, including nativistic movements, messianic sects, Cargo Cults, utopian communities, and apocalyptic movements, to name but a few (Wallace 1956:264). At the most basic level, revitalization movements exhibit three common traits: 1) a conscious effort by members; 2) to change multiple elements of their culture; 3) in a short period of time. Wallace contrasted these "instantaneous" cultural transformations with the more gradual, "classic" processes of culture change traditionally considered by anthropologists, including evolution, diffusion, drift, and acculturation (Wallace 1956:265).

Wallace's model divides the revitalization process into a series of sequential stages, with cultures moving from an initial "steady state" of equilibrium through a period of stress and "cultural distortion," to the revitalization process, and ending with

routinization and the acceptance of a new cultural model. These stages are summarized as follows (from Wallace 1956, 1966, 1970):

I. Initial Steady State: Wallace's model utilizes a concept of culture in which societies exist primarily as stable organismic entities, in a state of relative equilibrium. Within certain (undefined) limits, minor stresses are tolerated and/or mitigated by cultural mechanisms (Wallace 1970:188). This concept does not view cultures as permanently static and unchanging, but rapid transformations in multiple elements of the culture are absent in the initial steady state.

II. Period of Stress: During this stage, stresses on individuals and society as a whole increase to the point where they are no longer efficiently managed by culturally specific means of mitigation. Discrete members of society "experience increasingly severe stress as a result of the decreasing efficiency of certain stress reduction techniques" (Wallace 1956:269). This increase in stress usually takes place in a short period of time, such that balancing mechanisms traditionally employed by that culture are unable to keep pace with the change. Possible causes for this increase in stress include the introduction of epidemic disease, warfare, political conflicts, economic failure, colonization, missionization, and drastic climatic and environmental change.

III. Period of Cultural Distortion: In an attempt to alleviate these stresses, basic structures of the culture begin to break down, with an increase in non-traditional behaviors among members of the social group, such as the disregarding of sexual and kinship mores, defiance of authority, and intragroup violence (Wallace 1956:269). During this stage the culture becomes "internally distorted; the elements are not harmoniously related but are mutually inconsistent and interfering" (Wallace 1956:269),

a situation which further increases stresses on individuals and society. Critically, some members of the society perceive these overt changes in culture to be predominantly negative during this stage.

IV. The Period of Revitalization: In some cases, the periods of *Increased Stress* and *Cultural Distortion* are forestalled by a conscious attempt to reconfigure cultural norms and structures—the defining phase of a revitalization movement. This *Period of Revitalization* includes five sub-stages:

1. *Formulation of a New Cultural Model:* In an attempt to alleviate the chronic stresses present in society, a new cultural model is presented detailing a set of behaviors, which if rigidly followed will purportedly result in an improved situation. Often this superior condition is characterized as a utopia, apocalypse, millennial event, or messianic visitation. The formulation of this new cultural paradigm is abrupt and dramatic, occurring in a moment "often called inspiration or revelation" (Wallace 1956:270). The historical record indicates that these insights normally occur in the mind of a single individual (rather than out of group interaction) who claims to be in communication with the supernatural (Wallace 1956:272).

2. *Communication:* The individual begins to convey the new cultural model to others, assuming the role of a prophet. The message that is preached carries two fundamental themes: that those who follow this new cultural model will benefit from the care and protection of supernatural beings; and that both the follower and his/her society will benefit materially from this new system (Wallace

1956:273). As the prophet gains disciples, these followers assume much of the responsibility of communicating the new cultural model to a larger audience.

3. *Organization:* As the number of persons ascribing to the new cultural model grows, a three-tiered level of organization emerges within the movement with the prophet at the top, a small select group of disciples in the middle, and the mass of new converts at the bottom. The followers regard the prophet as an "uncanny person, of unquestionable authority in one or more spheres of leadership" (Wallace 1956:274), a quality Weber (1947) denoted as charisma. Furthermore, the intermediate group of disciples provides candidates for succession to leadership—an essential factor if the revitalization movement is to be sustained after the leader's death.

4. *Adaptation:* By their nature, most revitalization movements encounter resistance because they oppose existing cultural norms and structures. To alleviate this resistance, movements employ various tactics of adaptation: doctrinal modification, political/diplomatic maneuvers, or force. These strategies are not mutually exclusive nor are they necessarily maintained for the entirety of the movement. In most cases, leaders continually modify the original doctrine throughout the life of the movement. In instances where organized hostility to the revitalization movement develops, the focus may shift from the development of the new cultural model to combating those hostile to the movement (Wallace 1956:274-275).

5. *Cultural Transformation:* As acceptance of the new cultural model gains support among a social group or groups, a noticeable change in behavior

occurs—new cultural practices, including political, economic, and social reforms become apparent in the revitalizing society.

V. Period of Routinization:[1] In the final period of the revitalization process, the new cultural model becomes accepted and normalized. Reformulated political, economic, and/or religious structures become institutionalized, leaving a culture "different in pattern, organization, and *Gestalt*, as well as in traits, from the earlier steady state" (Wallace 1956:275). The new culture must be successful in alleviating and mitigating the pressures that occurred in the earlier period of *Increased Stress*, resulting in a new state of cultural equilibrium.

Not every revitalization movement is successful in reaching these final stages and attaining *Routinization*. Many encounter opposition that stalls or defeats the revitalization process before it fully accomplishes its goals (such as the Lakota Ghost Dance, ended by the massacre at Wounded Knee); some are literally suicidal (Jim Jones' People's Temple; Heaven's Gate); some are simply unable to overcome insurmountable conditions necessary to complete their vision (the Lyndon Johnson Cargo Cult); while others disintegrate without noticeable widespread effects. For the purposes of this dissertation, any group that passes through the third stage of the *Period of Revitalization* (*Organization*) is considered a legitimate revitalization movement.

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[1] Wallace's original formulation identifies Routinization as the final stage of the *Period of Revitalization*, distinct from the *New Steady State*. However I have chosen to combine the attributes of both into a single final stage, *The Period of Routinization.*

Variation among Revitalization Movements

Although every revitalization movement exhibits some (if not all) of the above characteristics, a significant amount of variation exists among these movements as well. Wallace (1966:165) distinguishes four main types of revitalization movements: *revivalistic, utopian, assimilative,* and *expropriative. Revivalistic* movements emphasize the introduction of cultural practices thought to have been characteristic of previous generations but not recently present in the social group, and are particularly common among the indigenous peoples of North America. *Utopian* movements often conceive of a new culture that has no previous antecedent. They deny any substantial influence from either ancestors or foreigners, focusing instead on the future and conceive their ideology to be entirely original; these beliefs are common to many South American *terre sans mal* (literally, "world without evil") revitalization movements. *Assimilative* movements aim to import elements of foreign (usually dominant) culture, combine them with native customs, and dissolve boundaries between the two societies, as did the Civil Rights movement of the 1950s and 60s. *Expropriative* movements aspire to introduce foreign materials and customs to a social group, but to expel alien persons; these are especially prevalent among Pacific Island societies where they have come to be known as Cargo Cults (Wallace 1966:165). Other ideologies common to revitalization movements include messianism (belief in a divine savior), nativism (the elimination of foreign persons, customs, values, beliefs, or material culture), apocalypticism (the imminent destruction of the extant world), and millennialism (the imminent arrival of peace, prosperity, and happiness).

These ideal types are not mutually exclusive. In fact, most revitalization movements combine a number of these themes. The eighteenth-century Iroquois revitalization movement founded by Handsome Lake, for instance, consciously incorporated both revivalistic and expropriative elements (Parker 1913; Wallace 1972); the Ghost Dance of nineteenth-century Plains tribes included revivalistic, expropriative, apocalyptic, and messianic themes (Mooney 1896); and the Pueblo Revolt revitalization movement of seventeenth-century New Mexico combined revivalistic, nativistic, and millenarian aspects (Reff 1995; Preucel 2000a; see Chapter III).

Furthermore, Wallace points out that revitalization movements rarely if ever completely adhere to the ideals they espouse. Expropriative movements, which often profess the abandonment of ancestral ways, always leave some elements of their traditional culture intact. Similarly, the image of the past espoused by revivalistic movements is inevitably shaped and distorted "by historical ignorance and by the presence of imported and innovative elements" (Wallace 1956:276). While utopian movements, which claim an entirely original model of culture, ignore the fact that "almost everything in the new system has been modeled after traditional or imported elements or both" (Wallace 1956:276).

A Brief History of Revitalization Studies

Intellectual Precursors of the Revitalization Movement Model

Wallace's model of the revitalization process draws explicitly upon the works of Weber (1946, 1947), particularly the concept of charismatic leadership. Weber asserts that during periods of extraordinary distress, leaders are "neither appointed officeholders nor 'professionals' in the present-day sense . . . but rather the bearers of specific gifts of body and mind that were considered 'supernatural' (in the sense that not everybody could have access to them)" (Weber 1978:1112). Wallace applies this notion to revitalizing contexts, noting that the leaders of revitalization movements are not elected, but emerge (or thrust themselves to the fore) during periods of extreme stress, often as a result of purported contacts with supernatural agents (Wallace 1956:270-273).

Crucial to Weber's theory are two basic propositions. First, that charisma is fundamentally tied to culture change: "charisma is *the* great revolutionary force . . . result[ing] in a radical alteration of the central attitudes and directions of action with a completely new orientation" (Weber 1978:245, emphasis original). The second and related notion is that charismatic revolution works, in Weber's words, from *within*; that is, change in the ideational realm precedes change in the material: "charisma manifests its revolutionary power from within, from a central *metanoia* of the followers' attitudes" (Weber 1978:1117). In other words, charismatic leaders change peoples' beliefs and ideas first, and through those changes, effect transformations in the material realm. A fundamental contribution of Weber's theory of charismatic authority, then, is the notion that mental superstructures can transform the material base. Wallace adopts this view, but widens the scope to examine the factors that stimulate charismatic leadership (which can be either material or ideational) as well as investigating its effects on the larger

culture and society (Wallace 1978:241-254). Yet while Weber's studies are fundamentally concerned with the top tier of power—the connections between charismatic leadership and legitimacy—Wallace focuses on larger changes within culture and society as a whole.

Although not specifically acknowledged, the revitalization movement model owes as much to Hegel and Marx as it does to Weber. Wallace's model portrays revitalization as a dialectical process, with the initial cultural model or "mazeway" (thesis) struggling against the pressures of stress and cultural distortion (antithesis), resulting in production of the revitalized culture (synthesis). The arc of revitalization movements also mirrors the Marxian view of history: the initial steady state is analogous to primitive communism, the period of stress and cultural distortion corresponds to the rise of capitalism, cultural transformation parallels the socialist revolution, and the revitalized culture is the classless society. Marx was not, however, the first to conceive of the course of human events as an initial paradisiacal existence, fall from grace, and return to utopia. Thus Wallace's model of revitalization movements builds upon the twin foundations of Weber's concept of charisma and Marx's dialectical materialism, bridging the divide between social structure and human action, and between idealism and materialism.

Ethnographic Studies of Revitalization Movements

Revitalization movements have fascinated anthropologists, sociologists, and ethnohistorians since the late nineteenth century (Osterreich 1991; Harkin 2004b). Early scholarship focused on the documentation of discrete instances of revitalization, prior to

the widespread recognition of similarities shared by these events. These studies primarily examine native North American revivalistic movements, providing detailed descriptions of nineteenth-century Ghost Dances and prophetic movements (Fletcher 1891; Grinnell 1891; Mooney 1896; Kroeber 1904; Parker 1913; Lesser 1933; Speck 1933; Park 1934; Spier 1935; Nash 1955 [1937]; DuBois 1939; Hill 1944). In the 1940s, calls for increased attention to the processes of acculturation (Redfield et al. 1936) shifted the focus of revitalization studies from descriptive reports of individual events to comparative analyses of these episodes (Linton 1940, 1943; Barber 1941; Wallis 1943; Hallowell 1945; Herskovits 1958). Shortly thereafter, anthropological studies of Pacific Islands Cargo Cults began to appear in increasing numbers (Guiart 1951, 1952; Berndt 1952, 1954; Lawrence 1954; Firth 1955; Worsley 1957).

These early generalizing studies of nativistic, messianic, and expropriative movements laid the foundations for Wallace's (1956) seminal comparative study. By evaluating rapid, intentional instances of culture change across geographical regions and doctrinal categories, Wallace identifies the universal traits shared by all revitalization phenomena. Following his lead, a plethora of comparative studies of religious movements arose soon thereafter (Mair 1959; Thrupp 1962; Lanternari 1963; Wilson 1973). Yet Wallace's analysis does more than simply place revitalization movements in a cross-cultural perspective; it also hypothesizes an explanatory mechanism for the geneses of these instances of rapid culture change. Under the aegis of the theoretical paradigm of its day—systems theory—Wallace's model utilizes concepts of stress and equilibrium to make an organismic analogy for culture. This theory suggests that revitalization movements originate in conditions of pre-existing and extreme stress as a

process of equilibrium restoration (Wallace 2004:vii). The response-to-stress schema was thereafter applied to numerous instances of rapid culture change in the ethnographic and historical record, particularly in Native North America (Aberle 1966; Wallace 1966, 1970, 1972; Jorgensen 1972; LeBarre 1972; Hittman 1973; Carroll 1975).

In the decades following these initial studies, shifts within the social sciences caused anthropology to move away from the creation of generalizing laws and universal models of human behavior, toward the contextual analyses of cultural events (Ortner 1984). Outside of Native American studies, revitalization scholarship kept pace with these changes. Examinations of African religious movements investigated the articulation of revitalization and resistance (Comaroff 1985; Comaroff and Comaroff 1991, 1993), while studies of nineteenth-century Vermont revivals used chaos theory to introduce reflexivity and feedback into Wallace's model (Roth 1992). More recently, Cargo Cult scholarship has employed postmodern critiques to suggest that revitalization movements are not wholly indigenous innovations, but are more the result of subalterns' reactions to colonialist expectations (Kaplan 1995). Others have examined the discursive properties of these phenomena, focusing on the relations of power and knowledge inherent in their production, and the struggle for control between Melanesians and Westerners that is mediated by Cargo Cult performances (Lindstrom 1990, 1993). Yet scholarship concerning Native North American revitalization movements has not followed similar trajectories. In the 1980s and '90s, ethnohistoric investigations of Native American revitalization continued to rely upon Wallace's original model for the examination of Ghost Dances and Native American prophetic movements, paying particular attention to the demographic effects of revitalization movements (Thornton

1981, 1982, 1986, 1990; Thurman 1984; Hultkrantz 1989; Kehoe 1989; McLoughlin 1990; Kracht 1992). While enlightening, these studies focus primarily on the application of Wallace's systems-theory model, rather than its revision and development (Roth 1992).

By the mid-1990s anthropological interest in the study of Native American revitalization movements waned, possibly due to the perception that investigations of revitalization movements were outdated. As new theoretical paradigms took hold, revitalization came to be regarded by many as "a concept whose time has come and gone" (Harkin 2004b:xviii). In response to this assessment, renewed interest in Wallace's model has prompted a series of case studies which reconsider Native American revitalization movements in light of contemporary theoretical advances (Harkin 2004a). Many of these studies question the prerequisite of deprivation and/or stress as the sole possible "push-factor" for revitalization movements (Leopowsky 2004; Nesper 2004), instead focusing on shifts in power relations—either positive or negative—as causes of revitalization phenomena (Martin 2004:67). They note that "revitalization . . . is—at its heart—about power and the relationship between superordinate and subordinate and not about cultural difference" (McMullen 2004:267), a perspective echoing the writings of Foucault (1973).

Archaeological Studies of Revitalization Movements

The study of revitalization movements has historically received far less attention from archaeologists than from cultural anthropologists and ethnohistorians. Wallace's

model has been applied to the Maya of the Classic (Ashmore and Sharer 1975; Dahlin 1976) and Postclassic periods (Fry 1985), Native American calumet ceremonialism (Turnbaugh 1979), Chacoan revivalism in the Four Corners region (Bradley 1996), and Romano-British contexts (Scott 1991). Other than these few studies, archaeologists have generally avoided the explicit investigation and application of the revitalization movement model as an explanatory mechanism for rapid transformations in material culture. Furthermore, although historic accounts of North American revitalization movements abound, archaeological investigations of post-Contact Native American revitalization movements are nearly non-existent (with the exception of the few studies of Ghost Dance rock art [Hendry 1981; Sparks 1992; Stoffle et al. 2000; Carroll et al. 2004], none of which apply Wallace's model explicitly). The material correlates of historically documented revitalization movements remain largely examined (Fry 1985).

Considering the ubiquity of revitalization movements through space and time (Wallace 1956; Lanternari 1963), the question remains: why have these phenomena played such a minor role in archaeological inquiry? Certainly one reason is the challenge in assessing archaeological signatures of revitalization movements. As noted above, only a handful of archaeological studies have utilized Wallace's model of the revitalization process. The resulting paucity of data concerning the material correlates of these phenomena makes it difficult to recognize a revitalization movement on (or in) the ground. Furthermore, archaeologists have been slow to consider the revitalization movement model as an explanation for dramatic changes in material culture because of a general disciplinary apprehension to the investigation of dynamics of culture change over short periods of time (Fry 1985:128). Acculturation, drift, and diffusion may be

disruptive, but archaeologists usually interpret these as gradual processes. However, successful revitalization movements accomplish culture change in spans of time far shorter than those in which archaeologists typically operate. Furthermore, many revitalization movements never achieve the rapid changes they set out to create—in fact, they are frequently not able to gain a significant following, and therefore may not leave a discernable signature in the archaeological record.

Finally, although ethnohistorical and ethnographic studies usually emphasize the drastic changes brought about by revitalization movements, in reality these events typically exhibit a significant amount of cultural continuity as well—no matter how radical and disruptive they may seem. Although specialized artifact classes are often created during the revitalization process—the famous Ghost Shirts, for example, or John Frum Cargo Cult "airplanes"—many of the artifacts produced by and used in revitalizing communities exhibit strong similarities to the material culture employed prior to revitalization movements.

Revisiting the Revitalization Model in the Twenty-first Century

As noted above, anthropological interest in the study of revitalization movements has waned in recent years, particularly concerning Native America. Paradigmatic shifts within the discipline have steered anthropologists away from the nomothetic, empirical models of human culture that dominated the 1950s and '60s with a corresponding decrease in interest in the theories developed during that time. In archaeology, where

revitalization movements never garnered a great deal of attention, studies of these phenomena have been virtually nonexistent in the past decade. Thus as anthropology enters the twenty-first century, the study of revitalization movements seems to some quaint at best, outdated and irrelevant at worst. Why, it may be asked, in this age of postmodern, poststructural, and postcolonial paradigms should anthropologists concern themselves with a model developed out of positivistic systems theory?

The contemporary re-examination of the revitalization movement model is important precisely because many consider it outdated. Modern studies of revitalization phenomena do not necessitate the adoption of 1960s positivism to prove effective (Harkin 2004b:xix); and to disregard the concepts, innovations, and observations of previous generations risks throwing the theoretical baby out with the bathwater. There are many good reasons to study revitalization movements today, particularly from an archaeological perspective. First and foremost, revitalization movements merit anthropological investigation—under any theoretical paradigm—because they are widespread and enduring elements of human culture. Unfortunately, they remain inadequately understood at best. As Wallace notes: "revitalization movements are evidently not unusual phenomena, but are recurrent features in human history. Probably few [persons] have lived who have not been involved in an instance of the revitalization process" (Wallace 1956:267). Historical records document the occurrence of revitalization movements dating back at least 3500 years to Akhenaton's reign in New Kingdom Egypt, and they continue to play a significant role in the modern world. In short, revitalization movements are persistent and ubiquitous features of human life, and

by disregarding these vital culture-shaping events anthropology runs the risk of irrelevance, myopia, and ignorance.

Moreover, revitalization movements have proven to be of profound historical importance. Christianity, Islam, and Buddhism are the best-known examples of successful revitalization movements, with revitalization playing a major role in the shaping of contemporary Judaism as well. The importance of these religions in the formation of the modern world would be difficult to overstate. Thus clearly the study of revitalization phenomena is vital for the development of any grand theory of culture change as well. Modern studies of cultural evolution tend to focus on long-term factors such as drift, diffusion, acculturation, and environmental change; but plainly short-term processes, such as migration and revitalization movements, can have lasting and significant culture-changing effects as well. Archaeologists stand uniquely qualified to address these questions of cultural transformation. Yet as noted above, archaeological studies of revitalization movements have heretofore been infrequent and few. To improve our overall understanding of culture change, a better appreciation of the relationships between revitalization processes and the archaeological record is necessary.

Additionally, Wallace's model of revitalization has proven useful in anthropological and ethnohistoric investigations over the past five decades, providing insights into both contemporary and historical instances of rapid cultural change. Nowhere is this more apparent than in the investigation of colonialism and its aftermath, where Wallace's model presaged the postcolonial scholarship of today by emphasizing the hybrid nature of revitalization movements and the "chains of causality" behind them

that cross ethnic, linguistic, cultural, geographical, and political boundaries (Harkin 2004b:xviii).

Finally, the study of revitalization movements is particularly appealing today because it demands a holistic anthropological approach. At a time when anthropology appears to be fragmenting into progressively more specialized areas of study with alarming alacrity, the nature of the investigation of revitalization movements bridges some of the polar extremes of the field. Revitalization theory considers both material and ideological components of culture, individual agents as well as the larger social group, and deeply imbedded cultural patterns as well as innovative choices made by conscious agents (Harkin 2004b:xix).

That said, as Harkin points out: "it would be naïve to assert that 'revitalization movement' unproblematically identifies something in the social world, apart from the concept itself" (Harkin 2004b:xviii-xix). Some postmodern investigations question the mere existence of revitalization movements, suggesting that they have more of a basis in ethnographic fantasy than in emic reality (Lindstrom 1990, 1993; Kaplan 1995). In the final analysis, however, the revitalization movement model has proven to reflect recurring patterns of behavior in cultures around the world and throughout time. Anthropologists and ethnohistorians should remain wary that this is a model, not objective reality, and that the model has limits (Harkin 2004b:xix). Moreover, if this model is to remain useful in the twenty-first century, it must be critically reviewed in light of the anthropological and theoretical developments of the past half-century.

Critiques of the Revitalization Movement Model

Wallace's groundbreaking study of revitalization movements utilizes a systems-based, "organismic" model of culture (Wallace 1956:265). Recent scholarship has continued to draw upon this model, often highlighting the environmental and social stresses that initiate the revitalization process in varied contexts (Thornton 1986, 1990; Hultkrantz 1989; Kehoe 1989; Kracht 1992; Harkin 2004a). While this approach has proven constructive in investing the *causes* of revitalization movements, it has also limited the anthropological study of the *effects* of these phenomena. By focusing on events and conditions preceding revitalization movements, previous studies have resulted in panacean, response-to-stress explanations for their existence. The varied strategies and outcomes of revitalization movements—particularly those taking place among Native Americans—are left poorly understood, with significantly less attention paid to the social practices of revitalization and the enduring impacts of these movements. However, the importance of revitalization movements for grand theories of culture change is found not in their causes or simply the fact that they happen, but in the lasting outcomes and consequences of these movements. Too often studies of revitalization have characterized these movements as fleeting and temporary instruments of change, placing more emphasis on the moment of revitalization than the lasting effects of these events. This has resulted in synchronic, flash-in-the-pan depictions that overlook or disregard the long-term changes resulting from revitalization activities, an artifact of the attitudes of exoticism and primitivism that color many studies of the simple societies in which the most famous examples of revitalization movements have occurred. In fact, the effects of successful revitalization movements are typically apparent long after the movement has

subsided and the organizational structure of the revitalizing group has disbanded, having an impact upon cultural evolution for generations thereafter.

Furthermore, the revitalization model has been criticized as vague and imprecise in some areas (Harkin 2004b:xxix; Siikala 2004:88-89; Wallace 2004:vii). For example, it fails to define the amounts of stress minimally necessary for the formation of a revitalization movement (although Wallace does draw attention to the important difference between "perceived" and "absolute" deprivation). This is problematic because many studies of Native American social movements have relied upon evidence of pre-existing stress or deprivation to define those movements as bona-fide instances of revitalization (Aberle 1959, 1962; Thornton 1981, 1982, 1986, 1990; Kehoe 1989). However, because virtually all colonized societies can be said to live in culturally stressful situations, utilizing deprivation as a primary criterion dilutes the definition of revitalization movements, particularly in Native North American contexts. A focus on pre-revitalization pressures invites the risk of interpreting virtually any instance of rapid culture change as revitalization. A partial solution to this problem is to shift the focus of revitalization studies, examining the results of these movements as well as the causes. Rather than simply asking, "*Who* participates in revitalization movements?" and "*When* and *where* do they take place?" revitalization scholarship should also focus on questions such as "*How* are these movements enacted?" "*What* social practices are involved in revitalization movements?" and "*What* are the long-term effects of these rapid instances of culture change?"

Conventional ethnographic and ethnohistorical investigations of revitalization movements have generally employed a "top-down" approach, documenting the directives

of a movement's leadership and often assuming that all participants ascribe equally and completely to these tenets. However, by focusing more on what the leaders of revitalizing communities say and less on what proselytes do, revitalization studies have unwittingly produced an unrealistic expectation of the patterns of material culture produced by revitalization movements. Assumptions about what a revitalization movement will look like in the archaeological record based on the words of charismatic leaders may not correspond to the social practices of revitalization enacted by non-elite proselytes, a major factor contributing to the dearth of archaeological interpretations of revitalization. By emphasizing the mental templates of these movements over the everyday practices and embodiments of revitalization, scholars have produced idealized depictions of revitalization movements, inhibiting the identification of these phenomena in the past through material culture.

Although Wallace's "mazeway" concept presaged later practice-based theories of culture in its recognition of conscious human agents employing strategies within a limited range of choices (Bourdieu 1977; Giddens 1984), the revitalization movement model does not fully account for the unseen, unconscious elements of culture impinging upon those agents. These unconscious elements—Bourdieu's *doxa* (1977:168-169)—result in greater cultural continuity throughout the revitalization process than the original model implies. This has consequences for the archaeological study of revitalization as well, as it produces artificial expectations regarding the amount of rapid change expected in the material culture of revitalizing communities. Furthermore, the mazeway concept does not account for the unintended consequences of choices made by conscious agents (Roth 1992). These unintended consequences can often have significant effects on revitalizing

communities, shaping strategies available to them in unforeseen ways and providing feedback that impinges on future choices.

A New Model for Revitalization Studies

Wallace's model of the revitalization process has proven indispensable in the identification and analysis of revitalization movements over the past fifty years. However, a reanalysis of revitalization movements in light of recent advances in social theory addresses many of the critiques outlined above, and is vital for the successful investigation of revitalization movements in archaeological contexts. The conclusion of this chapter attempts to formulate a revised model for the archaeological study of revitalization movements, incorporating theories of practice and semiotics.

Practice Theory in the Study of Revitalization Movements

As mentioned above, ethnographic and ethnohistorical studies traditionally focus on the causes of revitalization movements at the expense of their outcomes; privilege the words and actions of leaders over the practices of commoners; and disregard the unconscious elements of culture and the unintended consequences of revitalization movements. Furthermore, these studies tend to view culture as an independent entity, external to the actions of agents, rather than recursively constituted by their actions. The incorporation of practice theory addresses these and other issues, enhancing the existing

revitalization movement model and ultimately providing an improved understanding of these enigmatic events.

In recent decades, theories of practice (Bourdieu 1977) and structuration (Giddens 1984) (hereafter collectively referred to as "practice theory") have been developed in response to earlier social theories regarded as either as materialist (e.g. Marx 1869; Steward 1955) or idealist (e.g. Geertz 1973; Levi-Strauss 1964-71; Weber 1947). Practice theory bridges these traditional anthropological rifts by hypothesizing that ideology and materialism are interrelated and mutually constituting aspects of human culture. Moreover, theories of practice attempt to span the chasm between structurally-based objectivism and phenomenologically-based subjectivism by positing that structure and agency are recursively linked aspects of human culture. In practice theory, social agents create, reproduce, and modify the dispositions that frame their lives and guide their behaviors. Practice theory frees our notion of culture from deterministic structuralist forces in which persons are created and live entirely as products of external norms and laws, while simultaneously acknowledging the fact that humans are predisposed to socially constructed behaviors. This is accomplished via the concepts of *habitus* ("systems of durable, transposable dispositions" [Bourdieu 1977:72]) and *structuration* ("conditions governing the continuity or transmutation of structures" [Giddens 1984:25]).

The study of revitalization movements is ideal for the application of practice theory because, by their very nature, these phenomena reveal the dialectic between structure and agency. The central act of revitalization involves agents intentionally attempting to modify the structures that govern their lives. The concept of agency is

fundamental to the understanding of these movements as, by definition, revitalization involves action and conscious choice. Similarly, a notion of culture that acknowledges the significance of structure is vital for examining both the impetus for revitalization (i.e. a fundamental discontent with or collapse of existing rules and norms) and explaining the means by which that change will occur (i.e. new rules and norms will be established).

The application of practice theory to the study of revitalization movements forces a significant reexamination of both the causes and effects of these phenomena. As noted above, conventional studies of revitalization focus on preceding stresses and deprivations, examining only what are perceived to be external forces and locating the impetus for transformation outside of the social group. Practice theory stresses the internal constitution of change as well, noting that derivative and recursive elements influence all strategies, no matter how original and innovative they may seem. According to Giddens, "the moment of production of action is also one of reproduction . . . This is so even during the most violent upheavals or radical forms of social change" (Giddens 1984:26). This is true of revitalization movements—the radical form of social change *par excellence*—as well; they arise in part out of previous actions and choices made by members of the revitalizing culture, and are not wholly the result of external forces and pressures.

The introduction of practice theory to the study of revitalization movements also highlights the importance of the long-term effects of these events. Previous studies have paid less attention to the achievements and long-term consequences of revitalization movements than to their causes. The introduction of practice theory can help to achieve balance by emphasizing the ways in which revitalization structures subsequent action.

The core of practice theory is an emphasis on "structuring structures" and the recursive aspects of human behavior, drawing attention to the ways in which agents create, recreate, and modify culture through the revitalization process. This is significant for the examination of "unsuccessful" revitalization movements as well as those that become institutionalized, emphasizing that these are not isolated anomalous incidents, but contribute importantly to the long flow of culture.

Previous studies of revitalization movements typically stress the agency of leaders (who break with existing structures to establish new rules), yet in so doing simultaneously depict followers as faceless automatons who unvaryingly obey the new cultural order. The application of practice theory to the study of revitalization movements draws attention to the fact that the actions of followers are as important as the words of leaders (if not more so) in the constitution of revitalization movements. In fact, the actions of followers can and do guide leaders as much as the words of leaders guide followers. This notion has implications for the anthropological study of revitalization movements as it draws attention to the everyday actions of common individuals living in revitalizing communities. A practice-based model of revitalization does not privilege the elite, but foregrounds the previously faceless subaltern masses that too often have been relegated to a minor role in studies of revitalization movements. An archaeological investigation is particularly appropriate for the development of a practice-based model of revitalization as it examines cultural transformations not just through the words of the leader(s), but also through the material culture produced by the members of actively revitalizing communities.

Practice theory also accounts for the unconscious elements of human action absent from many previous studies of revitalization movements. Common interpretations of revitalization depict elite agents (leaders) reconstructing culture as they intend it to be, re-setting the parameters of the mazeway to their own design (to use Wallace's terms). These studies do not acknowledge the unintended consequences and feedback that may affect the process of change. Practice theory does not advocate a notion of unfettered agents attaining their goals at will; while social agents may achieve intended outcomes through intentional action (agency), their actions have unintended consequences as well. As Giddens notes:

> The flow of action continually produces consequences which are unintended by actors, and these unintended consequences also may form unacknowledged conditions of action in a feedback fashion. Human history is created by intentional activities but is not an intended project; it persistently eludes efforts to bring it under conscious direction. (Giddens 1984:27)

Recognition of the importance of unintended consequences is vital to the investigation of revitalization movements as they often play a significant role in the formation and demise of these phenomena. Revitalization movements themselves are often impacted by unintended consequences of agents outside of the movement—in colonial contexts, for example, where dominant powers establish a status quo that is unsatisfactory to the revitalizing group. Similarly, practice theory draws attention to the fact that unintended consequences are particularly important to note in the investigation of the long-term effects of revitalization movements. Taking unintended consequences into account, it becomes apparent that the outcomes of revitalization processes will never exactly

reproduce the objectives of leaders; thus the archaeological record will never correspond in a one-to-one manner with the directives of the elites.

The incorporation of practice theory in the study of revitalization movements is necessary for the consideration of these events in grand theories of culture change. Conventional archaeological studies of long-term culture change utilizing cultural evolution and systems theory have been criticized for their lack of agency. In these studies, intentional actions of discrete agents have little effect on the long-term trajectory of cultural development, as evolution and diffusion are not considered to be deliberate acts. However, historical examples of revitalization movements bear witness to their importance in shaping culture over the long term (as will be demonstrated in chapters that follow). Though neo-evolutionist Leslie White famously argued that "the general trend of events would have been the same had Akhenaton been but a sack of sawdust" (White 1949:279), the substitution of the leader of a revitalization movement that proved successful in the long term—Jesus, Mohammed, or Siddhartha Gautama, for instance—complicates this argument significantly. Without a doubt, there is a need to account for agency in any grand theory of culture change. A practice-based model of revitalization movements emphasizes the importance of the actions of agents in recursively shaping both short- and long-term cultural evolution.

Material Culture and the Study of Revitalization Movements

As noted above, revitalization movements are traditionally depicted as epiphenomenal and synchronic events, unique incidents that pass quickly and fade

promptly into obscurity. The introduction of practice theory to the study of these phenomena emphasizes the dynamic and diachronic nature of revitalization movements, highlighting the changes in culture and society that are brought about by the actions of revitalizing agents. This theoretical shift from an analysis of revitalization *events* to the social *practices* of revitalization underscores the manners in which these movements arise, progress, mature, and change. Any practice-based analysis of revitalization must therefore explore the methods by which the ideology of revitalization is communicated, passed on, and modified in the course of the movement. The recognition of the dynamic character of revitalization movements consequently compels an investigation into the aspects of culture that mediate these practices. Revitalization movements are based upon guiding ideas and principles, but these mental templates must be expressed, executed, and transferred in order to realize the changes they set out to generate. The actions of revitalizing agents are thus likely to produce material signs that mediate the process of revitalization. These signs do not merely reflect the practices of revitalization, but also shape these movements in a reflexive manner. The challenge for anthropologists studying revitalization movements is to identify, analyze, and interpret the signs that mediate the practices of revitalization to better understand these enigmatic processes. Here the semiotic theories of Charles Sanders Peirce (1992, 1998) are indispensable (Preucel and Bauer 2001). Peirce and Ferdinand de Saussure (1983 [1915]) pioneered the field of modern semiotics, defined as "the study of signs." For archaeologists, semiotic theory is crucial for understanding the relations between the material aspects of revitalization movements and the ideologies behind them.

Folk theories typically conceive of signs (typically words) as things—most commonly, things that stand for other things. A fundamental contribution of semiotic theory is the understanding that signs are relations, rather than things (Singer 1984:42). Saussure's conception of signs as dyadic relations between signifier and signified suggests an arbitrary nature for this relationship (Saussure 1983 [1915]), and has informed the theories of Levi-Strauss (1967 [1955]), Derrida (1986 [1966]), Deetz (1967), and Hodder (1982, 1984), to name but a few (Preucel and Bauer 2001:86). One of the significant contributions of Peirce's semiotic theory is the notion that the relationship between objects and signs is more complex than the association of signifier and signified. Peirce notes that meaning is an ever-shifting relation among an object (which exists in the world), a sign (an entity that represents the object), and an interpretant (an idea produced in the mind by the sign). This triadic relationship allows for the explication of variable and multiple levels of meaning inherent in signs (crucial for archaeological interpretation), yet grounds these interpretations in non-arbitrary relationships. These multiple levels of meaning have often been overlooked in archaeological studies examining—or choosing not to examine—"symbolic" aspects of material culture, by both processualists and postprocessualists (Binford 1965; Shanks and Tilley 1987; Hodder 1989, 1991, 1992; Bapty and Yates 1990; Tilley 1989; 1991, 1999; Renfrew 1993; Leone and Potter 2003). However, *symbolic* meaning (which is largely arbitrary and agreed upon by convention) is just one of three levels of semiotic meaning identified by Peirce. Signs may also transmit meaning via *iconic* or *indexical* properties (Peirce 1992:143-144). Iconic signs bear a formal resemblance to their objects; indexical

signs transmit meaning through the spatio-temporal contiguity of sign and object, by "pointing to" certain relationships.

The introduction of this semiotic understanding of signs—most importantly, the concept of the "interpretant"—moves archaeological interpretation from a semantic interpretation of material culture to the pragmatic meanings behind artifacts and features. To paraphrase Singer, a semiotic archaeology is a pragmatic archaeology. Semiotics contains a theory of how classes of material culture are related to their meanings, as well as to the objects designated, and to the experiences and behaviors of the users of that material culture (Singer 1978:223-224).

Another of the primary contributions of semiotic theory to the archaeological investigation of revitalization movements (and indeed to any archaeological inquiry) is the notion that material culture carries much, if not most, of its meaning through its iconic and indexical properties—levels of meaning which are often accessible to archaeologists in a less ambiguous way than symbolic properties. Most poststructuralists employing the text metaphor for material culture (Hodder 1989, 1991; Bapty and Yates 1990; Tilley 1991, 1999) and traditionalists who assume the ideological meanings of material culture to be primarily beyond the purview of archaeology (Hawkes 1954; Binford 1965) have previously focused predominantly upon *symbolic* characteristics, ignoring iconic and indexical levels of ideological meaning in material culture almost entirely. (In fact, Peirce notes that all symbols incorporate iconic and indexical properties as well; thus there are no purely arbitrary symbols, and in theory symbolic meaning can be accessed at least partially through the identification of iconic and indexical properties [Parmentier 1997:49].) In so doing, archaeologists have disregarded

whole categories of meaning that can be identified with less ambiguity than symbols in the archaeological record. A theory of material culture based in semiotics has the advantage of allowing archaeologists in the present to access meanings constructed in the past and mediated via signs with greater rigor.

The Material Culture of Revitalization Movements: A Template for Archaeological Investigations

A semiotic and practice-based investigation of revitalization movements thus examines the signs produced by revitalizing agents that mediate the practices of these movements. While all revitalization movements are unique in terms of doctrine and the manners in which their tenets are employed, the universal characteristics first identified by Wallace provide a theoretical foundation for the archaeological examination of these enigmatic phenomena. Although a great deal of revitalization ideology may be manifested in non-material signs (such as utterances) or impermanent varieties of material culture, most revitalization movements are mediated to some degree by material signs which are identifiable in the archaeological record.

Following the definition of revitalization movements as "deliberate, organized, conscious effort[s] by members of a society to construct a more satisfying culture by the rapid acceptance of a pattern of multiple innovations" (Wallace 1970:188), it is possible to suggest some hypothetical signatures of revitalization phenomena expected to be discernible in the archaeological record. The most fundamental archaeological

manifestation of revitalization will be a rapid, deliberate change in material culture. This change should be conspicuous, occurring in a short period of time, and without evidence for transitional types or styles. Because these changes are deliberate, the transformations are likely to occur first among the artifact classes over which members of the revitalizing group have the most control and ability to exhibit preference, particularly among those attributes typically subsumed under the category of "style" (in contrast to technological attributes). The particular doctrines of each revitalization movement will likely determine the variety of change in artifact classes. Nativistic movements are expected to display a pronounced decrease in the presence of foreign material culture, and may show evidence of razing, mutilation, or drastic alteration of public buildings (Fry 1985:129) and pre-revitalization artifact classes. Similarly, revivalistic movements may demonstrate a renovation or reconstruction of public architecture, as well as an increase in archaic styles and artifact classes. Assimilative and expropriative revitalization movements are expected to display a syncretic blend of foreign and indigenous material culture, with a pronounced increase in foreign artifacts among expropriative movements.

By definition, revitalization movements seek to change multiple aspects of a social group's culture, resulting in transformations that should be apparent in multiple artifact classes as well. While revitalization movements could impact only a small amount of material culture or even a single class of artifact, the same signature could also be produced by other factors. For example, the rapid disappearance of a foreign artifact class from the archaeological record could be evidence for a nativism, but could also result from a change in trade relations inhibiting the continued import or export of that artifact class, or the disruption of access to a natural resource necessary for production.

Furthermore, revitalization movements involve "the rapid acceptance of a *pattern* of multiple innovations" (Wallace 1970:188, emphasis mine), meaning that corresponding changes should take place in numerous interrelated elements of culture, with material culture as one possible medium for the expression of these transformations. Therefore, to infer a revitalization movement in the archaeological record and eliminate other possible causes, rapid changes should be observable across multiple artifact classes.

Similarly, these changes should be representative of shared group behaviors. Revitalization movements may take place within a small segment of the larger populace, developing a subculture, or they may include every member of a social group; regardless, to be considered a *movement*, group participation is essential. For the purposes of this study, a social group is defined as a collectivity of two or more households (a household is defined as consisting of persons residing within a structure who are related by affinity or consanguinity). Thus any change in material culture as a result of revitalization movement activities should be observable across multiple households within a community. Furthermore, the changes observed among social groups should be meta-cultural (i.e. deliberate) and brought about from within the social group. Revitalization movements consist of conscious changes wrought by members of the revitalizing community. That is, devotees must be willing participants; revitalization movements cannot be forced on a group from the outside. The archaeological signature of internal stimulus will indubitably vary according to the cultural context (and admittedly the determination of this factor will be especially problematic in the analysis of expropriative movements), however some sign of internal motivation should be minimally present.

As noted by Wallace, most revitalization movements originate with a single charismatic individual, and if successful, are typically organized by a small, centralized group of adherents. The archaeological record thus should evidence centralized leadership during periods of revitalization. A shift in leadership strategies or political economy typically occurs during revitalization movements as leaders acquire, increase, or consolidate power. Again, the evidence for this shift will differ from culture to culture and region to region, but is a necessary component of revitalization movement phenomena.

Circumstances indicating relative deprivation and/or stress on the revitalizing group are expected to precede the revitalization process, although the necessity of this factor as a stimulus for these movements is currently in question (see above, Critiques of the Revitalization Model). In any case, conditions of deprivation and stress have been documented as heralding the majority of historic revitalization movements. These conditions may be manifested in the archaeological record through evidence of epidemic disease, indications of malnutrition, warfare, political conflicts, economic failures, colonization, missionization, catastrophic natural events, or drastic climatic and environmental changes such as drought or degradation of natural resources. Revitalization movements are particularly (though not exclusively) apt to occur under circumstances of stress generated by the sudden appearance of a new social group in a dominant relationship to the revitalizing society. These relationships typically have an exploitative nature, as in New World colonial situations (Fry 1985:128-29). Thus the sudden appearance of alien artifacts in markedly increased numbers, particularly in strategic political or economic locations, could signal a context ripe for revitalization

movements. In fact, recent scholarship suggests that major changes in power relations (either positive or negative), and not necessarily deprivation, are the common catalysts for revitalization movements (Leopowsky 2004; McMullen 2004; Nesper 2004).

Based on the above criteria, seven basic signatures are hypothesized to be present in the archaeological record of revitalization movements:

1) signs of pre-revitalization stress, relative deprivation, or major shifts in power relations;
2) changes in multiple artifact classes;
3) signs of the rapid nature of these changes, without evidence for transitional forms;
4) signs of the deliberate nature of these changes;
5) signs that these changes were shared among a social group (e.g. multiple households)
6) signs of an internal social impetus for these changes (i.e. that these changes were the deliberate choice of the social group, and were not imposed from outside that group)
7) signs of centralized leadership

These criteria are presented as a theoretical template for a practice-based, semiotic investigation of the archaeology of revitalization movements, following from Wallace's model (1956, 1966, 1970) and various ethnographic and ethnohistorical studies of revitalization movements. The remainder of this dissertation will test the applicability of this model on a historically documented case, the Pueblo Revolt revitalization movement in the Jemez Province of northern New Mexico.

CHAPTER III: THE HISTORY AND ARCHAEOLOGY OF THE PUEBLO REVOLT OF 1680

The Pueblo Revolt of 1680 was one of the most successful indigenous rebellions fought against a European colonial power in the New World (Simmons 1980:11; Sando 1998:3). For many years this early "American Revolution" (Grinde 1980) received little attention from historians, who tended to look to the East Coast when studying the colonization of the United States (Weber 1999b:6-7). So too was it overlooked by Southwestern anthropologists and archaeologists, who were inclined to concentrate on contemporary ethnography and prehispanic archaeology, respectively. In recent decades, however, interest in Spanish colonialism in the western United States has piqued as studies of American history have become consciously less Anglo-centric (Weber 1999b:7). The Pueblo Revolt has garnered particular attention since its tercentennial anniversary in 1980 (Agoyo 1980). Reviews of historical (Knaut 1995; Weber 1999b) and archaeological (Preucel 2002a) evidence, in conjunction with the translation and publication of many of the primary documents relating to this period (Kessell and Hendricks 1992; Kessell et al. 1995, 1998) have dramatically improved our understanding of this turbulent era in recent years. Yet with new insights come new questions, and many details about the events that occurred between 1680 and 1696 remain unknown—particularly those concerning life in the Pueblo world, where a burgeoning revitalization movement brought about major changes in Pueblo culture and society during those years (Preucel 2000a).

A Meta-History of the Pueblo Revolt

The earliest written histories of the Pueblo Revolt were recorded by persons directly involved in the events in question. Spanish officials provide the first accounts of the Revolt in the *autos* recorded by Governor Antonio Otermín and his administration in the days, weeks, and months following the uprising (Hackett and Shelby 1942). These documents include acts of the *cabildo* (municipal council) of Santa Fe; sworn declarations of witnesses; letters written by Otermín and other prominent officials and clergymen; proceedings of councils held to discuss these events; and acts of the government at Mexico City (Hackett 1942:x), covering the period from the earliest days of the uprising in August 1680 to the end of Otermín's abortive attempts at reconquest in 1682. The other major source of primary historical information regarding the Pueblo Revolt era comes from the journals of Diego de Vargas, detailing events from the beginning of the reconquest in 1692 through the close of the Revolt era with the "Second Pueblo Revolt" in 1696 (Espinosa 1988; Kessell and Hendricks 1992; Kessell et al. 1995, 1998). These primary sources provide the foundation for all subsequent attempts to recount and interpret the events of 1680-1696 in Spanish New Mexico.

Rationales and Rationality: Explaining the Pueblo Revolt

The earliest secondary account of the Pueblo Revolt appears in the 1693 *Mercurio Volante* of Carlos de Sigüenza y Góngora (Leonard 1932), a kind of seventeenth-century precursor to modern newspapers. In his account, Sigüenza (a nephew of Domingo

Jironza Pétriz de Cruzate, Governor of New Mexico from 1683-92 and failed reconqueror of the Pueblos [Leonard 1932:57]) concentrates primarily upon the successes of the Vargas expedition, but also offers the following rationale for the Revolt: "Perhaps it was the idle life of their pagan neighbors which inspired [the Pueblos] or, more likely, it was their inborn hatred of the Spaniards" (Leonard 1932:55). This reasoning is typical of seventeenth-century Spanish versions of these events; like Otermín, Vargas, and Fray Augustín Vetancurt, who published the second known history of the Pueblo Revolt in 1697 (Vetancurt 1971), Sigüenza's interpretation includes no notion of Spanish culpability in or provocation of the rebellion. Justification for the Pueblo Revolt was typically ascribed to the work of God, or more commonly that of the Devil (Simmons 1980:27; Weber 1999b:9). A century later, Fray Silvestre Vélez de Escalante cited "the love which many of the old men retain for their ancient mode of life, for their idolatry" (Vélez de Escalante 1983:6) as the primary cause of the Pueblos' actions. More significantly, Vélez de Escalante, writing in the 1770s, was the first (and only Spaniard) to question the part played by the colonizers in the uprising, intimating that Otermín was managerially incompetent and indirectly responsible for cruelties perpetuated on the Pueblo peoples (Vélez de Escalante 1983; Riley 1999:221).

More than two centuries after the Pueblo Revolt Anglo-American historians shared Vélez de Escalante's sentiments, citing the suppression of native religion by the Spaniards as well as Pueblo revivalism as the major motivating factors behind the insurrection (Prince 1883; Bandelier 1987 [1887]; Bancroft 1889). Furthermore, they identified economic injustices contributing to the Puebloans' discontent, citing the fact that "the natives were required to render implicit obedience and to pay heavy tribute in

the products of their labor and personal service" (Twitchell 1914:355) and noting that previous accounts had "ignored this element of secular oppression, if, as can hardly be doubted, it existed, and represented the revolt to be founded exclusively, as it was indeed largely, on religious grounds" (Bancroft 1889:174).

Since the 1940s, modern historians have generally agreed that economic subjugation and religious oppression played major roles in fomenting rebellion among the Pueblos (excepting Garner 1974), but have also recognized that the impacts of Spanish colonization on Pueblo life were pervasive and cannot easily be compartmentalized (Weber 1999b:10). France V. Scholes, the archival historian of Spanish New Mexico *par excellence*, writes that colonization "threatened the very foundations of Pueblo culture," and that "the Spanish conquest and occupation of [New Mexico] had been a major shock to native life and thought, and although the Indians made an outward adjustment to the new ways, they remained fundamentally loyal to their old culture tradition" (Scholes 1942:257). Similarly, Hackett cites "the efforts of the Spaniards to suppress not only the religious beliefs but also the ancient habits and customs of the Indians in other respects" as the major underlying cause of the Revolt (Hackett 1942:xxi). Modern historians have also drawn attention to the impacts of severe drought, famine, disease, and intensifying raiding by neighboring Athapaskan peoples as factors contributing to Pueblo discontent (Garner 1974; Bowden 1975; Guitiérrez 1991; Knaut 1995; Reff 1995; Riley 1999; Weber 1999b).

Contemporary investigations have examined the uniqueness of the Pueblo Revolt as well, debating whether the 1680 rebellion was an anomaly or the logical outcome of long-standing and continuous resistance to Spanish rule (Preucel 2002b:5). Van Hastings

Garner maintains that the Revolt was an exception to what he characterizes as the "remarkably stable Indian-European relations" in colonial New Mexico (Garner 1974 in Weber 1999a:66), asserting that the Pueblos benefited from a relationship of mutual interdependence with the Spaniards. The Pueblos supplied labor, textiles, and food in exchange for military protection, "a degree of prosperity" in agriculture not previously enjoyed, and improved technologies (Garner 1974 in Weber 1999a:67). According to this view, the Pueblo Revolt resulted from environmental factors and not long-term processes of colonial exploitation and resistance. Garner maintains that the mutually beneficial relationship between Puebloans and Spaniards disintegrated in the 1670s due to disease, infestation, drought and a resulting famine, causing the Pueblo peoples to revolt. Edward Spicer (1962) similarly views the Pueblo Revolt as an atypical situation, although for different reasons. While discussing the events of 1680 as a component of long-term acculturation among natives of the Southwest, Spicer characterizes the Revolt as an anomaly, a one-time "extreme reaction to an extreme situation" made possible through a unique and fleeting unification of the Pueblos (Spicer 1962:163).

Examining Identities

Conversely, Andrew Knaut (1995) places the Pueblo Revolt in a context of native resistance to colonial power that persisted throughout the seventeenth century in New Mexico. He cites smaller revolts by the Jemez in 1623 and again in the 1640s, Zuni in 1632, Taos in 1639, and confederations of Tanoan, Keres, and Apache peoples in the 1650s and Piros in the 1660s as evidence for longstanding discontent among the

colonized Pueblos (Knaut 1995:165-167). Resistance to the Spaniards was also enacted through the maintenance of traditional Pueblo culture, particularly via the clandestine performance of religious practices. More significantly, Knaut draws attention to the complex identities negotiated by inhabitants of New Mexico at the close of the seventeenth century: "the lines that separated Pueblo Indian from European newcomer in the early part of the [seventeenth] century blurred considerably over the ensuing generations, allowing for a fluidity between the two segments of society that belied any clear-cut divisions on the basis of race alone" (Knaut 1995:xvi). According to this view, the history of the Pueblo Revolt cannot be accurately depicted as simply Indians versus Spaniards; in fact, relations were far more complex, involving Puebloans of multiple language groups and numerous clans, Spaniards, Hispanics, *genízaros*, *mestizos,* mulattoes, *coyotes*, and others. The miscegenation that occurred among these groups—from native to colonist and vice-versa—did not lead to harmony, however. Knaut maintains that this cultural mélange was a major factor that not only encouraged the natives to declare war on the Spaniards, but was also a necessary component in the Pueblos' success.

Knaut's study of the ethnic and racial setting of colonial New Mexico is part of an increasing interest in the exploration of identities, personalities, and roles of the people involved in the Pueblo Revolt of 1680. In possibly the most controversial of these investigations, Fray Angelico Chávez (1967) suggests that much of the leadership of the insurrection was comprised not of "pure-bred Pueblo Indians" (who were, in his eyes, incapable of effectively uniting the native population), but rather by people of mixed racial heritage. In particular, he proposes that a mulatto from Santa Clara named

Domingo Naranjo was the sole tactical leader of the Pueblo Revolt. This theory was challenged by Stefanie Beninato (1990), who asserts that Pueblo cultural conventions militate against a non-Puebloan person assuming a significant role in traditional leadership. Additionally, she contends that the concept of a single leader was foreign to traditional Pueblo political organization, and that the Revolt was more likely organized by multiple leaders.

Questions of leadership and identity have also been at the center of recent studies of Po'pay, the man traditionally recognized as the principal organizer of the Pueblo Revolt (Ortiz 1980; Sando 1998; Sando and Agoyo 2005). Anthropologist and San Juan Pueblo native Alfonso Ortiz points to the significance of Po'pay's name (which he translates as "ripe cultigens") as a clue to his intensely nativistic character. Ortiz further deduces that he was likely a member and priest of the summer moiety at San Juan, a religious leader of paramount significance to Tewa peoples (Ortiz 1980:19-20). Conversely, Jemez Pueblo native historian Joe Sando contends that Po'pay was likely not a religious leader, but a war chief (Sando 1992:177) who planned the Pueblo Revolt in conjunction with a San Ildefonso war chief named Francisco (Sando 1979a:195).

Alongside these studies of the identities of individuals specified in historical documents, recent scholarship has also focused on larger questions of group identity in relation to the ethnicity and gender of Pueblo Revolt participants. Multiple studies investigate the ethnic affiliation of persons involved in the insurrection (albeit in racial terms), highlighting the importance of *mestizos* and *genízaros* in the Revolt era political economy (A. Chávez 1967; T. Chavez 1980; Beninato 1990). Others have examined the roles of Athapaskan peoples in New Mexico prior to the Revolt (Wilson 1985) as well as

in the uprising itself (Forbes 1960; Schaafsma 2002b). Finally, the examination of the role of gender in the negotiation of Revolt era identities remains understudied (but see Capone and Preucel 2002; Mills 2002), although the exploitation of Pueblo women in the Revolt era—by Spaniards as well as Pueblo men—has received increased attention in recent decades (Foote and Schackel 1986; Gutiérrez 1991).

The Consequences of 1680 for Modern New Mexico

In addition to investigations of identity, the significance and outcomes of the Pueblo Revolt have been deliberated in recent years. While no one debates the fact that the nature of Spanish-Native American interaction in New Mexico changed dramatically between the seventeenth and eighteenth centuries, the timing and reasons for this change have been questioned. Ortiz sees the Pueblo Revolt as the turning point and catalyst for a shift in Spanish attitudes toward greater tolerance for traditional Pueblo culture (Ortiz 1980:22). This tolerance increased and coincided with a rise in Pueblo-Spanish military cooperation against common enemies in the eighteenth century (Weber 1999b:15), leading to a "unique cultural mosaic" arising out of "the increasingly Native Hispanics and the undeniably hispanicized Pueblos" coming together as "brothers and sisters, . . . friends and religious kinsmen, *compadres* and *comadres*" following the Revolt. According to Ortiz:

> For the Pueblo people specifically, the greatest legacy of the revolt of their ancestors has been that they have been able to endure with their cultural integrity intact, free to speak their native languages and to perform their ancient dances. Because of a desperate, despair-born gamble on the part of the Pueblo people of 1680, their descendants have lived to find that their well-being and continued

> cultural integrity is regarded as essential to the well-being of all of New Mexico and of the Southwest. (Ortiz 1980:22)

Alternatively, Kessell maintains that the primary catalyst for these changes is to be found in the person of Diego de Vargas, who led the campaign to recolonize New Mexico beginning in 1692 (Kessell and Hendricks 1992; Kessell et al. 1995, 1998). Kessell asserts that Vargas utilized his political acumen to take advantage of Pueblo factionalism and forge military alliances that aided the Spanish reconquest and, in combination with demographic changes and a shift in Spanish imperial priorities, established a template of accommodation that laid the foundation for modern New Mexican society (Kessell 1989).

Regardless of concentrations on causes or effects, Pueblos or Spaniards, sole organizers or multiple leaders, all the studies of the Pueblo Revolt reviewed above are based on the same "slender body of evidence," and therefore share a set of fundamental biases (Weber 1999b:9). Because Pueblo peoples did not record the events of this era in writing, the only surviving primary documents are those recorded by the Spaniards. Thus even when the testimonies of captured Puebloans were chronicled, we are forced to "listen to Pueblo voices through Spanish interlocutors and translators, articulated and understood in the context of a crisis" (Weber 1999b:9). In other words, these sources are inherently influenced by Spanish biases, and must be interpreted critically if they are to be useful in reconstructing events from a Puebloan point of view.

However, other sources of information regarding Pueblo perspectives do exist outside of Spanish journals and court documents that can be used to elucidate this murky period of Southwestern history. One of these sources is oral tradition. In the past, oral

traditions regarding the Pueblo Revolt have been largely overlooked, discounted, or assumed not to exist (Weber 1999b:8-9; Roberts 2004). However, recent scholarship has demonstrated that in fact oral traditions have much to contribute to our understanding of this turbulent period, and should be addressed in any history of the Pueblo Revolt (Wiget 1982, 1996; Preucel 2002b:7).

Oral Traditions of the Holy War

Pueblo accounts of the years between 1680 and 1696 refer to this era as a "war of independence" (Sando 1998), or more simply "a holy war" (Agoyo 2002), eschewing terms like *revolt* and *rebellion* due to their Western bias.[2] But indigenous oral traditions of the years between 1680 and 1696 carry an intrinsic pro-Pueblo bias as well. For this reason, Puebloan oral accounts have often been overlooked or discounted as inaccurate and erroneous histories. Some anthropologists have gone so far as to discount oral traditions altogether, following Lowie in his refusal to "attach to oral traditions any historical value whatsoever under any condition whatsoever" (Lowie 1915:597; Mason 2000). During the past two decades, however, scholars have demonstrated the reliability and validity of utilizing oral traditions in historical research (Wiget 1982, 1996; Vansina 1985). To ignore Pueblo accounts of the Revolt simply because they have been preserved in an oral form makes no more sense than disregarding all Spanish accounts because of their obvious biases. Both oral and written forms can profitably be

[2] Nevertheless, I follow Riley 1999 and Preucel 2002b in their use of this terminology as the widely accepted appellation for these events.

incorporated into histories of the Pueblo Revolt. However all accounts, regardless of medium, should be read critically with potential prejudices and cultural agendas kept firmly in mind (Capone 1995:49; Dongoske and Dongoske 2002:117).

More problematic to Pueblo peoples than the ignorance of their version of events is the persistent notion that oral traditions of the Pueblo Revolt do not exist at all. Non-native writers have suggested that the Pueblos do not maintain oral traditions of the events that occurred between 1680 and 1696 (Roberts 2004:148), asserting that "the memory of the Pueblo-Spanish war had been all but lost in the generations of accommodation that followed" (Kessell 1989:135). However, simply because Pueblo oral traditions are not circulated as widely and openly as the Spanish accounts does not mean they do not exist. Secrecy is an intrinsic part of Pueblo cultures, in both intra- and extra-Pueblo relationships (Brandt 1980). Non-Puebloans who assume that Pueblo persons "don't . . . know the story of the Revolt very well" (Roberts 2004:145) because they are reluctant to share their versions of events mistake this secrecy for a lack of knowledge.

A survey of ethnographic literature demonstrates that Pueblo peoples do preserve oral traditions of the Pueblo Revolt (Preucel 2002b:7-9). They also zealously protect these accounts and continue their customs of secrecy. For this reason, Pueblo chronicles of the Revolt are not as well known as their more easily accessible Spanish counterparts. Furthermore, by their nature oral traditions are not as readily available to historians and anthropologists as documentary sources. The Pueblo oral traditions that have figured into histories of the Revolt are those that have been recorded, translated, and transcribed by non-Native scholars (e.g. Wiget 1982, 1996; Malotki et al. 1993). However, because oral

traditions are intended to be recounted only in person, only a tiny fraction of the oral traditions in existence among Pueblo peoples today have been recorded.

Pueblo Versions of the Revolt and Reconquest

Not surprisingly, the richest record of oral traditions regarding the Pueblo Revolt comes from the Hopi pueblos, who collectively maintain the dubious distinction of "most studied tribe in North America." In a groundbreaking examination of oral traditions of the earliest days of the Pueblo Revolt at Oraibi (Voth 1905; Pooley 1967) and Shungopovi (Nequatewa 1936; Sakiestewa 1967), Andrew Wiget determines that these accounts can be corroborated with documentary histories of the Pueblo Revolt, and are accurate and consistent in motivation, specific details, and temporal sequences of the events (Wiget 1982). Furthermore, Wiget's analysis reveals Hopi motivations for the uprising, information concerning leadership and inter-village alliances, and specific details regarding the events of August 1680 that are not included in Spanish accounts. Anthropologists and linguists have collected a similarly rich body of oral traditions concerning reconquest-era events at Awat'ovi (Bandelier 1892:371-372; Fewkes 1893:364-366; Voth 1905:246-255; Curtis 1922:184-188; Courlander 1971:209-220, 1982:55-60; Yava 1978:88-97; Malotki et al. 1993:275-310). Particularly interesting among these is Lomatuway'ma's narrative, the most complete of the group, which differs from other accounts in its identification of the Spanish presence at Awat'ovi as just one relatively minor reason among many contributing to its intentional annihilation.

Zuni oral traditions maintain accounts of a Spanish priest, Father Juan Greyrobe, who reportedly survived the Pueblo Revolt and was living with the Zuni people when Vargas arrived during the 1692 reconquest. At least 17 versions of this oral history were recorded between 1857 and 1988, but unlike the Hopi oral traditions cited above, these stories are uncorroborated by documentary evidence. Wiget's 1996 study compares and analyzes these different versions, demonstrating the merits of reconstructing histories from multiple oral traditions. Wiget concludes that "a reasonable degree of confidence" can be placed in the validity and reliability of the Zuni history of a Spanish priest who lived with the Zunis throughout the Pueblo Revolt era, stating "there are too many formal and circumstantial certifiers of the story's truth to reject it out of hand. The weight of the evidence bears no other conclusion than that the events were not only possible but probable" (Wiget 1996:480). These stories contribute information to our knowledge of events at Zuni not recorded in Spanish accounts, including the ritual poisoning of nearby water sources by the Great Shell Society and communication between the Spaniards and the Zuni at Dowa Yalanne by means of a buckskin upon which messages were written.

At Jemez Pueblo, accounts of the July 24, 1694 battle with the Spaniards remain part of the corpus of Jemez oral traditions (Chapter IV). One version details the deception and betrayal of the Jemez by the Keres allies of Vargas as a crucial component in the Spaniard's victory (Madalena 2003). Sando (1982:120) recounts the popular narrative (also recorded in Simpson 1852:22; Loew 1875:343-344; Dougherty and Neal 1979) of an apparition of San Diego that aided the Jemez warriors' escape from the mesa. Sando also makes use of oral traditions in his 1979 account of the Pueblo Revolt and various histories of Pueblo peoples (1982, 1992, 1988), adding insights into the roles

played by multiple leaders, the guidance provided by the Twin War Gods, and the ritual purification of Pueblo warriors that followed the 1680 rebellion.

Preucel (2002b) summarizes oral traditions regarding Cochiti people during the Pueblo Revolt era as told by contemporary residents of Cochiti (Benedict 1931:185-193; Applegate 1932; Lange 1960) and San Felipe (Bandelier 1892:191-192). These accounts note sexual abuse by the Spaniards as one rationale for Pueblo rebellion, as well as chronicling the Spanish torture of Cochiti peoples in order to acquire information that proved crucial in the Spaniards' attack on the Cochiti refuge of Horn Mesa. Like the oral traditions of Hopi, Zuni, and Jemez discussed above, the Cochiti stories disclose numerous details about the reconquest period not recorded in Spanish documentary sources (Preucel 2005).

Normally, oral traditions are passed on via direct (oral-aural) contact among historians and a live audience. Thus the oral accounts cited above are atypical in that all were recorded through written transcriptions (and sometimes translation) or audio recordings, fixing them in static, material forms. As such, they are the exceptions to the rule and represent only a fraction of the oral histories in circulation among Pueblo peoples today. In fact, modern Pueblo leaders are still revealing new information about the events of 1680 more than 300 years after the Revolt. In 1980, for example, San Juan elders disclosed information regarding Po'pay's lineage, moiety, and approximate residence in the Pueblo (Agoyo 2002:xii). Thus those who maintain that "Pueblo oral traditions have not provided significant insights into the Pueblo Revolt" (Weber 1999b:8) are simply mistaken. Contrary to the opinion of many non-Natives, Pueblo memories of the Revolt have not dimmed. Some of those memories have been shared with a larger,

non-Pueblo audience; but in all likelihood many more remain confidential, shared only among the descendants of the Pueblo peoples who fought in the Holy War.

Bookend Histories

Although oral traditions and documentary histories of the Pueblo Revolt frequently record differing versions of events, they are not usually mutually exclusive. In fact, Pueblo and Spanish-based histories share many common elements—including some limitations. One shortcoming of both oral and written histories is a consistent focus on the "bookends" of the Pueblo Revolt era. Typically, historical accounts detail the fateful days of August 1680, the battles of the Spanish reconquest from 1692 to 1696, and little if any of the intervening years (Liebmann et al. 2005). This is understandable in the case of documentary-based accounts, as the Spaniards had little access to information regarding events in the Pueblo world during the Spanish interregnum between 1680 and 1692, leaving a void in the documentary record. Even more interesting is the extent to which Pueblo oral traditions are similarly mute regarding details of life in the years of Pueblo independence, also focusing primarily on the battles fought with the Spaniards at the beginning and end of this period. One possible explanation for this is that the known oral traditions were recorded, vetted, and edited by non-Natives, who may have selectively chosen the accounts they deemed historically significant enough to be recorded. Furthermore, they may not have interrogated their Pueblo informants regarding events between 1680-1692.

In any case, whether based on Spanish documents or Pueblo traditions, extant histories of the Pueblo Revolt share a focus on the battles of 1680 and the Reconquest period. In order to investigate the events that occurred in the intervening years, new sources of data are needed. One such source is the archaeological record, which offers insights into Pueblo life through the material culture produced during the Revolt era.

Archaeology and the Pueblo Revolt

Archaeology provides a valuable resource for enriching our understanding of the events that transpired during the Pueblo Revolt era, as material culture offers a view of history independent from the biases that plague Spanish chronicles and Pueblo oral tradition. Furthermore, the archaeological record provides a glimpse into events of the Pueblo Revolt era only hinted at—or not recorded at all—in conventional histories. For these reasons, the archaeology of the Pueblo Revolt is crucial to the development of an understanding of the processes and practices of cultural revitalization that accompanied this turbulent period.

Until recently, the Pueblo Revolt era has not been the subject of systematic and sustained archaeological research (Wilcox 2001; Preucel 2002b:9). In the early years of Southwestern archaeology, investigators examined numerous Spanish Colonial and historical Pueblo sites in their attempts to establish chronologies that extended from historic times into the prehispanic era. Any discoveries about the Pueblo Revolt era made in the process were regarded as tangential, although much of this research provides

the foundations for modern archaeological investigations of the Pueblo Revolt (Preucel 2002b). With the inception of the New Archaeology in the 1960s, interest in historical pueblos diminished significantly due to Processual desires to focus on "pristine" cultural developments, meaning those untainted by colonization and resultant acculturation. In recent years however, archaeological interest in the Pueblo Revolt era has increased markedly with the emergence of the first archaeological studies focusing specifically on the events of 1680 to 1696 in New Mexico (Preucel 1996, 2002a & b; Wilcox 2001; Liebmann et al. 2005). These studies have established the importance of the archaeology of the Pueblo Revolt era in its own right, documenting a unique assemblage of material culture that spans the Contact-period and modern Pueblo worlds.

Preucel has recently identified four interrelated sub-fields of Southwestern archaeology that together aid in developing an understanding of the archaeology of the Pueblo Revolt: Mission archaeology, Refuge site archaeology, Pueblito archaeology, and Spanish site archaeology (Preucel 2002b:9-17). The following section is adapted from his review.

Pueblo Revolt Mission Archaeology

Among the myriad sites that have provided archaeological information about the Pueblo Revolt era, arguably the most famous is Pecos Pueblo (FIG. 3.1). The pueblo village of Pecos was initially investigated by Adolph Bandelier in 1880 (Bandelier 1881; Lange and Riley 1966) and later became the locus of 10 seasons of excavation under A. V. Kidder between 1915 and1929 (Kidder 1916, 1917, 1924, 1926a, 1926 b, 1932, 1958;

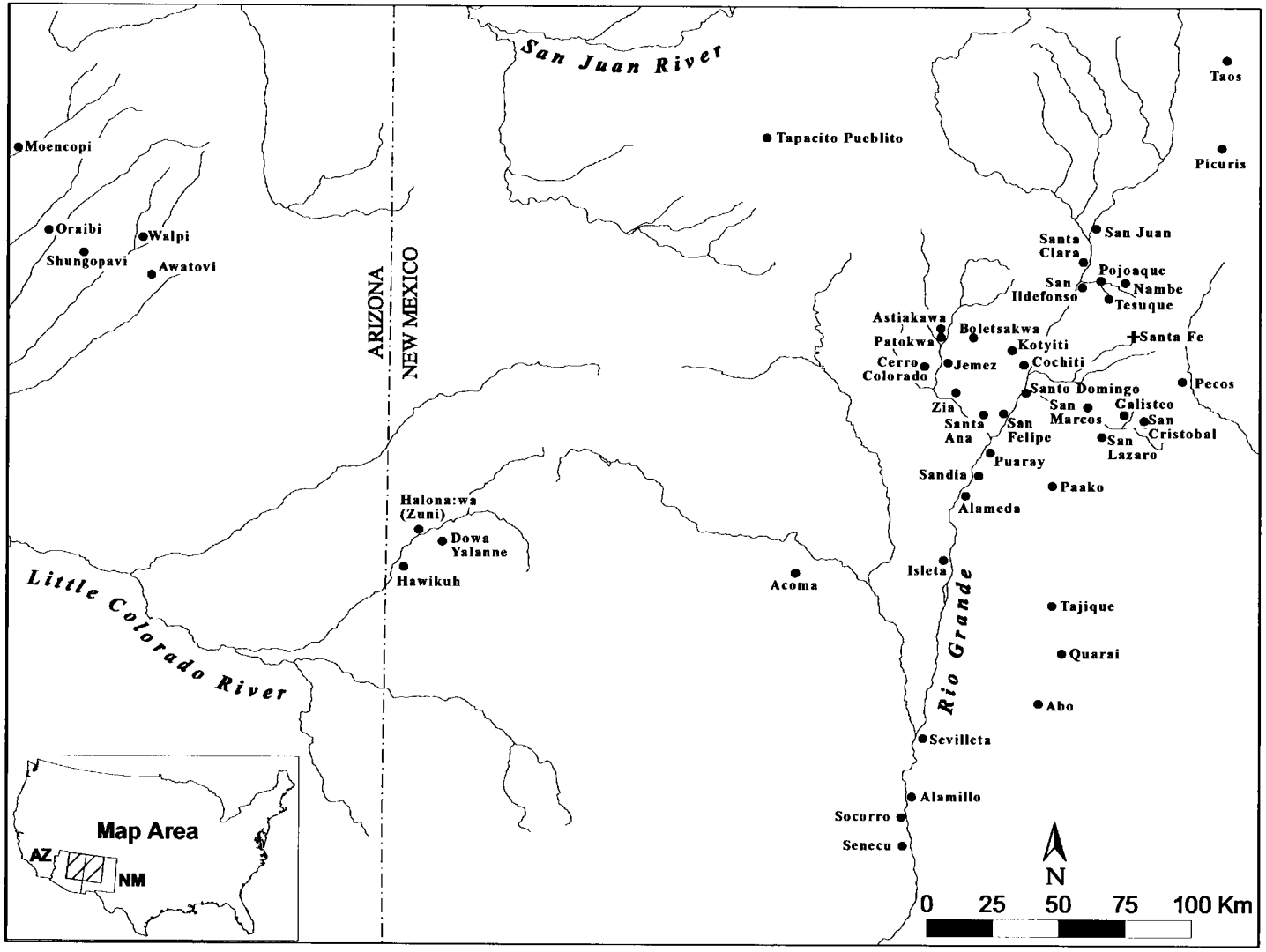

Figure 3.1: Sites referenced in Chapter III

Kidder and Kidder 1917; Kidder and Amsden 1931; Kidder and Shepard 1936). These excavations proved fundamental in the establishment of a regional chronology for Pueblo archaeology. Although the seventeenth-century component was not a primary focus of Kidder's research, subsequent excavations of the church and *convento* (priest's quarters) revealed the remains of the destroyed church, apparently burned and demolished in the days following the Revolt (Hayes 1974). Furthermore, a kiva was constructed near the convento shortly thereafter, faced with adobes recovered from the fallen church (Kessell 1979:239; but see Ivey 1998 for an alternative interpretation). These finds provided important material evidence of the nativistic and revivalistic ideologies that fueled the Pueblo revitalization movement during the Revolt era.

Prior to Kidder's work at Pecos, Nelson investigated the nearby mission sites of the Galisteo Basin in the early twentieth century, undertaking work at the missions of Galisteo, San Cristobal, San Lazaro, San Marcos, and San Pedro (Paa-ko) in 1912. His intent was to work "from the known to the unknown," unearthing evidence relating to the relations among sixteenth- and seventeenth-century Pueblos in order to shed light on pre-contact Pueblo history and culture (Nelson 1914b:9). In so doing, Nelson's excavations demonstrated the value and viability of stratigraphic excavation, revolutionizing American archaeology in the process (Willey and Sabloff 1993:99-103). As the Galisteo mission pueblos were abandoned sometime between 1680 and 1692, the archaeological study of their final days has the potential to reveal significant information regarding inter-Pueblo relationships during the period of Pueblo independence. In recent years a renewed interest in the archaeology of the Galisteo mission Pueblos has arisen, with

investigations taking place at San Marcos Pueblo (Ramenofsky 2003) and mission (Thomas 1999), as well as the nearby site of Paa-ko (Lycett 2002).

Around the same time that Kidder and Nelson were carrying out excavations at Pecos and the Galisteo pueblos, F. W. Hodge conducted research at the Zuni pueblo of Hawikku (Hodge 1918, 1937; Smith et al. 1966), investigating "the important role that the pueblo and its inhabitants played in the Spanish history of the Southwest" (Hodge 1937:xv). Hodge discovered evidence for the destruction of the church during the Pueblo Revolt (Hodge 1937:101). Ceramics unearthed in these and other excavations in the Zuni area have recently been analyzed by Barbara Mills (2002), who documents a shift from glaze-paint to matte-paint wares among Zuni potters following the Revolt, coincident with an increase in the use and homogeneity of feather motifs. Mills interprets these shifts as deliberate acts of resistance by Zuni women in the construction of new social identities following the Pueblo Revolt. These potters broke with earlier ceramic technologies (associated with Spanish colonialism) and concurrently adopted new decorative motifs in an attempt to create "a region-wide stylistic horizon" that "suggests a unity that cross-cuts language groups and other important social differences among the Pueblos" (Mills 2002:95). Similarly, Mobley-Tanaka utilizes Hawikku ceramics in her analysis of the use of cross motifs by Pueblo potters as "hidden transcripts of resistance" (Mobley-Tanaka 2002:81). She concludes that while Pueblo peoples employed crosses in subtle displays of passive resistance under Spanish colonial domination, the use of these motifs drastically declined following the Revolt of 1680, presumably due in part to the nativism and revivalism that characterized this period.

Among the Hopi pueblos, investigations of the mission at Awat'ovi and its environs have revealed a situation similar to that of Hawikku: the church burned in 1680, with the mission bell smashed into multiple pieces (Montgomery et al. 1949:56-57). Immediately thereafter, the Hopi occupied and renovated the friary, transforming the Spanish architecture "as a native Pueblo grows, a room here—a room there" (Montgomery et al. 1949:80). E. Charles Adams also investigated the effects of Spanish missionization on Hopi material culture and subsistence (Adams 1981, 1989) through excavations at Walpi (Adams 1979, 1982). Adams finds that Hopi ceramics changed significantly following the Revolt with the elimination of Spanish forms and designs, a noticeable influence from Tanoan émigrés, and the resumption of traditional practices of ceramic production, surmising: "The manufacturers were reasserting traditions in ceramic production and use, which symbolized the 'conquest' of the Spaniards and their material culture by Pueblo values and beliefs" (Adams 1989:85). Adams concludes that "the Spanish missionary program at Hopi can only be considered a failure" (Adams 1989:87). This assertion is supported by rock art on Antelope Mesa (near Awat'ovi), which exhibits a dearth of Spanish imagery and evidence for Christian influence (Dongoske and Dongoske 2002). Based on the corroboration of these findings with Hopi historical accounts, Kurt and Cindy Dongoske suggest that the Hopi maintained their adherence to traditional practices throughout the colonial period, while feigning conversion to Christianity in order "to maintain access to the material goods introduced by the Spanish" (Dongoske and Dongoske 2002:128-129). However, this assertion is complicated by the discovery of post-1680 burials in the nave of the church at Awat'ovi,

which Brew maintains is evidence for the persistence of Christian belief among the Hopis even after the Spaniards were eradicated in the Revolt (Brew 1994:31, 38).

Spanish Site Archaeology

Spanish site archaeology refers to the archaeology of the villa of Santa Fe and the rural settlements and haciendas of seventeenth- and eighteenth-century Spanish colonists in New Mexico (Preucel 2002b:16). Unlike the Spanish missions, these sites have attracted surprisingly little attention from academic archaeologists, with only small numbers recorded mainly in the contexts of salvage archaeology or cultural resource management projects (Ayers 1995). Spanish sites have the potential to yield important information about the Pueblo Revolt, as they were often sequentially transformed from pre-Revolt locales of native exploitation, to battle sites, to post-Revolt Pueblo dwellings. Thus far, only archaeological investigations at the Palace of the Governors in Santa Fe (Snow 1974; Seifert n.d.) have generated any direct information concerning the Pueblo Revolt era among Spanish sites.

Cordelia Snow directed salvage excavations at the *casas reales*, or Palace of the Governors, in 1973 and unearthed an abundance of information relating to pre-Revolt Spanish life in the colonial capital. Snow also found evidence for the subsequent Pueblo reoccupation and remodeling of the Palace following the Revolt, including items of Pueblo manufacture such as projectile points, chipped stone tools, manos, turquoise beads, worked selenite, a clay pipe, a ceramic figurine, bone awls and needles, and a modified antler tool. These excavations uncovered nine storage pits that had been filled

with broken pottery and bone refuse following the Revolt (Snow 1974:17). As at the missions of Awat'ovi and Hawikku, Puebloans modified the architecture of the Palace in the wake of the Revolt as well, sub-dividing rooms into smaller units and closing doorways and windows, installing ladder-accessed roof entrances. In fact, when Vargas visited Santa Fe during the initial stages of the Spanish reconquest in 1692, he noted that the Indians had transformed the *casas reales* into a walled and fortified pueblo (Kessell and Hendricks 1992:396).

Excavations at the Palace of the Governors also found that, as at other Revolt era sites, Pueblo peoples did not eliminate all Spanish practices and material culture. Modified Spanish items such as spindle whorls and pendants of worked majolica were found in post-Revolt levels. Spanish sized adobes were used in the Pueblo modification of the Palace, which included the addition of European-style corner fireplaces. There is even evidence for the construction of a Spanish-style, wood- and sand-lined irrigation system by the Revolt era Puebloan occupants, designed to bring running water from the plazas into residential areas (Seifert n.d.).

Pueblito Archaeology

The third archaeological subfield that informs the study of the Pueblo Revolt era is Pueblito archaeology (Preucel 2002b:15), though thus far it has provided only scant evidence relating directly to the Revolt period. Pueblitos are small masonry structures, usually erected in defensive locations on the boulders and buttes of the Largo and Gobernador Canyon areas of northwestern New Mexico—known as the *Dinétah* to the

Navajo (Towner 1996, 2003). While these sites were originally thought to have been constructed by Pueblo refugees living with the Navajo during the Revolt era (Kidder 1920; Keur 1944:86; Dittert 1958), recent reevaluation has determined that only one—Tapacito Ruin (LA 2298)—positively dates to the Pueblo Revolt era, with tree-ring dates of 1694 (Towner and Dean 1992). Like the Revolt era missions and Spanish sites mentioned above, Tapacito Ruin displays architectural characteristics that demonstrate the persistence of Spanish influence during this period, including Spanish-style hooded corner fireplaces constructed in two of the four main rooms. Spanish military journals of the early eighteenth century document the presence of Pueblo peoples—Jemez in particular—living with the Navajo in this area in 1705 (Hendricks and Wilson 1996). This documentary evidence, combined with the archaeological data from Tapacito Ruin, demonstrates that Pueblo refugees did migrate to the Navajo heartlands in an attempt to escape the Spanish reconquest at the close of the Revolt era, but probably in smaller numbers than previously suggested.

Refuge Site Archaeology

The most abundant source of archaeological information related to the Pueblo Revolt has come from refuge sites (Preucel 2002b:13)—new pueblos constructed in the years following 1680, when a dramatic shift in Pueblo settlement patterns occurred as mission villages were destroyed and new mesa-top communities established (Liebmann et al. 2005). These sites garnered a flurry of interest among early Southwestern anthropologists (Cushing 1890; Fewkes 1891; Mindeleff 1891; Bandelier 1892; Nelson

1914a; Kroeber 1916; Spier 1917), but after these initial studies, refuge sites were not systematically investigated for more than 75 years. Recently however, the archaeology of refuge villages has received renewed attention, coinciding with a growing interest in the reexamination of historic Puebloan archaeology (Ferguson 1992, 1996; Ferguson and Mills 1998; Preucel 1996, 2000a, 2000b, 2002a; Snead and Preucel 1999; Preucel et al. 2002; Wilcox 2001; Liebmann 2001, 2002a, 2003, 2004; Liebmann et al. 2005).

Early scholars of the American Southwest took a particular interest in the Zuni refuge site of Dowa Yalanne, which was mapped by Bandelier (Lange and Riley 1970:47-51) and occupied "the connecting link" in Frank Hamilton Cushing's hypothetical relation of prehistoric and historic Zuni architecture (Cushing 1890:156-157). Both Cushing and Bandelier believed the layout of Dowa Yalanne to correspond with the number of Zuni villages occupied at the time of the Spanish entrada, and/or the famed "Seven Cities of Cibola" (Ferguson 1996:53), a hypothesis disputed by their contemporaries and successive generations (Fewkes 1891:110-111; Mindeleff 1891:89-90; Kroeber 1916:28-30; Spier 1917:231). The layout of this site continues to spur interest today, and constitutes the focus of sustained research by T. J. Ferguson (1992, 1996, 2002). These studies indicate that the architecture of Dowa Yalanne is substantially different from Zuni sites occupied immediately before and after the Pueblo Revolt, and reflects "a considerable amount of social experimentation going on in the settlement as the members of six pre-Revolt pueblos sought to reorganize themselves into a single community" (Ferguson 2002:38).

In the northern Rio Grande, the history of archaeological investigations at refuge pueblos began with Nelson's 1912 investigations of Kotyiti (Nelson 1914a). This

project, carried out under the auspices of the American Museum of Natural History, remains the only documented excavation of a refuge pueblo to date (Preucel 2002b:13). Mentions of excavations at Cerro Colorado and Astialakwa in the early twentieth century exist as well (Regan 1917:30; Alexander and Reiter 1935:9), though records of these excavations (if they indeed happened)[3] either were not kept or have not yet been discovered. In the 1930s H. P. Mera mapped many of the eastern Pueblo refuge villages as part of his survey of glaze ware sites (Mera 1940), including Kotyiti, Patokwa, Boletsakwa, Canjilon/Old Santa Ana, and Old San Felipe.

Recently, Preucel has documented and mapped the ancestral Cochiti refuge sites of Kotyiti and Kotyiti East (Preucel 1996, 2000a), demonstrating conclusively that the two sites were contemporaneous and "formed a single community" (Preucel 2002b:15; Preucel et al. 2002:83). The results of this research have also revealed the significance of architecture in furthering the revivalist discourse of the Revolt period revitalization movement (Snead and Preucel 1999; Preucel 2000a & b). Furthermore, these investigations have shed light on the shifting ethnic affiliations negotiated by Pueblo persons throughout these turbulent years, providing evidence for the ethnogenesis of a pan-Pueblo identity during the Revolt era (Wilcox 2001; Preucel et al. 2002). Analyses of ceramics from this project have examined the role of Pueblo women in the mediation of social and political identities, finding evidence for their participation in the revitalization discourse; as well as challenging ethnohistorical statements that all Keres

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[3] The mention of excavations at Astialakwa may in fact be the result of a confusion of Towa place names; it seems likely that Alexander and Reiter may have meant Kwastiukwa (LA 482) instead. See Elliott (1986:14) for additional details on the Jemez place-name controversy.

Pueblos were at war with the Tewa during the post-Revolt period (Capone and Preucel 2002).

By far the most remote and isolated refuge village is the Scott County Pueblo, also known as *El Cuartelejo*, located in west-central Kansas (Witty 1983). Occupied by Picuris refugees living with Plains Apaches during the Reconquest era (and possibly originally constructed by expatriates from Taos around 1664), this enigmatic pueblo in the middle of the plains has been the subject of repeated investigations for more than a century. First excavated in 1897-98 (Williston 1889; Williston and Martin 1900; Martin 1909), the site was also examined by the Smithsonian Institution in 1939 (Wedel 1959:422-468) and "local collectors" in 1945. In 1965, early historic Plains Apache remains were found in close proximity to the pueblo (Gunnerson 1968), and in 1970-71 the Kansas Historical Society developed and reconstructed the site for modern interpretation, discovering 15 sherds of Tewa polychrome pottery (Witty 1971a & b, 1983).

Although only a small number of the relevant mission, Spanish, pueblito, and refuge sites have been thoroughly investigated to date, these archaeological studies have already enhanced our understanding of the Pueblo Revolt era significantly, providing a source of data independent from the biases of Spanish colonial documents or Pueblo oral traditions. One aspect of the Revolt that has recently been highlighted by these investigations is the importance of a revitalization movement in the organization and execution of the Revolt. Preucel (2000a) identifies nativism, revivalism, and messianism as crucial factors in the organization of the Pueblo Revolt (see also Harris 1980:422-423;

Ortiz 1994; Reff 1995; Graziano 1999:115-119), accentuating the significance of cultural revitalization during the era of Pueblo independence.

The Pueblo Revitalization of 1680: An Anthropological History of the Pueblo Revolt Era

In order to further investigate the revitalization movement that occurred in New Mexico between 1680 and 1696, the following section endeavors to (re)create a new history of the Pueblo Revolt era—one that foregrounds the importance of the revitalization process in the organization, execution, and aftermath of the uprising. This version of events differs from previous accounts in that it does not attempt a comprehensive re-telling of the Revolt saga. Instead, this account utilizes the revitalization model pioneered by Wallace (1956, 1966, 1970) and elaborated in Chapter II to illuminate the Pueblo Revolt era revitalization movement. The application of the (universal) revitalization model to the (specific) historical episode of the Pueblo Revolt helps not only to elucidate the events of 1680 to 1696, but also to deduce details previously overlooked or unacknowledged. All the events described herein are based upon information derived from primary historical documents, Pueblo oral traditions, and archaeology, and any conclusions drawn from the revitalization model are supported by the existence of corroborating data in the historical and archaeological records.

As Wallace (1956) and others (Harkin 2004a) have documented, the majority of revitalization movements are preceded by periods of increased stress, and Pueblo

revitalization during the Revolt era is no exception. Enduring and extensive stresses on multiple aspects of Pueblo culture—including subsistence, economy, religion, and demography—accompanied the Spanish colonization of New Mexico. Most notably, Spanish colonial policies exacted unfair tariffs, promoted mandatory labor with little or no compensation, attempted to eradicate traditional religious practices, and forcibly relocated Pueblo people, radically altering traditional Pueblo culture and society. These injustices, combined with the introduction of epidemic disease, drought, famine, and increasingly frequent raiding of neighboring Utes, Navajos, and Apaches produced a growing antagonism among the Pueblos toward the Spaniards throughout the seventeenth century. These changes thus introduced new pressures and strains into Pueblo society on a scale heretofore unknown, overwhelming traditional Pueblo means of mitigating stress and providing a context ripe for the promulgation of a revitalization movement.

The Period of Increased Stress, 1598-1680

The seeds of the Pueblo Revolt revitalization movement were sown during the earliest days of Spanish colonization. The Spanish incursions and expeditions of the sixteenth century (including those of de Niza [1539], Coronado [1540-42], Rodriguez and Chamuscado [1581-82], Espejo [1582-83], and Castaño de Sosa [1590-91]) were often cruel in their treatment of indigenous peoples as they searched in vain for new sources of wealth. Yet their presence was temporary and as such endured, if not welcomed, by the natives. With the establishment of Spanish missions and permanent settlements under Don Juan de Oñate in 1598, the people the Spaniards called "Pueblos" began to

experience significant changes in the lifeways they had cultivated for centuries. Spanish programs of taxation, forced labor, and missionization, combined with the introduction of epidemic diseases, drought, famine, and increased raiding by neighboring tribes, provided fertile ground for the seeds of revitalization to take root.

From its earliest days, Spanish colonialism in New Mexico exerted pressures that changed the lives of Pueblo people. Upon the arrival of Oñate and his party in the northern Rio Grande in 1598, the Spaniards evicted the members of the winter moiety of San Juan Pueblo from their homes and moved into their village (Ellis and Ellis 1992; Riley 1999:75). While this displacement is reported to have been voluntary, modern San Juan tribal members have wondered "how many Spanish harquebuses the San Juan people were staring at when the request was made" (Ortiz 1979:281). Shortly thereafter, Spaniards took up residence in Pueblo communities across the Southwest, establishing missions and colonial outposts throughout the region.

Encomienda and Repartimiento

The economic burden of supporting these newcomers quickly fell onto the Pueblos. As vassals of the Spanish crown, all Pueblo households were required to pay tribute to the governor in the form of clothing and maize. Many also fell under the jurisdiction of the *encomienda* system, whereby favored subjects of the Spanish crown (*encomenderos*) were extended the privilege of extracting labor and/or annual tribute from a specified village or group of Indians (Anderson 1985). These taxes, and the manner in which they were levied, quickly disrupted the existence the Pueblos had known for centuries. Initially, each Pueblo household was required to supply one cotton blanket, tanned buckskin, or buffalo robe and one *fanega* (approximately 35 liters) of

maize per year (Hammond and Rey 1953, 2:653; Riley 1999:162), but the Spaniards quickly compounded the abuse of this system. Writing in 1601, Fray Lope Izquierdo complained that:

> during the winter . . . our men, with little consideration, took blankets away from the Indian women, leaving them naked and shivering with cold. Finding themselves naked and miserable, they embraced their children tightly in their arms to warm and protect them." (Hammond and Rey 1953, 2:680)

Others noted that clothing was collected "with such a severity that it availed [the Pueblos] nothing to say they had nothing but what they had on" (Hammond and Rey 1953, 2:210). In 1609, the viceroy noted in his instructions to the new governor: "the tribute levied on the natives is excessive and is collected with much vexation and trouble to them" (Hammond and Rey 1953, 2:1089).

But the encomienda system did more than simply burden the Pueblos with excessive tariffs. It weakened the economic foundations of Pueblo society. In 1630, Fray Alonso de Benavides denounced the encomenderos' virtual enslavement of orphaned Pueblo children under the guise of charitable care: "Spanish governors . . . issue warrants or permits to take Indian boys and girls from the pueblos on the pretext that they are orphans, and take them to serve permanently in houses of the Spaniards where they remain as slaves" (Hodge et al. 1945: 171). Other accusations charged the encomenderos with grazing their herds in Pueblo fields (Anderson 1985:363), destroying the crops and crippling the Pueblo economy in the process. Equally damaging was the *repartimiento*, a system that forced Pueblo workers to provide labor for Spanish farms and haciendas. Under this system Puebloans commonly complained of being forced to toil in the fields of the Spaniards during the weeks when they were most needed at home:

planting and harvest season. This caused a decline in the amount of foodstuffs harvested annually by the Pueblos, reducing their reserves to dangerously low levels (Simmons 1980:13).

Even worse was the sacking of Pueblo stores of maize. In the early seventeenth century the Spaniards reported sending "people out every month in various directions to bring maize from the pueblos. The feelings of the natives against supplying it cannot be exaggerated . . . for they weep and cry out as if all their descendants were being killed" (Hammond and Rey 1953, 2:608-610). The colonial government soon resorted to increasingly harsh and forceful methods to exact this tribute, including the use of torture (Hammond and Rey 1953, 2:680) and threats of military engagement (Anderson 1985:366).

Encomienda and repartimiento quickly depleted native reserves. Within the first three years of colonization, Pueblo people were reported to be subsisting on "tomatoes mixed with sand and dirt . . . as they had nothing else to live on." By their own admission, the Spaniards had "taken away from them by force . . . what they had saved up for many years" (Hammond and Rey 1953, 2:687). Ironically, this severe taxation resulted in an inversion of the subsistence economy, forcing the Pueblos to become dependent upon the Spaniards for food. Pueblo women are reported to have regularly followed the carts in which maize was transported from the pueblos to the capital, in hopes of scavenging any stray morsels that might fall off (Hammond and Rey 1953, 2:610).

Evangelization and Missionization

The reduction of Pueblo surpluses had the added effect of aiding the Franciscan missionary effort. With no crops to harvest and their reserves exhausted, Pueblo peoples increasingly turned to the newly established missions for access to maize. Izquierdo reports a woman:

> asking for aid in the best manner she knew, to keep from starving. She offered, if given food, to accept baptism for herself and her eight-year-old son. They were so weak, however, that the medicine and attention given them were not sufficient to save them from dying. (Hammond and Rey 1953, 2:679-680)

By establishing missions as centers of redistribution, the Franciscans gained valuable capital in the seventeenth-century political economy of New Mexico. During times of hardship, mission silos became the sole source of subsistence, with the clergy serving as the gatekeepers of the storehouses.

The missionary program was essential to the colonization of New Mexico. Indeed, the Spanish claim to the New World was staked on papal bulls of 1493 that required Spanish monarchs to ensure the instruction of the natives in the Christian faith. Additional bulls in 1501 and 1508 left no doubt that the Crown's primary responsibility, if not their principal ambition, was to save indigenous souls (Weber 1999b:4). In fact, the official declarations of Spanish sovereigns unequivocally affirmed that conversion of the native population was the primary aim of their colonial enterprise (Simmons 1979:181). This was reemphasized in New Mexico after 1608, when the territory changed from a proprietary colony funded by Oñate to a royal colony funded by the imperial treasury (Weber 1999b:5; Riley 1999:110).

Unfortunately the friars were blind to the fact that, like the encomienda and repartimiento, missionization also contributed to the pressures weighing on Pueblo

society, resulting in more affliction than comfort among the native populations. In 1662 a Spanish soldier complained, "the friars are not content with a few helpers. They want . . . the Indians of the entire pueblo, for gathering piñon nuts, weaving, painting, and making stockings, and for other forms of service. And in all this, they greatly abuse the Indians, men and women" (Scholes 1942:59). Even more stressful were the Spanish efforts to eradicate traditional Pueblo religion. Franciscans regularly attempted to drive the Devil from the pueblos, through the raiding and destruction of Pueblo homes and ceremonial chambers, confiscation of masks and ritual paraphernalia, prohibition of kachina dances, and periodic arrests of religious leaders (or as they called them, "sorcerers"). Typical of this fanatical zeal was the behavior of a young friar stationed at Pecos, who in 1620 ordered all the implements of native religion to be smashed, including "many idols" of clay, stone, and wood, as well as other ceremonial paraphernalia (Kessell 1979:110). A decade later, Benavides boasted that he had burned "more than a thousand idols of wood" in a single blaze, while their shocked wardens looked on in dismay (Gutiérrez 1991:72). In 1661, the Franciscan leadership decreed an unconditional prohibition of kachina dances, and missionaries were instructed to collect and destroy all materials of "idolatry." Shortly thereafter, 1600 kachina masks were reportedly incinerated (Spicer 1962:160-161).

Iconoclastic practices such as these have been documented in the archaeological record as well, with caches of Pueblo ceremonial artifacts "subjected to violent misuse," smashed "idols" that were later reverently reassembled and curated, and intentionally shattered painted stone slabs found in seventeenth-century contexts at Pecos (Kidder 1932:86-88, 96). At Awat'ovi, Hawikku, Pecos, Abó, and Quarai, kivas were filled in

and sealed in the early seventeenth century (Montgomery et al. 1949:157; Smith et al. 1966:42-44; Riley 1999:124), and sometimes burned as well (Kidder 1958:236-240), all presumably under the direction of the newly arrived friars. These activities are further corroborated by Pueblo oral histories, which recount the destruction of altars and burning of ceremonial items in the plazas of villages (Wiget 1982:186).

The Franciscans did not restrict their abuses solely to inanimate objects, however. Many turned their fervor on Pueblo persons directly. Upon learning that long hair was of great ceremonial importance to the Puebloans, missionaries began to cut the natives' tresses for even trivial transgressions. Loss of one's hair was a great indignity to Pueblo people, and was so disturbing to some that a colony of newly shorn, disgruntled, and unconverted Puebloans formed for a time at Acoma in the second decade of the 1600s. Shortly thereafter the Spanish government outlawed forced hair cutting, although the practice continued throughout the seventeenth century (Riley 1999:96).

More common were the physical abuses enacted upon Pueblo people by the priests. Corporeal punishment was an accepted practice among the Franciscans, and whippings were carried out on a daily basis in mission communities throughout the seventeenth century. Among the more brutal disciplinarians was Fray Salvador de Guerra, who in 1665 whipped a Hopi man for worshipping idols until "he was bathed in blood." Later the same day, Guerra beat him again (inside the church, no less), doused him in turpentine and set him aflame (Scholes 1942:12-13). When interrogated regarding this incident, Guerra testified that he had "occasionally used beating and larding with turpentine to punish idolaters and boys and girls for '*culpas particulares*'" (Scholes

1937:145). These statements are corroborated by the testimony of witnesses who had seen those "who are marked by burns":

> [Guerra] took from the Indians a great amount of cloth and [other] tribute. The Indians went to the custodian to complain, or else to the governor. When the Indians returned to the said places, Fray Salvador had them brought to him, and he went to their homes to search them. He found some feathers or idols, and consequently seized [their owners] and ordered turpentine brought so as to set fire to them . . . One of them he sent to [the witness's] pueblo. The Indian was about to die of his burns and could not walk. (Hackett 1937, 3:141)

On another occasion, a man who had been "set on fire" by Guerra "got up, and desiring to go by a certain road where there is a tank of water, to throw himself in it . . . Guerra mounted a horse, thinking that the Indian was going to complain to the government . . . and rode over him with his horse until he killed him" (Hackett 1937, 3:234).

In fact, the killing of Pueblo persons under the Spanish program of evangelization was common. One witness testified during this period that: "it is considered a jest for the *doctrineros* [missionaries] to kill the Indians" (Hackett 1937, 3:218). Public executions of "idolaters" were common: 29 were hanged at Jemez in the 1640s, nine in the 1650s, and in the late 1660s "some were hanged and burned in the pueblo of Senecú as traitors and sorcerers" (Hackett and Shelby 1942, 2:226).

Reports of sexual abuse by clergymen abound as well. Documents from the Holy Office of the Inquisition dating to the 1660s are filled with sordid accounts of sexual exploitation, although considering the context in which these accusations were made (Riley 1999:156-185), they must be evaluated with a critical eye. Still, many of these accounts are corroborated by multiple sources, sometimes including the accused themselves, and document the fact that sexual abuse of Pueblo women by priests was not an uncommon occurrence in seventeenth-century New Mexico. Among the more famous

examples are the testimonies of 22 women from Tajique who accused a missionary of rape (Riley 1999:171). A man charged that the same friar had "taken his wife away from him, and had obliged her every night to arise from her husband's side to go and sleep with him" (Hackett 1937, 3:214-16). The accused Franciscan admitted to having a child with this woman, and that "as a man, he had enjoyed" the mother (Gutiérrez 1991:124). At Awat'ovi, a friar allegedly "had improper relations" with a woman, ordered a man who knew about it killed, then had the assassins killed for fear that they would inform on him (Hackett 1937, 3:259-260). A similar charge was brought against a priest at Taos for the "crime of forcing a woman, splitting her throat, and burying her in his cell" (Hackett 1937, 3:214-216). Sexual relations between Franciscans and their parishioners were apparently so common that a priest matter-of-factly reported in 1660 that "all the pueblos are full of friars' children," and that many of his fellow missionaries had concubines (Gutiérrez 1991:123). In the 1630s, two women at Taos accused Fray Nicolas Hidalgo of murdering their husbands, raping them, and raising the children of these encounters as Spaniards with him in the mission. Hidalgo was also indicted for regularly sodomizing and castrating Pueblo men as a form of punishment (Gutiérrez 1991:76, 123).

Though the accuracy and veracity of these inquisitional testimonies can be questioned, the abusive nature of the Spaniards is also recorded in Pueblo oral tradition. Hopi histories of early Spanish contacts refer to the priests as *Tota'tsi*, meaning tyrant, dictator, or demanding person (Hopi Dictionary Project 1998:607). These histories tell of priests "who intimidated the people into slave labor under the threat 'that they would be slashed to death or punished in some way'" (Wiget 1982:185-186). In fact, scenes from these stories may be depicted in petroglyphs near Awat'ovi (Dongoske and Dongoske

2002). These oral traditions also detail "a deliberate ruse on the part of the priests to separate husbands and fathers from their families, thus permitting the priests free access to illicit affairs with the women" (Wiget 1982:185). Oral traditions regarding priests at Shungopovi state:

> the priests would send the husbands to the Little Colorado or to Moencopi for water. The men were not long deceived, however, and many went only a few miles before they returned to surprise the priest in their wives' sleeping chambers. They were punished for this, and as an alternative to visiting the women the priest began to bring the young girls to his house. One of the girls had a brother who found out about this and who confronted the priest with his knowledge and threatened to kill him, but the priest scared him away. The boy went to Awat'ovi and there learned that the abuse of the women was widespread. (Wiget 1982:186)

Other Hopi oral traditions detail various Spanish attempts to eradicate aspects of native religion, including the suppression of kiva rituals, forbidding kachina dances, banning the production and use of *pahos* (prayer sticks), and compulsory attendance of Catholic masses (Wiget 1982:184-85).

Implicit in Spanish missionary activities were policies of *congregación* and *reducción*—attempts to move native populations living in dispersed communities into fewer settlements to facilitate proselytization and instruction in European methods of farming and herding. Though apparently not carried out systematically throughout New Mexico, in some areas these efforts produced a significant shift in settlement patterns, aiding in the attrition of the pueblos (Barrett 2002a:141; Rothschild 2003:96-119). The disruptions caused by these movements almost certainly brought additional tensions into the lives of many Puebloans, as well as facilitating another major cause of stress in seventeenth-century Pueblos: disease.

Disease and Demographic Stress

Of all the stresses imposed on the Pueblo world by Spanish colonization, one of the most dramatic was the introduction of Old World diseases such as smallpox, measles, typhus, and influenza, which had devastating effects on Pueblo populations throughout the seventeenth century. Undeniably, many regional Native American populations were decimated following prolonged contact with Europeans after 1492, and the Pueblos were no exception. As Ann Ramenofsky notes, "the virgin-soil status of native New Mexicans, coupled with a settlement form that was pre-adapted for disease contact, created an ideal setting for the transmission of infectious agents" (1996:177). And while most scholars agree there was a general decline in population among the Pueblos during this period, the degree, nature, and timing of this decrease has been widely debated (Scholes 1930; Schroeder 1972; Zubrow 1974; Reff 1991:228-230; Ramenofsky 1996; Riley 1999:203; Kulisheck 2005). Accurate estimates of pre-Revolt Pueblo populations are hampered by the paucity of demographic evidence in historical records. There is little documentation of the population in New Mexico between 1600 and 1680, largely due to the fact that the natives destroyed most church records—including accounts of births, marriages, and deaths—in the wake of the Revolt.[4] Furthermore, the calculations made by missionaries during this period were sometimes grossly exaggerated in a deliberate bid to impress royal authorities and generate additional support from the government (Scholes 1930:97; Simmons 1979:192). Nevertheless, Franciscan records indicate a general decline in population throughout the eight decades from 1600 to 1680 (Riley

[4] A general census of the province was reportedly conducted in 1660 (Vetancurt 1971), but no copies of this survey have surfaced to date.

1999:203), a period when overstating population estimates would have been to their benefit.

Although documentary evidence regarding epidemic disease among the seventeenth-century Pueblos is scarce, a few references indicate that outbreaks occurred with sufficient frequency to drastically impact Pueblo populations. Oñate estimated the total Pueblo population at the turn of the seventeenth century to be around 60,000 (Hammond and Rey 1953, 1:485). An epidemic in 1636 reduced this population by as much as one-third (Gutierrez 1991:113), causing the Franciscan commissary-general to estimate that by 1638 the total number had declined to 40,000 "or a little less . . . to that extent in account of the very active prevalence during these last years of smallpox and the sickness of which the Mexicans called *cocolitzli* [general epidemic or typhus]" (Hackett 1937, 3:108). While these figures may not be numerically accurate, they nonetheless document a drastic reduction in population due to the arrival of the *Kliwah* (literally "refuse wind," a deity who visits smallpox and other epidemics on the Pueblos [Parsons 1939, 2:938]). Palkovitch estimates Pueblo population losses of up to 60-70 percent for the years 1606 to 1638 (Palkovitch 1994:93). Another scourge of smallpox struck in 1640 killing an estimated 3000, or nearly 10 percent of the Pueblo population at that time (Kessell 1979:163). Between 1622 and 1641, the Pecos population is estimated to have declined by 40 percent, from just over 2000 to 1189 (Kessell 1979:170). Moreover, the destruction wrought by disease is evident in the number of pueblos occupied—and vacated—throughout the sixteenth and seventeenth centuries. Between 1540 and 1643, the number of Pueblo villages was reduced from an estimated 75-80 pueblos to a total of 45 (Schroeder 1972:55, 1979).

Some scholars estimate that the greatest losses, both in terms of population and number of villages, were sustained during the years following 1650 (Simmons 1979:193; Kulisheck 2005). According to Vetancurt (1971), between 1638 and 1660 the population declined by 42 percent to approximately 24,000. In 1671 another outbreak—whether caused by measles, smallpox, or typhus is unclear —struck the Pueblos. Thus by 1678, under 20,000 Puebloans are likely to have remained (Simmons 1979:186; Kessell 2002:119). Even cautious estimates suggest that the Pueblo population decrease during the first eight decades of the seventeenth century was drastic: for every three Puebloans in 1600, only one was left by 1680 (Riley 1999:202). Less conservative calculations reckon population losses at as high as 80 percent or more (Upham 1982; Reff 1991:229).

Nomadic Raiding

Prior to Spanish colonization, considerable interaction occurred among the sedentary Pueblos and their nomadic neighbors. These contacts date back to at least circa A.D. 1200, but trade between Pueblos and Plains peoples intensified significantly after 1450 (Spielmann 1983, 1986), probably coinciding with an influx of nomadic Athapaskan peoples into the Southwest. While instances of hostility and raiding undoubtedly did occur between these two groups, the Pueblos seem to have negotiated a delicate but relatively stable commercial relationship with nomadic hunters in the pre-Contact era, based on trade and mutual benefit (Spielmann 1983, 1986, 1991; Baugh 1991; Habicht-Mauche 1991; Lintz 1991; Speth 1991). Thus when the Coronado expedition reached Pecos, they noted the uneasy truce that characterized the relationship between the Puebloans and the bison hunters of the southern Plains:

> they were friendly with them, and they (the Teyas of the Plains) went there [to Pecos] to spend the winter under the eaves of the settlements. The inhabitants do

> not dare to let them come inside, because they can not trust them. Although they are received as friends, and trade with them, they do not stay in the villages over night, but outside under the eaves. (Winship 1922:105)

Spanish colonization changed the dynamics of these relationships considerably (John 1975:55). The introduction of Old World domesticates such as cattle, sheep, pigs, and chickens to the Pueblos disrupted exchange by devaluing Plains trade items—particularly protein-rich foodstuffs such as bison meat (Spielmann 1989)—eventually contributing to a dramatic increase in the frequency and degree of hostilities between the Pueblos and proximate nomadic tribes. Possibly even more significant was the introduction of the horse (Lange 1979:202). By the mid-seventeenth century, Plains Apaches were adopting an increasingly equestrian lifestyle, utilizing horses to dramatically improve the efficiency of hunting and raiding expeditions (Riley 1999:197). Whereas previously the impacts of Athapaskan raiding parties were limited by what could be carried away on foot, the arrival of the horse allowed the Navajos and Apaches to seize substantially more loot per person, more frequently and with greater speed (John 1975:59).

The Pueblos suffered greatly as a result of these changes to Athapaskan hunting and raiding strategies. By 1607, Apache incursions had become so problematic that a friar dispatched to Mexico City reported that the "peaceful natives of New Mexico are frequently harassed by attacks of the Apache Indians, who destroy and burn their pueblos, waylay and kill their people by treachery . . . and cause other damages" (Hammond and Rey 1953, 2:1059). The attacks continued throughout the 1630s, when Athapaskan harassment upset trade in the Tompiro area significantly (Riley 1999:98).

The stresses caused by these raids seem to have frequently triggered bouts of famine in the Pueblos as well. In 1640 for example, Apache raids burned more than

20,000 fanegas of maize, and (combined with a lack of rainfall) resulted in widespread famine, killing 3000 Puebloans throughout the province (Simmons 1979:184). Similarly, in 1659 a Franciscan reported that "bands of heathen . . . have entered the pueblos of Las Salinas . . . Hemes [Jemez], San Ildefonso, and San Felipe. They have killed some Christian Indians and have carried off others alive to perish in cruel martyrdom" (Hackett 1937, 3:186). Shortly thereafter, the Pueblos suffered "so serious a famine that the natives had to sustain themselves on seeds of grasses, *tierra blanca*, and herbs of very injurious character" (Hackett 1937, 3:186-187).

In many cases, the hostilities of the nomadic hunters were carried out in retribution for Spanish slaving expeditions, which had captured Athapaskans to be sold in central Mexico or the mining colonies of Nueva Vizcaya (Gutiérrez 1991:113; Knaut 1995:161; Riley 1999:91). Unfortunately for the Pueblos, their close association with the Spaniards made them prime targets for Athapaskan reprisals, and their villages bore the brunt of the Apaches' wrath. Ironically, concurrent with this increase in raiding, the Spanish and Pueblo worlds became increasingly integrated. Whether this merger developed as a result of Athapaskan aggressions (i.e., the Pueblos became dependent upon the Spaniards for military protection) or vice versa (i.e., the Athapaskans took to raiding because the Spaniards disrupted traditional trade relations with the Pueblos) is debatable. In any case, Athapaskan raiding of Pueblo villages undoubtedly increased throughout the period from 1600-1680, adding to the myriad stresses impacting Pueblo life in the wake of Spanish colonization.

1663-1680: The Period of Deprivation

The stresses introduced as a result of Spanish colonization—*encomienda*, missionization and religious repression, disease, and increased raiding—coalesced in the period immediately preceding the Revolt to apply heretofore unprecedented pressures on the Pueblos. Beginning in 1663 famine began to haunt New Mexico, and missionaries resorted to handing out weekly rations to their parishioners, "to keep them from wandering away" (Hackett 1937, 3:204). In 1666-1667, a substantial drought struck the province (Ivey 1994), resulting in an inadequate harvest, thus forcing Spaniards and Puebloans to again draw on mission stores of wheat, maize, and beans. By 1668 the Rio Grande itself was running at a mere trickle (if at all), further straining the Pueblos dependent upon irrigation agriculture (Ivey 1994:82; Riley 1999:192). To make matters worse, in the same year crops were scourged by a "plague of locusts that laid waste [to] the fields." In the first half of 1669, Apache raids killed 373 Puebloans, stealing more than 4000 cattle, sheep, horses, and mules (Kessell 1979:218-219). The situation was growing increasingly grim, prompting the Franciscan commissary-general to write:

> [T]his kingdom is seriously afflicted, suffering from two calamities, cause enough to finish it off, as is happening in fact with the greatest speed.
>
> The first of these calamities is that the whole land is at war with the very numerous nation of the heathen Apache Indians, who kill all the Christian Indians they encounter. No road is safe. They are a brave and bold people. They hurl themselves at danger like people who know not God, nor that there is a hell.
>
> The second calamity is that for three years no crop has been harvested. Last year 1668, a great many Indians perished of hunger, lying dead along the roads, in the ravines, and in their hovels. There were pueblos, like Las Humanas, where more than 450 died of hunger. The same calamity still prevails, for, because there is no money, there is not a fanega of maize or wheat in all the kingdom. (Hackett 1937, 3:271-272)

Apache attacks in the autumn of 1670 compounded their woes (Kessell 1979:221). That year the Pueblos were reduced to eating "the hides that they had and the straps of the carts, preparing them for food by soaking and washing them and roasting them in the fire with maize, and boiling them with herbs and roots" (Hackett 1937, 3:17). The next year, epidemic disease was again visited upon the natives, afflicting the already weakened population with "a great pestilence [that] carried off many people and cattle." 1672 brought still more Athapaskan raids, as the "province was totally sacked and robbed by attacks and outrages" (Hackett 1937, 3:17). Months later they struck again at Hawikku, killing 200, taking 1000 captives, stealing all the livestock, and burning the village (Simmons 1979:184). By 1675 at least six pueblos were deserted (Schroeder 1979:241), and the rest were left in dire straits. On the eve of the Revolt in 1679, Fray Francisco Ayeta estimated that only 17,000 natives remained in New Mexico (Hackett 1937, 3:299).

Compounding the misery of the Pueblos during these years was yet another concentrated effort to eradicate traditional religion. During the taxing period between 1666 and 1673, Puebloans found that praying to the Spaniards' God and Santa Maria proved ineffective; they blamed the drought on the friars' forced cessation of rainmaking dances, disrupting the Puebloans' delicate balance with nature (Simmons 1980:12). As a result, Pueblo peoples returned to the kachinas in droves. In response, Spanish civil and ecclesiastical authorities united to suppress traditional Pueblo religious practices in the most brutal campaign ever. Under the administration of Governor Juan Francisco Treviño (1675-77), altars, prayer sticks, and masks were seized, dances forbidden, the gathering of Pueblo assemblies in kivas outlawed, and many of the sacred chambers

destroyed (Hackett and Shelby 2:245). Tensions reached the boiling point when Treviño ordered the arrest, public whipping, and imprisonment of 47 *hechiceros* (sorcerers) from pueblos throughout the province. Three were executed—one each in the plazas of Jemez, San Felipe, and Nambe, with a fourth committing suicide before his sentence could be carried out (Hackett and Shelby 1942, 2:289-90, 300-301). In protest, a band of armed Tewa stormed the Palace of the Governors in Santa Fe, demanding that their leaders be pardoned. Treviño assented, but only on the condition that the Pueblos would "forsake idolatry and iniquity" (Hackett and Shelby 1942, 2:301).

The Period of Cultural Distortion

In his explication of the revitalization process, Wallace (1956, 1970) notes that periods of extreme stress brought on by massive cultural and societal changes (such as colonization) often produce situations of "cultural distortion." Under these conditions basic structures of the culture begin to break down, with an increase in non-traditional behaviors among members of the social group such as the disregarding of sexual and kinship mores, defiance of authority, and intragroup violence (Wallace 1956:269). Not surprisingly, just such a period of distortion occurred among the Pueblos in the 1670s. Yet Spanish records typically do not detail the internal strife that occurred within Pueblo communities prior to the Revolt. Consequently, to assess the degree of cultural distortion in the Pueblos prior to the Revolt is difficult based on historical documents alone, although one possible hint of such internal discord was the emergence of two distinct

factions at Pecos—one pro-Spaniard, one utterly opposed to the outsiders (Kessell 1979:232).

Pueblo oral traditions, on the other hand, clearly document cultural distortion in the years preceding the Pueblo Revolt, as predicted by Wallace. An unambiguous example comes from Hopi oral traditions of life in the late seventeenth century. These stories recount a situation in which the people began living in a state of *koyaanisqatsi*, a "social disease of turmoil and corruption which affects the community" (Malotki et al. 1993:288) around the time of the Pueblo Revolt. Their licentious behavior included contempt and disregard for traditional authority figures, aberrant violence, and pervasive sexual deviance. As one Hopi man recalled:

> And this is exactly what happened. People began to change in their ways. There was no mutual respect any more. They were constantly arguing and fighting with one another. People were robbed of their food. A woman would be taking piki somewhere, only to have others snatch it away from her. No one had any concern for his fellow man. For all kinds of reasons people would get angry at each other. Men and boys would reach under the dresses of women and girls and rape them. People seemed to be blind to what they were doing. They got worse and worse. For example, if children encountered an old person relieving himself, they would smear excrement all over him. They showed no compassion for anyone. The leaders of the religious societies, too, grew increasingly negligent in their ceremonial duties. Everything was completely insane. The life the inhabitants of Awat'ovi were living was one of utter chaos. They were all pitted against each other. No one displayed any fondness for his fellow man. . . .
>
> Their minds were focused on bad things only. Wasting and undoing things was what they paid attention to. If a man was working on his field somewhere, they would go up to him, take his tools away, and rough him up. All kinds of nasty things they did to people and then left them in their misery, only to continue somewhere else. Once in a while they actually committed murder. Prime targets were women, of course. Wherever they encountered a single woman, they ripped off her clothes and raped her one after the other. They also pursued the girls, for they had no respect for anyone. For this reason a girl or woman dared not go after water or leave her house unattended. They accompanied each other and helped each other in this way. The behavior of the sorcerers was disgusting. The hunters, too, they molested. They would take from them the game they had stalked. They stripped them of their other belongings,

> too, beat them up and then abandoned them. This is the kind of life that was going on.
>
> Before long the rainfall became sparser and sparser. Although the crops were still growing, they did not grow as lushly any more. The harvests, too, were not as large as in prior years. The sorcerers who were responsible for these changes did not listen to anyone, neither their fathers nor their uncles. They also paid no attention to their religious beliefs. The words of their kachina godfathers and Powamuy godfathers meant nothing to them. They only had contempt for people in leadership positions, no matter what their rank—village leader, warrior chiefs, or those in charge of religious societies. They neglected their old beliefs and kept criticizing and ridiculing their religion. For this reason, all kinds of evil things took place in the village. People were even bewitching each other. The situation was as grave as it had been long ago in the underworld. People were on their own. They became more and more scared of the sorcerers and preferred to stay inside their homes. (Malotki et al. 1993:341, 357-359)

"Life was out of joint," the narrator succinctly concludes (Malotki et al. 1993:375). The case of seventeenth-century Hopi *koyaanisqatsi* is a prime example of the type of internal distortion that typically precedes a revitalization movement.

By 1680, then, it had become abundantly clear to Pueblo people that their world was out of balance. In Pueblo minds, all their afflictions and tribulations—*encomienda*, missionization, disease, raiding, famine, drought, and cultural distortion—could be attributed to a single source: the Spaniards. The foreigners had upset the delicate balance that the Pueblos struggled to maintain amongst themselves and their environment. This context was ideal for the fomenting of a revitalization movement; and out of this chaos arose a prophet—a man with a message from the spirits revealing a plan to restore equilibrium.

Formulation of the New Cultural Model

As early as 1681, Indian and Spanish accounts identified one man as the primary organizer of the Pueblo Revolt of 1680: a native of San Juan pueblo named Po'pay. Only a few details about this enigmatic leader are revealed directly in the historical record, and as a result, his background and identity has been the subject of considerable debate (Chávez 1967; Dozier 1970; Ortiz 1980; Beninato 1990; Sando 1998). What is known is that Po'pay was among the aforementioned 47 Pueblo "sorcerers and idolaters" whipped in the plaza of Santa Fe in 1675 (Hackett and Shelby 1942, 2:289, 301). Ortiz suggests that this whipping took place because Po'pay was a prominent religious leader at San Juan, possibly a priest of the summer moiety—as suggested by his name, which Ortiz translates as "ripe cultigens" (Ortiz 1980:20). Alternatively, Sando believes Po'pay to have been a war captain (Sando 1992:177). Regardless of his specific position, the evidence suggests that he "was obviously a man holding an important office in the traditional socioreligious organization" of his Pueblo (Dozier 1970:56).

Following his public flogging in 1675, Po'pay retreated to the northernmost extent of the province, Taos Pueblo, to escape further punishment from the Spaniards (Hackett and Shelby 1947, 2:246). There he claimed to have been presented with the vision that would spawn the revitalization movement in the years to come. According to San Felipe native Pedro Naranjo:

> in an estufa [kiva] of the pueblo of Los Taos there appeared to the said Po'pay three figures of Indians who never came out the estufa. They gave the said Po'pay to understand that they were going underground to the lake of Copala. He saw these figures emit fire from all the extremities of their bodies, and that one of them was called Caudi, another Tilini, and the other Tleume; and that these three beings spoke to the said Po'pay (Hackett and Shelby 1942, 2:246)

Wallace points out that the new cultural model forming the core of any revitalization movement typically has its origin in the mind of a single individual, occurring in a moment of revelation ascribed to communication with supernatural agents (Wallace 1956:272). According to Po'pay, this revelation occurred in the kiva at Taos, when mysterious supernatural figures visited him sometime between 1675 and 1680.

Following this revelation, Po'pay began to preach a tri-partite message of cultural revitalization to the Pueblo peoples, comprised of nativistic, revivalistic, and millenarian aspects (Reff 1995:69-72; Preucel 2000a). The message the spirits had delivered to him was simple: a new world of peace, prosperity, and happiness was possible (millennialism), if only the Pueblos would rid their world of the Spaniards and all their influences (nativism), and return to the ways of their ancestors (revivalism).

Specifically, the spirits had commanded that the Puebloans: kill the Spaniards—men, women, children, and priests; burn the churches and destroy all trappings of Christianity; discard the Spanish names that had been imposed upon them; dissolve their (permanent) Christian marriages and return to traditional Pueblo practices of (non-binding) serial monogamy and polygamy; turn loose all livestock and burn all the seeds of Spanish-introduced crops; perform ritual cleansings to wash away Christian baptism; disallow the use of the Castilian language; and ban any utterance of the name of Jesus Christ, the Virgin Mary, or the Saints, under penalty of death. Simultaneous with this nativistic cleansing the Pueblos were to construct new villages, build new kivas and kachina masks, erect new shrines, and revive traditional religious dances, all in the manner that their ancestors had done. Once this nativism and revivalism was complete, Po'pay promised, they would be blessed with a world of prosperity, living in the ease that

had purportedly graced the lives of their prehispanic ancestors (Hackett and Shelby 1942, 2:232-253, 328-330, 342-346, 359-362).

Communication of the Revelation and Organization of the Movement

As Wallace points out, communication of the new cultural model is the next step in any successful revitalization movement (Wallace 1956:273). Although some accounts claim that Po'pay traveled from village to village on a whirlwind to coordinate the Revolt (Simmons 1980:13), it seems more likely that he first disseminated his revelation by meeting directly with leaders from the other Pueblos in the days, months, and years subsequent to his initial vision. Sando (1979a:195) suggests that these meetings likely took place on the feast days of the patron saints of particular villages. Following the Revolt, Pueblo captives told the Spaniards "that among the old men many juntas had been held with the Indians of San Juan, Santa Clara, Nambé, Soxuaque (Pojoaque), Emex (Jemez), and other nations" (Hackett and Shelby 1942, 1:4). At these meetings Po'pay told those gathered of his communiqué from the spirits, of his plans to usher in a new age of prosperity and happiness, and of the specific acts of nativism and revivalism that would be necessary to bring about this new millennial existence. Through these direct, face-to-face encounters Po'pay was able to build a successful coalition among the leaders of the Pueblos, eventually enlisting the aid and cooperation of every major Pueblo group, excepting the Piros (Dozier 1970:56).

Any successful revitalization movement must organize its members in order to sustain itself, and the Pueblo revitalization of 1680 was no exception. As word of

Po'pay's revelation spread among Pueblo leaders, a core group of "special disciples" (Wallace 1956:273) formed around this charismatic visionary. The establishment of such cliques is a characteristic common to revitalization movements around the world, and frequently includes individuals who were previously influential within their respective communities (Wallace 1956:273). Not surprisingly, many in Po'pay's inner circle held positions of authority within their home villages prior to the Pueblo Revolt. Historical evidence indicates that this group was comprised primarily (if not exclusively) of war captains[5] from pueblos throughout the province. In 1681, a Tewa captive told the Spaniards of a group of 22 war captains "who are the leaders" of the movement, and who advocated attacking the Spaniards during Otermín's attempted reconquest (Hackett and Shelby 1942, 2:236). Some of the names of those in this core group are recorded in various Spanish documents, including Luis Tupatú of Picuris, Alonso Catití of Santo Domingo, El Saca and El Chato of Taos, Francisco of San Ildefonso, El Taqu of San Juan, Luis Cunixu of Jemez, the Keres Antonio Malacate, and Tano leaders Juan of Galisteo, Antonio Bolsas, and Cristóbal Yope—all of whom "were clearly war captains" (Riley 1999:219).[6] The fact that Po'pay's closest allies were war captains may explain why runners captured by Otermín (see below) were reportedly sent "by *two* Indians of Tesuque named Pedro Situ and Diego Misu" (Hackett and Shelby 1942, 1:4; emphasis

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[5] War captains are positions of traditional Pueblo leadership assigned annually by the religious leaders of a Pueblo. They are appointed in pairs, each representing his respective moiety. War captains are responsible for policing the village, supervising social activities of their moiety, and protecting tribal lands (Sando 1982:65-66).

[6] Wallace notes that the formation of such a core group is crucial for the survival of any revitalization movement because this clique provides candidates for succession to leadership (Wallace 1956:274). This indeed occurred sometime after 1681, when Po'pay was deposed and Tupatú ascended to the primary leadership position among the Pueblos, which he shared with Catití (Sanchez 1983:145).

added); Situ and Misu were likely war captains who heard of Po'pay's revelation directly from the prophet himself, as did the war captains of the other participating pueblos.

To facilitate communication with his devotees and the conversion of additional supporters—including the non-elites who made up the majority of the Pueblo population—Po'pay sent out couriers to spread his message as well. These runners sometimes carried "letters" detailing Po'pay's vision and his plan to revolt. In the days before the uprising, captured Puebloans told the Spaniards "that there had come to them from very far away toward the north a letter from an Indian lieutenant of Po he yemu to the effect that all of them in general should rebel" (Hackett and Shelby 1942, 1:4-5). This statement has been the subject of considerable controversy (Chávez 1967; Beninato 1990), but the simplest and most logical explanation is that the "Indian lieutenant" to whom these captives refer is Po'pay. That he was in communion with supernaturals (*Po he yemu* is the Pueblo culture hero [Parmentier 1979]) is attested to by the testimonies of other Pueblo captives (Hackett and Shelby 1942, 2:246), and the fact that the "letter" came from the north corresponds with the prophet's self-imposed exile at Taos. The "letter" may in fact have been an animal skin conveying a message through pictographs, as such a method of communication had been used in previous attempts to plan a revolt (Hackett and Shelby 1942, 2:246).

In the final days before the Revolt of 1680, Po'pay communicated with various pueblos via these runners, who relayed knotted cords as a sign of the intended date of the uprising (the knots corresponded to the number of days until the Revolt). The Spaniards seized two such runners, Nicolás Catua and Pedro Omtua of Tesuque, with two knots tied in the deerskin thong they carried on August 9, 1680 (Hackett and Shelby 1942, 1:3-5).

Later testimonies indicate that these cords came directly from Po'pay, and that they were passed among the war captains of each pueblo (Hackett and Shelby 1942, 2:234-235). These envoys were thus able to communicate Po'pay's message of nativism, revivalism, and millennialism both through mnemonic devices (the knotted cords and the pictographic "letters") as well as their own secondhand accounts of the revelation. This fits Wallace's predicted model for the process of communication, which notes that the preaching of the revitalization message "may take many forms" (knotted cords, pictographic "letters," direct communication, secondhand accounts), "and may be directed at various sorts of audiences" (leaders as well as non-elites), "As [the prophet] gathers disciples," (the war captains) "these assume much of the responsibility for communicating 'the good word'" (sending the knotted cords between villages) (Wallace 1956:273).

Cultural Transformation

Once word of this millennial revelation had spread among the Pueblos and the organization of the revitalization movement was established, Po'pay and his inner circle plotted the destruction of the Spaniards and the glorious return of their ancient existence. On a day of Po'pay's choosing all the Pueblos were to rise up, attacking the Spaniards in their midst and killing as many as possible. Having robbed the settlers' *estancias* (ranches) and *haciendas* (estates), driven off their horses and cattle, burned the mission churches and destroyed their sacred contents, the Puebloans were to guard all roads and block every escape route. The capital of Santa Fe was to be isolated from the more

populous Spanish settlements to the south, and in a final act of violent nativism, Pueblo warriors from around the province would descend on Santa Fe, slaughtering the inhabitants of the colonial capitol.

The fulfillment of Po'pay's prophecy commenced in earnest on August 10, 1680. That day the Puebloans began to purge their world of Spanish contagion in a blur of nativistic fury. They killed an estimated 401 Spanish settlers, including 21 of the province's Franciscan missionaries. Across the Pueblo world, estancias and haciendas were burned, stores of grain pillaged, and horses and cattle set free. Churches were set ablaze, mission facilities were pillaged, and Christian icons were destroyed. The Spaniards who managed to escape took refuge in the villa of Santa Fe with Governor Otermín, where they were quickly surrounded by thousands of Pueblo warriors armed with a variety of Spanish weapons. For nine days the native warriors laid siege to the fortified Governor's Palace, severing the Spaniards' water supply and burning the homes and churches of Santa Fe before the colonists' horrified eyes. After a brief clash on August 20 in which approximately 350 Pueblo warriors were killed, the Spaniards elected to retreat. They fled Santa Fe heading south down the Rio Grande, later merging with another group of survivors and their native allies from the southern region of the province. By October they had reached El Paso del Norte, where Otermín reestablished the colonial capital, effectively relinquishing the northern province of New Mexico to the Pueblos. Thus the first step in Po'pay's revitalization movement was complete: the Spaniards had been expelled from the Pueblo world (Hackett and Shelby 1942).

The nativistic cleansing of the Pueblos promoted by Po'pay extended far beyond the mere eviction of the Spaniards, however. All aspects of colonial influence, material

and ideological, were to be purged as well. The clearest examples of this occurred at the mission facilities.[7] Churches were sacked and destroyed in the pueblos of Taos, Picuris, San Juan, Santa Clara, San Felipe, Sandia, Isleta, Senecú, Socorro, Alamillo, Sevilleta, Alameda (Hackett and Shelby 1942), Pecos (Hayes 1974), and among the Zuni (Smith et al. 1966) and Hopi pueblos (Montgomery et al. 1949). At Sandia the nativistic fervor was particularly intense: there the people ripped the church doors from the hinges, shattered Christian statues, smashed the mission bells, and removed the priest's vestments and sacred accoutrements from the sacristy, burying two chalices in a basket of manure. They symbolically crippled the friars by hacking the arms off a full-length figure of St. Francis with an axe, placing the now-impotent patron saint on display for all to see on the church altar. A crucifix was whipped with such ferocity that every bit of paint and varnish was removed. They stoned an altarpiece depicting the Immaculate Conception, gauging out the Virgin's eyes (though the dragon at her feet was left "whole and unspoiled"). And in the ultimate act of desecration, someone defecated on the main altar of the church, smearing the holy statues with their excrement before filling the church with hay and setting it ablaze (Hackett and Shelby 1942, 1:26, 177-178, 2:225-231, 259).

At the other pueblos the response was similar. The people of Isleta expressed their contempt for the Spaniards' religion by converting the church into a cowpen (Hackett and Shelby 1942, 2:208), while the leaders of the Pueblo of Galisteo ordered any person who spoke Castilian executed, and all rosaries were rounded up and burned

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[7] Documentary evidence for nativism and revivalism during the Revolt era comes primarily from the pueblos in the southern areas of the province, as these were the only villages visited by the Spaniards upon fleeing Santa Fe and during Otermín's attempted reconquest in 1681.

(Hackett and Shelby 1942, 1:24). At the church of Nuestra Señora del Socorro, the Puebloans unearthed the sacred objects that had been buried by the Spaniards in a desperate attempt to ensure their protection, smashing and burning a statue of the Christ and scattering the pieces throughout the Pueblo. They also cut down a large pine cross that stood in the cemetery and carried it into the main plaza, where it was unceremoniously reduced to ashes (Hackett and Shelby 1942, 2:205). At Senecú a figure of Jesus on the cross was scalped, the hair and crown cast upon the ground in a vivid display of Pueblo victory over the Christian religion. A Catholic altar was smashed into pieces. Like their neighbors to the north, the people of Senecú felled the large cross that stood in their midst; but instead of hauling it from the cemetery to the pueblo they did the opposite, removing it from the main plaza and disposing of it by dumping it in the graveyard—a powerful sign that indeed, as Po'pay said: "Now God and Santa María were dead" (Hackett and Shelby 1942, 1:13, 2:203-204).

The Puebloans particularly loathed the mission bells, which were frequent targets of their nativistic fury. For more than eight decades those bells had tolled in the pueblos, telling the inhabitants when to wake and when to sleep, when to eat and when to work, ordering them to mass, to confession, and to daily prayer (Gutiérrez 1991:80-81). Indeed, many of these people had lived their entire lives under the control of the mission bells, and when the opportunity to silence their peals presented itself the Puebloans seized it. Throughout the province, bells were torn from their towers. The San Felipians smashed a hole in the side of one, sinking it in the Rio Grande. At Hawikku, Sandia, and Senecú they shattered multiple bells, disposing of the remnants in their respective

cemeteries. At Senecú and Alamillo the bells were symbolically castrated through the removal of their clappers (Hackett and Shelby 1942, 2:203-206, 260).

The people of Santo Domingo expressed their aversions to Christianity differently. Initially they left the church intact, careful not to disturb any of the images, altars, or the sacred contents of the sacristy. Instead, they simply piled the bodies of three dead friars at the base of the altar and shut the door, leaving them to rot in the summer heat (Hackett and Shelby 1942, 1:21). Within the next year, however, the church and mission facilities were demolished completely (Hackett and Shelby 1942, 2:260).

As they attempted to rid their world of Spanish contamination, the Pueblos simultaneously began to revive their traditional culture in fulfillment of Po'pay's prophecy. From Pecos in the east to the Hopi pueblos in the west, they resurrected their traditional religious practices through the creation of kachina masks and the revival of traditional dances. New kivas (or as the Spaniards called them, *estufas*) were constructed by the peoples of Cochiti, Santo Domingo, Jemez, San Felipe, Puaray, Sevilleta, Alameda, and probably Pecos (Hackett and Shelby 1942, 2:286; Hayes 1974). New shrines at which traditional offerings could be made were erected as well. In 1681 the Spaniards noted:

> in all of [the pueblos] estufas had been erected . . . and around all the pueblos in the four cardinal directions were circular piles of stone, and others in the middle of the plazas, where it was seen that they had made a great many offerings of grain and other things which they use; and a great many masks, powdered herbs, feathers, and other idolatrous things were found in the said estufas. (Hackett and Shelby 1942, 2:286)

Otermín's troops found kachina masks and other Puebloan religious paraphernalia in nearly every pueblo they visited, including Alameda, Puaray, Isleta, Sandia, San Felipe,

and Santo Domingo (Hackett and Shelby 1942, 2:215-231; 260-269). At Sevilleta, they found particularly disturbing signs of the revival of Pueblo culture:

> Here the hermitage where the holy sacraments were administered was found entirely demolished, and the wood from it made into an underground estufa of idolatry. Some of the houses of the pueblo were burned, and a short distance away from it were found some deep subterranean chambers, in four parts, full of maize—most of it spoiled—earthen jars, calabashes, and some pots. On top of everything was a very curious sort of vessel made of clay, and carved on it was a figure with the face of an Indian and the body of a toad. Inside it were many idolatrous herbs, two pieces of human flesh, feathers, and other superstitious things made by the idolators, who offer them to that figure so that it will guard their maize. (Hackett and Shelby 1942, 2:207)

Thus the Pueblos heeded their prophet's instructions—they traded the saints for kachinas, the Virgin for the Corn Mothers, and the Pope for Po'pay. And with the revival of prehispanic lifeways and the eradication of the Spaniards and their religion, the Puebloans eagerly anticipated the millennial existence that had been prophesied to follow soon thereafter.

Adaptation

At some point during the revitalization process, most (if not all) revitalization movements experience a phase in which the new cultural model is challenged by external and/or internal factions. These challenges inevitably compel a modification of the original doctrine, a stage of the revitalization process Wallace labeled "Adaptation" (1956:274). During the Revolt era revitalization movement, the Pueblo people modified Po'pay's original model early on, particularly those directives concerning the radical nativism he proposed. From the earliest days of the Pueblo Revolt, it became clear that many elements of European influence would not be purged from the Pueblo world.

Simply put, tangible and substantial benefits were to be reaped from Spanish-introduced technologies, crops, animals, and concepts, and the Pueblos were not about to give them up.

On the opening day of the uprising, following the execution of two Spanish soldiers, the Tewa and their Jemez allies did not destroy all the remnants of Spanish colonialism, but instead "gather[ed] up the cattle and property from the fields and houses of the Spaniards," amassing their booty in the plaza at Santa Clara (Hackett and Shelby 1942, 1:9). A few days later, during the siege of Santa Fe, the leader of a group of Tano insurgents named Juan clothed himself not in traditional Pueblo attire, but instead donned "a sash of red taffeta which was recognized as being from the missal of the convent of Galisteo," and carried an "harquebus, sword, dagger, leather jacket, and all the arms of the Spaniards" (Hackett and Shelby 1942, 1:13). A few weeks later, native allies of the Spaniards reported a Pueblo captain from Alameda who appeared at Isleta dressed in ecclesiastical attire, wearing "an alb and surplice with a scarlet band over it, and a maniple for a crown" (Sanchez 1983:134). These conspicuous displays of the persistence of Spanish influence were not a refutation of Po'pay's vision, however, but merely the type of doctrinal modification commonly found in revitalization movements around the world.

In most revitalization movements "the original doctrine is continually modified by the prophet, who responds to various criticisms and affirmations by adding to, emphasizing, playing down, and eliminating selected elements of the original visions" (Wallace 1956:274-275), and indeed, Po'pay adapted his vision throughout the Revolt era. According to Pedro Naranjo, in the days following the ouster of the Spaniards:

> Po'pay came down in person, and with him El Saca and El Chato from the pueblo of Los Taos, and other captains and leaders and many people who were in his train, and he ordered in all the pueblos through which he passed that they instantly break up and burn the images of the Christ, the Virgin Mary and the other saints, the crosses, and everything pertaining to Christianity, and that they burn the temples, break up the bells, and separate from the wives whom God had given them in marriage and take those whom they desired. (Hackett and Shelby 1947, 2:247)

Such a tour of the province was a custom Po'pay appropriated from the Spaniards; when a new Governor was appointed to New Mexico it was typical for him to begin his term by visiting all the pueblos within his jurisdiction (Riley 1999:163). Thus even as he urged the Pueblos to eliminate all signs of the foreigners from their lives, Po'pay and his deputies participated in the continuation of Spanish influence. Furthermore, in 1681 Po'pay was identified as "captain general of the kingdom . . . who governed all the pueblos despotically and supremely" (Sanchez 1983:135). Yet the concept of a single overall leader of multiple Pueblos was not indigenous to the native population of New Mexico (Beninato 1990), but was derived from their colonial experiences. Hence in his attempt to preside over a unified Pueblo world, Po'pay ruled his people "as only a Spaniard would" (Kessell 1979:238).

Po'pay's less-than-comprehensive nativism was at least partially unconscious. For example, during his tour of the province he reportedly assured the people "that living thus in accordance with the law of their ancestors, they would harvest a great deal of maize, many beans, a great abundance of cotton, calabashes, and very large watermelons and cantaloupes" (Hackett and Shelby 1942, 2:248). Ironically, melons are indigenous to the Old World, and were introduced to the Southwest via Spanish contact (Ford 1987:78-79). Here Po'pay unknowingly incorporated elements of Spanish influence into his

depiction of "traditional" Pueblo life. Yet even with such inconsistencies, Po'pay still adhered to his policies of radical nativism more strictly than most. As opposed to the other named leaders of the Pueblo Revolt, only Po'pay seems to have abided by his command to "discard the names given them in holy baptism and call themselves whatever they liked" (Hackett and Shelby 1942, 2:235; Ortiz 1980:19).

At other times, Po'pay and his retinue consciously perpetuated the memory of their Spanish overlords—in order to parody and ridicule them. During Otermín's attempted reconquest, captives testified that "after the said rebellion . . . the said Indian, Po'pay, came down to the Pueblo of San Felipe accompanied by many captains from the pueblos and by other Indians . . . They took possession of everything in the sacristy pertaining to divine worship" (Hackett and Shelby 1942, 2:251). At least one of these leaders, Alonso Catití, curated these ecclesiastical artifacts in his home (Hackett and Shelby 1942, 2:260). And at an elaborate feast at Santa Ana, Po'pay and Catití consciously utilized these items to mock the Spaniards and their culture. According to Velez de Escalante:

> He (Po-pé) seated himself at the head (of the table), and opposite to him had Alonzo Catití sit, seating the others in the remaining places. He ordered to be brought two chalices, one for himself and the other for the said Alonzo, and both began to drink, ridiculing and scoffing at the Spaniards and Christian religion. And Po-pé, taking his chalice, said to Alonzo, as if he were the father custodio: "To your Paternal Reverence's health." Alonzo took his chalice and rising said to Po-pé: "Here is to your Lordship's health, Sir Governor." (Twitchell 1914, 2:272-273)

This type of ritual parody is a long-established tradition among the Pueblos, used to instruct younger members of society in the boundaries, norms, and values of their culture. Here the leaders of the Revolt drew on that tradition (Kessell 2002:148), modifying

Po'pay's original doctrine of fanatical nativism, and in so doing, adapting to it to better correspond with the deep-rooted practices of Pueblo culture.

Like the leaders of the Pueblo Revolt, the majority of Pueblo peoples similarly adapted Po'pay's message to accept some elements of Spanish culture. They were selective in their rejection of Spanish influence, retaining sheep, cattle, goats, wool (Adams 1981:325), oxen, horses, mules (John 1996:105), wheat, tomatoes[8] (Riley 1999:212), metal objects and technology, and the wheel; and they continued to speak Spanish (possibly as a lingua franca) (Schroeder 1972:56). Spanish architecture was adapted for Pueblo use throughout the province as well. Following the Revolt natives moved into the *casas reales* in Santa Fe (Seifert n.d. 11-14) as well as the mission facilities at Awato'vi (Montgomery et al. 1949), remodeling the rooms into smaller, more traditionally pueblo-sized dwellings and retaining some Spanish elements, such as corner fireplaces. At Sandia, two mission rooms were converted into a kiva, with a forge set up in another (Hackett and Shelby 1942, 2:225).

Ironically, the adaptations Po'pay made to his original agenda ultimately caused his downfall as well. Soon after the Revolt, he apparently established a Spanish-style system of taxation among the pueblos in which they were required to submit to him tributes of wool and cotton (Velez de Escalante 1983:5). By 1681 the pueblos had "deposed Po'pay for the despotism and rigor with which he made himself obeyed and for the much tribute that in his frequent visitations he made them pay him" (Velez de Escalante 1983:8). Luis Tupatú of Picuris succeeded him. In 1688 Po'pay again came to

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[8] Tomatoes are an indigenous New World crop, but were introduced to the Pueblos by the Spaniards.

power in a significantly less unified Pueblo world, but his reign was again brief as he died shortly thereafter (Twitchell 1914, 2:276).

Routinization

In the final stage of the revitalization process, the new cultural model becomes accepted and normalized, and reformulated political, economic, and/or religious structures become institutionalized (Ashmore and Sharer 1975:7), leaving a culture "different in pattern, organization, and *Gestalt*, as well as in traits, from the earlier steady state" (Wallace 1956:275). By 1681, the Pueblo revitalization movement of the Revolt era seems to have been moving toward this crucial stage. During Otermín's unsuccessful reconquest of the province, Fray Francisco de Ayeta was dismayed to learn that the Puebloans were:

> exceedingly well satisfied to give themselves over to blind idolatry, worshipping the devil and living according to and in the same manner as when they were heathen . . . This entrada has dispelled the misapprehension under which we have been laboring, namely that only the leaders would be to blame for the atrocities committed, and that all the rest of the Indians would be found tired of their cruel and tyrannical government, which it was thought was imposed by force. But they have been found to be so pleased with liberty of conscience and so attached to the belief in the worship of Satan that up to the present not a sign has been visible of their ever having been Christians. There have been only proofs of their false Christianity and of their having accepted and embraced the commands of the first leader and captain-general, Po'pay. (Hackett and Shelby 1942, 2:310)

Thus more than a year after the successful rebellion, the Pueblo revitalization movement remained strong. Following Otermín's second retreat, however, the historical record of events in the Pueblo world turns murky. Because the Spaniards made only a few short and poorly documented forays into the Pueblo world between 1682 and 1692 (Chapter

IV), virtually no details regarding the developments and changes in Pueblo culture that likely occurred during this period appear in the documentary record. Furthermore, Pueblo oral traditions regarding these years have not been shared with outsiders to date. As a result, most histories of the Pueblo Revolt jump from the events of 1681 (Otermín's abortive reconquest) to 1692 (Vargas's ritual repossession) with the turn of a page, as though nothing of import occurred in the intervening period.

From an anthropological perspective, however, the social practices of Pueblo peoples during these years are crucial for understanding the long-term effects of the Revolt era revitalization movement on Pueblo culture. Did routinization of Po'pay's new cultural model occur? If so, how was this routinization enacted? In absence of written documents or oral histories to address these issues, historical and anthropological studies of the Revolt have traditionally remained mute on these subjects, leaving the varied strategies, discourses, and outcomes of the Pueblo revitalization of 1680 to 1696 enigmatic and ambiguous. Alternatively, archaeological investigations of the Pueblo Revolt era have the potential to address many of these shortcomings, providing a unique perspective from which to examine the changes in Pueblo culture and society that occurred during this tumultuous period (Wilcox 2001; Preucel 2002b).

The following chapters investigate the latter stages of the Pueblo Revolt era revitalization movement through just such an archaeological study. The focus of this analysis will be the late seventeenth-century pueblos of the Jemez Province of northern New Mexico, where the cultural revitalization movement of the Revolt era played a critical role in the development of Pueblo culture between 1680 and 1696.

CHAPTER IV: THE ARCHAEOLOGY AND HISTORY OF THE JEMEZ PROVINCE

This chapter provides an overview of the physiography, archaeology, and history of the Jemez Province through A.D. 1716, with an emphasis on the events of the Pueblo Revolt era between 1680 and 1696. Located in northern New Mexico, the term "Jemez Province" (FIG. 4.1) was coined by the first Spanish explorers to the region. They designated the area occupied by the Towa-speaking peoples west of the Rio Grande as that of the *Hemes* (Hammond and Rey 1940:244), the name by which these peoples identified themselves. Archaeologists later adopted this terminology (Reiter 1938) to refer to a region in which the material culture is "sufficiently similar to suggest considerable exchange and interaction but not a singular organizational entity such as a tribe" (Plog 1979:121). Specifically, the term "Jemez Province" refers to the region of Sandoval County defined by the confluence of the Jemez and Salado rivers in the south to the 2560 m contour in the north; and from the Nacimiento Mountains in the west to Peralta Canyon in the east. Michael Elliott (1986:1) identifies this area as roughly encompassing the distribution of archaeological sites that exhibit high frequencies of Jemez Black-on-white ceramics. The Jemez Province should not be confused with the larger "Ancestral Jemez Domain" as identified by the Pueblo of Jemez, which includes areas of resource exploitation, religious significance, and traditional cultural properties outside of the archaeologically defined Jemez Province, and extends farther to the west, north, and northeast (Jemez tribal representatives, personal communication 2005; see also Ellis 1956; Sando 1982). The Jemez Province should also not be confused with the larger

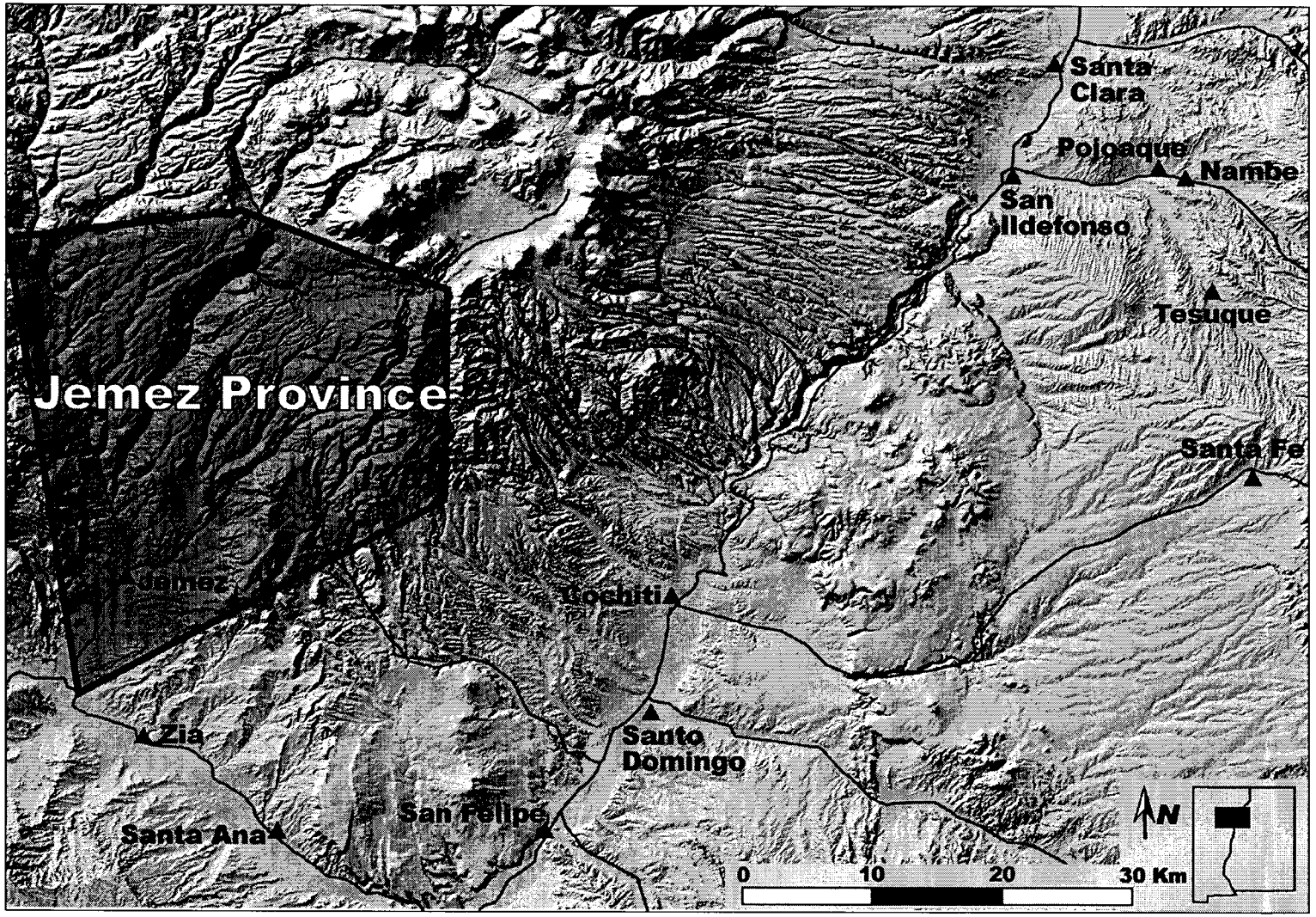

Figure 4.1: The Jemez Province, New Mexico

"Jemez plateau" (or "Jemez mountain region") of which it has been defined as a sub-region, along with the Pajarito, Chama, and Gallina districts (Hewett 1906; Reiter 1938).

Physiographic Setting

The Jemez Province is an upland area with a complex geological history. The central feature of this region is the Valles Caldera, a collapsed volcanic crater located adjacent to the northeast border of the Jemez Province. Volcanic activity began in the early to middle Pliocene Epoch, with successive eruptions of basalt, andesite, dacite, quartz latite, and rhyolite. This activity culminated with a series of rhyolitic ash flows occurring about 1.6 and 1.23 million years ago, depositing layers of ash that formed the Otowi Member and upper Tshirige Member of the Bandelier Tuff Formation, respectively. These eruptions combined to cover an area of up to 1035 km^2 (400 mi^2) with ash (Ross et al. 1961). The latter eruption was a massive event by any standard, releasing more than 300 km^3 of ash (by comparison, the amount of ash released during the May 1980 eruption of Mt. St. Helens is estimated to have been less than 2 km^3). The volcanic crater subsequently collapsed, forming what is today known as the Valles Caldera. The volcano is now dormant, though numerous hot and warm springs throughout the region attest to the continuing geothermal activity of the area. Draining out from the Caldera are the Jemez River and its tributaries, the Guadalupe River, Rio de las Vacas, East Fork, San Antonio River, and Vallecitos Creek. Over the past 500,000 years these streams have cut through the volcanic tuff to form the unique topography of

the Jemez Province, comprised of long south- to southwest-facing mesas separated by deep and narrow canyons (Kulisheck 2005:218). These mesas dominate the landscape as their sheer walls tower more than 395 vertical m over the rivers and streams below, with the Cañon de San Diego being the central, largest, and most prominent of these valleys (FIG. 4.2).

A semiarid continental climate prevails across most of northern New Mexico, but topographic variation within the Jemez Province results in markedly differing local microclimates. At the southern end of the region, desert-like conditions predominate with elevations as low as 1675 m above sea level, and gravelly soils overlying sedimentary rock. In contrast, the northern end of the region is heavily forested, with elevations up to 2560 m, and sandy soils of tuff and pumice covering the mesa tops. The flora of the region varies correspondingly, with juniper (*Juniperus monosperma*) and sagebrush (*Artemisia tridentata*) predominating at the lower elevations and Rio Grande cottonwood trees (*Populus deltoids*) lining the banks of the rivers and streams. Middling elevations are characterized by piñon (*Pinus edulis*) and juniper woodlands, although paleobotanical analyses indicate that sage was relatively more common in the past than it is today, with pine trees slightly less numerous (Scott 1986:94). The higher northerly elevations exhibit a montane habitat typified by large stands of Ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), and various oaks (*Quercus* spp.). Length of the growing season similarly varies with elevation, with the northern sector of the province ranging between 120-170 frost-free days and the southern region averaging 180 frost-free days (Whatley and Delaney 1995), although

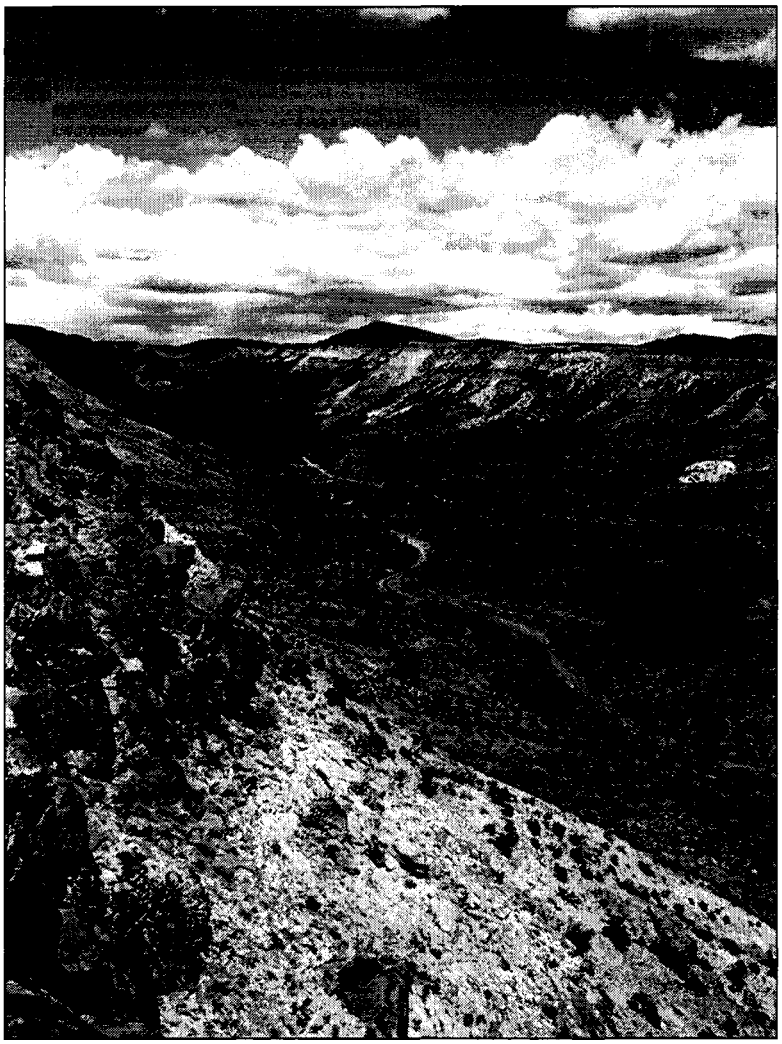

Figure 4.2: San Diego Canyon, from the southwest

localized physiographic factors such as slope and aspect complicate these conditions significantly, lengthening the growing season on the tops of many of the southwest-facing mesa tops. The annual precipitation within the Cañon de San Diego averages 45.69 cm, with a maximum of 71.1 cm and a minimum of 23.5 cm recorded over the past 75 years (eweb.lanl.gov/jemezysangre_precip.htm). Precipitation patterns typically peak biannually, with winter snowfall accumulations of 2-3 m on the mesa tops and brief but intense late summer thunderstorms. The wide variety of habitats in the Jemez Province makes it an ideal location for a diverse array of fauna as well, and it is inhabited by large numbers of cottontail rabbits (*Sylvilagus nuttalli*), snowshoe hares (*Lepus americanus*), mule deer (*Odocoileus hemonius*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), and wild turkeys (*Meleagris gallopavo*), as well as numerous species of other mammals, birds, reptiles, amphibians, and fish (Whatley and Delaney 1995).

The combination of abundant game, a perennial water supply, and arable lands made the Jemez Province an ideal location for Ancestral Pueblo peoples to settle, resulting in an archaeological record rivaling that of any other province in the Southwest. Literally thousands of archaeological sites have been recorded over the past century, including hundreds of field houses (concentrated primarily upon the mesa tops in the northern sector of the province) and more than 40 large pueblo sites with greater than 50 estimated rooms (Elliott 1986a:175).

History of Archaeological Research

If you wish to see what a great people we once were, you must go upon the mesas and into the canyons of the vicinity, where ruins of our forefathers are numerous.
Francisco Hosta, Jemez Pueblo, 1874 (Loew 1879:343)

The Descriptive Period, 1849-1891

The earliest descriptions of archaeological sites in the Jemez Province were recorded by First Lieutenant James H. Simpson of the Corps of Topographical Engineers during a United States Army military campaign against the Navajo in 1849 (Simpson 1852). Accompanied by artists Richard and Edward Kern and guided by the Lieutenant Governor of Jemez, Francisco Hosta, Simpson visited the Ancestral Jemez pueblo of Giusewa (LA 679) and the associated mission of San Jose de los Jemez. His journal provides a brief description of the site as well as notes on the layout of Walatowa (LA 8860, the modern Pueblo of Jemez), which he estimated housed between 400-500 inhabitants at that time. On this expedition, the Kern brothers produced the earliest known illustrations of Walatowa and Giusewa as well (Simpson 1852: pl. 3 and 15; Trenton and Hassrick 1983:56).

A quarter century after Simpson's visit, Hosta acted as advisor to yet another expedition, this time by a Corps of Engineers survey team. Hosta arranged for his son to act as the guide for a member of this team named Oscar Loew. Loew visited three of the large pueblo sites in the area (Leow 1874), including Giusewa and the Revolt era pueblos of Patokwa (LA 96) and Astialakwa (LA 1825), providing the first detailed written account of the ruins at Astialakwa (Chapter V).

In 1887 and 1891 the peripatetic patriarch of Pueblo anthropology, Adolph Bandelier, conducted research in the Jemez Valley. His notes describe numerous field

houses encountered at the northern extent of the Jemez Province (near La Cueva), provide yet another description of Giusewa, and give the earliest written report of the remains of a large pueblo (LA 481) on Virgin Mesa west of Giusewa which he calls Amoxiumqua (and whose name has been the topic of debate among anthropologists ever since). To the south of LA 481 he described (but apparently did not personally visit) "Ash-tyal-a-qua" (Astialakwa) (Bandelier 1892:204-205). Bandelier's work moves beyond that of earlier descriptive accounts by presenting ethnological and documentary information in addition to archaeological data in his investigation of the origins and history of the Jemez people (Elliott 1986a:10). He recorded the first written account of the Jemez origin narrative (Bandelier 1892:207-208), as well as the earliest English-language translations of Spanish documents regarding the history of Spanish colonialism in the Jemez Province. Bandelier's work thus took a conjunctive approach, applying archaeological, documentary, and ethnological evidence to the reconstruction of Jemez history, laying the foundations for all future anthropological work in the Jemez Province, and in the Southwest more generally.

In 1889 William Henry Holmes visited the Jemez Province while accompanying members of the United States Geological Survey (Holmes 1905). Holmes toured sites throughout the area, making notes on the artifacts and architecture of both large, multi-room pueblo sites as well as small field houses. In his report he published the first maps of Cerro Colorado (LA 2048), Vallecito Viejo Pueblo (LA 248 and LA 258), Patokwa, Astialakwa, "Amoxiumqua," Nanishagi (LA 541), and Unshagi (LA 123). He also mentions, but did not visit, the Ancestral Jemez pueblo of Kwastiyukwa (LA 482).

The Era of Excavations, 1905-1949

Holmes notes that excavations were made at Giusewa prior to 1905 "by householders here and there." Some of the human remains and artifacts they unearthed were preserved by a local physician, Dr. J. M. Shields, including black-on-white pottery, bone flutes, domestic utensils, and an iron knife (Holmes 1905:205-206). The next report of excavation at sites in the Jemez Province is by Albert B. Reagan, an agricultural agent who cultivated a unique relationship with the people of Jemez, allowing him access to religious rites and ceremonies previously unprecedented for an outsider. Reagan reports doing "considerable digging" at Cerro Colorado, though unfortunately he provides no additional information regarding these excavations. He also documents rock art associated with Red Rock Ruin (LA 373) a site overlooked by his predecessors and many of his contemporaries (Reagan 1917).

The first professional excavations in the Jemez Province were performed under the auspices of the School of American Archaeology (later the School of American Research) and the Bureau of American Ethnology in 1910. F. W. Hodge, Kenneth Chapman, and Jesse Nusbaum briefly investigated Giusewa, removing burials and collecting sherds for the Smithsonian Institution before beginning the first of four seasons of excavations at "Astialakwa" (LA 481) on Virgin Mesa (1910, 1911, 1912, and 1914). No field notes describing the 1910, 1912, or 1914 excavations are known to exist; Reiter (1938) published the only description of these excavations as an addendum to his report on later excavations at Unshagi, albeit a brief one. He states that most of the materials excavated in 1910, 1911, and 1914 were sent to the Smithsonian Institution, with additional materials from later years sent to the Royal Ontario Museum (Reiter 1938:84,

n. 17). In fact, Chapman's field notes from the 1911 season are the only surviving documents relating to any of the excavations at LA 481. At least 16 rooms and several test trenches were excavated in five separate room blocks, and 130 burials were unearthed. Of these, 49 were found with associated funerary objects, including one child buried with a string of 22 European glass beads around its neck, later verified by Hewett as "genuine Venetian." Reiter further quotes Chapman as stating that fragments of iron artifacts were also found at LA 481 in 1912 (Reiter 1938:86, n. 19). During the 1914 season excavations were also conducted at LA 482 on Holiday Mesa, commonly known as Kwastiyukwa (but confusingly referred to as Amoxiumqua by the excavators), under the charge of Wesley Bradfield and Charles F. Lummis. Unfortunately, the field notes from this research have also been lost, though Lummis (1925:457) provides brief descriptions of some of their findings. Alexander and Reiter (1935:9) also state that "major excavations" were undertaken at Astialakwa sometime after 1917, yet no other mention of these excavations is known to exist. In his 1938 publication Reiter fails to mention any research at Astialakwa, thus suggesting that the earlier reference was mistaken, and likely the result of an inadvertent transposition of the name of Kwastiyukwa with that of Astialakwa (Elliott 1986a:14).

In 1921 and 1922, the School of American Research shifted its focus to Giusewa, where excavations were conducted under the supervision of Lansing B. Bloom, Wesley Bradfield, and Sam Hudelson (Elliott 1993:18). Written documentation of this research was apparently made, but these notes have never been published and later investigators have not been able to locate them (Elliott 1993:20); however, a short account of this fieldwork was published by Bloom (1923). The primary objective of these investigations

seems to have been the recovery of "museum quality" artifacts and human remains (Elliott 1986a:16), with at least 22 rooms, two kivas, and the mission church excavated over the course of the two seasons. Also unearthed were 27 burials (Reiter 1938:89). In the second field season, Bradfield undertook additional excavations at Unshagi and Nanishagi (Elliott 1986a:16).

The School of American Research continued its tradition of investigation in the Jemez Province later that decade, teaming with the University of New Mexico to sponsor excavations at Unshagi under the direction of Paul Reiter from 1928 to 1934 (Reiter 1938). After more than 65 years, Reiter's report of this project remains "the single most thorough and useful publication produced thus far concerning the Jemez area" (Elliott 1986a:17). It details the excavation of 101 rooms, 191 burials, three kivas, a section of the central plaza, and three midden areas. Reiter classified the rooms into one of three types based on the presence or absence of floor features: Class A rooms had no floor features; Class C rooms exhibited the defining characteristic of a deflector and some combination of bins, vents, firepits, and benches; while Class B remained a "catch-all" category, denoting rooms without a deflector but with additional floor features (Reiter 1938:63-70). The distinctive symmetrical pairing of bins with deflectors, vents, and firepits in Class C rooms at Unshagi led Reiter to propose an historical relationship between Jemez sites and the earlier sites of the Gallina culture area to the north (Reiter 1938:69), which are typically comprised of pit structures or surface architecture with similar constellations of features (Hibben 1938; Mera 1938).

Reiter's investigations at Unshagi built upon H. P. Mera's earlier work in defining the ceramics of the Jemez Province. Mera (1935:22-22) recognized two local ceramic

traditions, Jemez Black-on-white (initially identified by Kidder 1931:154) and an earlier variant, Vallecitos Black-on-white, with the two types differing according to the characteristics of their pastes and degrees of external finish (Chapter VI). Reiter utilized these types in his analysis of Unshagi ceramics to bolster his argument for connections between the Jemez and Gallina cultures. His study, along with Anna Shepard's (1938) petrographic analysis of Unshagi ceramics, established the remarkably stable nature of Jemez Black-on-white between the fourteenth and seventeenth centuries, as well as the conclusion that glaze-paint wares were not locally produced in the Jemez Province and made up a small percentage of the overall ceramic assemblage. Reiter also recovered 65 dendrochronological specimens from Unshagi, which he used to estimate the span of construction from 1402-1605 (Reiter 1938:199).

In 1931, Gordon Vivian began stratigraphic excavations at Nanishagi, located just 1.6 km southwest of its "sister site" of Unshagi, on the floor of San Diego Canyon. Vivian removed an unspecified number of burials from the site but never published the results of this work. In 1936 and 1938 Reiter excavated Nanishagi as well, and it served as the location of the University of New Mexico Field School during the latter field season. Only the results of the 1938 season are well documented, detailing the excavation of nine rooms, one kiva, and two midden areas (Reiter et al. 1940). The domestic architecture of the site displayed a similar constellation of features to that of Unshagi. The kiva, however, contained a distinctive multi-leveled subfloor crypt (Reiter et al. 1940:11-12). Reiter chose to investigate Nanishagi specifically "to compare it with the contemporaneous site of Unshagi" (Reiter et al. 1940:3), though in the end the excavators found the results disappointing, concluding that "a point by point comparison

of Nanishagi features with those of Unshagi . . . scarcely would yield significant results" (Reiter et al. 1940:34).

From 1934-1935, excavators in the Jemez Province turned their attention to Jemez Cave, a site that lies to the north of Jemez Springs, just west of the Soda Dam. Their attention was drawn to the site late in the 1934 field season, when "an old native man, with a boy as interpreter, brought a bundle of 'antiques' to the [University of New Mexico Field School] camp to sell . . . On questioning the man we found that he with four others had been digging in the cave for 'gold treasure'" (Alexander and Reiter 1935:7). Under the direction of Clyde Kluckhohn, members of the UNM field school began a systematic excavation of the cave, a project carried to completion by Hubert Alexander in 1935 (Alexander 1935). These excavations were crucial in establishing the antiquity of the human presence in and occupation of the Jemez Province, unearthing Late Archaic projectile points as well as macrobotanical remains that have since been dated to 2440 +/- 250 B.P. (Crane and Griffin 1958), corrected to 2830 B.P. The maize specimen yielding this early date was recovered from a stratum 7 to 9 feet below the ground surface, though an additional 7 feet of deposits below this level contained maize. Thus, Jemez Cave likely contains even earlier evidence of maize horticulture in the Jemez Province.

Excavations at Giusewa resumed in 1935 under the supervision of Edgar Hewett and Donald Brand (Gentry and Luhrs 1935), with work extending into the *convento* area (Reiter 1938:81). This work continued through the 1936 and 1937 field seasons (Elmore 1936; Toulouse 1937). In 1939 the University of New Mexico Field School turned its attention to Hot Springs Pueblo (LA 24553) and Bj 74 (LA 38962), a small, post-Contact

pueblo in a rock shelter (Reiter et al. 1940:4). The excavations at Bj 74 were completed in 1949 (Luebben 1970; Luebben et al. 1988), and marked the end of the University of New Mexico/School of American Research archaeological investigations in the Jemez Province.

Modern Investigations, 1960-2005

Archaeological research in the Jemez Province was nearly non-existent between 1950 and 1960. Florence Hawley Ellis conducted excavations near the Catholic Church in the village of Walatowa in 1955, but the results of these excavations remain unpublished (Kulisheck 2005:230). Beginning in the 1960s, a renewed interest was stirred due in large part to the need for preservation and protection of the region's prodigious cultural resources in the face of population growth, increasing settlement, and intensified recreational and agricultural use of the area. This modern era of archaeological activity in the Jemez Province differs significantly from that of earlier periods (particularly that of 1920-1940), with a focus on small sites as well as large pueblos, favoring survey over excavation, and an increasing awareness of the importance of these sites to the indigenous inhabitants of the Jemez Province, the modern-day members of Jemez Pueblo.

As a result of this shift in focus, excavation projects carried out during this period were typically much smaller in scale and far less frequent. From 1961 to 1968, a group of Girl Scouts undertook excavations at LA 5917 and Boletsakwa (LA 136) under the direction of Bertha Dutton (Elliott 1986a:28). At Giusewa, construction and stabilization

projects in 1965 and 1977-78 produced excellent field notes, maps, and photos, but no published reports (Elliott 1993:24). In the mid-1970s, Richard Ford reexamined the archaeology of Jemez Cave. Ford found evidence for seasonal occupation of the cave during planting and harvesting times, unearthing remains of maize and pumpkin horticulture (Ford 1975). Throughout the 1980s the USDA Forest Service conducted excavations at several fieldhouse sites throughout the Jemez Province (Elliott et al. 1988; Gauthier and Elliott 1989). In 1982, the only documented archaeological investigations to date at Jemez Pueblo (Walatowa, LA 8860) were carried out as the excavation of waterline trenches were monitored. This monitoring was constrained by a small sample size, lack of screening, and post-depositional disturbance of the trenches; nevertheless, investigators found no evidence to contradict the notion that the pueblo was first founded around 1621 (Dodge 1982), and the results of this project remain the only material culture evidence on record today regarding the founding of Walatowa.

In the mid-1960s, the USDA Forest Service acquired large sections of the Cañon de San Diego de los Jemez land grant through a land exchange, and by the 1970s the Santa Fe National Forest began large-scale surveys and cultural resource inventories of ancestral Jemez lands (Kulisheck 2005:231). At the same time, German geographer Dietrich Fliedner conducted his own surveys of the Battleship Rock area of San Diego Canyon, publishing his results in a series of German- and English-language articles (Fliedner 1974, 1975). Another notable survey carried out during this period was Julia Dougherty's examination of Guadalupe Mesa, in which she produced the first maps of Astialakwa since Holmes' in the early 20th century (Dougherty and Neal 1979; Dougherty 1980).

In 1972, Ford, Schroeder, and Peckham published their classic article, "Three Perspectives on Puebloan Prehistory" (Ford et al. 1972). In this article, the authors surmised that:

> recognizable Towa prehistory begins about A.D. 1 with the Los Pinos phase and develops in this area and farther south through the Rosa phase. Sometime before A.D. 950, these people moved into the Gallina region and by A.D. 1250 had moved into the mountainous Jemez country, where Jemez Black-on-white pottery is a direct descendant of the carbon painted Gallina Black-on-white pottery, and where lithic artifacts and similarities in burial practice support the connection. (Ford et al. 1972:25)

Building upon Reiter's (1938) interpretation of perceived similarities between the archaeology of the Jemez Province and that of the Gallina region, Ford, Schroeder, and Peckham's article further solidified the theory that the Jemez people were descended from the Gallina, migrating into the region after abandoning the northerly Gallina Province. This notion persisted and was bolstered through studies further linking the architecture and ceramics of the Jemez Province with that of the Gallina (Mackey 1982; Ellis and Dodge 1989). In 1975 James Mackey conducted excavations at Vallecitos Pueblo (LA 109322) as part of his research examining connections between the Jemez Province and the Gallina culture (Mackey 1982). Recent investigations have questioned this assumption, however, citing ceramic evidence (Elliott 1988; Kulisheck and Elliott 2005) and oral tradition (Whatley and Delaney 1995) to support the hypothesis that the late thirteenth and early fourteenth-century population of the Jemez Province originated in the northern and central Rio Grande and/or the southern San Juan Basin, with a simultaneous autochthonous dissolution of the Gallina Province (Crown et al. 1996).

In the 1980s Michael Elliott published the first of an ongoing series of synthetic documents exploring the archaeology of the Jemez Province. His reports remain the

definitive sources of basic data on the archaeology of the region, documenting fundamental information regarding the large pueblos (defined as those estimated to contain more than 50 rooms [Elliott 1980]), and small sites (Elliott et al. 1988; Elliott 1991a) throughout the Jemez Province, as well as the origins of the "Jemez Phenomenon," the dramatic increase in population and related appearance of substantially larger pueblos in the fourteenth century (Elliott 1998). Elliott also penned a comprehensive synthesis of the archaeology of the Jemez Province (Elliott 1986a) as well as overviews of Giusewa (Elliott 1991, 1993), detailing the history of archaeological investigations in the region as well as summarizing contemporary theories regarding Jemez history.

Building upon the early investigations of Reiter (1938) and Shepard (1938), recent examinations of the ceramic traditions of the Jemez Province have focused on the enigmatic properties of Jemez Black-on-white pottery. Marjorie Lambert's (1981) study of Giusewa ceramics notes an abundance of locally made wares and a surprising paucity of imported types, from both other Pueblos and from Iberian contexts, as well as definitive examples of Spanish influences on the production of Jemez Black-on-white pottery in both form and decorative elements in the early seventeenth century. Elliott (1986:187) examines existing collections of Jemez Black-on-white in an attempt to define temporal patterns in a ware noted for its remarkable stability over four centuries of production. He identifies a series of broad trends differentiating early (A.D. 1350-1500) from late (A.D. 1500-1700) Jemez Black-on-white ceramics. In the late 1980s the School of American Research conducted test excavations at Kwastiyukwa, Nanishagi, Seshukwa (LA 303), and Kiatsukwa (LA 132 and 133) (Haas and Creamer 1992; Futrell 1998;

Creamer et al. 2002). Selma Morley's recent work comparing Tewa and Towa wares (Morley 2002) sheds light on the social barriers separating the Towa-speaking peoples from their neighbors, as well as the alliances among the large pueblos of the Jemez Province between A.D. 1325-1625. Surprisingly, she finds that "Jemez Black-on-white designs show little or no standardized style" (Morley 2002:238), suggesting a degree of agency exhibited by Jemez potters not typical of their Tewa neighbors.

The most significant trend in the archaeological study of the Jemez Province in recent years is an increasing awareness of and interest in the study of small sites (defined as those with less than 50 rooms [Elliott et al. 1988; Elliott 1991a]). Since 1977, more than 3483 sites have been recorded in the Jemez Province (Kulisheck and Elliott 2005), most of which date to Ancestral Puebloan contexts. The majority of these sites are small architectural units of one to four rooms known as field houses, which dominate the archaeological record of the region (Elliott 1991a; Crown et al. 1996; Kulisheck 2005). With the cessation of excavations at the large pueblos of the Jemez Province after the 1940s, these small sites have become the major focus of modern archaeological investigations, with 31 fieldhouse sites excavated since 1961, primarily as parts of salvage operations (Acklen and Railey 1999; Kulisheck 2005). In recent years, Jeremy Kulisheck has combined this data with original fieldwork at other field houses to shed significant light upon the effects of Spanish colonization on Jemez settlement patterns and social dynamics (Kulisheck 2001a, 2001b, 2002, 2003, 2005). While previously it was often assumed that the depopulation of large pueblos in the Jemez Province following Spanish colonization signaled a corresponding drop in the overall Pueblo population, Kulisheck's recent research demonstrates that an intensification of use among

small sites such as field houses co-occurred with the depopulation of large sites during this period. This suggests that mobility may have been employed as a strategy of resistance to Spanish colonial policies such as *congregacion* and *reduccion*, with Pueblo peoples possibly leaving large aggregated villages in favor of small field houses, producing large-scale shifts in seventeenth-century settlement patterns in the Jemez Province (Kulisheck 2005).

Although this recent focus on small sites in the Jemez Province has proved productive, in view of the incredible quantity and diversity of archaeological sites in the region our understanding of Jemez history remains fragmentary and meager. As a result, the Jemez Province is today considered one of the most poorly understood regions of the Pueblo Southwest (Crown et al. 1996; Snead et al. 2004:29; Kulisheck and Elliott 2005) and is discussed only ephemerally (if at all) in synthetic overviews of Southwestern culture history (Adler 1996; Cordell 1997; Adams and Duff 2004). Recent research aims to correct this oversight through the formulation of comprehensive synopses of large-scale cultural developments in the Jemez Province (Kulisheck and Elliott 2005).

A Cultural History of the Jemez Province

The following broad overview summarizes what is currently thought to be known regarding the cultural history of the Jemez Province. In comparison with other areas of the Southwest, the Jemez Province has been the subject of extensive survey and inventory projects over the past quarter-century, but no modern large-scale excavation projects (at

least within the past sixty years). Thus while a substantial number of sites have been documented, only a few have been the subject of thorough analysis. As a result, our current understanding of the history of human use and settlement of the Jemez Province is broad, but at the same time superficial. The following chronology is primarily based upon the recent work of Kulisheck and Elliott (2005) and Kulisheck (2005), and builds upon Wendorf and Reed's (1955) northern Rio Grande chronological sequence, summarizing the current understanding of the history of human use and occupation in the Jemez Province.

The Preceramic Period: 15,000 B.C.- A.D. 600

The earliest evidence for a human presence in and around the Jemez Province is found in the reports of Paleoindian projectile points recovered from within San Diego Canyon (Whatley and Delaney 1995:39) and surrounding areas (Steen 1977:7, 1982:37). Although no sites dating to the Paleoindian era (ca. 14,000-8000 B.P.) have been recorded in the study area, projectile points manufactured from nearby Jemez Mountains obsidian sources have been found in other areas of the Southwest (Myers and Ford n.d.). Sites with evidence of obsidian processing and temporary occupation dating to the Middle Archaic period (5000-3000 B.P) have been noted in areas adjacent to the northeast boundary of the Jemez Province, within the Valles Caldera National Preserve (Baker and Winter 1981). Thus it appears that for the first 10 millennia of human history in the Americas the Jemez Province was occupied sporadically (if at all) by small bands

of hunter-gatherers, who were likely drawn to the area by its rich deposits of valuable obsidian.

The first evidence of horticulture in the Jemez Province comes from the Late Archaic period deposits of maize excavated from Jemez Cave (Alexander and Reiter 1935; Ford 1975). Two specimens recently re-analyzed by Vierra and Ford (2005) yielded corrected radiocarbon dates of 1380-1100 B.C. and 1360-1060 B.C. respectively. These samples remain some of the earliest directly dated maize specimens from the Northern Rio Grande region. Yet even with the appearance of horticulture, human use of the Jemez Province appears to have been intermittent throughout the Late Archaic (3000-1 B.C.) and Basketmaker (A.D. 1-600) periods, with small mobile bands of people moving through the area seasonally as they planted, gathered, hunted, and collected.

The Developmental Period (San Ysidro Phase), A.D. 600-1200

According to Wendorf and Reed's (1955) Rio Grande chronology, the Developmental period in the northern Rio Grande is marked by the introduction of ceramics, new hunting technologies, increased sedentism, and a greater reliance upon agriculture. Settlements consisting of larger, more elaborate pit structures were occupied for longer periods throughout the year, and storage facilities increased in size and number (Schmader 1994). These settlements tend to be strategically located in close proximity to both water sources and arable lands, though there is debate as to whether they were primarily occupied during warm (Cordell 1979:43) or cold (Schmader 1994:494) seasons. Increased population density may have constrained mobility and increased competition

for subsistence resources during this time. Towards the end of the Developmental period surface structures appear in association with increased site size and a greater reliance upon agriculture (due to more predictable precipitation cycles), as well as more intensive utilization of upland areas (Schmader 1994).

Sites dating to the Developmental period are rare in the Jemez Province (where this era has been labeled the "San Ysidro phase" by Kulisheck and Elliott 2005). Only a few such sites are known to exist, as evidenced by shallow pit structure depressions in association with artifact scatters of diagnostic ceramics such as White Mound Black-on-white, Red Mesa Black-on-white, and Lino Grey. These sites tend to be located in the southern portions of the Jemez Province, in the valley bottoms and along the terraces of the Jemez River from its junction with the Rio Guadalupe south to its confluence with the Rio Salado (Elliott 1991a:18; Whatley and Delaney 1995:48; Kulisheck and Elliott 2005:2).

The Coalition Period (Vallecitos Phase), A.D. 1200-1325

Prior to the thirteenth century, the population of the northern Rio Grande region was surprisingly sparse. That began to change around A.D. 1250, with an apparent increase in the number of inhabitants along the northern Rio Grande and its tributaries. This growth may be attributable to the immigration of peoples from other areas of the Southwest (such as the San Juan Basin), yet internal population dynamics may also have contributed to this trend (Cordell 1989:314-315). An increase in the total number of sites occurred throughout the region during this period as well, with the appearance of surface

pueblo architecture and shifting settlement from dispersed habitations to aggregated villages consisting of larger room blocks fronting formal plazas. Although numbers increased, these sites tended to be distributed more widely across the landscape with greater distances between sites, as agricultural production intensified concurrently (Crown et. al 1996:188). Around the same time, ceramic technologies shifted from the use of mineral-based pigments to local production of wares decorated with carbon-based paints. This is signaled by the appearance of Santa Fe Black-on-white ceramics throughout much of the region (Peckham 1990:111-112).

In the Jemez Province, Vallecitos phase settlement is characterized by small pueblos, usually of less than 40 rooms, concentrated along rivers in the southern regions of major canyons, although a few small pueblos are present on the mesa tops (Mackey 1982; Elliott 1991a, 1998). Field houses with Vallecitos phase ceramics have also been noted on lower Virgin Mesa and San Juan Mesa. Eight sites of larger than 50 rooms have been identified, all surrounded by a constellation of smaller Coalition period settlements (Kulisheck and Elliott 2005:3). The earliest tree-ring dates from a habitation site in the Jemez Province fall into the Vallecitos phase, taken from a rockshelter at the northern extent of the region which yielded a single cutting date of A.D. 1247 (Robinson et al. 1972). The ceramics associated with these sites include Santa Fe Black-on-white, St. John's Black-on-red and Polychrome, and Rio Grande Corrugated Wares (Kulisheck and Elliott 2005). The dominant decorated ware found on the Coalition period sites of the Jemez Province is a local variant of Santa Fe Black-on-white known as Vallecitos Black-on-white (Mera 1935:32). The production of Vallecitos Black-on-white probably began when local clays and tempers were incorporated into the production of Santa Fe Black-

on-white, though there is considerable controversy surrounding the origins of Vallecitos Black-on-white pottery.

This controversy centers on the relationship between the Jemez and Gallina Provinces (or lack thereof). In the past, the Vallecitos phase occupation of the Jemez Province has been tied to the abandonment of sites in the Gallina area, with archaeologists inferring a migration of Gallina people into the Jemez Province based upon perceived similarities in architecture (Mackey 1982) and ceramics (Mera 1935:32; Wendorf and Reed 1955:148; Ford et al. 1972:25; Ellis and Dodge 1989). But recent examinations of stylistic and technological attributes among Vallecitos, Gallina, and Santa Fe Black-on-white ceramics by Elliott found that Vallecitos Black-on-white had a closer affinity to the Santa Fe tradition, based upon similarities in design, surface treatments, and paste (Elliott 1998). If these new, Coalition period inhabitants of the Jemez Province did not come from the Gallina area, from whence did they originate? Kulisheck and Elliott (2005:3-4) suggest a northern and central Rio Grande and/or southern San Juan Basin origin and affiliation for the Vallecitos phase population of the Jemez Province. Although it is possible that the abandonment of the Gallina area may have contributed to the growing population of the Jemez Province, the distinctive traditions of Gallina material culture appear to have ceased in conjunction with the desertion of that area (Crown et al. 1996:194).

Early Classic Period (Paliza Phase), A.D. 1325-1425/1450

Substantial social and economic changes began to take place in the northern Rio Grande region during the early Classic period, A.D. 1325-1450 (Wendorf and Reed 1955; Cordell 1979; Crown et al. 1996:194-195). Demographic information suggests a significant population increase throughout the northern Rio Grande during this period, coupled with the aggregation of the Pueblo population into large, multistoried pueblos, often comprised of more than 1000 rooms (Stuart and Gauthier 1984). This demographic upsurge is likely attributable to an influx of refugees from the Four Maizeers region, which was by this time in a state of appreciable decline (Cameron 1995; Cordell 1995). Major technological changes in ceramic production accompanied this population increase as well, with the introduction of lead glaze-decorated wares—the diagnostic pottery of the Classic period (Wendorf and Reed 1955). Typical early Classic Period glaze wares include Agua Fria Glaze-on-red, San Clemente Glaze Polychrome, and Cieneguilla Glaze-on-yellow (Glaze A), as well as Largo Glaze-on-red and Largo Glaze Polychrome (Glaze B). The appearance of glaze wares in the northern Rio Grande region has been interpreted as evidence of a diffusion of technology (Wendorf and Reed 1955:150; Cordell 1997:198) or the migration of refugees (Shepard 1942:197-199) from the Zuni and Little Colorado areas.

In the Jemez Province, the early Classic period has been labeled the "Paliza Phase" by Elliott (1991a, 1998). The Paliza phase is characterized by a huge rise in population, with a corresponding increase in the overall quantity of sites and size of multi-room pueblos. Settlement shifted from the riverine focus of earlier periods to the occupation of higher elevations, with the concentration of villages moving from valley

bottoms to mesa tops (Elliott 1986a:186). The Paliza phase population was aggregated in numerous medium-sized pueblos (comprised of 50-350 rooms) and a few large settlements of up to 1400 rooms, mainly concentrated in the southeastern portion of the Jemez Province. However, occupation at many of the large sites in other areas, such as the mesa tops in the northwest of the Province, was initiated during this phase as well. Paliza phase settlements tend to consist of multi-story room blocks enclosing one or more central plazas, flanked by a constellation of smaller architectural features (Kulisheck and Elliott 2005:4). Widespread construction of field houses in both the valley bottoms and on mesa tops occurred during this period as well (Fliedner 1974, 1975; Elliott 1991a).

During the Paliza phase a distinctive ceramic tradition began in the Jemez Province with the introduction of Jemez Black-on-white pottery to the local assemblage. Jemez Black-on-white is a tuff-tempered carbon-paint ware with a distinctive white slip (Shepard 1938:206; Morley 2002:86). It was produced in the Jemez Province for more than 350 years (approximately A.D. 1325-1680) and exhibits considerable variation in stylistic elements, yet displays surprisingly few easily identifiable temporal markers (Chapter VI). At Paliza phase settlements Jemez Black-on-white is the dominant decorated ware, and is associated with relatively low frequencies of Rio Grande Blind Corrugated plain ware, and very small percentages of Glaze A and Glaze B trade wares. This low percentage of trade wares, combined with the small amount of Jemez Black-on-white found on contemporaneous sites outside the Jemez Province (Kidder and Amsden 1931; Habicht-Mauche 1993)\ suggests that the Paliza phase communities were relatively insular and not well integrated with non-Jemez communities of the other regions of the northern and central Rio Grande.

Late Classic Period (Jemez Phase), A.D. 1425/1450-1598

Huge, agglomerated pueblos were constructed during the late Classic period throughout the northern and central Rio Grande regions, with hundreds of rooms surrounding multiple plazas (Cordell 1989; Bernardini 1998). Mackey (1982) coined the phrase "Jemez phase" to characterize the late Classic period in the Jemez Province. In most of north-central New Mexico, the large Pueblo settlements of this period were located on valley bottoms in close proximity to the major drainages and tributaries of the Rio Grande. This was not the case in the Jemez Province however (as on the Pajarito Plateau [Powers and Orcutt 1999]), with the majority of aggregated villages constructed on mesa tops (Elliott 1982). Elliott et al. (1988:56) estimate that of the 15,000 rooms occupied throughout the Jemez Province during the Jemez phase, only about 1000 are near permanent water sources; the other 14,000 are located on the tops of high mesas, making use of human-made reservoirs. During this period many of the large Paliza phase villages located on the mesas east of the Jemez River were vacated (with the exception of a few of the larger communities in the Paliza Canyon area and on San Juan Mesa), while most of the large sites on the mesa tops in the western portion of the Jemez Province grew in size. The use and construction of dispersed field houses continued throughout the region. Based solely on the archaeological record of large pueblos, population in the Jemez Province seems to have peaked during this period (Kulisheck and Elliott 2005:5).

Jemez Black-on-white continued to dominate the decorated ware assemblage at sites in the Jemez Province throughout this period, occurring with increasing quantities of

glaze wares such as Espinoso Glaze Polychrome (Glaze C), San Lazaro Glaze Polychrome (Glaze D), and plain wares. Rio Grande Corrugated wares are present during the early part of the Jemez phase, but production of these wares appears to have ceased by A.D. 1525, when they were replaced by Rio Grande Plain wares (Elliott et al. 1988; Elliott 1991a).

It was during the Jemez phase that the Jemez people first encountered Europeans, when in 1541 a captain with the Coronado expedition, Francisco de Barrionuevo, visited the Jemez Province. Casteñeda, the chronicler of the Coronado expedition, records that:

> Don Tristan de Arellano . . . sent Captain Francisco de Barrionuevo with some men up the river towards the north. He found two provinces, one of which was called Hemes, containing seven pueblos, and the other Yuque-yunque. The pueblos of Hemes came out peaceably and furnished provisions. (Hammond and Rey 1940:244)

Casteñeda also provides a list of the Pueblo Provinces encountered by the Coronado expedition. Immediately following the entry of "Hemes, seven villages" is a listing of "*Aguas Calientes*, three villages." In recent years researchers have surmised that this latter entry refers to an additional cluster villages in the Jemez Province (though it could conceivably allude to villages in a completely different area, such as the Ojo Caliente or Zuni regions, both of which contain hot springs [Elliott 1986a:189]). The most likely candidates are the sites of Unshagi, Nanishagi, and Giusewa (Bloom 1922:22-23; Reiter 1938:24; Elliott 1986a:189), which are the only three large pueblos with known Jemez phase components located in the bottom of San Diego Canyon—all the other large settlements dating to this period are situated on nearby mesa tops. Unshagi, Nanishagi, and Giusewa are thus more easily accessible than the other Jemez phase villages, and they happen to be located in close proximity to natural hot springs. That the Spaniards

would have visited these three pueblos makes sense, and thus these are most likely the villages of Aguas Calientes mentioned by Casteñeda. Therefore, there were probably a total of 10 villages in the Jemez Province noted in the chronicles of the Coronado expedition (Hammond and Rey 1940).

The Jemez did not encounter the Spaniards again for forty years; but in 1581 members of the Rodriguez-Chamuscado expedition visited a valley they called Santiago (now San Diego Canyon), where they noted a pueblo of 300 rooms and three to four stories, situated in a deep canyon near a river. They named this village "Puerto Frio." From this description it seems likely that Puerto Frio refers either to Nanishagi or Unshagi. They also mention another, smaller pueblo in the valley of Santiago named Baños, comprised of 100 houses and two to three stories, which probably refers to Giusewa. The expedition was told of 13 additional pueblos in the vicinity, but did not visit them due to heavy snow (Hammond and Rey 1966:6-15, 86-87).

Just two years later the Espejo-Beltran expedition traveled to the Jemez Province, which they surmised to contain seven pueblos and an estimated population of 30,000 persons (almost certainly a gross exaggeration). They were told of an exceptionally large pueblo in the mountains of the region, but declined to visit it out of fear that their small group would be militarily outnumbered (Hammond and Rey 1966:15-23). The chronicles of the Espejo-Beltran expedition also mention that the people of Zia pueblo obtained metal from the Jemez (Reiter 1938:25), suggesting that although their contact with the Europeans had been brief and transitory to this point, the material culture of the Spaniards had already been adopted into the everyday lives of Pueblo peoples.

The Spanish Colonial Period (Guadalupe Phase), A.D. 1598-1680

In the quarter century following Don Juan de Oñate's colonization of New Mexico in 1598 (Chapter III) the population at most of the large pueblos of the Jemez Province dropped precipitously (Reiter 1938; Elliott 1982), as it did throughout the Pueblo world (Reff 1991; Upham 1992). By the 1620s only two sites in the Jemez Province housed significant populations, Giusewa and Walatowa (Kulisheck and Elliott 2005:5); both sites were the locations of Spanish missions (Scholes 1938; see below), although smaller sites along the Rio Guadalupe and in San Juan and Paliza Canyons were reoccupied during the Guadalupe phase as well (Kulisheck 2003; Kulisheck and Elliott 2005). This pattern of depopulation at large sites seems at first to suggest large-scale population decline throughout the region, however, recent analyses of smaller sites in the Jemez Province suggests an intensification of use of field houses (Acklen and Railey 1999; Kulisheck 2001a, 2001b, 2005; Elliott 2002b) and small pueblos (Luebben et al. 1988) in the sixteenth and early seventeenth centuries, calling into question previous estimates of dramatic demographic collapse (Church et al. 2005). The continued use of field houses during the early seventeenth century could also reflect increasing demands of the Spaniards upon the Jemez people for tribute. Field houses with Guadalupe phase occupations have been identified across the Jemez Province, including the northern portions of San Diego Canyon; near the confluence of San Antonio Creek and the East Fork of the Jemez River; southern Virgin Mesa; and on the central and southern portions of San Juan Mesa (Kulisheck and Elliott 2005:5).

The Spanish Colonial period in New Mexico is characterized by ceramic assemblages which include Puaray Glaze Polychrome (Glaze E), Kotyiti and San Diego

Glazes (Glaze F), majolica wares, Tewa polychromes, and in the Jemez Province, late Jemez Black-on-white (sometimes exhibiting European forms such as soup plates, candlesticks, crucifixes, and chalices [Lambert 1981]) and Rio Grande plain wares.

Oñate visited the Province on August 3, 1598, stopping at "the great pueblo of Emmes [Jemez]," which was located on a high mesa. While there he discovered a Jemez man wearing a Spanish paten, which had apparently been taken from a deceased priest and subsequently obtained in trade from the nearby Tiwa pueblos. The next day Oñate's party descended down a rough path, visiting some of the 10 other pueblos reportedly occupied in the Jemez Province at that time. On August 5 he visited "the last pueblo of the said province and saw the marvelous hot baths which spring up in many places" (Reiter 1938:27). In September of that year, the Franciscan priest Fray Alonso de Lugo was assigned to minister to the inhabitants of the Jemez Province and the neighboring Apaches de Navajo. Accompanied by a *donado* (lay brother) possibly named Juan de San Buena Ventura or Pedro de Vergara (Hodge et al. 1945:276), Fray Alonso apparently established a small two-room temporary mission at Giusewa that he utilized until his departure from New Mexico in 1601 (Ivey 1991:131). His *donado* remained behind for an unknown period to minister to the Jemez people (Scholes 1938:62-63).

In the fall of 1606, Oñate granted to Captain Juan Martínez de Montoya the pueblo of Santiago de Jemez in *encomienda* for three generations (Scholes 1944:340); to which Jemez village this refers is unclear.[9] In any case it appears that unlike many other

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[9] Anderson (1985:360) claims that Martínez served Fray Juan de Escalona at the pueblo of Santiago. Previous accounts of the mission history of the Jemez Province have not noted the existence of any friar in the area during the period between 1601-1621 (Reiter 1938; Scholes 1938; Elliott 1986a, 2002a; Farwell 1991; Whatley and Delaney 1995). In fact, there is no evidence to suggest that Fray Escalona was

encomenderos in early colonial New Mexico (Riley 1999:93), Martínez did not abuse his position by residing at his *encomienda*. Records indicate that he established some sort of settlement in the vicinity of Santa Fe between 1607 and 1608 (Scholes 1944:341; Riley 1999:86), and by the summer of 1608 he is said to have left New Mexico.

Dendrochronological evidence demonstrates that construction continued at Unshagi until 1605 (Reiter 1938:181), and that a circular kiva was constructed or modified at Giusewa around 1610 (Ivey 1991:13). This suggests that life in the Jemez Province had not changed significantly during the first years of Spanish colonization. Continued construction at the large pueblos indicates that large-scale depopulation had not yet commenced, while the enduring use of traditional kivas implies that early Franciscan efforts at widespread and wholesale conversion were unsuccessful. Furthermore, in 1614 the inhabitants of the Jemez Province were referred to as *infieles* (infidels), suggesting that they remained unconverted. Records also indicate that they had been subjected to the payment of tribute, which indicates that although they may not have accepted the Spaniards' religion, they had been forced to accept Spanish suzerainty (Scholes 1938:63).

In 1621-1622 Fray Gerónimo Zárate Salmerón arrived in the Jemez Province and re-established Lugo's mission at Giusewa (Ivey 1991:13-14), naming it San José de los Jemez (Elliott 1993:8). He supervised the construction of a larger church, sacristy, and convento there. Thirteen years after Zárate's arrival, Fray Alonso de Benavides wrote of:

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stationed at Jemez during that period. More likely, Martínez served Escalona while the latter was commissary at San Gabriel, not Santiago.

> the Hemes nation, one of the most indomitable and belligerent of this whole kingdom; above all they are very great idolaters. Their pueblos were founded among some terribly rugged, uninhabitable mountains. . . .
>
> Among others to whose lot there fell the conversion of this nation was Father Fray Gerónimo de Zárate [Salmerón], who, being a good minister and versed in the language of these Indians baptized more than 6000 there. He founded an interesting convent and a very sumptuous church in the principal pueblo dedicated to Saint Joseph. (Hodge et al. 1945:69)

Yet even as the massive walls of the mission were being raised, Zárate found the surrounding landscape a significant impediment to his evangelical progress. To aid his efforts at conversion he established another mission at Walatowa in 1622, named San Diego de la Congregación (Elliott 2002a). Whether an earlier settlement already existed at Walatowa, or Zárate founded the entire mission village anew is not clear (the church was definitely constructed anew, however). In any case, as the name suggests this mission pueblo was clearly intended to facilitate *congregacion*, inducing the inhabitants of the various villages scattered throughout the Province to settle at this centralized southerly location. During his tenure in the Jemez Province Zárate succeeded in baptizing 6,566 souls, translating the Christian doctrine into the Towa language, and undertook mineral prospecting for the King of Spain, recovering 450 pounds of ore samples which were shipped to Mexico for further study (Scholes 1938:65; Whatley and Delaney 1995:157).

Whatever gains Zárate may have thought he made in the early months of his ministry were repudiated in 1623, when the Jemez people revolted for the first time. They burned the missions at Walatowa and Giusewa in an apparent protest against the Franciscan's persecution of their "idolatry" (Scholes 1938:68-69; Ivey 1991:10). Following the destruction of the churches the villages were "totally abandoned" (Hodge

et al. 1945:70). During Lent that year, the Governor of New Mexico led a group of soldiers into the Jemez Province in an abortive attempt to restore order. But the Jemez people had already returned to their mesa-top villages, where they remained scattered for the next three years (Scholes 1938:69). Whether Zárate attempted to continue his ministry in the Jemez Province between 1623 and 1626 is unclear. He called himself "guardian of the convent of San José de los Jemez" in testimony dated June 12, 1626, and other witnesses refer to him as the minister of the Jemez. A deposition made on the same date suggests that Zárate returned to Giusewa in the spring of that year if not earlier, accompanied by soldiers stationed there for his protection. He left New Mexico that autumn (Scholes 1938:70).

In January of 1626 Benavides assumed the position of *Custodio* (head of the local mission organization) of the Franciscans in New Mexico. He reports on the status of the Jemez peoples in his Memorial of 1630, stating:

> Crossing the river and going on seven leagues, you come to the Jemez nation. These people had been scattered all about this kingdom when I arrived as custodian, and their lands were nearly deserted due to hunger and war. These two plagues were finishing them off. Then I began to settle them, with tremendous effort, in a place where some had already been baptized and had their churches, which were tended by several priests. I got them all together in the same province.
>
> I put a cleric in charge who supported all these efforts very attentively. We gathered this tribe into two pueblos—namely, San José, which was still standing, with a breathtaking, sumptuous, and distinguished church and friary, and San Diego de la Congregación, which for our purposes we founded anew, taking to it the Indians who once had been part of that nation but had gone astray. We gave them houses already built, along with food and sustenance for several days and plowed fields for their seed plots.
>
> . . . And so today that congregation constitutes one of the best towns in the Indies, with its church, friary, and schools teaching all the trades that may also be found elsewhere. And although over half of this nation has died, Your Majesty may still count here on more than three thousand newly assembled taxpayers. (Morrow 1996:29)

Benavides replaced Zárate with Fray Martín de Arvide. Upon his arrival in the Jemez Province, Arvide supervised the repair of the mission church at Giusewa. In 1628 Benavides ordered him to re-establish the pueblo and mission at Walatowa. Apparently he was successful in coaxing at least some of the scattered population back to the congregation pueblo, as evidenced by Benavides's 1629 estimate of the population of San Diego de la Congregación at 300 households (Scholes 1938:70; Hodge et al. 1945:70). Around the same time the pueblo of Unshagi was "intentionally abandoned" (i.e. not burned or forcibly destroyed), suggesting that its inhabitants were most likely congregated at Giusewa or Walatowa (Reiter 1938:178-181). Arvide remained at Jemez until 1632, when he was transferred to Zuni, where he was martyred shortly thereafter (Sando 1982:118).

What happened at Giusewa over the next fifty years is unclear; many of the church records for this period were captured or destroyed by the Puebloans during the Revolt of 1680. The few documentary sources that survive make no mention of missionary activities at San José de los Jemez during the period from 1634 to 1680. Historical records do indicate that by 1628 San Diego de la Congregación had come to be regarded as the primary center of missionary activity among the Jemez (Scholes 1938:93). As a result, historians have surmised that the Franciscans probably abandoned San José sometime between 1629 and 1639 (Scholes 1938:93-94). Most likely its use as a mission was discontinued after Arvide left the Province in 1632. In 1658 the Governor of New Mexico, Juan Manso, reported the area around "the baths of San José de los Jemez" to be *despoblado* (uninhabited or deserted) (Scholes 1938:96). However, the

presence of Kotyiti Glaze Polychrome pottery at Giusewa indicates that native inhabitants may have occupied the site for at least part of the latter half of the seventeenth century (Elliott 1993:9).

In 1639 Padre Diego de San Lucas was killed at the mission of San Diego during a Navajo raid (Sando 1982:118), in one instance of a larger pattern of increased Athapaskan raiding of the Pueblos during this period (Chapter III). The mission facilities at Walatowa appear to have flourished during these years; in 1642 the Franciscans reported: "The pueblo of the Jemez has a splendid church, a good convent, a choir and organ, and 1800 souls under its administration" (Scholes 1938:95). At the same time, discontent fomented among the Jemez people. Sometime between 1644 and 1647 the Jemez allied with the "Apaches" (probably Navajos) in plotting to overthrow the Spaniards, killing one *español*e for which they were punished "with just severity," when the Governor of New Mexico hanged 29 Jemez leaders (Sando 1982:118; Kessell and Hendricks 1992:42 n9), whipping others and sending some into forced servitude (Scholes 1938:95-96). A few years later the Jemez were again implicated in the planning of a general rebellion against the Spaniards during Governor Ugarte de la Concha's administration (1649-1653), and nine of the Jemez conspirators were hanged (Scholes 1938:96).

Numerous mentions of the priests and lay brothers who ministered to the Jemez people during the 1660s and 1670s appear in the documentary record. A friar from Jemez was sent to courier reports to officials in Mexico City in 1660. The following year another priest, Fray Miguel Sacristán, committed suicide at San Diego de los Congregación. Fray Salvador de Guerra was appointed to succeed Fray Sacristán as the

guardian of San Diego (Scholes 1938:96-97). Also in 1661 the mission of San Diego was referred to as *la mayor administración* in New Mexico, indicating that if there were any doubts regarding its earlier status, it had by this time definitely become the principal pueblo of the Jemez people (Scholes 1938:94). In 1667 the Provincial of the Franciscan Order in Mexico City reported: "In the convent of San Diego of the pueblo of the Jemez, there serves and will serve two friars, one of them a priest who will administer to the pueblo; and it is necessary that one more priest should be added" (Scholes 1938:97), suggesting a sizeable population at San Diego at this time. In August of 1672 the custodial chapter meetings of the Franciscans of New Mexico were held in the convent of "San Diego de los Jemez," indicating the importance this church and pueblo had attained as a center of missionary activity in New Mexico. At those meetings, Fray Tomás de Torres was appointed guardian of San Diego for the period 1672-1675 (Bloom and Mitchell 1938). On the eve of the Revolt of 1680 Walatowa was said to harbor a population of 5000 Jemez persons[10] congregated from five smaller pueblos, with room blocks as high as four stories (Vetancurt 1971; Bloom and Mitchell 1938:96; Ellis 1956:25-26).

Franciscan records thus depict the Jemez Province as a lively center of Christian conversion and worship during the generation preceding the Pueblo Revolt. The documents of the secular government seem to counter this optimistic portrait, however. Under the administration of Governor Juan Francisco Treviño (1675-77), 47 native religious leaders from pueblos throughout the province (including Jemez) were arrested, publicly whipped, and imprisoned. One of these *hechiceros* (sorcerers) was executed by

[10] This estimate seems too high, especially when compared with the 1642 record of 1860 "souls."

public hanging in the plaza at Walatowa as an example to those Jemez persons who still harbored sympathies for their traditional religion (Hackett and Shelby 1942, 2:289-90, 300-301). As noted in Chapter III, this episode of persecution was the final straw that led Po'pay to begin plotting his grand war of independence.

Ominous forebodings of the impending Revolt surfaced in the Franciscan world in the 1670s—in 1675 an apparition of the Virgin Mary reportedly visited a New Mexican girl, ordering her to "arise and announce to this custody that it will soon be destroyed for the lack of reverence it shows its priests" (Gutiérrez 1991:131). This miraculous revelation prompted Fray Juan de Jesús, a priest stationed at San Diego de los Congregación in 1677, to urge his colleague to cease construction on the collaterals being added to the church's nave at that time. Fray Juan, who was renowned for his gift of prophecy (Kessell et al. 1998:371), felt that their efforts would be better spent "uniting ourselves with God and preparing to die for our Holy Faith, for the collaterals will soon end in ashes and many of us in death" (Gutiérrez 1991:131).

The Pueblo Revolt Era, A.D. 1680-1696

Fray Juan's prophecy was realized a few years later, when he was martyred during the opening days of the Pueblo Revolt of 1680 (Bloom and Mitchell 1938:97). The rebellion commenced at Jemez around noon on August 10, when a messenger arrived announcing that the Revolt had begun in the other pueblos—earlier than originally

planned[11]—and that from Taos to Santo Domingo the Spaniards had already been eradicated (Hackett and Shelby 1942, 1:68). The envoy reportedly urged the Jemez to "take up arms and kill these Spaniards and Friars who are here," and according to a soldier stationed at Jemez at the time, "this, in fact, the said Jemez Indians did" (Hackett and Shelby 1942, 1:80). The 1694 testimony of a captured Jemez prisoner tells of the church furnishings and other sacred objects being collected by the governor and stored in a chest, which was subsequently entrusted to his successor. The effigies of Mary and Jesus were removed from the church and destroyed along with statues of the saints and the church bells. These items were then burned, and in a final act of contempt, "they threw stones at them" (Kessell et al. 1998:237).

Apocryphal legends claim that on August 11, 1680 (Kessell et al. 1998:344, 348) the Jemez stripped Fray Juan de Jesús naked, tied him to a pig's back, and paraded him through the plazas of Walatowa, castigating and beating him all the while. Later they removed him from the pig, forced him onto his hands and knees, and took turns riding on his back, repeatedly spurring him to urge him forward (Espinosa 1988:35). A dispute soon erupted among the assembled warriors over how he would be killed, at which point Fray Juan is said to have stated: "Children, I am a poor old man, do not fight, do not kill each other in order to protect me; do what God permits" (Gutiérrez 1991:135). Another source records his final, prophetic words as: "Do with me as you wish, for this joy of yours will not last more than 10 years, after which you will consume each other in wars" (Espinosa 1988:35). He was eventually executed, and an arrow was later found lodged in

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[11] The leaders of the Revolt had moved the date of the uprising forward after Otermín captured the runners from Tesuque, Catua and Omtua (Knaut 1995:4; Chapter III).

his spine. His remains were buried next to a kiva in the main plaza at Walatowa (Kessell et al. 1998:342-343).

The Jemez did not succeed in killing all the Spaniards in their midst at the time of the Pueblo Revolt, however. Luis de Granillo, *alcalde mayor* (executive officer of the district) and war captain of the jurisdiction of the Jemez and Zia was at Walatowa with Fray Juan de Jesús, Fray Francisco Muñoz, and three other soldiers on August 10, 1680. A Jemez native named Lorenzo Musa warned Granillo of the impending Revolt beforehand, but Granillo did not leave and was attacked by the insurgent natives of Walatowa. Granillo was later able to escape with Fray Muñoz and the three soldiers (Hackett and Shelby 1942, 1:66-68, 80). Musa fled Jemez with this group as well, accompanying the Spaniards on their retreat to El Paso. Musa became the object of Po'pay's wrath for his perfidy, and when his presence in El Paso was reported to the leader, Po'pay ordered "by whatever deceit necessary, take Musa from the pueblo . . . and bring him here so we can gouge out his eyes" (Sanchez 1983:183). His ultimate fate is unknown; however, eight Jemez persons (including a former Governor named Francisco) reportedly accompanied Otermín's force on his abortive reconquest of 1681 (John 1975:104), indicating that Musa was not the only Towa-speaker who fled the Jemez Province following the Revolt. In fact, in January 1682 a new pueblo of refugees who had accompanied the colonial forces to their southern exile was reportedly settled by "Piro Indians, a few Tanos, and some more Jemez," located near El Paso del Norte (but separate from Isleta del Sur) (Twitchell 1914, 2:274).

The documentary record of events in the Jemez Province between 1680 and 1692 is fragmentary and incomplete, as the Spaniards did not set foot in the region during this

time and the Jemez did not record the history of the Spanish interregnum in written form. A few hints are provided through oral traditions and the testimony of Puebloans questioned by Otermín in the years following the Revolt. Sometime after the uprising, the men of Jemez reportedly "held blazing torches to the vigas of the houses" at Walatowa, "while the women and children stood across the river and watched the terrible fire" as the mission village was destroyed (Bloom and Mitchell 1938:108). It seems likely that the church was reduced to ashes as well, as later documents speak of the Jemez being ordered to "rebuild . . . the church and the dwelling for its minister (Kessell et al. 1998:352; see also Kessell et al. 1995:113). This apparently did not take place immediately following the Revolt; the fact that the corpse of Fray Juan de Jesús was buried after his execution on August 11, 1680 (Kessell et al. 1998:342-343)—and not simply left to rot in the sun as was another minister to the Jemez 16 years later (Espinosa 1988:245)—suggests that the residents of Walatowa remained at that village in the days following the Pueblo Revolt. Documentary evidence implies that the burning of Walatowa probably happened in 1681. During the first of the Spaniards' attempts at reconquest in December of that year, a Tewa captive named Juan reported that the Jemez people had assembled on "a high mesa which is near the pueblo of Los Jemez" after learning of Otermín's forces gathered at Isleta (Hackett and Shelby 1942, 2:236). A month later a similar report was given by a Christian Tiwa named Jerónimo, who had fled "the sierra of Los Jemez, where he left assembled and united the people of the pueblos of Alameda, Puaray, Sandia, Santa Ana, Zia, and farther on the natives of the pueblo of Los Jemez" (Hackett and Shelby 1942, 2:360). Later Jemez informants reported that they moved "when the Spaniards came," suggesting the time of Otermín's abortive reconquest

(Kessell et al. 1995:203). Further evidence supporting a 1681 date for the burning of Walatowa is provided via analogy with other pueblos; Otermín's forces encountered other burned churches in December 1681, including a still-smoldering chapel at Sandia (Hackett and Shelby 1942, 2:259).

Thus historical accounts suggest the Jemez had left Walatowa by late 1681. All available evidence indicates that they migrated approximately three miles north to San Diego Mesa, where they constructed a new pueblo: Patokwa (FIGS. 4.3 & 4.4). Within the next two years construction was underway on another new pueblo in the eastern region of the Jemez Province as well: Boletsakwa. Located on San Juan Mesa, Boletsakwa was inhabited by Jemez people and their Santo Domingo allies (Kessell et al. 1998:403), and has yielded dendrochronological dates clustering around 1683 (Robinson et al. 1972; Elliott 1986a:178).

Even with the ouster of the Spanish colonizers, life was not easy in the villages of the Jemez Province between 1680 and 1692. Raiding by the Utes plagued many Pueblo villages, including those of the Jemez (Reiter 1938:36). According to Escalante, the alliance among the Pueblos that had emerged under Po'pay's leadership during the summer of 1680 also disintegrated in the mid-1680s (Sanchez 1983). The Jemez, Pecos, Taos, and Keres pueblos (including Zia, Santa Ana, San Felipe, Cochiti, and Santo Domingo) were reportedly waging continuous warfare with the Tewa and Picuris.[12] A faction of Keres refugees was living at Laguna Pueblo, where they battled with those at

[12] Twitchell's translation of Escalante's letter contains no reference to the Jemez, but only that "The Keres, Taos, and Pecos fought against the Tewas and Tanos" (Twitchell 1914, 2:274).

Figure 4.3: Major sites occupied in the Jemez Province, 1650-1680

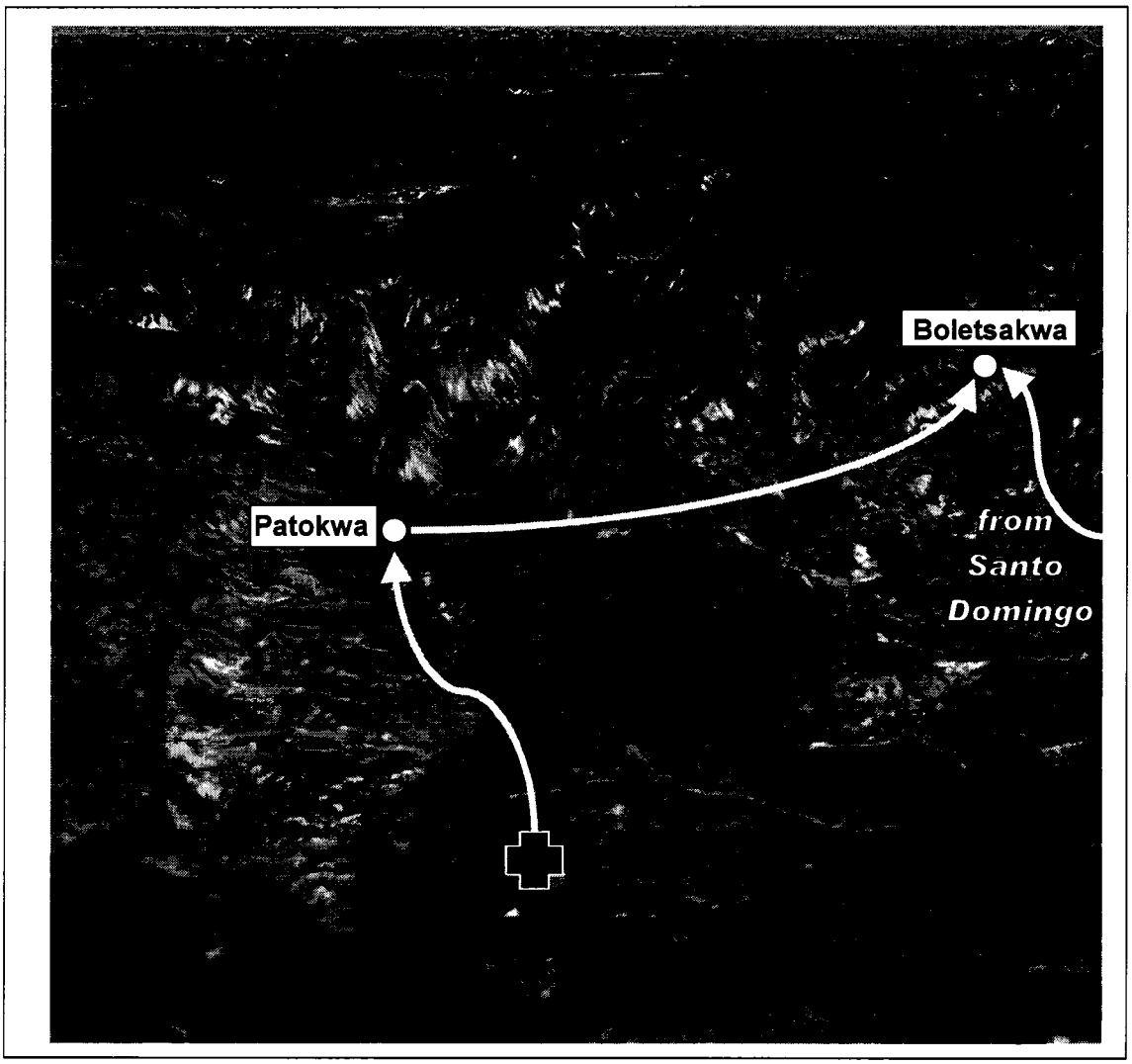

Figure 4.4: Major sites occupied in the Jemez Province, 1680-1683

with those at Acoma and Zia. Additionally, the Zuni people were purportedly at war with the Hopi (Kessell and Hendricks 1992:27).

In 1687 the Spaniards returned to New Mexico, when Pedro Reneros de Posada led a column of soldiers up the Rio Grande to the Jemez River. Reneros attacked and burned the Pueblo of Santa Ana, executing four leaders and capturing 10 others before returning to El Paso (Kessell and Hendricks 1992:24). He appears to have returned the following year, making it as far as Zia where he was repelled after having captured some livestock (Kessell et al. 1995:145, 217). In 1689 don Domingo Jironza Petrís de Cruzate retraced the Reneros route, leading a force of 80 Spaniards and 120 native allies as far as the Pueblo of Zia. On August 29, Jironza attacked the Keres who were fortified in the hilltop village. According to a laudatory certification awarded a year later, the battle raged throughout the day and into the evening. As the sun set upon the smoldering remains of Zia, Jironza took more than 70 of its inhabitants prisoner and ordered four religious leaders executed by firing squad in the main plaza. All told, more than 600 Puebloans were killed at Zia that day, many in the flames that consumed the village (Kessell and Hendricks 1992:25-26). But Jironza's triumph was a Pyrrhic victory: more than 50 of the 80 Spanish soldiers were wounded in the fighting and six were killed (Kessell et al. 1995:217). Aware that his army could ill afford another battle of that sort, Jironza and his militia limped back to El Paso (Kessell and Hendricks 1992:26). Following the battle the people of Zia and Santa Ana (and possibly some from Santo Domingo) sought refuge in the Jemez Province, occupying a mesa just west of Walatowa overlooking the vacant remains of San Diego de la Congregación (Kessell and Hendricks 1992:431; Kessell et a. 1995:113; Ellis 1956:30). Jemez oral traditions assert that the

people of Zia requested permission to move closer to the Jemez for protection following their bloody battle with Jironza (Jemez tribal representative, personal communication 2004). Allies from Santa Ana and Santo Domingo joined them there later, constructing a new pueblo between 1689 and 1692, known today as Cerro Colorado (FIG 4.5).

1692-1693: The Spaniards Return

The Spaniards ventured into the Pueblo world at least four times between 1682 and 1691 (Bancroft 1889:174-196), yet they never managed to penetrate the boundaries of the Jemez Province. For more than 12 years the necks of the Jemez were free from the Spaniards' colonial yoke. This era of independence came to an end in the autumn of 1692, when an expedition under the command of don Diego de Vargas Zapata Luján Ponce de León entered the Jemez Province once again to reclaim it for his majesty Carlos II and the Lord. Vargas had previously been warned that the Jemez were involved in a plot to exterminate the Spaniards upon their return to New Mexico. He had been told that with the help of their Keres, Pecos, Hopi, and Apache allies, the Jemez planned to "lie in ambush along the road to fall upon the horses, the camp, and [Vargas], the governor and captain general" (Kessell and Hendricks 1992:454). For this reason Vargas entered the area cautiously, "trusting and placing the matter in God's hands . . . blindly and without fear of facing such considerable risks and force" (Kessell and Hendricks 1992:601). He hoped to secure a promise of obedience from the people gathered at Patokwa and Cerro Colorado. If they would not consent to the resumption of Spanish rule, Vargas warned, "we would destroy them all" (Kessell and Hendricks 1992:455).

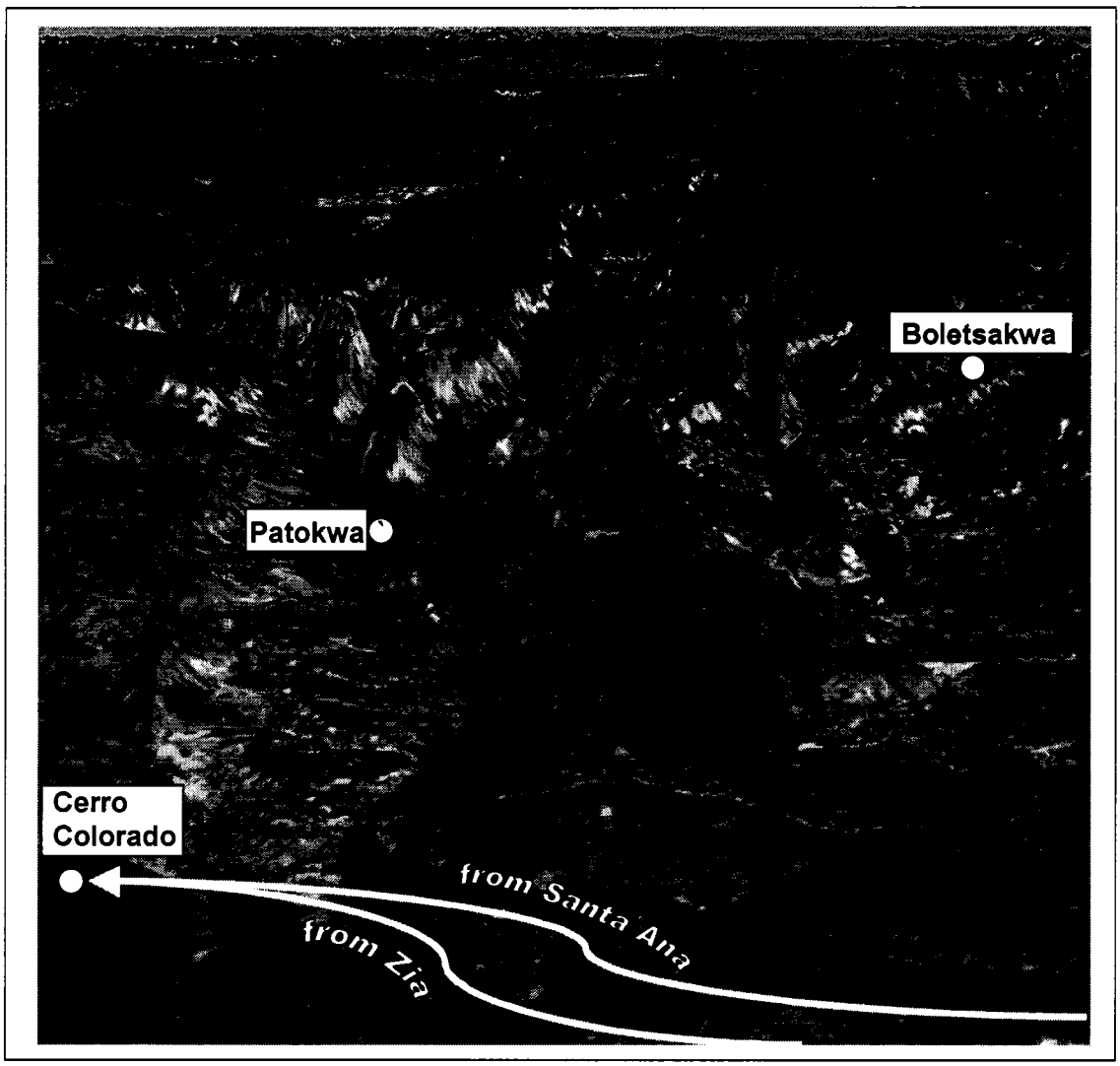

Figure 4.5: Major sites occupied in the Jemez Province, 1689-1693

A Spanish force of 60 soldiers entered the Jemez Province from the south on October 24, 1692. There they found the Keres from Zia fortified in the new pueblo of Cerro Colorado on a mesa just west of Walatowa (Kessell and Hendricks 1992:609). Vargas recorded his arrival in the Jemez Province as follows:

> I, the governor and captain general, entered this Keres pueblo of Zia, which is on the mesa of the Cerro Colorado, whose ascent is very steep and rocky. After the Indians saw me and the camp, most of them came down to the first mesa to receive me. Having gone up, I found that they had set up arches and crosses, in accord with the message and letter I had sent them and Antonio Malacate, the captain and leader whom they obey.
>
> With the other captains and elders, he received me with all reverence. They all had crosses in their hands and on most of the houses of the cuarteles of the plaza, where they had prepared a ground-level room for me. With the people of the pueblo on the plaza, I told them . . . about my coming and took possession for his majesty, as in the other pueblos. . . . It was seen that 123 of all ages, male and female, were baptized. (Kessell and Hendricks 1992:518-519)

Vargas went on to order the Zia people to return to the pueblo that Jironza had destroyed (LA 28), "because the walls were sturdy and good, and the church, likewise" (Kessell and Hendricks 1992:519). The people of Cerro Colorado informed Vargas that their Jemez neighbors had attempted to enlist their help in attacking the Spaniards the day before. They assured him that they would not cooperate in any such "treachery," satisfying Vargas that the Spaniards had "humbled and conquered them" (Kessell and Hendricks 1992:608).

After spending the night near the vacant pueblo of Walatowa, Vargas and his men continued on to "the pueblo of the Jemez, which is on the high mesas, three leagues from the one they abandoned, and whose ascent is very difficult" (Kessell and Hendricks 1992:520). Though previous investigators have questioned the exact location to which this entry refers, Elliott concludes that this pueblo "on the high mesas" is Patokwa, based

on Vargas's physical description of the site and the locational data recorded in his journals (Elliott 2002a:57; but see also Chapter V). When they reached San Diego Mesa, Vargas and his army were met by 500 armed Jemez warriors who greeted them with battle cries, surrounding them and throwing dirt in the Spaniards' eyes. When Captain Roque Madrid (who spoke Towa and Keresan [Hendricks and Wilson 1996:114-115]) told the natives to cease their taunting, "they replied that it was in token of celebration of [Vargas's] coming" (Kessell and Hendricks 1992:521).

Vargas continued up the mesa on horseback. When he reached the pueblo he encountered the governor, a man named Sebastián, waiting at the entrance with a cross in his hand. Mindful of the warnings regarding the plot to kill him, Vargas ventured into the plaza and quickly found himself surrounded by an armed and hostile crowd. In an account of the incident prepared for the king six months later, Vargas claimed that "in the second plaza of the pueblo the Apaches had prepared an ambush" (Kessell et al. 1995:202). He was clearly unnerved by the situation, and he ordered the natives to put down their weapons. Most of them complied. Vargas then addressed the crowd with his words translated into Towa and Keresan (for the natives of Santo Domingo who were apparently living with the Jemez), notifying them of his reclamation in the name of the king "both of the land and of his vassals, which they are" (Kessell and Hendricks 1992:521-522). The priests who accompanied him then granted the people of Patokwa absolution, and 117 persons were baptized. Vargas remained wary during this process "in case they gave me cause to begin fighting" (Kessell and Hendricks 1992:522). He and the friars were then invited into a second-story room to dine with the Jemez leaders and war captains, an invitation he obliged "So that they would not suspect the bad

opinion I had formed and was forming of them" (Kessell and Hendricks 1992:522). Following the meal Vargas instructed the Jemez to move back to Walatowa (Kessell et al. 1995:203). He then left Patokwa, preferring to spend the night outside of the vacant village of Walatowa because he was still leery of their "evil intention" to assassinate him and his men (Kessell and Hendricks 1992:601).

Over the course of the next year Vargas returned to El Paso, recruited settlers to join his recolonizing expedition, and ventured back to New Mexico in order to reestablish the colony. The Jemez remained staunch in their opposition to the return of the Spaniards. They attempted to recruit allies to aid them in a fight against the colonizers (Kessell et al. 1995:405). When the Keres of Santa Ana and San Felipe balked, the Jemez repeatedly threatened and harassed them (Kessell et al. 1995:401, 405). By early November 1693 the Jemez "had assured [the people of Santa Ana] they were coming to destroy them during the first quarter of the moon" because the Keres of Santa Ana were now allies of the Spaniards (Kessell et al. 1995:403). When the Keres relayed their concerns to Vargas, he responded "that they should not be afraid because if their enemies [the Jemez] did so, I would make mincemeat out of them" (Kessell et al. 1995:405).

Vargas returned to Cerro Colorado on November 25, 1693. The people there greeted him warmly, holding a dance in his honor. They had erected crosses on the summit of the mesa, in the plaza of the pueblo, and on most of their houses—a testament to their acceptance of the Spaniards' return. Vargas again ordered them to return to the pueblo they left following Jironza's attack (Zia Pueblo, LA 28), promising soldiers to provide for their security. The continued harassment of the Jemez, combined with the fact that locusts had recently ravaged their crops, made the Zia people eager to return to

their old village (Kessell et al. 1995:404, 408). The Zia of Cerro Colorado agreed to leave the mesa, vowing to rebuild the old church at their former pueblo. After sharing a meal with them, Vargas descended the mesa to spend the night at the still-unoccupied Walatowa (Kessell et al. 1995:434-436).

The following day Vargas returned to Patokwa. Although he was received "with great pleasure and humility" by the Jemez living there, they apparently had not decorated their houses with crosses (but they had erected one in the plaza [Kessell et al. 1995:442]). The Spaniards attempted to acquire provisions from the people of Patokwa, who reportedly had an "extensive harvest" that year (Kessell et al. 1995:404). They initially resisted the Spaniards' demands, handing over a meager quantity of maize and protesting that worms had eaten the rest. But Vargas had seen their fields as he approached the mesa, and he knew that they had reaped a substantial crop that season. Vargas persisted in his requests, promising to compensate them for the supplies. When the two sides reached an agreement, they again shared a meal and the Spaniards returned to Walatowa for the evening. While camped there four Jemez men visited Vargas, appealing on behalf of "all the women and the rest of the populace" of Patokwa that they be allowed to remain in their new village and not be forced to move back to Walatowa. In exchange they promised to build a church and a *convento* for the priest that the Spaniards had promised would be assigned to Patokwa. Vargas assented to their request (Kessell et al. 1995:443-444).

Construction on the church probably did not commence as the Jemez had promised, however. In fact, they were already secretly planning to vacate Patokwa even as they begged Vargas to allow them to remain. Earlier that month, the Spaniards

received a report that the Jemez "had begun to move their provisions from their pueblo on the mesa up into the *monte*," and that "they had hidden the rest of the provisions in a large cave" (Kessell et al. 1995:404). This explains their reluctance to trade with Vargas, as they had already begun to store food in preparation for their impending move. When the Jemez learned of the Spaniards' return to the northern Rio Grande in early November 1693, they began to build a new village high above Patokwa in a more defensible position, on the precipitous *peñol* (steep, high mesa) of San Diego Mesa. This pueblo is known as Astialakwa (FIG. 4.6).

Before leaving the Jemez Province, Vargas was visited by two representatives of Santo Domingo Pueblo (one of whom, named Andrés, was Alonso Catití's son). They told him that their people had "abandoned their pueblo, leaving it to live in safety on the mesa . . . sharing with the Indians of Jemez" (Kessell et al. 1995:445). They had moved to the mesas, they said, because of persistent raiding by the Tewa, Tano, and Apaches. This testimony corroborated the earlier reports the Spaniards had received of a group of people from Jemez and Santo Domingo living on "the furthest mesas in the monte where they have moved, leaving their principal pueblo" (Kessell et al. 1995:416). Archaeological evidence suggests that this new settlement was located on San Juan Mesa, at a pueblo known as Boletsakwa (Elliott 2002; Chapter V).

1694: The Battle of Astialakwa

In May of 1694, Vargas received reports of increasing tensions in the Jemez Province between the Jemez and their Keres neighbors. The people of Zia had recently been informed that the Jemez were planning to attack their pueblo (they had apparently vacated Cerro Colorado by this time and were re-settled at Zia Pueblo) as well

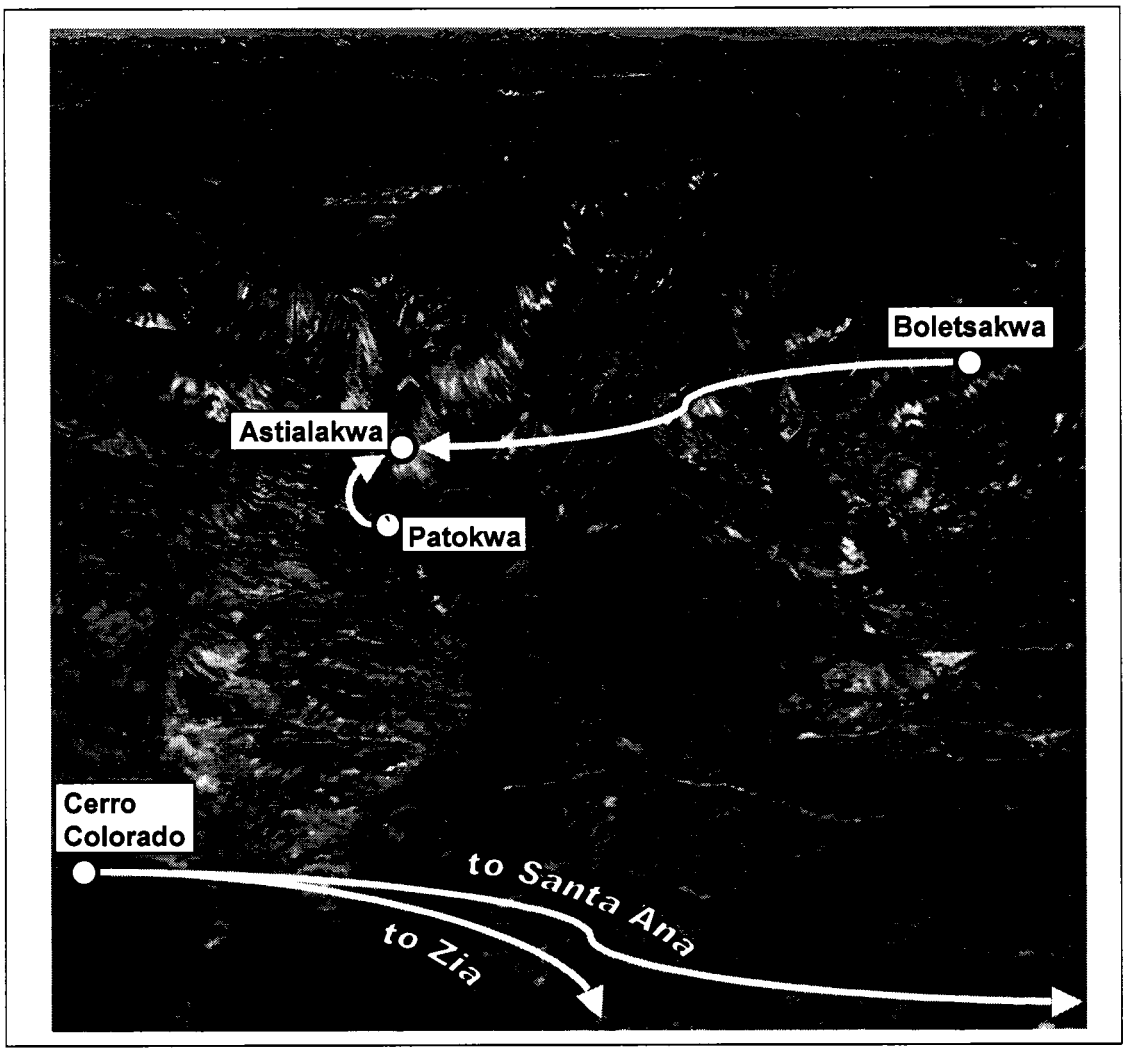

Figure 4.6: Major sites occupied in the Jemez Province, 1693-1694

as the pueblos of Santa Ana and San Felipe, all of whom who were by this time allied with the Spaniards. As a result of this perceived threat the Zia launched a preemptive strike, laying in ambush along the road near the "old pueblo . . . the one the Jemez had abandoned" (Kessell et al. 1998:234).[13] A battle ensued in which the Zia killed three Jemez warriors and captured five others, who they delivered to Vargas in Santa Fe. No Zia casualties were reported (Kessell et al. 1998:234). A few weeks later, leaders from Zia and Santa Ana reported to Vargas that their pueblos had been ambushed by "the apostate, rebel enemy from the Jemez nation, in league with their partisans" (Kessell et al. 1998:277). These leaders asked Vargas to join them "to make war against their enemies until their pueblos could be made safe" (Kessell et al. 1998:283). But because his army was shorthanded at the time, Vargas was only able to spare 10 soldiers to serve as a temporary escort and guard for the Keres. On June 18 the Jemez struck again, attacking the people of Santa Ana while they worked in their fields. Following this ambush, the captain of the guard of San Felipe Pueblo requested that five additional soldiers be stationed at Santa Ana for protection, which Vargas granted on June 20 (Kessell et al. 1998:278). Less than a week later the Jemez made another surprise attack on Zia (Kessell et al. 1998:283), causing the pueblos of Zia, Santa Ana, and San Felipe to again formally request that Vargas "go as soon as possible to make offensive war against their enemies" the Jemez, "who are rebels against the royal crown" (Kessell et al. 1998:281). The Governor responded by issuing an edict declaring a military campaign against the Jemez nation, the Keres from Santo Domingo, "and their partisans" to be

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[13] This probably refers to Walatowa, as it is described as "the old pueblo next to the road." Alternatively, this could refer to Patokwa, which also unoccupied at this time.

launched on June 28, 1694 (Kessell et al. 1998:283). The edict was posted in the two plazas[14] of Santa Fe, alerting the presidial soldiers and local militiamen to prepare themselves for battle (Kessell et al. 1998:284). However, this campaign was subsequently postponed due to a warning from Pecos Governor Juan de Ye that the Rio Grande was very high and would be difficult for Vargas's forces to ford (Kessell et al. 1998:285).

By the next month the waters had subsided, and on July 21 Vargas gathered his army in the plaza at Santa Fe. Fray Silvestre Velez de Escalante (writing in the late 1770s with access to documents that have not survived to the present day) indicates that Vargas's forces numbered 90 presidial soldiers, with an additional 30 militiamen gathered from the local settlers (Hendricks 2002:191). They set out for the Jemez Province that afternoon. On the same day warriors from Jemez, along with Tewa, Cochiti, and Navajo allies, "carried out a huge attack on Zia Pueblo . . . killing four people." One of the principal Jemez leaders was reportedly killed as well, causing the attackers to retreat (Kessell et al. 1998:320).

On the evening of July 23 the Spanish forces arrived at Zia Pueblo. A storm in the higher elevations that afternoon hid their movements from the Jemez and their allies gathered at Astialakwa. That evening the Spaniards rendezvoused with a force of approximately 100 warriors from the pueblos of Santa Ana, San Felipe, and Zia (Kessell et al. 1998:323). The leader of this combined Keres force was named Bartolomé de Ojeda, a war captain who had been injured and captured in 1689 during the battle with

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[14] After Otermín left Santa Fe in 1680, Puebloans moved into the *casas reales*, constructing new buildings while modifying others. As part of this transformation the plaza was bisected by new Room blocks, creating two plazas where previously there had been only one (Snow 1988:40-51).

Jironza at Zia, and who subsequently become an informant and valuable asset to the Spanish efforts at reconquest (Kessell et al. 1995:552-553). At Zia the native warriors advised Vargas that the Jemez had abandoned Patokwa, fortifying themselves on the higher peñol at Astialakwa. They also told him of a trail leading up the back (north) end of the mesa that they could climb without being detected. Armed with this information, Vargas and the Keres leaders hatched a plan of attack. Just before dawn the Zia and Santa Ana warriors, along with Captain Eusebio de Vargas and 25 Spanish soldiers, would climb the trail at the north end of the peñol. At the same time the main unit of the Spanish forces, with the help of the warriors from San Felipe, would attack along the southern trail. In this way they would employ the same multi-pronged "pincer" strategy that had been successful in the battle with Cochiti forces at Horn Mesa a few months earlier (Preucel 2000a; Hendricks 2002:190). In his journals Vargas notes that "Shots from either group, wherever the enemy was resisted, would be the signal to attack from both directions" (Kessell et al. 1998:324).

At one o'clock a.m. on July 24, the combined Spanish-Keres forces arrived at the southern tip of Guadalupe Mesa. The two groups then split, with Vargas and his garrison hiding behind a hill while Eusebio de Vargas and the Keres men journeyed up the canyon along the eastern side of the peñol to the trail at the north end of the mesa (Kessell et al. 1998:366). On top of the peñol the people gathered at Astialakwa were engaged in a dance, possibly in preparation for the impending battle. In 1849 Jemez Governor Francisco Hosta revealed the Jemez version of the events that transpired that evening: "when living upon the mesa between the cañons of Guadalupe and San Diego . . . whilst engaged in their dances, they were told that the Spaniards were below; but they did not

believe it, and continued dancing" (Simpson 1852:22). Vargas waited for the morning star to appear, then gave the signal for his unit to begin climbing the mesa. They passed through the empty pueblo of Patokwa with Vargas halting soon thereafter (accompanied by a retinue of five soldiers and the royal standard) to observe the battle from below, while the soldiers under his command began climbing the trail to Astialakwa (Kessell et al. 1998:324).

The Spanish garrison soon reached a section of the trail that was too steep to ascend on horseback, forcing them to dismount. They were quickly attacked from above, and the first shots of the battle rang out as the Spanish soldiers engaged the Jemez and their allies on the south end of the peñol (Kessell et al. 1998:366). In the meantime, on the north end of the mesa:

> According to Jemez oral tradition, when the Jemez warriors on the north end heard the loud noises of the cannons [sic], some of the defenders abandoned their post to investigate, leaving their allies to protect their post, unaware that some of the allied warriors entrusted were actually a part of Governor Vargas's military. These few warriors had arrived on the mesa the previous night and had insisted they watch the north end of the mesa. These warriors were said to have worn white bandanas on their foreheads. When the Spanish troops on the north end heard the echo of the canons, they immediately attacked. The warriors with the white bandanas assisted the Spanish troops as they assaulted their way up the mesa. Eusebio de Vargas and his troops succeeded to the top of the mesa, then attacking the Jemez village of Astialakwa. (Madalena 2003:21)

Vargas's journals relate the details of the battle as follows:

> The rebels, having detected the men coming from two directions—those of Capt. Eusebio de Vargas, who were already on the mesa, and those of the present captain, who were winning their way up the ascent—began to defend it. They knew it was very rough and steep and were well prepared with their ramparts. Although they hurled some large stones and rocks, as well as shooting many arrows, they were valiantly resisted. Our men responded with several shots, with God Our Lord encouraging us. Although the path up was long and straight, they were soon masters of the mesa. In this way, both squadrons were favored.

> Most of the Indians fortified themselves, barricading themselves in the houses they had occupied on the rock. Others took flight . . . fifty-five were killed in the pueblo, and from twelve to fifteen must have been killed by Capt. Eusebio de Vargas, who went in advance. We saw that because of the Indians' strength, had the captain and sargento mayor, Antonio Jorge, not gone up in such good time, the rebels would have killed many of the Indian allies. (Kessell et al. 1998:325)

As the battle raged on, the Spanish forces set fire to the room blocks. At least four men and one woman perished in the blaze (Kessell et al. 1998:368). With Astialakwa in flames and their escape routes blocked, seven Jemez men leapt from the cliffs (Kessell et al. 1998:325, 368).

Multiple accounts of this incident are recorded in the literature concerning Jemez history, with other versions of this story maintained through contemporary Jemez oral tradition. Jemez historian Joe Sando writes:

> According to Jemez legend, it was probably during the course of this battle that some people jumped over the cliffs to avoid capture; at that moment a likeness of San Diego appeared on the cliff, and the people who had jumped simply landed on their feet and did not die. (Sando 1982:120)

Similar versions note that when San Diego[15] appeared, he "eased the jumpers gently through the air so that they landed upon the rocks like birds" (Ellis 1956:38). Other reports attribute the miraculous escape of these warriors to an appearance of the Virgin, under whose guidance the men "floated like butterflies" to safety below (Dougherty and Neal 1979:14). In 1849, Jemez Governor Francisco Hosta related a version of the story that included apparitions of both the Virgin and San Diego (Simpson 1852:22). A generation later his son recounted the following description:

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[15] Note that it was San Diego (St. Didacus, patron saint of Franciscan laity), who is said to have appeared and not Santiago (Saint James the Greater, patron saint Spain), whose feast day is celebrated on July 25, the day following the anniversary of the battle.

> When the Spaniards came up . . . the despair of the people was great; many threw themselves headlong into the frightful depths below, preferring suicide to humiliating death at the hands of their conquerors. Suddenly the Spirit of Guadalupe, who is the custodian of the cañon, made his [sic] appearance, and from this moment the people could jump down without any danger. (Loew 1875:343-344)

Images of both San Diego (on the east side) and the Virgin (on the west side) are said to be visible on the sheer walls of Guadalupe Mesa today, and are still venerated by local residents of the Jemez Valley.

While the battle continued, Vargas made his way to the top of the peñol. He found the Spanish and Keres squadrons still engaging the residents of Astialakwa in battle, noting that "the rebels were . . . lanced, shot, and some set afire" (Kessell et al. 1998:325). Many of the Jemez fortified themselves in their houses and were firing upon the Spaniards and their Keres allies from the windows ("loopholes") of the room blocks. Apparently this tactic was not entirely futile, as they wounded and injured many of the Spaniards, though not critically (Kessell et al. 1998:325). Vargas further recounts:

> One Indian man from Jemez was captured as was an Apache of those there helping them. This one asked to be baptized and was told he had been ordered shot. The reverend missionary father, Fray Juan de Alpuente, baptized him and the Jemez Indian. He did so on my request, so that the captain and sargento mayor, Antonio Jorge, could have both shot, by virtue of my order.
>
> It was already after noon when I went down, having the noncombatant women and children prisoners go down as well. After having counted them, we found there were 361 of all ages. They went down with me and the men-at-arms I designated. We also took 172 head of sheep and goats and some horses from the enemy. The allies had the benefit of these spoils, as in the rest of the booty. We saw that there was a lot of maize in the houses. Until the houses were all made safe by killing the rebellious and fortified enemies, who were bravely defending themselves, the men remained to the end. They gave thanks to His Divine Majesty and His most holy Mother for having obtained such success, also thanking the patron saint of the army and universal advocate of the kingdoms of Spain, the apostle Santiago, on the eve of his glorious day, on which he doubtless influenced with his sponsorship our most fortunate victory. Having examined the

> site, this victory can be considered miraculous and very fitting. (Kessell et al. 1998:325-327)

By four o'clock that afternoon the last volley of arrows was exchanged and the muskets were quiet. The Spaniards and their Keres allies had achieved victory in the battle at Astialakwa. That evening the 361 prisoners of war were detained in the plaza at Patokwa, along with the Spaniards' horses and mules. Guards were placed at the four gates, and 100 men under the command of Eusebio de Vargas were sent back up to Astialakwa in order to guard the huge stores of foodstuffs they found there (Kessell et al. 1998:327-328).

The next morning Vargas celebrated the feast of Santiago (July 25) with a mass in the plaza of Patokwa. Following the service, he ordered the captive Jemez women and children to begin the long process of moving the stores of maize from Astialakwa to Patokwa. For the next nine days the prisoners of war made two or three trips per day to the peñol to collect the vast quantities of maize that they had stored there. The maize was shelled and stored in sacks, and later shipped to Santa Fe and the pueblos of Zia, Santa Ana, and San Felipe. In total the Spaniards alone collected 420 fanegas (approximately 14,700 liters) of maize from Astialakwa; the amount seized by their Keres allies is not recorded (Kessell et al. 1998:369).

On the afternoon of July 26 shots again rang out from Astialakwa. An enemy warrior had appeared on the peñol, startling the garrison assigned to protect the stores of maize that had not yet been removed. The shots missed, and the man was quickly apprehended. His "wounded, bruised shoulder and right elbow and his damaged leg and thigh" confirmed that he was one of the warriors who had thrown themselves from the

mesa during the battle. For more than two days he had concealed himself among the rocks below Astialakwa, emerging only then because "His great thirst had forced him to come out on the peñol, which appeared to him to have been abandoned" (Kessell et al. 1998:332). He was quickly surrounded, at which point he gestured desperately for water and was given a bowl to drink. Upon questioning, Vargas learned that this man was a war captain from Santo Domingo and a leader of the resistance, "a rabble rouser who had gone to the peñol of Acoma and the provinces of Zuni and Moqui [Hopi] to make the nations come to make war against the Spaniards" (Kessell et al. 1998:371). The man testified that his people had recently left Boletsakwa in search of safer havens scattered throughout the mountains. He also claimed to know the locations of nine large storage cysts (*coscomates*) filled with maize that the people of Boletsakwa had hidden on San Juan Mesa. Vargas temporarily spared the Santo Domingo man's life so that he could later lead them to these stores (Kessell et al. 1998:332).

That afternoon, Vargas sent a group of his men to deliver the first shipment of spoils from San Diego Mesa to Santa Fe. This left him shorthanded at Patokwa, and he became leery that the Jemez warriors who escaped during the battle would take advantage of the situation to stage an ambush. The evening of the July 26 he doubled the number of sentinels guarding Patokwa in anticipation of a surprise attack. His suspicions proved correct that night when one of the friar's servants was shot with an arrow as he warmed himself by a fire at Patokwa. The next morning the tracks of three scouts were found outside the pueblo; they had apparently come from the mountains surrounding the mesa to keep abreast of events at Patokwa (Kessell et al. 1998:333). On the afternoon of July 27 another man was captured on the peñol (this time hailing from Jemez). He

admitted that he was a scout sent to reconnoiter the area and was summarily executed. As a result of this increase in the insurgents' activity and the fact that his militia was undermanned, Vargas ordered Patokwa to be fortified by closing three of the four entrances to the plazas (Kessell et al. 1998:335; Chapter V).

On August 2 the Keres allies of the Spaniards swept up the last loose kernels of maize at Astialakwa. Vargas then ordered his men-at-arms to set fire to the room blocks, "and leave them completely in ashes, burned down as a warning and reminder of the punishment and that the triumph had been obtained by fire and sword against the rebels for the Divine and human majesty." One of his captains later affirmed that he had indeed reduced "the houses of the peñol and pueblo" to ashes (Kessell et al. 1998:337).

Two days later Vargas visited San Juan Mesa with a retinue of 40 soldiers and 60 native allies in search of the copious amounts of maize they had been assured were hidden there. He arrived at Boletsakwa to find it vacant, as it had apparently been since the beginning of winter (Kessell et al. 1998:372). Vargas's journals note that: "On examining the people's houses, [Vargas] saw they had been swept clean and nothing had been left in them" (Kessell et al. 1998:339). They continued on in search of the promised stores of food, but when pressed to find the exact locations of the nine granaries he had spoken of earlier, the war captain from Santo Domingo was unable to locate them. The Spaniards came to believe that he was simply stalling in hopes of self-preservation, and they executed him on the spot before returning to Patokwa (Kessell et al. 1998:340).

On August 8 the siege on San Diego Mesa was lifted. Vargas and his entourage prepared to depart the Jemez Province, leaving the scorched shell of Astialakwa and empty room blocks of Patokwa behind. He sent the prisoners of war—346 women and

children, young and old[16]—to Santa Fe via wagon train (Kessell et al. 1998:341). But before he left, Vargas took a detour into Walatowa in order to recover the bones of Fray Juan de Jesús, the Franciscan martyred by the Jemez on August 10, 1680. Vargas was keen to recover the remains of Fray Juan because: "This servant of God was a man greatly esteemed in this kingdom for his exemplary life. He foresaw many strange events, which he communicated to others. Some of those who live in this villa of Santa Fe still tell about them" (Kessell et al. 1998:371-72). At Walatowa, a Jemez man and woman guided Vargas to the place in the main plaza where they had seen the priest buried following the Revolt of 1680. There, next to a kiva, they found the remains of a person of small stature with an arrow still lodged in the spine. After a cursory forensic examination they identified the remains as those of Fray Juan (Kessell et al. 1998:342-343). Vargas collected the bones and continued on to Santa Fe, where they were later re-interred near the main altar of the presidio chapel on the fourteenth anniversary of his death (Kessell et al. 1998:344-345, 374).

1694-1696: New Missions and the Second Pueblo Revolt

Over the course of the next few weeks, representatives of the Jemez who had escaped during the battle at Astialakwa[17] visited Vargas in Santa Fe to negotiate the release of the 346 Jemez captives he held at the *casas reales*. In order for them to secure the freedom of these women and children, Vargas demanded three things: 1) upon their return to the Jemez Province, they were to re-settle at Walatowa; 2) the Jemez warriors

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[16] This is 15 fewer prisoners than the 361 reportedly captured immediately following the battle. Vargas's journals offer no explanation for the discrepancy.

[17] These people reported that 72 men and 10 women had survived the battle and escaped (Kessell et al. 1998:374).

were to aid the Spaniards in their upcoming attack on the Tewas at Black Mesa; and 3) that they deliver to him their leader Diego, who "induced and persuaded them with his evil words to persevering treachery and apostasy" (Kessell et al. 1998:350, 375). Vargas was particularly interested in capturing Diego because the Jemez leader had fought at both the battles at Kotyiti and at Astialakwa, leading the successful escape of a group of captured warriors from Horn Mesa (Kessell et al 1998:350).

When Diego was delivered to Vargas on August 26, the Governor immediately condemned him to death. After the leaders of Jemez and Pecos literally begged Vargas to spare Diego's life, he reconsidered and sentenced the Jemez war captain to 10 years of hard labor in the mines of Nuevo Vizcaya instead (Kessell et al. 1998:375). At the same time, Vargas told the Jemez warriors to prepare for the impending battle with the Tewa. In an ironic—or calculated—twist, he used the same means of communication that Po'pay had utilized in planning the Revolt of 1680, presenting the Jemez with a knotted cord to signify the number of days that remained until the siege at Black Mesa was to commence (Kessell et al 1998:354, 376).

Following the campaign at Black Mesa, the Jemez captives were freed on September 11, 1694 (Kessell et al. 1998:390). They did not re-settle Walatowa as Vargas had previously suggested, however. Instead they returned to Patokwa and Boletsakwa. On September 28 Vargas visited Patokwa to install Fray Francisco de Jesús María Casañas as the new missionary there. He also re-named the mesa and pueblo, christening it San Diego del Monte y Nuestra Señora de Remedios. His journal entry notes that the Jemez had already prepared living quarters for Fray Francisco at Patokwa, large enough "that four religious could have lived in it with everything they needed" (Kessell et al.

1998:405-406). He does not mention the existence of a church. During this visit Vargas also issued the canes and staffs of office to the new officials of both Patokwa and Boletsakwa. Although he did not visit San Juan Mesa during this trip—nor did he station a missionary there—Vargas does report that a group of Jemez people and their Keres allies from Santo Domingo inhabited Boletsakwa at that time (Kessell et al. 1998:402-406). In January of 1695 Vargas prepared a puzzling report indicating the status of the Jemez Province, noting: "Half the mesa of San Juan is occupied by the Keres nation from the pueblo of Santo Domingo and the other half by the Jemez nation, which has its pueblo on the mesa of San Diego with its minister. Its parish is made up of 405 people" (Kessell et al. 1998:586).

Sometime between January 10 and December 20, 1695, the mission at Walatowa was re-established (Espinosa 1988:149, 158). This mission was probably re-founded by Fray Miguel Trizio[18] and was dubbed San Juan de los Jemez[19] (Espinosa 1988:170)—possibly because it was built to minister to the Jemez inhabitants of Boletsakwa (located on San Juan Mesa), who had likely returned to re-settle Walatowa by this time. Thus by late 1695 there were two missions in the Jemez Province: San Diego del Monte at Patokwa and San Juan de los Jemez at Walatowa (FIG 4.7). Not long after the founding of the new mission at Walatowa, rumors of another unified Pueblo uprising began to circulate in New Mexico—first planned for Christmas Eve 1695 (Espinosa 1988:157),

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[18] Fray Trizio had previously been assigned to Santo Domingo in November 1694 (Kessell et al. 1998:577).
[19] There is some confusion regarding the original name of the 1690s mission at Walatowa. Espinosa (who also confuses San Diego de los Congregacíon with San Diego del Monte [Espinosa 1988:19]) published notes written in the margin of a document dated December 20, 1695 acknowledging that both San Diego de Jemez and San José [sic] de Jemez had seen the document (Espinosa 1988:158). The name San José presumably refers to the mission at Walatowa later identified as San Juan; regardless, this note verifies the existence of two Jemez missions in 1695.

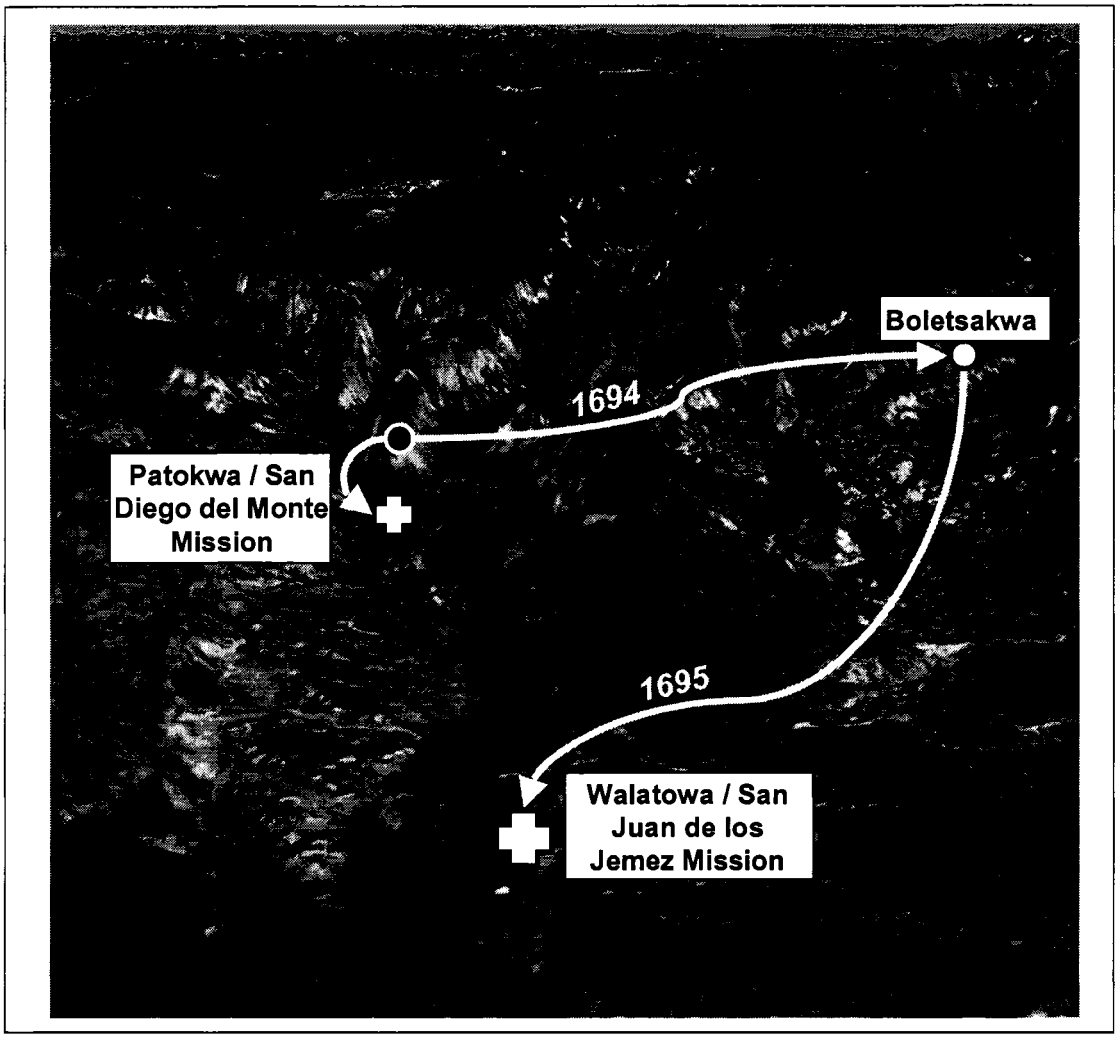

Figure 4.7: Major sites occupied in the Jemez Province, 1694-1695

and later during the full moon in March 1696 (Espinosa 1988:167; Kessell et al. 1998:673). Again the natives used a knotted cord to communicate the date of the battle from one Pueblo to the next (Kessell et all 1998:679). Neither of these predicted uprisings materialized, however, partially because the Franciscans discovered the plans beforehand. Both Fray Miguel and Fray Francisco spent much of February, March, and April of 1696 in Bernalillo under the security of armed guards rather than at the Jemez pueblos (Kessell et al. 1998:1080). Vargas later claimed that even while they were in Bernalillo the priests were supported by the Jemez people, who brought them firewood and looked after their herds, begging them to return to the missions (Kessell et al. 1998:1081). For their part the Friars noted a concurrent increase in disrespect and insolence towards them by the Puebloans at this time, and they petitioned Vargas for soldiers to be stationed at the missions for their protection. In a document dated March 13, 1696, Fray Miguel requested an additional "eight or ten well-armed soldiers" to be stationed at San Juan de los Jemez, "because he is on the frontier" (Kessell et al. 1998:681). The next day Vargas sent four more soldiers to the Jemez Province (Kessell et al. 1998:685), but these men were apparently so poorly equipped and ill prepared to defend the missions "that they did not instill any fear in the Indians, but rather gave them strength and spirit to carry out their evil deeds" (Espinosa 1988:226). Fray Francisco noted that the four stationed at Patokwa were "not a guard or protection whatever; rather [they were] a burden on the Indians . . . eating the little they have" (Espinosa 1988:229). Over the following weeks the situation degraded further for the Friars, with Fray Francisco reporting "that for my complete safety, the entire presidio would be required" to administer the sacrament to the congregation of San Diego del Monte, and noting that

"To place myself at the mouth of the wolf, so that he may swallow me and drink my blood, my mother did not bear me . . . for that purpose. For I did not come to seek death but rather the lives of these miserable ones" (Espinosa 1988:200). At San Juan de los Jemez, Fray Miguel was saved from martyrdom when "a few of the good ones" removed him from the mission for his own protection. Following the foiled murder plot, "many of [the residents of Walatowa] abandoned the pueblo because they were so malevolent" (Espinosa 1988:233). During this turbulent period Fray Miguel notified Vargas that in order to carry out his duties, "neither 12 nor 14 men are sufficient, but if your lordship gives 50 men to Jemez . . . he will serve with great pleasure" (Kessell et al. 1998:688). Vargas rebuffed these requests for reinforcements, replying that "he did not have enough bread for that big a wedding" (Espinosa 1988:200). The Franciscans responded to the Governor with indignation and dire predictions; in a letter dated April 18, 1696, Fray Francisco forecasted: "if they do not revolt today, they will tomorrow" (Espinosa 1988:229).

Unfortunately for Fray Francisco, tomorrow came on June 4, 1696, when the Jemez joined in the Second Pueblo Revolt, along with the Tewa, northern Tiwa, Tano, and some of the Keres (Kessell et al. 1998:723). Once again the Puebloans and their Athapaskan allies rose up against the Spanish oppressors, killing five priests and twenty-one other *españoles* throughout New Mexico (Kessell et al. 1998:861). At San Diego del Monte, the Jemez lured Fray Francisco from the church under the pretense that a sick woman needed him to hear her confession (Espinosa 1988:250; Kessell et al. 1998:750). Once outside the church the priest reportedly "called out to God Our Lord and the most holy Virgin to help and favor him" (Kessell et al. 1998:750). His calls went unheeded

however, and two Jemez men clubbed him to death next to a cross he had erected in the cemetery. According to the Franciscan Custodio of New Mexico, "on many occasions the said religious was heard to say, and I heard him say, that he had [the cross built] so that they could crucify him on it, and although these wishes were not attained, he succeeded in expiring at the foot of the cross" (Espinosa 1988:250). Oral traditions of this event were still maintained at Jemez a century and a half later, as told by Governor Hosta in 1849: "when living on the mesa between the cañons of Guadalupe and San Diego, there came another padre among them, whom, whilst on his way to receive the confessions of a sick man, they killed" (Simpson 1852:22). Fray Francisco's body was disposed of at the door of the church (Kessell et al.1998:750). They then enticed the captain of the soldiers stationed at Patokwa to take a stroll in the orchard, killing him (Kessell et al. 1998:750) along with the three other soldiers (Espinosa 1988:244). Two women and two boys were also seized as captives and made to serve the Jemez leaders (Kessell et al. 1998:751). The church of San Diego del Monte may have been damaged at this time as well; a decade later "the mission of San Diego" reportedly still "had no bell" and was being rebuilt (Bloom and Mitchell 1938:108n54).[20]

At Walatowa the Jemez killed two other soldiers and a Jemez native named Cristóbal, who spoke Castillian and was suspected of spying for the Spaniards (Kessell et al. 1998:751). In the mission of San Juan de los Jemez they smashed the images of the saints and shattered the crosses in a display of nativistic rage that would have made

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[20] There is some confusion as to which San Diego mission this refers. The mention of the existence of San Juan de los Jemez in the same year suggests that it does in fact refer to San Diego del Monte at Patokwa (Bloom and Mitchell 1938:108n54). However, others have proposed that it refers to San Diego de la Congregacion at Walatowa (Sando 1982:121-122; Elliott 2002a:58).

Po'pay proud. Inside the church they tore the rosaries from their necks, symbolically throwing off the yokes of their oppressors once again. They cast the beads and crucifixes in the dirt, covering them with offerings of feathers, ashes, and rabbit skins in another demonstration of the triumph of Pueblo tradition over Christianity. Other "articles of divine worship" were removed from the convent and buried or stashed in the houses of Walatowa. Luckily for Fray Miguel Trizio, he happened to be visiting a sick *compadre* at Pecos that day and thus once again escaped the martyrdom that his parishioners had planned for him (Espinosa 1988:252).

The next day the Franciscan Custodio embarked on a mission to rescue any Spanish survivors of the Second Revolt that were still alive in the Jemez Province. He set out from Santa Ana with a force of 40 Keres allies, reaching the mission of San Juan de los Jemez around noon. The Zia and Santa Ana warriors attacked Walatowa immediately, capturing 11 Jemez prisoners before fanning out to the trails north of the pueblo. There they found large numbers of Jemez "fleeing to the mountains loaded with food supplies and clothing" (FIG. 4.8). Again they attacked, capturing horses, clothing, and maize. They killed five more Jemez in the skirmish but sustained five injuries to their own forces as well. As this battle unfolded, the Custodio ventured to the mission where he was dismayed to find the trappings of Christianity in ruin. He collected as much of the Catholic paraphernalia as he could, but as he did so his forces were "noticed by the pueblo above, from which many Indians came on foot and on horseback, some armed with harquebuses and leather jackets" (Espinosa 1988:252). They were led by a man named Dieguillo, who wore the armor of one of the solders killed the day before (Espinosa 1988:247). Although this force of well-equipped warriors stopped short of

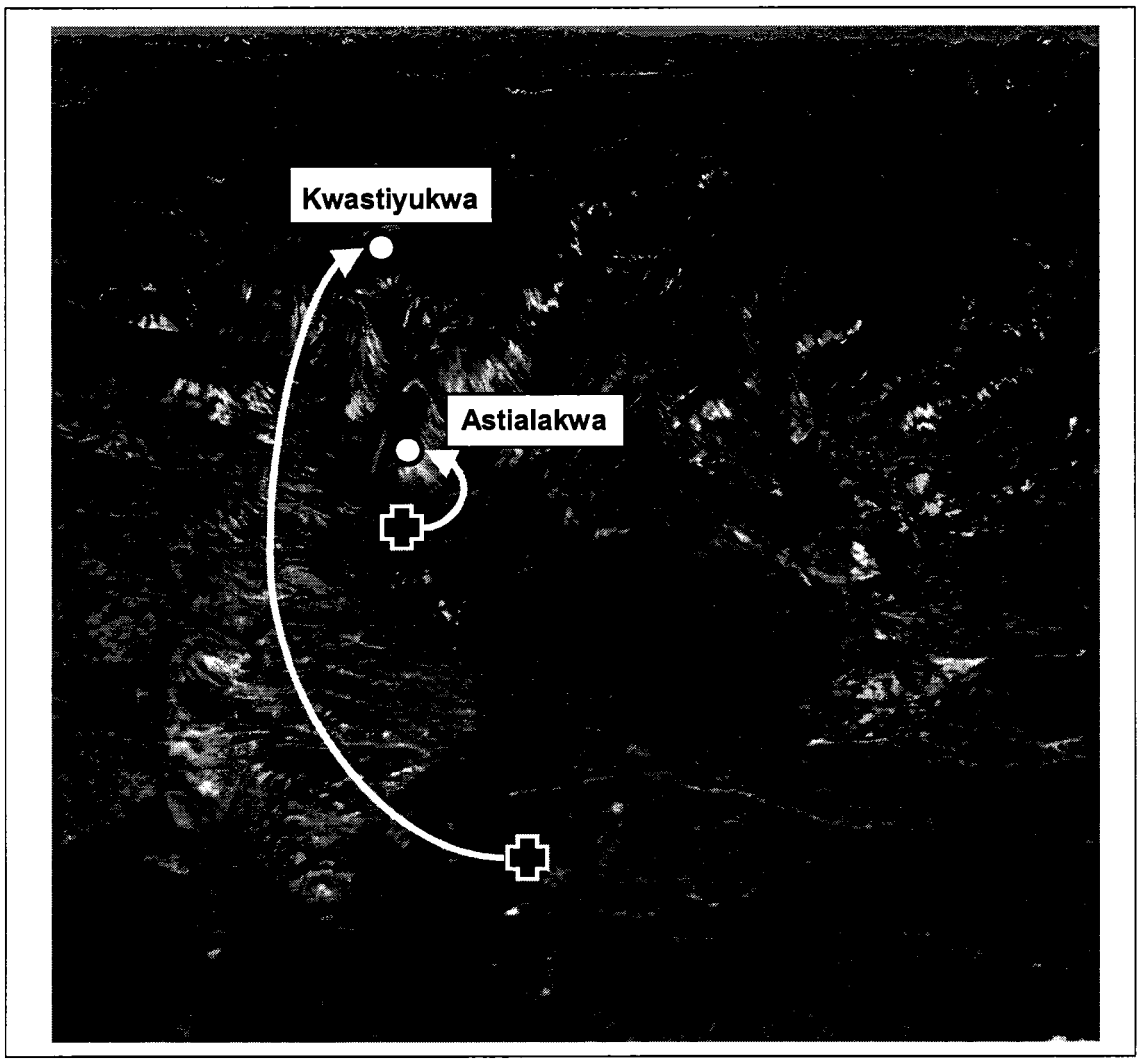

Figure 4.8: Major sites occupied in the Jemez Province, 1696

attacking the Keres and the priest, the Jemez apparently posed enough of a threat to drive the Spanish sympathizers out of the Jemez Province. The Keres took with them five Jemez men as well as an unknown number of women and children as prisoners. One of these prisoners escaped, while two more hung themselves in the kiva which served as their makeshift jail cell, prompting the Custodio to note: "They are so obstinate that they prefer to die in despair rather than live under the yoke of our holy religion" (Espinosa 1988:253).

Within a few days of the uprising a group of men from Acoma entered the Jemez Province and gathered with the Jemez to await the arrival of Hopi, Zuni, and Ute warriors for a meeting to discuss plans to attack the pueblos that were allied with the Spaniards aswell as the *casas reales* in Santa Fe. Bartolomé de Ojeda (leader of the Keres garrison in the 1694 battle at Astialakwa) wrote Vargas from Zia to say that he had seen many tracks leading toward Jemez and to ask the Governor for reinforcements as well as firearms and ammunition (Kessell et al. 1998:736). Vargas responded by sending nine soldiers to Zia on June 11, including a military leader named Miguel de Lara (Kessell et al. 1998:741-743).

The same day one of the Jemez leaders from Patokwa, Luis Cunixu, appeared at Pecos. Cunixu had been instrumental in the planning of the Pueblo Revolt of 1680, and was probably a member of Po'pay's inner circle of war captains (Riley 1999:219). He carried with him a reliquary that belonged to Fray Francisco de Jesús as proof of his death, and urged the people of Pecos to join Jemez and the other pueblos in their upcoming attack on the Spaniards (Kessell et al. 1998:748). Cunixu was accompanied by the cacique of Nambé Pueblo, Diego Xenome, "the main rabble-rouser among the Tewa"

(Kessell et al. 1998:879), also known as Dieguillo (presumably the same Dieguillo who led the counterattack on the Keres forces near Walatowa the week before). Cunixu and Xenome were captured by the pro-Spanish faction at Pecos and brought to Vargas for questioning in Santa Fe. There Cunixu testified that the Zuni, Hopi, and Acoma warriors were gathering at Jemez to plan their siege (Kessell et al. 1998:751). Following their questioning, Cunixu, Xenome, and another captive named Alonso Guigi (identified as the governor of Santo Domingo but originally from Jemez) were executed by a firing squad (Kessell et al. 1998:761).

Two weeks later reports reached Vargas of more Indians gathering at Jemez. He dispatched an additional eight soldiers to Zia, with instructions to Miguel de Lara to reconnoiter the area with a militia of warriors from Zia and Santa Ana (Kessell et al. 1998:778). On June 29 this force left Zia, making their way to San Diego Mesa at dawn. There they found Patokwa empty, with the Jemez and their allies (including people from Acoma, Zuni, Hopi, and Cochiti, as well as Tewas, Tanos, and Navajos [Kessell et al. 1998:798]) once again fortified on a peñol near San Diego del Monte—presumably Astialakwa (Espinosa 1988:271; Kessell et al. 1998:792, 796, 881). As soon as they arrived at the peñol, the Spaniards and Keres were attacked "with powder and ball." The Jemez and their allies won the initial skirmish, forcing the Spaniards to retreat to Patokwa. At San Diego del Monte, Lara recovered Fray Francisco's remains,[21] but the Jemez attacked again, forcing the Spaniards and Keres to retreat once more. This time they withdrew to a location near the mission of San Juan de los Jemez (Kessell et al.

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[21] In a report dated July 21, 1696, the Custodio stated that animals had consumed the flesh of Fray Francisco's corpse. This suggests that he was never buried, and thus that Patokwa was likely vacated immediately after the uprising on June 4, 1696 (Espinosa 1988:245).

1998:796). Later Vargas (who was not present at the battle) would characterize these retreats as "a stratagem of fleeing to draw them to more suitable terrain" (Espinosa 1988:271; Kessell 1998:881). Near Walatowa the Spaniards and Keres were ambushed—apparently the Jemez and their allies had learned from the battles of 1694, and they now turned the Spaniards' military strategies back upon them. They utilized a two-pronged battle strategy as "they attacked [the Spaniards and Keres] on horseback from both sides" (Kessell et al. 1998:792). The Spaniards and their allies apparently held their ground, and a bloody two-hour battle ensued. Initial reports indicated that 28 of the Jemez-allied forces were killed, with two captured alive and one *español* wounded (Kessell et al. 1998:796). In his official report to the Viceroy dated July 31, Vargas states that 35 from Acoma and 5 Jemez were killed, with 2 more taken prisoner (Espinosa 1988:271; Kessell et al. 1998:881). Following the battle the Spaniards and Keres returned to Zia (Kessell et al. 1998:796-797).

What happened to the Jemez is less clear. Most seem to have left the Jemez Province entirely, traveling to Hopi, Zuni, Acoma, Taos, and the Gobernador region (Hendricks and Wilson 1996; Kessell et al. 1998:969, 978, 984, 1004, 1030, 1103; Brugge 2002). A small number remained in the Jemez Province however, and various reports speak of them being gathered "on the mesa where the rebel Jemez Indians had their pueblo of San Juan" (Kessell et al. 1998:973; see also Kessell et al. 1998:797). These accounts seem to refer not to the San Juan mesa in the eastern Jemez Province upon which Boletsakwa is located, but rather to a different mesa on which the inhabitants of San Juan de los Jemez had gathered. Vargas reconnoitered this mesa on August 4, 1696, but needed to be guided there by his Keres allies, suggesting that he had not been

there before (Kessell et al. 1998:973). Lara revisited the area three days later to seize the stores of maize the Jemez had stockpiled, capturing a lone Jemez warrior. Upon interrogation at "the pueblo of San Juan de los Jemez, which is on the mesa above," the prisoner stated that he did not know where the maize was stored as he was from "San Diego Pueblo," while those who had hidden them were from "San Juan Pueblo." He was later shot, his body left dangling in the pine trees as a warning to the other "rebel Jemez." Following the execution Lara wrote that he "left there and marched for Zia Pueblo, spending the night at San Juan Pueblo," clearly indicating that the pueblo of San Juan on the mesas was different than the mission of San Juan at Walatowa (Kessell et al. 1998:976-979). "The pueblo of San Juan de los Jemez which is on the mesa above" (Kessell et al. 1998:978) could refer to Kwastiyukwa on Holiday Mesa, where Whatley has conjectured a reoccupation in the late 1690s (Logsdon 1993:115).

Settlement at Walatowa (Cañon Phase), 1703-Present

By August of 1696 the Jemez Province was effectively depopulated, and remained largely vacant for the next six years. In November 1696 and again in March 1697 Vargas lists the Jemez pueblos as "absent" (Kessell et al. 1998:1064, 1102). But by 1703 some Jemez had apparently begun to re-settle the Province (Bloom and Mitchell 1938:107-108). It has often been assumed that Walatowa was the only Jemez village re-inhabited at this time (Sando 1982:121; Elliott 2002a:58). However, in a report dated August 18, 1706 the Governor of New Mexico listed both "San Diego and San Juan de los Jemez" in a record of settlements occupied in the Jemez Province (Bloom and

Mitchell 1938:108 n54). The same year don Luis Conitzu was appointed Governor of "San Diego de los Jemez" (Hackett 1937, 3:369), where it was said that 300 Christian Indians resided, "and others keep coming down from the mountains, where they are still in insurrection" (Hackett 1937, 3:376). A decade later the mission at Walatowa was still referred to as San Juan de los Jemez, when 113 Jemez refugees were forcibly removed from Hopi and resettled there (Bloom 1931:159-160), leading Bloom to conclude "that in the year 1716 both 'San Juan' and 'San Diego' were being occupied by the Jemez people" (Bloom 1931:160). These references suggest that both Patokwa and Walatowa were re-inhabited in the early eighteenth century, with occupation at Patokwa lasting at least until 1706, and possibly until 1716 or later.

Settlement at Walatowa continues to the present day. Sometime after 1716 Patokwa was abandoned, and thereafter virtually all Pueblo occupation of the Jemez Province was centered around Walatowa, with seasonal use of field houses along the Jemez River and Vallecitos Creek in the southern extent of the Province (Kulisheck and Elliott 2005:6). There is also evidence that limited use of some of the mesa tops may have continued into the 1700s, with eighteenth-century Tewa trade wares recovered from field houses on Holiday Mesa (Lentz et al. 1996).

As demonstrated here, the Jemez Province was one of the most important and stalwart centers of Pueblo resistance to Spanish colonization throughout the seventeenth century. During the Revolt era, Puebloans throughout the Southwest fled to the Jemez Province for refuge, protection, and to aid in the struggle against colonial powers. Spanish documents record major Pueblo Revolt era settlements at Walatowa, Patokwa, Boletsakwa, Cerro Colorado, and Astialakwa. Chapter V will investigate the

archaeological record of the Pueblo Revolt in the Jemez Province, examining the architecture of the four latter pueblos, all of which were constructed *de novo* during various stages of the Revolt era. The architecture of these pueblos will then be examined in light of the revitalization movement that occurred in the Pueblo world between 1680 and 1696.

CHAPTER V: THE ARCHAEOLOGY OF REVOLT ERA PUEBLOS IN THE JEMEZ PROVINCE: ARCHITECTURAL ANALYSES

As detailed in Chapters III and IV, the historical record of seventeenth century New Mexico suggests that the Jemez Province was a primary center of indigenous resistance and revitalization throughout the Pueblo Revolt era. However, due to the inherent biases and partialities of colonial documentary accounts, few details regarding the varied strategies and practices of revitalization employed by Pueblo people during this period are known, particularly concerning those living in the Jemez Province. To further investigate the development and trajectory of the Pueblo Revolt revitalization movement, an alternative source of data is needed. Fortunately, the archaeological record offers an opportunity to examine the phenomenon of revitalization via just such an alternative source: material culture. The following two chapters present data regarding the material culture produced in and employed by the people of the Jemez Province following the Pueblo Revolt. Chapter V details architectural and spatial information regarding four Revolt period pueblos located in the Jemez Province, while Chapter VI presents ceramic data from these sites. This information will be used not only to explicate the events that transpired in the wake of the Pueblo Revolt, but also to analyze the material signature of revitalization in a larger comparative context, providing an opportunity to assess and refine the model for the identification of revitalization movements in archaeological contexts presented in Chapter II.

The abundant Revolt period archaeological record of the Jemez Province is particularly well suited to an analysis of the material culture of revitalization movements,

as between 1680 and 1694 at least four pueblos were newly constructed in this region: Patokwa, Boletsakwa, Cerro Colorado, and Astialakwa (FIG. 5.1). These sites share a distinctive combination of temporal control, clearly discernable architecture, and associated surficial ceramic assemblages. Furthermore, they provide a glimpse into multiple phases of the Pueblo revitalization movement of the 1680s-90s, with Patokwa and Boletsakwa founded in the early years of the movement (1680-1683), Cerro Colorado in the intermediate stages (1689), and Astialakwa during its dénouement (1693-94). These factors combine to produce an archaeological record uniquely apposite for the analysis of the materiality of revitalization, and it is for these reasons that these sites were selected as the loci for this study.

The data presented here were collected over the course of four field seasons between 2001 and 2004 (Liebmann 2001, 2002a, 2003, 2004) by the Guadalupe Mesa Archaeological Project (GMAP). The GMAP was established in 2001 as a collaborative research project between the Pueblo of Jemez Department of Resource Protection (DRP) and Matthew Liebmann. The primary objectives of the GMAP were threefold: to develop an improved understanding of the Pueblo Revolt era occupation of the Jemez Province; to produce baseline data that can be used in the long-term planning, protection, and preservation of these sites; and to provide an educational context and employment opportunities for the youth of Jemez Pueblo. Additionally, four primary research questions guided this study:

- How did Pueblo culture and society change during the Revolt Era?
- How did the nativistic, revivalistic, and millenarian aspects of the Revolt era revitalization movement influence material culture, if at all?

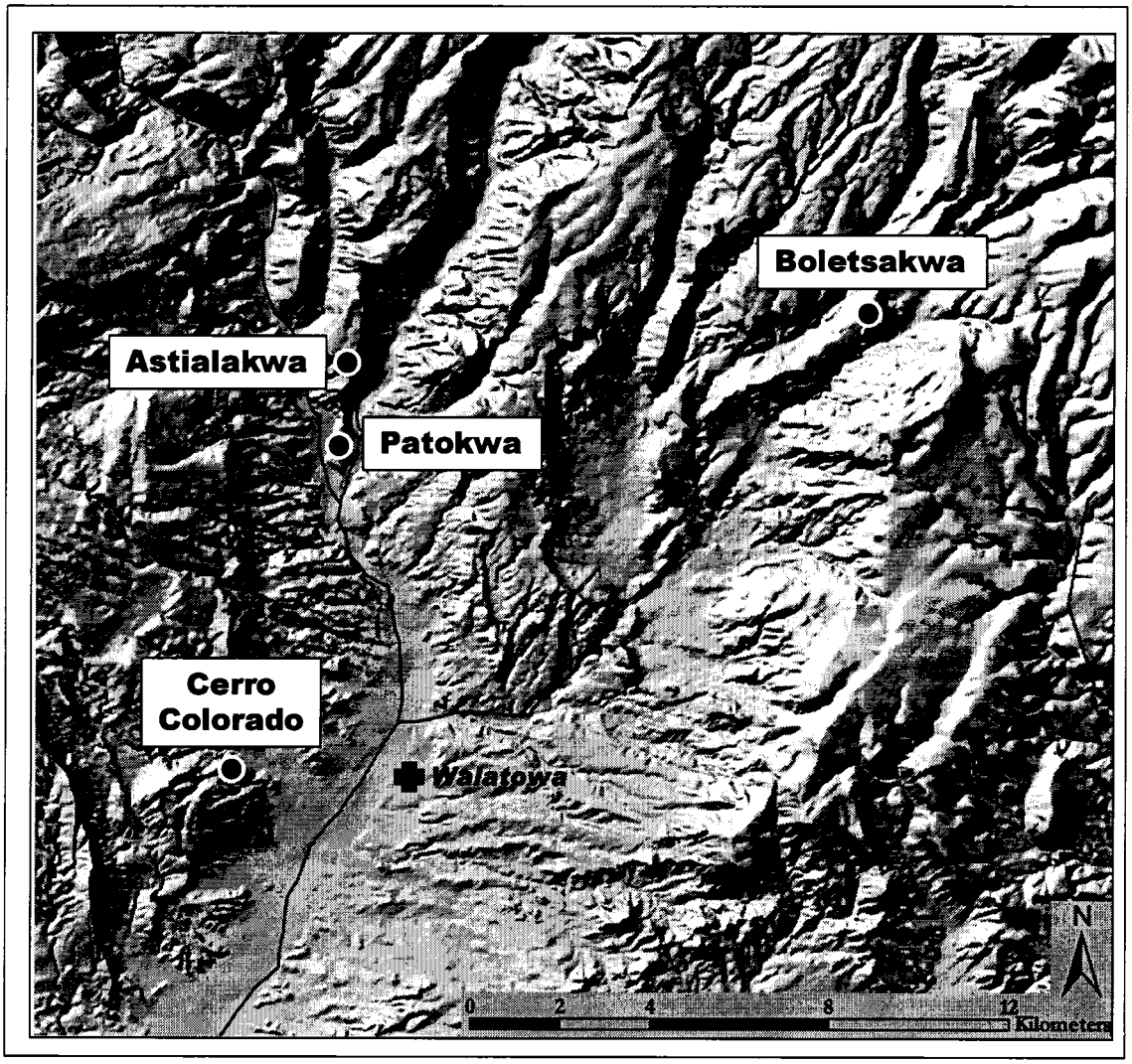


Figure 5.1: Revolt era Pueblos of the Jemez Province

- Were the practices and effects of revitalization different at the various Pueblo Revolt era sites of the Jemez Province?
- What were the long-term effects of the Pueblo Revolt revitalization movement?

Methodology

In order to achieve the project objectives and answer the above research questions, the GMAP developed a methodology for the examination of the Pueblo Revolt era sites of the Jemez Province modeled after previous investigations of Revolt era pueblos in other areas of the Southwest (Ferguson 1996; Preucel 1998). This methodology was designed to assess the material signs of revitalization at multiple scales—namely the household, village, and regional levels—as expressed through architecture, ceramics, and settlement patterns.

The protection and preservation of the Jemez people's unique cultural heritage is a high priority to Jemez Pueblo tribal members today, and as such, all research conducted by the GMAP was carried out with the minimal possible impact upon the cultural resources of the Jemez Province, and non-invasive methodologies were adopted for all phases of GMAP investigations. No excavations were conducted and no soil was disturbed in the gathering of the information presented herein.

Surface Archaeology

Non-invasive (or "surface") archaeology has gained credence in recent years as a viable and valuable research strategy in a broad range of archaeological contexts the world over (Sullivan 1998a). This has not always been the case; in fact, the interpretive potential of surface remains has been a point of contention among archaeologists for decades (Lewarch and O'Brien 1981). In the past, archaeologists often ignored or denied the analytic value of the surface artifact assemblage. Surface remains were considered contaminated at best, an obstacle to be removed in order to access "pristine" (i.e. subsurface) data at worst. The research potential of the superstratum was often thought to be limited to simply locating subsurface archaeological remains. In contrast, proponents of non-invasive archaeology have maintained "that the value of surface archaeological phenomena neither depends upon nor derives from characteristics of subsurface archaeological phenomena" (Sullivan 1998b:xi). Furthermore, they point out that the majority of the underground archaeological record is ultimately formed out of surficial depositional events and processes (Dunnell and Dancey 1983:269). Surface remains are thus worthy of archaeological attention not only because they are accessible and economical to study (Tainter 1998:169), but because of their inherent potential to improve our understanding of the human past. This is particularly so when that past involves behaviors and events likely to produce surficial (as opposed to deeply stratified) remains, such as high mobility, short-term sedentism, warfare, collapse, and rapid evacuation.

There are, of course, limits to the interpretive potential of non-invasive archaeology. What you see on the surface is not necessarily what exists underground

(Simmons 1998:159). Surface archaeology has the potential to make a significant contribution to our understanding of the human past only if archaeologists critically assess the surficial archaeological record. Part of this evaluation process includes a determination of the degree to which the origins of artifacts and features discernable on the surface can be reliably ascertained (Lewarch and O'Brien 1981:298). Furthermore, the research questions addressed by surface remains must be appropriate in terms of focus and scale. Non-invasive archaeology cannot answer every question about the past, nor does it provide a complete picture of all earlier times (but neither does excavation). Yet when applied to appropriate contexts and research questions, surface archaeology has proven to be an indispensable tool for advancing our understanding of the human past.

Many of the best known and most innovative uses of non-invasive archaeology have been applied in one of two typical contexts. The first use, involving simple societies, usually examines subsistence and resource extraction among nomadic hunter-gatherers and mobile horticulturalists (Wandsnider 1992:290; Bayman and Sanchez 1998:75). These studies tend to focus intensively upon the material remains of a single site or a small number of spatially and temporally related artifact scatters. The second use, typically involving more complex societies, often takes the form of large-scale settlement-pattern surveys (e.g. Willey 1953) or landscape archaeology (Wandsnider 1998:21), examining multiple sites or elements of a landscape. In recent years, however, applications of non-invasive techniques to individual sites of state-level (Smyth 1988) and "middle-range" societies (Bayman and Sanchez 1998) have demonstrated the applicability of surface archaeology to the investigation of discrete sites inhabited by sedentary agriculturalists.

GMAP Investigations

The GMAP adopted a program of non-invasive surface investigation of the Pueblo Revolt era sites of the Jemez Province for multiple reasons. The unique archaeological record of the Revolt era in the Jemez Province is comprised of sites that are by their nature amenable to surface studies. Three of the four sites considered herein had relatively brief Revolt era occupations—in some cases, just a matter of months—and their architectural plans are generally not obscured by earlier or later occupations. All exhibit highly visible surficial architectural remains (including standing walls), and abundant ceramic assemblages are evident on the surface at most of these villages. Furthermore, the surficial records of these sites offer appropriate and sufficient evidence to answer the proposed research questions. Because invasive archaeological techniques are by their nature destructive, responsible archaeological research mandates that surface data should be utilized whenever appropriate; if surface data alone is sufficient to address the proposed research questions (as is the case with the Pueblo Revolt era sites of the Jemez Province), destructive techniques such as excavation are not only unwarranted, but unethical.

Non-invasive investigations are also consistent and compatible with the missions, objectives, and concerns of the Jemez DRP, Pueblo of Jemez traditional leadership, and tribal administration. Previous archaeological investigations at ancestral Towa sites such as Pecos (Kidder 1916, 1917, 1924, 1926a & b, 1932, 1958), Unshagi (Reiter 1938), Nanishagi (Reiter et al. 1940), Giusewa, and LA 481 resulted in large-scale exhumations

of human remains, a practice that is proscribed by the modern inhabitants of Jemez Pueblo. As such, the Jemez people today often equate excavation with the desecration of graves (and some would extend this association to the discipline of archaeology as a whole). Out of respect for the descendant community's concerns regarding the possible disturbance of additional graves, all GMAP investigations were conducted utilizing entirely non-invasive methodologies.

Two main classes of data were collected during GMAP investigations: spatial data (including architectural information) and ceramic data (Chapter VI). Spatial data was collected via a Topcon GTS-302 Total Station (provided by the Museum Applied Science Center of Archaeology [MASCA], University of Pennsylvania Museum). This tool combines an electronic theodolite for measuring horizontal and vertical angles with an electronic distance measurer. These components reach a level of accuracy of +/- (2mm + 2ppm) m.s.e. and 3 seconds of arc under favorable conditions. The total station operates by emitting an infrared signal directed toward a retroreflecting prism located at the point to be measured. The signal returns to the instrument, and the phase difference of the signal is detected by microprocessors that calculate the exact distance between instrument and reflector. When combined with other microprocessor readings of horizontal and vertical angles, the exact location of the point is attained.

Survey data were gathered using the SiteMap 1.2 surveying and mapping software package developed by Dr. Bill Fitts of MASCA. This software was run on a Corvallis Microtechnology external data collector. Each point recorded by the total station was translated into its coordinate position within the site and stored in a survey data file with attached information specifying its name, type of measurement (point, line, or polygon),

and date and time it was recorded. At the completion of each day of survey the data were transferred into a computer database where they were reviewed and edited, then plotted using Surfer 8.0 software. All stages of the data—raw field files, corrected text files, and plotted Surfer maps—have been digitally archived at the Jemez Department of Resource Protection.

Although a unified group of project goals and research questions guided the fieldwork at all four sites reviewed herein, variation in the architectural preservation among these sites dictated the distinct methodologies for investigation applied at each of the four villages. For this reason, details concerning the methodologies employed in the mapping of each site are detailed below. Additional information regarding the names and identification numbers of each site, previous research, environmental setting, dates of occupation, architectural plan, looting and vandalism, room estimates and dimensions, population estimates, and a general discussion of each site follows. The sites are discussed in the order in which they were constructed during the Pueblo Revolt era, from earliest to latest.

PATOKWA

Identification Numbers

LA 96; AR-03-10-03-00005; FS 5; J-3; J-59; J-60; NM HPD 279

Synonymy

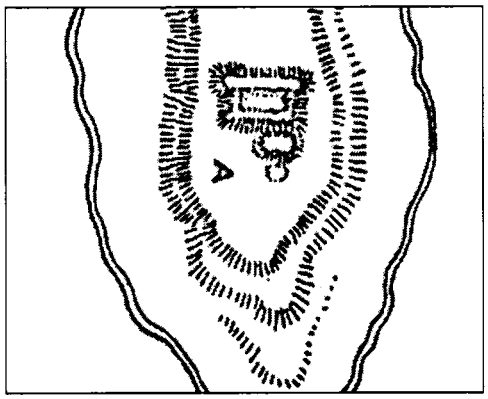
Patoqua; Patakwa; Potokwa; Batokva (translation: "turquoise-moiety place" [Sando 1979:419]); Ka'atusekwa (translation: "place where they hit or ring the stones" [Harrington 1916:397]); Weshulekwa (translation: "place where they both are," [Harrington 1916:397] referring to San Diego and Guadalupe Canyons); San Diego del Monte y Nuestra Señora de los Remedios

Previous Research

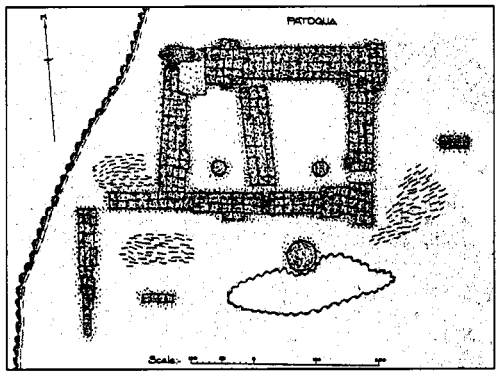
Loew 1879:343; Bandelier 1892:208; Holmes 1905:202-203; Harrington 1916:397; Reagan 1917:30-31; Parsons 1925:1-2; Bloom 1931:162; Bloom and Mitchell 1938:98-108; Reiter 1938:20-21, 37; Scholes 1938; Ellis 1956:34; Sando 1979b:419, 1982:119-121; Elliott 1982:17-18, 1986a:178-180; 1986b, 2002a:49-51; Marshall 1993; Barrett 2002a, 2002b; Liebmann 2003; Liebmann et al. 2005; additional maps by Fisher and Mera dating to the 1920s-1930s are located in the Laboratory of Anthropology's ARMS site files (FIG. 5.2b&c)

In 1905 Holmes published the first known map of Patokwa (FIG. 5.2a), providing the following description of the site:

> One portion of the ruin is a large mound of debris from which the larger stones have been removed. This represents the prehistoric town. The other portion is in a much better state of preservation, and consists of lines of fallen house rows surrounding two great courts. That this structure is of late date is clearly



A



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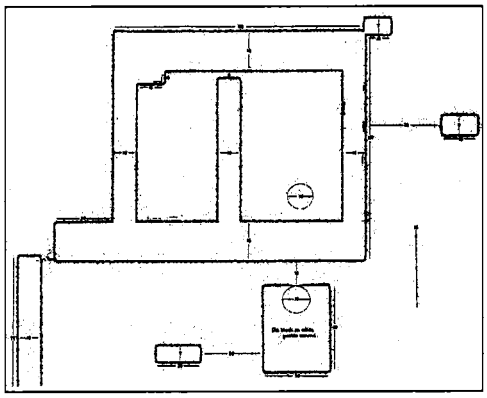

C

Figure 5.2: Early maps of Patokwa. A) Holmes 1905; B) Mera n.d.; C) Fischer n.d.

> indicated, not only by its state of preservation by the presence in one corner of theruins of a Catholic church. I had time for only a hasty review of these ruins, but found nearly all the usual varieties of artifacts of the valley—shallow metates, flattish mullers of cellular basalt, arrowpoints of obsidian and agate, and pottery of archaic as well as later Pueblo times, the latter including a black polished ware, mica-finished ware, coarse reddish ollas with figures in black and reddish paint, and bowls with thickened upright rims and rude glazed decorations. (Holmes 1905:202)

Elevation

1774 meters (5820 feet)

Environmental Setting

Patokwa is located on a low, narrow, peninsula of San Diego mesa immediately north of the confluence of two rivers and approximately 67 meters above these tributaries (FIG. 5.3). The pueblo is situated on a lower shelf of the mesa, and is consistently referred to in the Vargas journals as the pueblo of the Jemez "on the mesa" in order to distinguish it from that on the higher upper portion (referred to in the documents as the *peñol* [Elliott 2002a:57]). The lower mesa is comprised of undivided Permian sandstone that underlies and predates the Bandelier Tuff Formation (Smith et al. 1970). The modern vegetation pattern around Patokwa is a coniferous woodland association of two-needle (Colorado) piñon and one-seed Juniper (Miller et. al. 1993).

Dates of Occupation

A.D. 1200-1350, based on ceramics (Reagan 1917:31; Elliott 1986b; Marshall1993; Liebmann 2004; Chapter VI); **A.D. 1681-1696, 1703-1716+**, based on ceramics and documentary evidence (Hackett and Shelby 1942, 2:236, 360; Bloom 1931:160; Bloom and Mitchell 1938:108 n54; Espinosa 1988:200, 206, 229, 244-245,

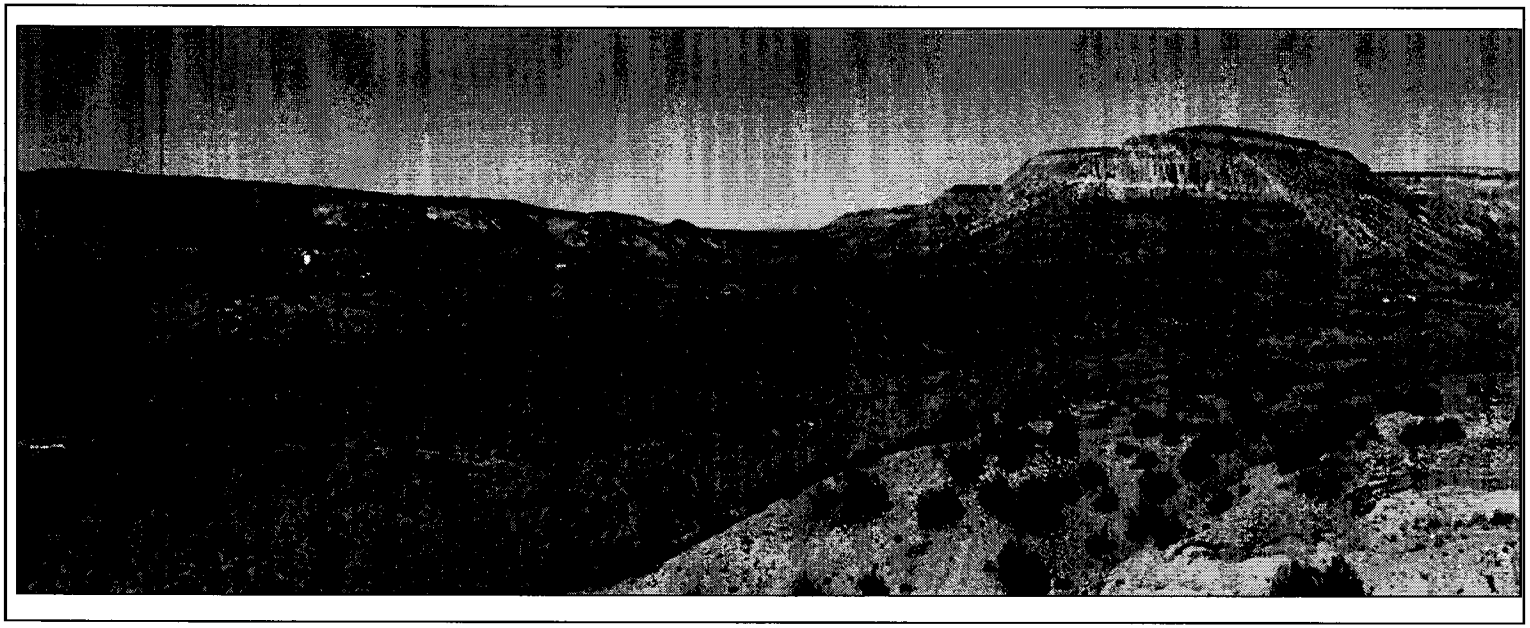

Figure 5.3: Guadalupe Mesa from the southeast

250, 271; Kessell and Hendricks 1992:520-522; Kessell et al. 1995:202, 441-444; Kessell et al. 1998:324-335, 367, 405-406, 586, 750, 796, 881, 1064, 1102)

Although no tree-ring dates have yet been recovered from Patokwa,[22] documentary evidence suggests that the Revolt era component was founded in December of 1681. Sometime after the Revolt of August 10, 1680, the Jemez people reportedly burned the mission and village of Walatowa (Bloom and Mitchell 1938:108), and oral histories suggest that they moved to Patokwa following this conflagration. However, the exact date of the destruction of Walatowa is not known. The fact that the corpse of Fray Juan de Jesús was buried after his execution on August 11, 1680 (Kessell et al. 1998:342-343)—and not simply left to rot in the sun as was his successor's 16 years later (Espinosa 1988:245)—suggests that the residents of Walatowa remained at that village in the days immediately following the Revolt. In 1681 (Hackett and Shelby 1942, 2:236), 1682 (Hackett and Shelby 1942, 2:360), and again in 1692 (Kessell et al. 1995:203), Pueblo informants reported to Vargas that the Jemez people left Walatowa when Otermín's forces surrounded Isleta Pueblo during the 1681 attempted reconquest, probably founding the Revolt era settlement of Patokwa at that time.

Further evidence supporting an early Revolt era construction date for Patokwa is found through comparisons with Boletsakwa and Kotyiti (Liebmann et al. 2005). All three pueblos display strikingly similar architectural plans—dual-plazas separated by

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[22] Any remains of vigas recovered from Patokwa in the future may reflect post-1694 repairs as well as the original 1680s construction as some of the original vigas were removed and re-used in the construction of Astialakwa (and subsequently burned following the 1694 battle). In a letter dated September 1, 1694, Vargas notes that upon "entering into the pueblo on the mesa [Patokwa], that not only had the enemies abandoned it, but they also had taken the doors from most of their houses, and the metates from all of them. From others they had taken some beams for construction on the peñol" (Kessell et al. 1998:367).

central room blocks—in distinction with villages constructed late in the Revolt era such as Astialakwa (see below) and Dowa Yalanne (Ferguson 1996:47-55; Liebmann et al. 2005:56). Tree-ring dates demonstrate that major episodes of construction occurred at Kotyiti (Preucel 2000b:69) and Boletsakwa (Elliott 1986a:178) between 1680 and 1685. Based on its architectural similarity to these two sites, it is reasonable to suppose an early Revolt era founding date for Patokwa as well.

Patokwa was vacated at least twice during the Pueblo Revolt period: in early 1694 (Kessell et al. 1998:367) and again from June 1696 into the early eighteenth century (Chapter IV). The site appears to have been re-inhabited when the Jemez people began to return to the Province in 1703 (Bloom and Mitchell 1938:107); it was certainly occupied in 1706, when a governor was appointed to "San Diego de los Xemes,"[23] which was noted to be 5 leagues from Zia (San Diego Mesa is approximately 4.6 leagues from Zia/LA 28, while Walatowa is only 2.9 leagues [Elliott 2002a:57]). San Diego was also included in a 1706 list by the governor of New Mexico in addition to San Juan de los Jemez (Bloom and Mitchell 1938:108 n54; see Chapter IV), indicating the presence of two missions in the Jemez Province at that time. In 1716, 30 warriors from San Diego de Jemez passed muster prior to a military campaign, a notation which appears to distinguish them from the inhabitants of San Juan de los Jemez (Bloom 1931:160). The abundance of late seventeenth- and early eighteenth-century ceramics at the site supports the notion that settlement extended to 1716 or later (Reiter 1938:41). The mission church at the

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[23] Although the post-1700 San Diego mission is often assumed to have been located at Walatowa, the references cited by Bloom and Mitchell (1938:108 n54) provide compelling evidence that Patokwa was the location of the San Diego mission between 1703-1716, and that the mission at Walatowa (which was known as San Juan between 1695-1716) was given the appellation of "San Diego" sometime after 1716.

confluence of the Rio Guadalupe and the Jemez Rivers appears to have retained its identity into the late eighteenth century, as it appears unambiguously labeled as "S. Diego" on the 1779 Miera y Pacheco map (Adams and Chavez 1956).

The site has remained an important traditional cultural property for the Pueblo of Jemez through the past three centuries, and is frequently visited by tribal members today. Thus Patokwa should not be considered "abandoned."

Cartographic Methodology

The GMAP carried out a high-resolution topographic survey of Patokwa during the 2003 field season (Liebmann 2003). Mapping was performed by using the total station to record the three-dimensional locations of discrete points covering the surface of all areas of the pueblo and the surrounding features. A primary site datum was established in the southwest area of the site, and assigned the arbitrary coordinates of 500 N, 500 E, 500 Z (this is the coordinate system that appears on all figures herein. Note: all measurements are in meters). The site grid was then established on the ground using the total station to plant stakes labeled with the appropriate coordinates at 20m intervals along the N and E axes.

In order to ensure complete and consistent coverage of the site, a standard system of topographic data collection was used throughout the survey of Patokwa. For each 20 x 20 m grid section, ropes were laid on the ground parallel to each other at either end of the grid (e.g. two ropes were oriented 20 m apart along an east-west axis, one on the northernmost line of the 20 x 20 m grid section and one on the southernmost line). These ropes were labeled at .25 m intervals. A third rope was then stretched across these two

(also labeled every .25 m) to serve as a guide for the recording of individual points. The third rope was moved across the grid, providing a reference for persons holding the prism poles as transects were recorded. Three persons surveyed the majority of grids (one operating the total station and two holding individual prism poles). The distance between and density of recorded points varied depending on the microtopography of the area being surveyed—areas of greater relief were recorded with a higher density and greater overall number of points. At times, survey density was greater than one point per .25 m^2. In areas with little topographic variation (such as plazas), points were recorded every 2.5 m along transects spaced 2.5 m apart, averaging one point per 6.25 m^2. A total of 5303 individual points were recorded covering Patokwa and the surrounding features (FIG. 5.4). This data was then projected using Surfer 8.0 software to produce high-resolution topographic maps accurate to within .2 m (FIG. 5.5).

Architectural Plan and Description

Patokwa consists of two distinct spatial and temporal components, identifiable via disparities in architecture and surface ceramics (Regan 1917:31; Marshall 1993; Elliott 2002a:50; FIG. 5.6). The earlier, fourteenth-century component is located at the southern extent of the site, and consists of a large mound, approximately 3050 m^2 in area, with an adjacent (kiva) depression to the northeast (FIG. 5.7). The remains of room blocks in this area are much more eroded and thus less distinct than the seventeenth century room blocks to the north and west. The kiva depression in this area is the largest at Patokwa, and it appears to be associated with the fourteenth-century occupation; however, it is possible that the Revolt era inhabitants could have constructed this

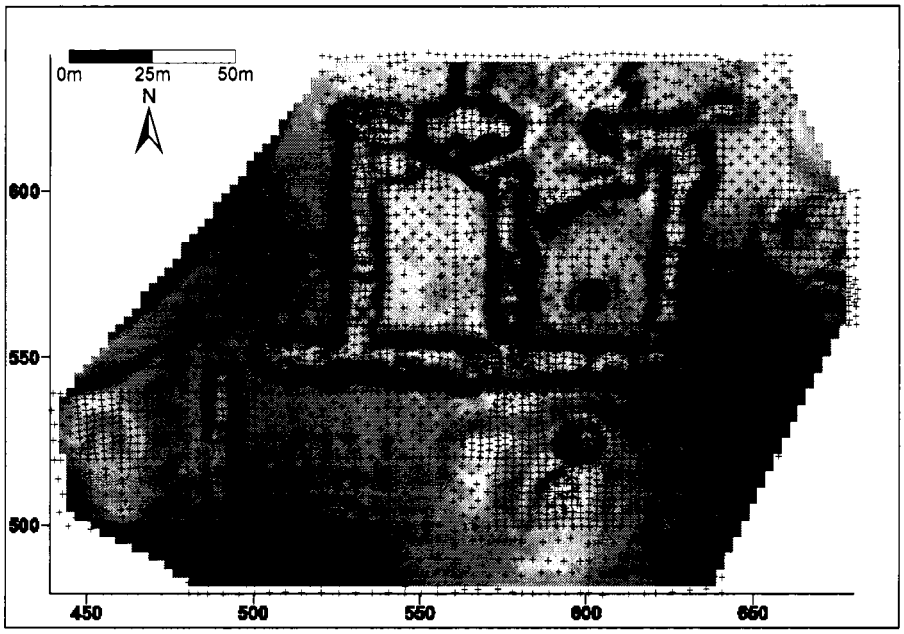

Figure 5.4: Locations of recorded data points at Patokwa

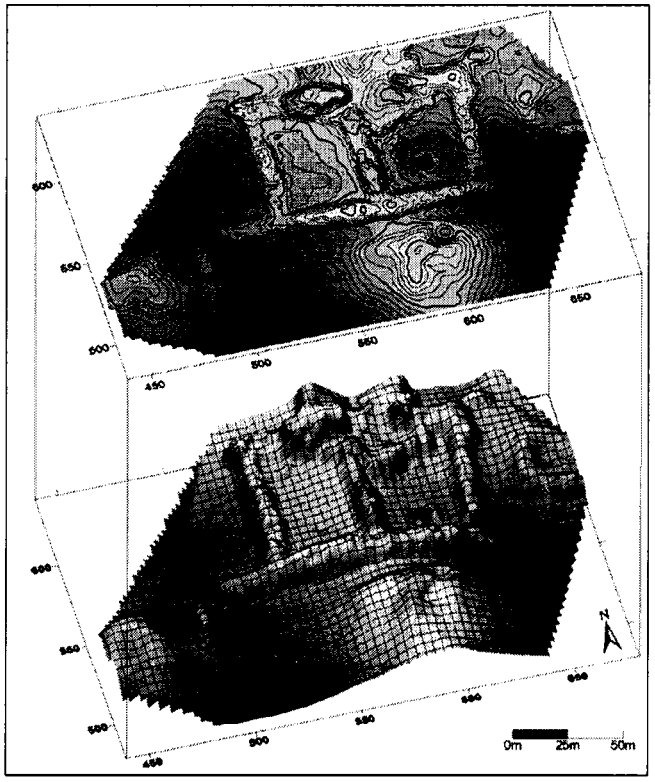

Figure 5.5: Contour and 3-D Topographic maps of Patokwa (.2 m contour interval)

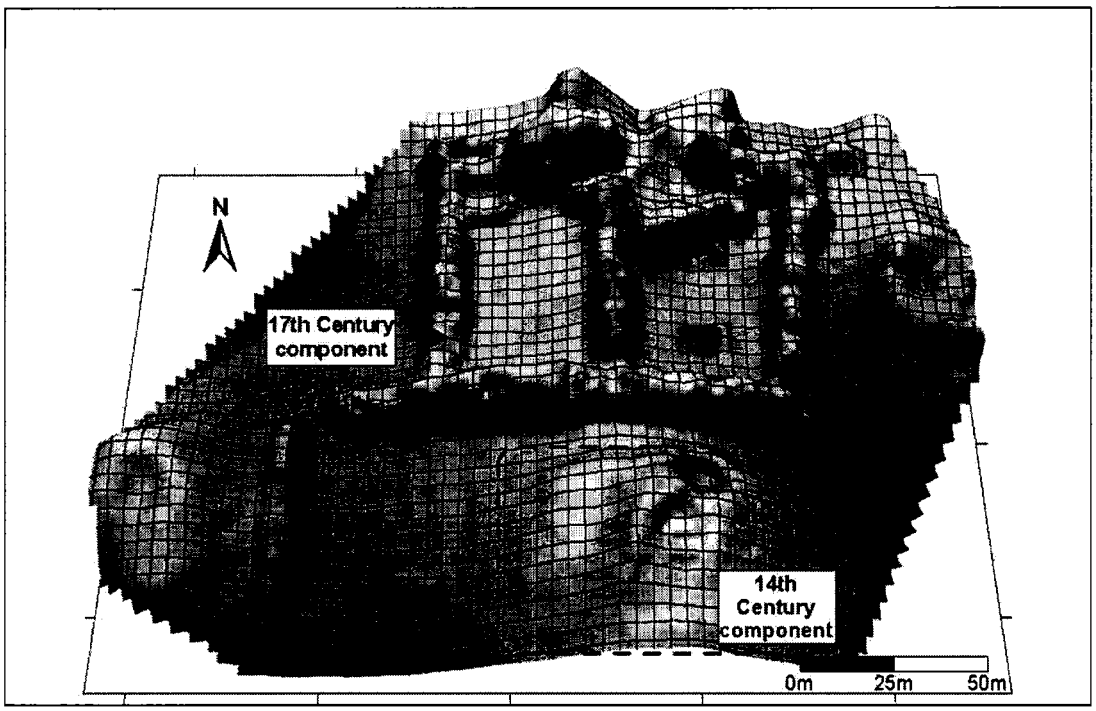

Figure 5.6: Patokwa map depicting early (Classic period) and late (Historic period) components

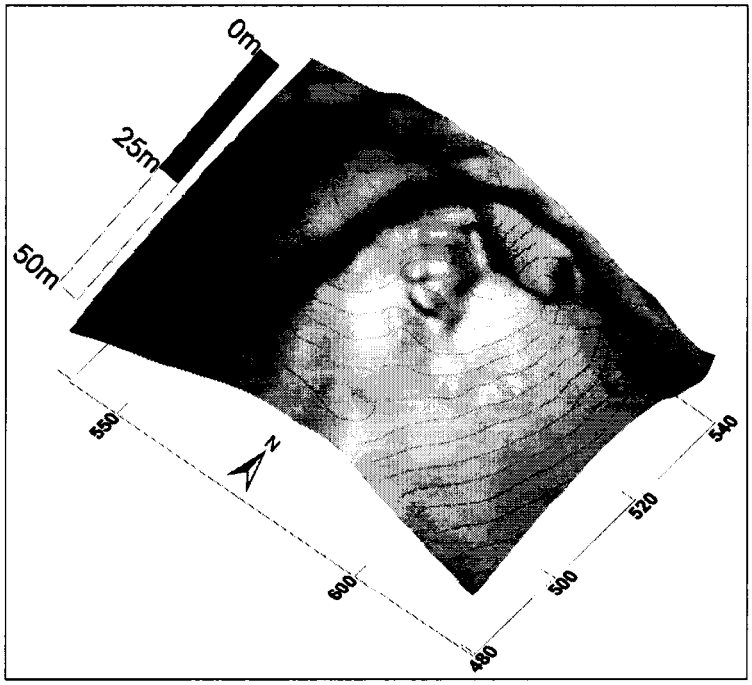

Figure 5.7: Topographic map of Classic component of Patokwa (.2 m contour interval)

kiva by excavating into the earlier room blocks. Excavation would be necessary to further clarify the temporal relation of this depression to the earlier and later components.

In addition to the Classic period architecture (FIG. 5.8) located south of the Pueblo Revolt era pueblo, there is a depression in the southwest corner of the site with associated Classic period ceramics (FIG. 5.9). GMAP investigations were unable to determine whether this depression was a natural topographic feature or the remains of architecture (possibly an additional kiva). The later, Revolt era component (FIG. 5.10) covers 14,344 m^2 and consists of two rectangular plazas (measuring approximately 60 m along the north-south axis by 40 m east-west) separated by a central Room block (designated Room block III), enclosed by multistoried room blocks to the north (I), south (V), east (IV), and west (II). Additional detached, smaller room blocks are located to the east (viii), northeast (ix), southwest (vi), and south (vii) of the main village. The remains of the room blocks are identifiable as distinct mounds on the surface rising to a height of one to three meters. Walls of tabular, single fully-coursed masonry consist primarily of shaped Permian sandstone from the surrounding geologic stratum (FIG 5.11), but are only occasionally visible on the surface, usually as a result of illegal excavations and vandalism. A partially excavated kiva is located in the east plaza. The remains of the seventeenth-century mission church of San Diego del Monte are visible in the northwest corner of the pueblo.

There is no doubt as to the location of the kiva in the east plaza, due to the presence of exposed walls resulting from past looting activity. The evidence for the existence of a kiva in the west plaza is equivocal. While Fischer's map (FIG. 5.2c) includes a kiva in the west plaza, Mera's map from the same era (FIG. 5.2b) shows no

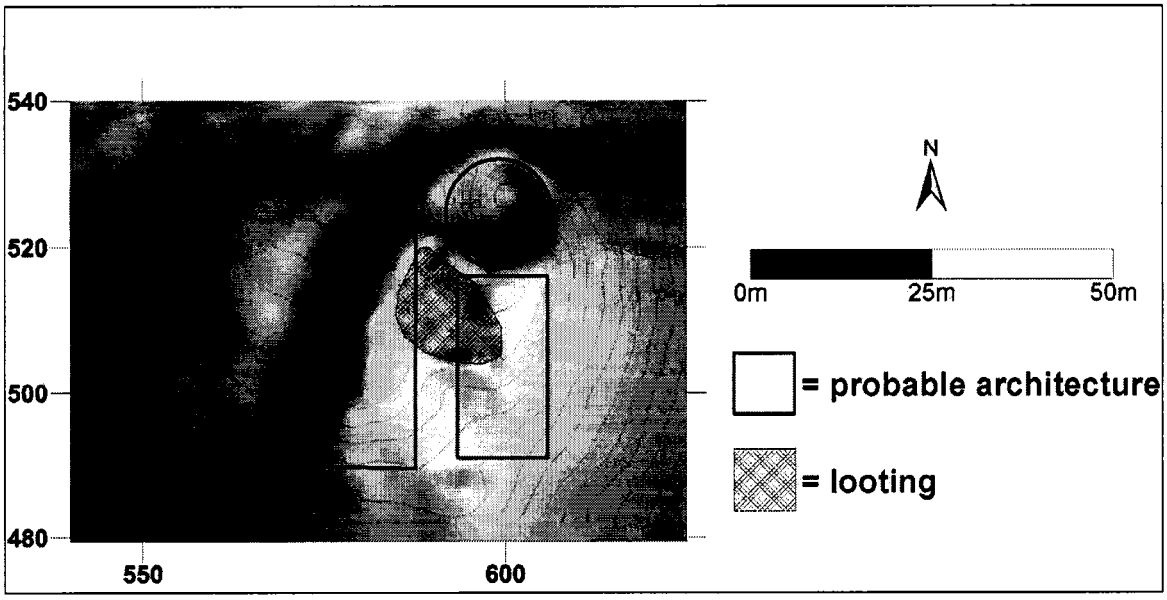

Figure 5.8: Architecture of the Classic period component of Patokwa (.2 m contour interval)

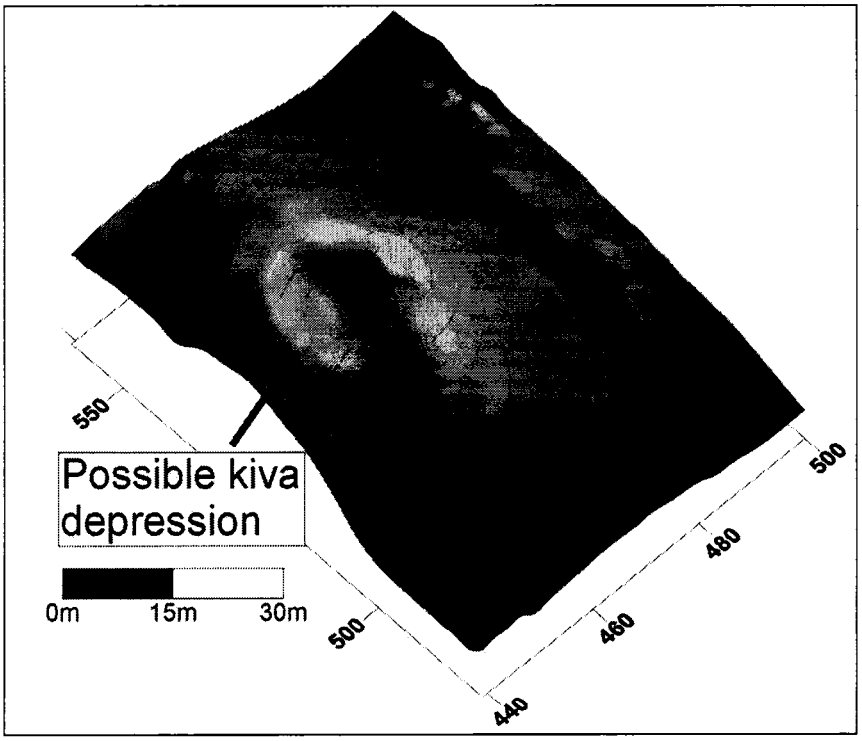

Figure 5.9: Depression in southwest quadrant of Patokwa (.2 m contour interval)

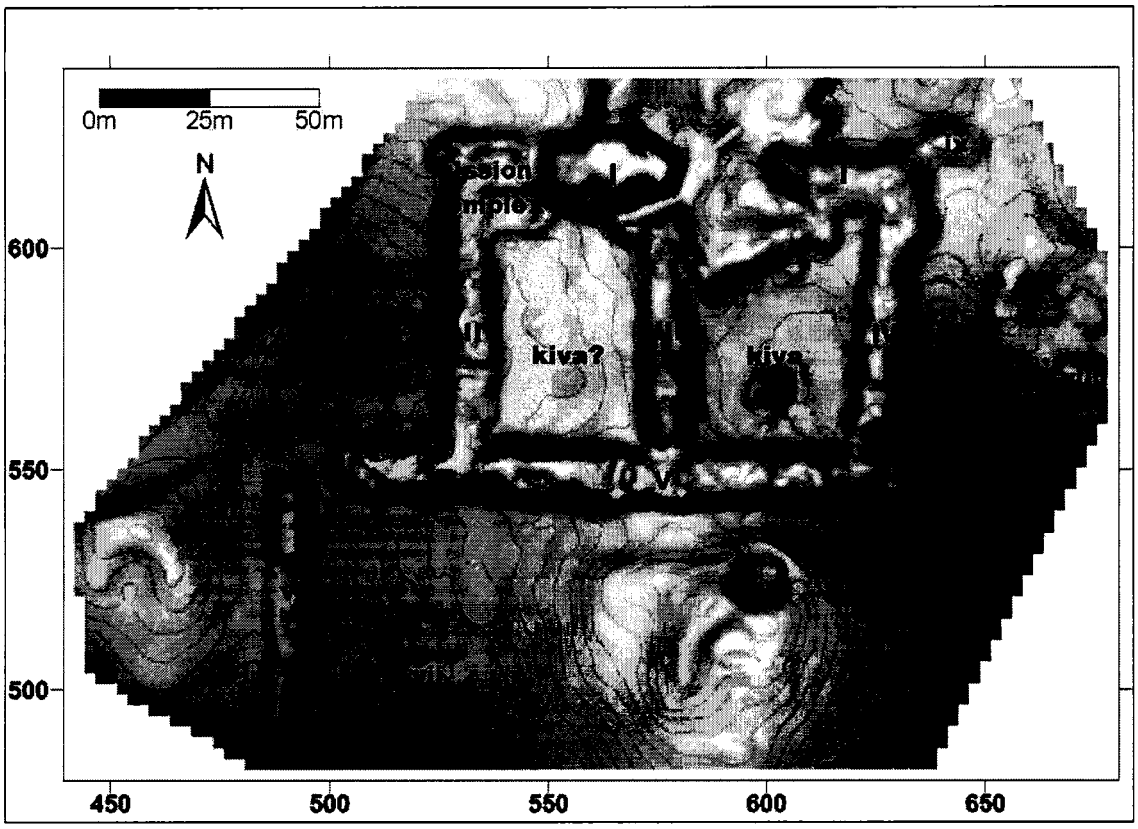

Figure 5.10: GMAP labels for Revolt era room blocks at Patokwa (.2m contour interval)

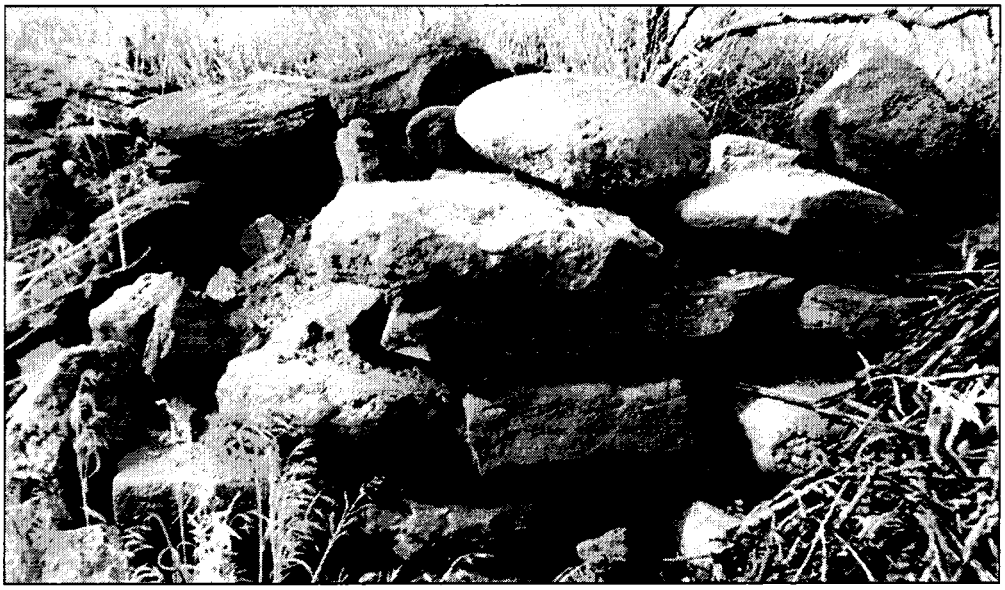

Figure 5.11: Exposed wall in Patokwa Room block I

such kiva. The topographic maps produced by the GMAP show a slight depression in the central southern portion of the west plaza that could indicate the presence of a subterranean kiva (FIG. 5.10). A ground penetrating radar survey of this area in 2003 proved inconclusive. If there was a kiva located in the west plaza, it could have been backfilled following the establishment of the mission in the northwest corner of this plaza between 1694 and 1696 (possibly at the order of the Franciscan stationed there), thus explaining the relative shallowness of the depression today. Alternatively, the lack of a deep depression could be explained by differential rates of soil deposition in the plazas. GMAP cartography documented a higher overall elevation in the west plaza, likely caused by increased amounts of wind-blown sediments collecting in the western plaza as a result of prevailing westerly winds, with the central Room block acting as a buffer for the eastern plaza. The higher rates of soil accretion in the west plaza could explain why this depression is so shallow, if in fact a kiva does exist there.

In October 1692 Vargas provided the first written description of Patokwa (Elliott 2002a:57): "I saw that it has two plazas, one with an entrance that leads to the other, garrisoned and closed, and each with four cuarteles [room blocks]" (Kessell and Hendricks 1992:520).[24] Based on this account, it appears that the majority of

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[24] An argument could be made that this description actually refers to Boletsakwa, not Patokwa. Besides a reference to the pueblo's location "on the high mesas . . . and whose ascent is very difficult" (Kessell and Hendricks 1992:520) which seems more appropriately to describe Boletsakwa, Vargas has his words translated into both Towa and Keres "for the Keres Indians of Santo Domingo" (Kessell and Hendricks 1992:522) present at this pueblo with the Jemez. Boletsakwa is consistently referred to as a combined Jemez/Santo Domingo village by the Spaniards (see below). Furthermore, Vargas estimates its distance from Walatowa to be 3 leagues (about 12.9 km); Patokwa is only 1.7 leagues (7.1 km) from Walatowa, whereas Boletsakwa is 3.1 leagues (13.2 km). However, upon visiting what was apparently the same pueblo a year later (Nov. 24, 1693), Vargas estimates its distance from Walatowa at 4 leagues (17 km) round trip (Kessell et al. 1995:442). Furthermore, upon visiting San Juan mesa on August 4, 1694, Vargas provides a description of Boletsakwa as though he has not seen it before: "When I climbed the mesa, I saw

construction of Room blocks I, II, III, IV, and V was completed before 1692 (FIG. 5.12), and that its basic two-plaza form has not been substantially modified since that time. It is not known when the outlying room blocks to the southwest, south, and east of the main pueblo (vi, vii, and viii) were constructed, but it is likely that these were built after the main plaza pueblo was constructed (see *Discussion*, below).

Vargas goes on to state that prior to 1694 there were four open entrances to the plazas (Kessell et al. 1998:328), in the northwest, northeast, southwest, and southeast of the central core of Patokwa. Following the battle at Astialakwa, he ordered his men to fortify the plazas by sealing three of these entrances with stone walls, leaving only the smallest open (Kessell et al. 1998:335, 370; FIG. 5.13). Later that summer the residents of Patokwa carried out further architectural modifications. In September 1694 a cross was erected in the middle of one of the plazas with a stepped, stone masonry platform. A group of roughly shaped, uncoursed masonry is scattered in the central area of the western plaza today, and could be the remains of the dais constructed to support this cross. Living quarters were also prepared for the priest who was assigned to them at that time, described as "so spacious, with its work rooms and kitchens, that four religious could have lived in it with everything they needed" (Kessell et al. 1998:405-406). Vargas visited the site on September 28, 1694 and does not mention the existence of a church at Patokwa at that time, but sometime between 1694 and 1696 the mission church was constructed in the northwest corner of the site.

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they had occupied it like the rebels [at Guadalupe Mesa]" (Kessell et al. 1998:339); and in a later description of the same visit: "we arrived at the mesa where there is a strong pueblo with a plaza that has four house blocks" (Kessell et al. 1998:372). Based on these descriptions, I am inclined to agree with Elliott (2002a:57) that the pueblo Vargas visited on October 25, 1692 was most likely Patokwa.

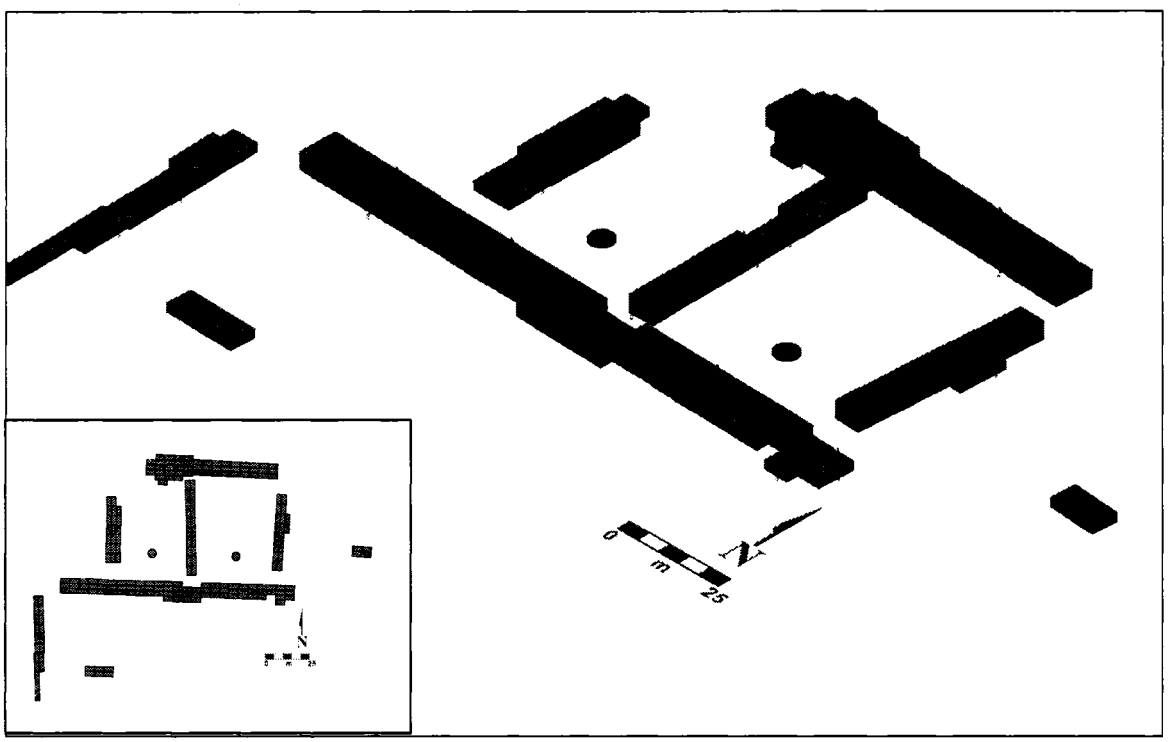

Figure 5.12: CAD reconstruction of Patokwa 1681-1694, SE isometric view (inset: plan view)

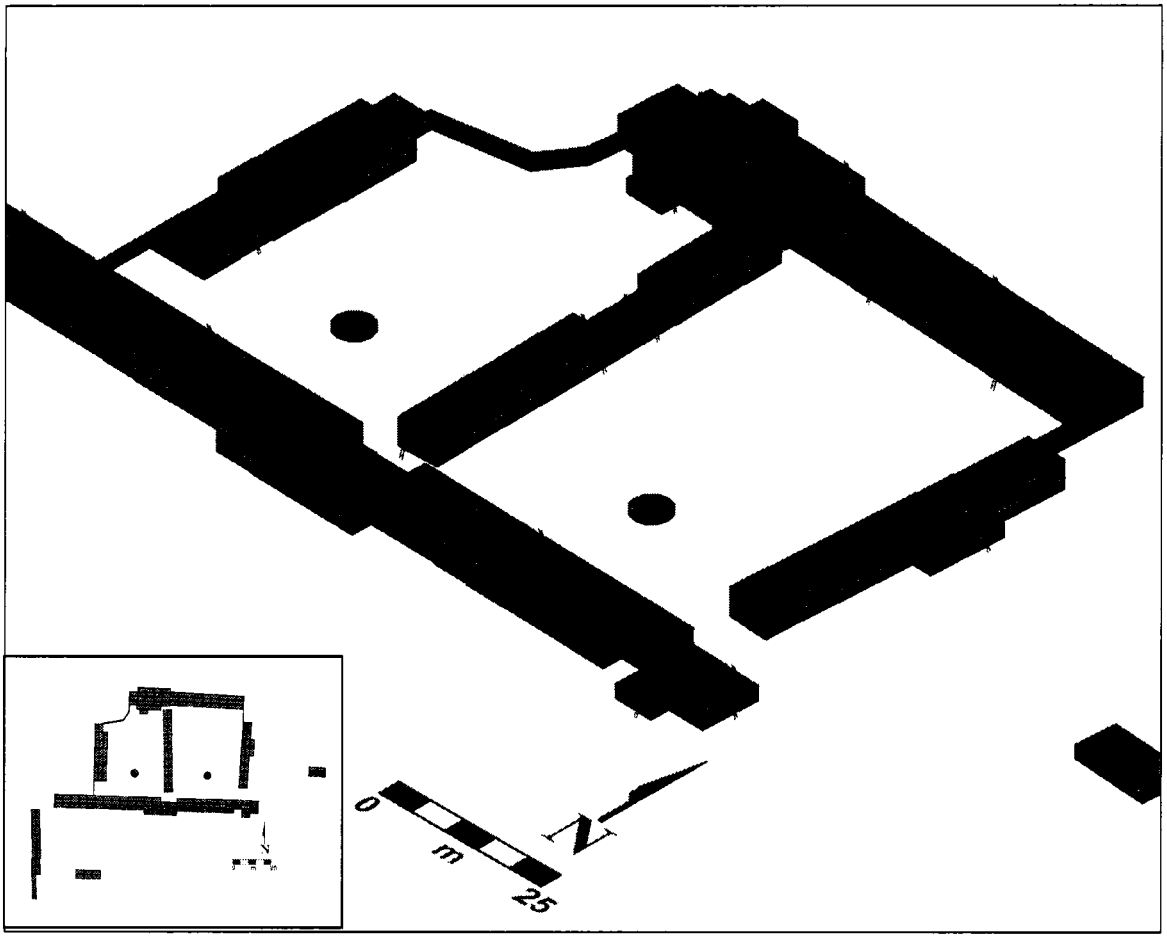

Figure 5.13: CAD reconstruction of Patokwa core, August 1694, SE isometric view (inset: plan view)

The remains of the San Diego del Monte mission complex are clearly discernable in the northwest corner of the pueblo today. The church (FIG. 5.14) was approximately 17.65 m long (east-west), the length of the nave measuring 13.55 m and the length of the chancel/apse measuring 4.10 m. The width of the church (north-south) at the west end of the nave (immediately east of the sanctuary) measures 8.2 m. Although it is possible that the church was cruciform in shape, the collapse of the north and south walls of the nave make this difficult to determine; based on the location of the rubble from these walls, and following Kubler's correction of Fischer's map (Kubler 1990:72), the reconstructions herein depict the church of San Diego del Monte without a transept.

The rooms to the south of the church (the north end of Room block II) are identified as the *convento* complex based on Kubler's assertion that "The location of the priest's house [convento] with relation to the church varies little. If the axis of the church lies east and west, the priest's house abuts against the south wall of the church" (1990:73). A low wall encloses a small *claustro* or square court (Kubler 1990:73) to the east of the convento in what had previously been the northwest corner of the west plaza.

GMAP survey evidence demonstrates that additional rooms were also constructed in the northeast and southwest corners of the site between 1694 and the final occupation of Patokwa in the early eighteenth century (FIG. 5.15). Vargas indicates that the population of Patokwa in January 1695 was relatively small (see below, *Population Estimate*), which suggests that the construction of additional rooms would not have been necessary during that period. It is more likely that these rooms were added during a period of population growth at Patokwa, probably during the eighteenth century re-occupation of the site (between 1703 and 1716).

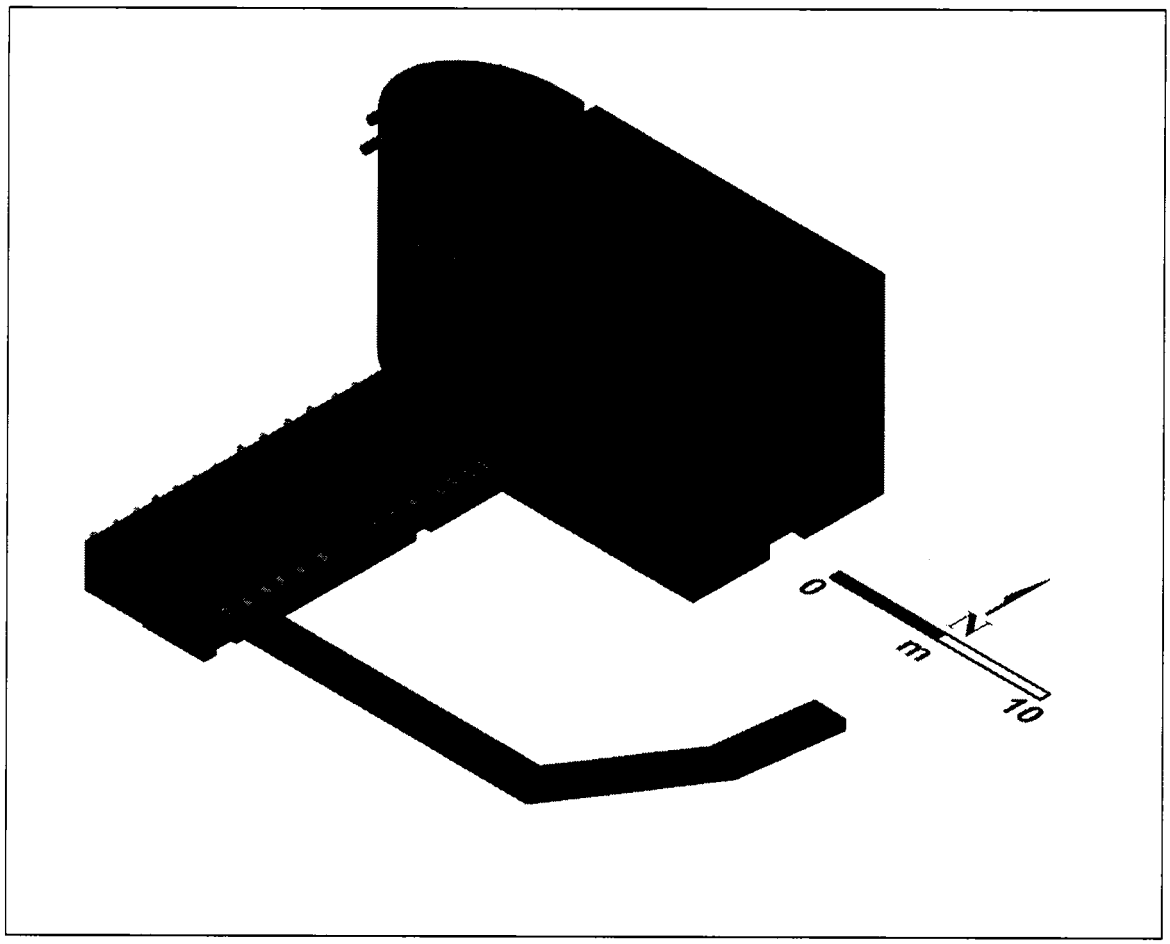

Figure 5.14: CAD reconstruction of the San Diego del Monte mission complex, SE isometric view. Based on analogy with other 17th century New Mexican churches, this reconstruction includes a transverse clerestory window to provide for the illumination of the sanctuary (Kubler 1990:48). This window was formed by the difference in roof level between the nave and the sanctuary (the sanctuary roof was typically higher than the nave roof), with a gap between the last beam of the nave roof and the first beam of the sanctuary roof. The height of the church is estimated to have been equal to the width of the nave (in this case 8.2 m), again based on analogy with other colonial New Mexico mission churches (Kubler 1990:57).

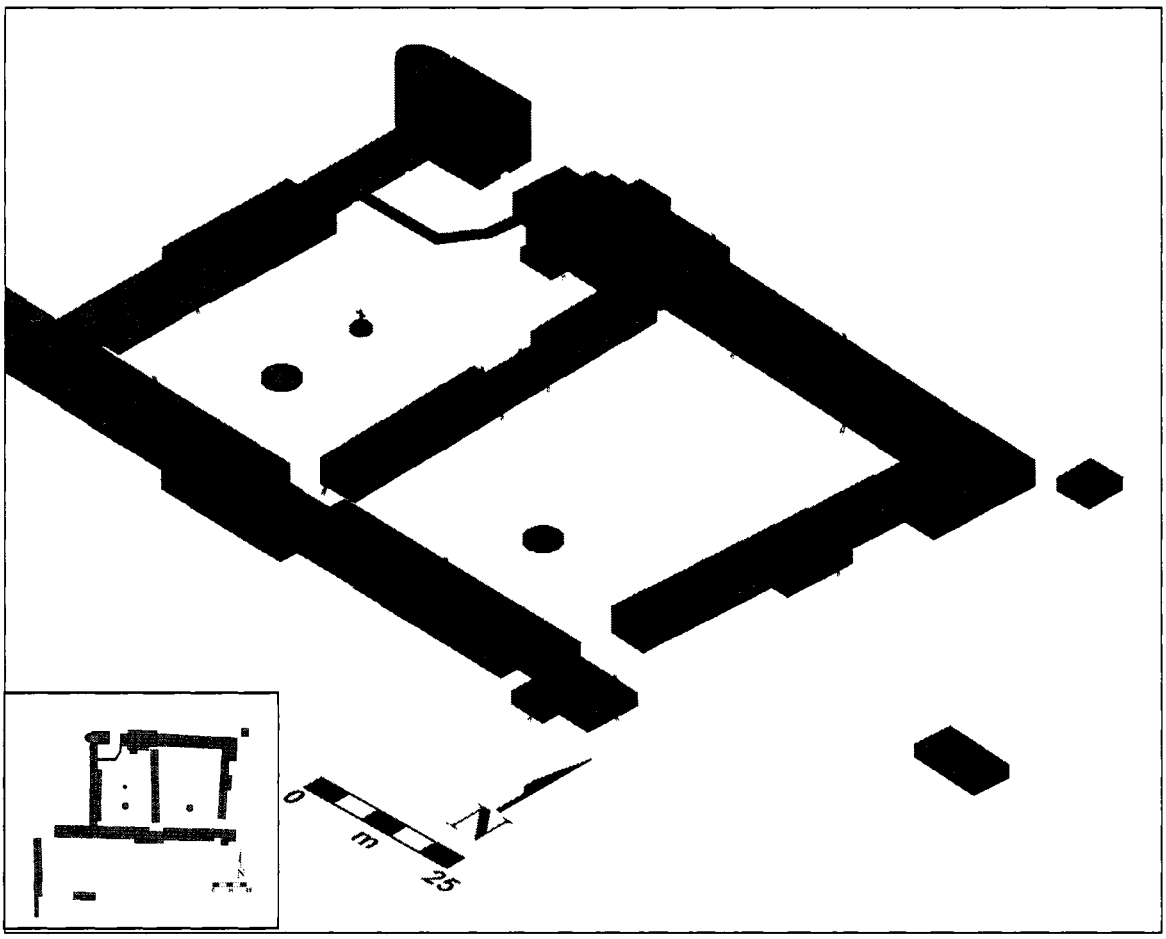

Figure 5.15: CAD reconstruction of Patokwa (core), 1695-1716, SE isometric view (inset: plan view)

Looting and Vandalism

No authorized excavations have been conducted at Patokwa, but significant looting has affected the site over the past 70 years. In the 1920s-1930s, Mera described the site as undisturbed, with the exception of a single looters' pit in the "transept" of the church. Sometime prior to the mid-1960s, while the site was still in private ownership, a bulldozer was used to raze much of the central portion of Room block I (FIG. 5.16). Anecdotal reports suggest that this was done in hopes of recovering a golden mission bell believed to have been buried on the site by Spanish priests (a legend popular at seventeenth century mission sites throughout New Mexico [Elliott 2002a:50]). More recently, the kiva in the east plaza has been looted, as has the central area of the Classic period mound and various rooms in Room blocks III and V.

Room estimate

It is not possible to determine an exact count of the number of rooms, nor the dimensions of discrete rooms, based solely upon a surficial investigation of Patokwa.[25] With a few exceptions, wall alignments are generally not visible on the surface of Patokwa today. However, in two areas looting and vandalism have partially exposed the remains of walls, enabling an appraisal of room size based on quantitative measurements. In Room block I, three standing walls are visible in the east section of the bulldozer cut, allowing for an accurate measurement of the interior width of two adjacent rooms. One of these rooms is 2.55 m wide, while the other measures 2.60 m. A single looted room in

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[25] Room estimates pertain to the seventeenth century component of Patokwa only. Because of the degraded nature of the Coalition Period architecture and the fact that no quantitative measurements of room sizes could be attained from surficial data in this area, no estimates of individual room dimensions or counts were attempted for the earlier component.

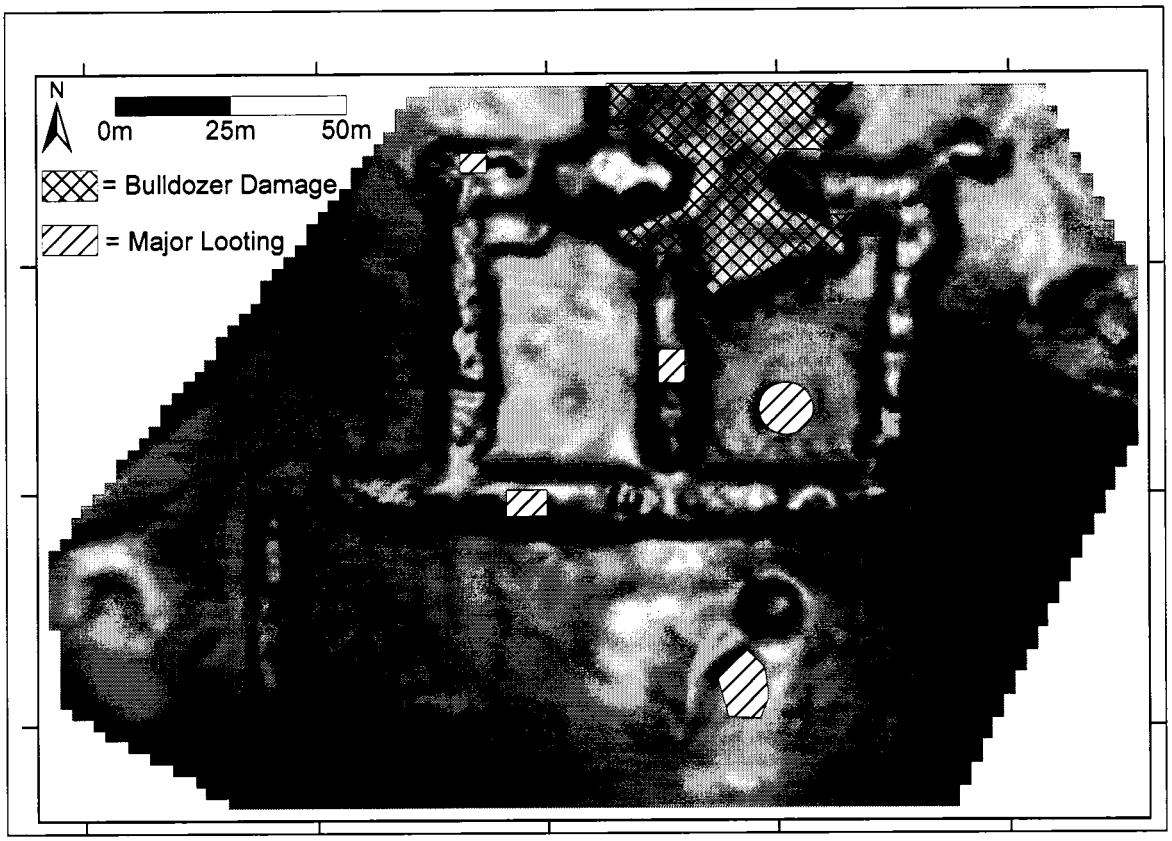

Figure 5.16: Areas of major vandalism at Patokwa

Room block V exhibits an interior width of 2.20 m. Only one accurate measurement of interior room length could be attained from the available surficial data at Patokwa, also from the looted room in Room block V, which measures 5.14 m long. Based on these proportions, the interior dimensions of a conjectural average room at Patokwa are estimated to be 2.5 m wide x 5.0 m long, resulting in an average floor area of 12.5 m^2. Based on analogies with the two other early Pueblo Revolt era dual-plaza pueblos (Kotyiti, average floor area: 14.6 m^2 [Preucel 1998]; and Boletsakwa, average floor area: 11.1 m^2 [see below, Boletsakwa Room Estimate]) this seems a reasonable estimate.

Based on these assumptions, I created a hypothetical reconstruction of Patokwa consisting of 2.5 x 5.0 m rooms by superimposing a CAD-generated reconstruction on a plan view of the Patokwa topographic data (FIG 5.17). These calculations yield an estimate of 237 ground floor rooms (plus two kivas and the mission church) at Patokwa post-1694. In order to account for second and third story rooms I analyzed the topographic variation within individual room blocks to determine the intra-site variation in room elevations. Based on analogies with other pueblo sites, I assumed that as stone masonry pueblo architecture degrades, each story results in .75-1 m of rubble. In other words, mounded remains of pueblo architecture less than 1 m in height are assumed to have originally stood one story tall, mounds 1-2 m are thought to have stood two stories; and mounds 2-3 m in height are assumed to have been originally three stories tall. By applying these analogies to the spatial information collected at Patokwa and projecting the plan view of ground story rooms onto the topographic data, it was possible to infer the height of individual rooms (FIG. 5.18). Assuming the rooms damaged by the bulldozer cut in Room blocks I and III were two stories tall, these techniques yield an

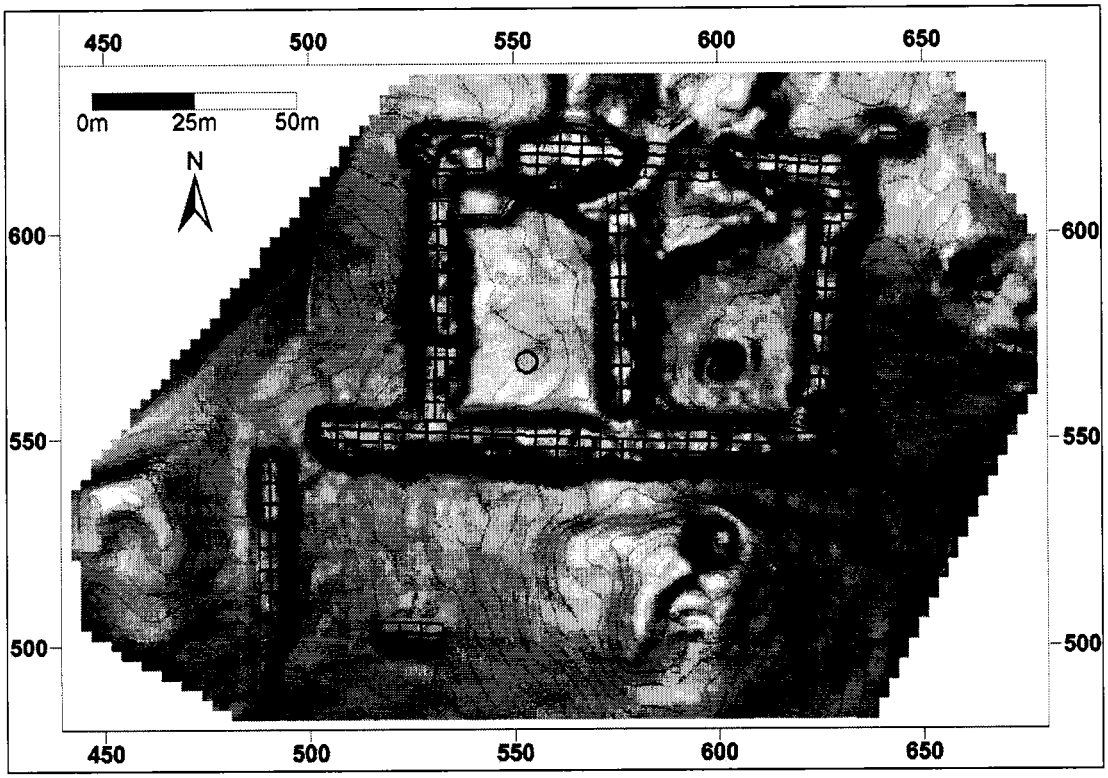

Figure 5.17: CAD-generated ground-floor room estimate for Patokwa

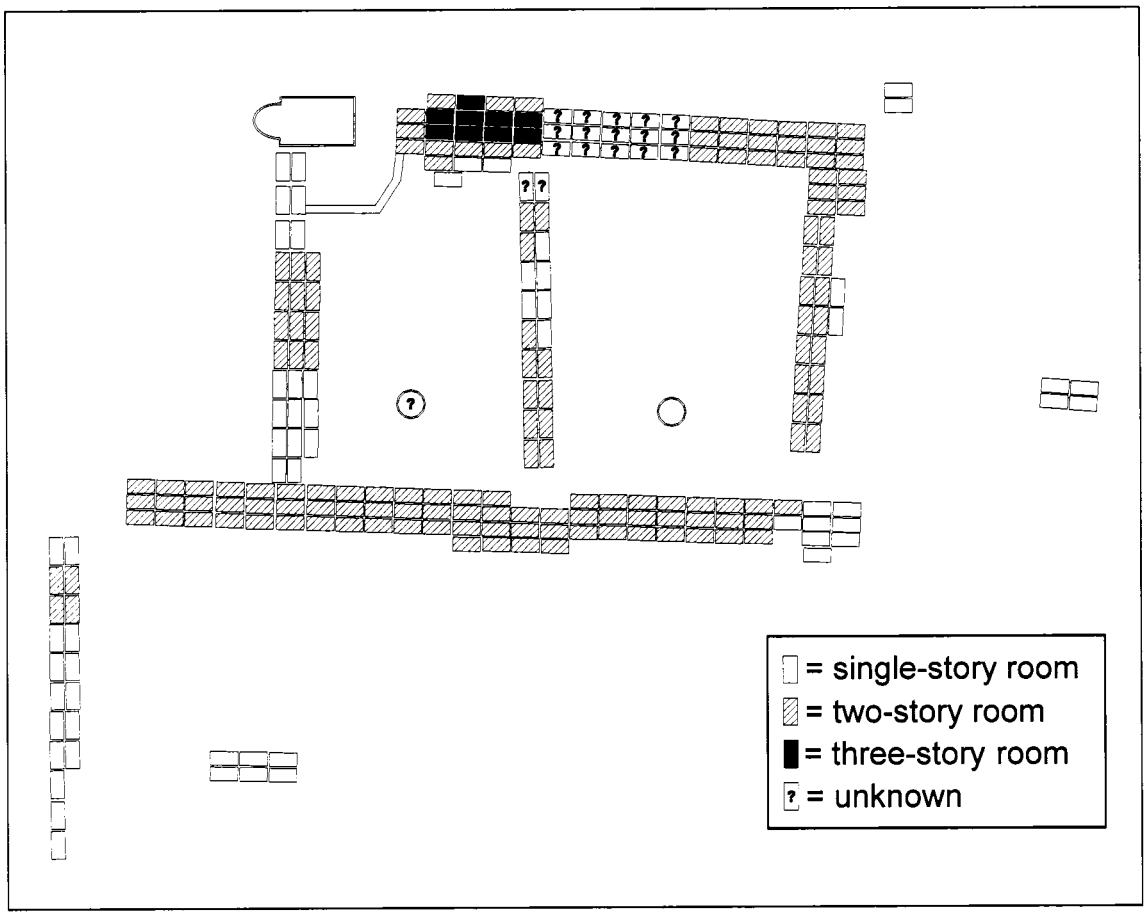

Figure 5.18: Patokwa room elevation estimates, plan view

estimate of 420 total rooms (including the convento but excluding the kivas and mission church) at Patokwa for the period 1694-1716.[26]

Population estimate

The estimation of population based on archaeological data is a notoriously difficult procedure (Cook 1972; Hassan 1981; Nelson et al. 1994:114; Ferguson 1996:42). Many different techniques have been applied to Ancestral Puebloan archaeological sites in an effort to determine past populations, including those based upon ethnographic analogies, volume of rubble, the number of rooms, floor area, and area of roofed architecture, to name just a few (Naroll 1962; Hill 1970; LeBlanc 1971; Clarke 1974; Sumner 1979; Dohm 1990; Hill et al. 2004). In this study, three major sources of evidence are utilized to estimate the population of Patokwa: the documentary record, estimated number of rooms, and floor area estimates. As might be expected, all three of these sources result in (sometimes radically) different population estimates.

Historical Documents

Vargas claims that 500 warriors greeted his party upon approaching Patokwa in 1692. Initially "only the armed Indians were present," while the women, children, and others were nowhere to be seen. Later, "some others came out from their cuarteles and came down, although few in number for so many warriors" (Kessell and Hendricks 1992:520-522). It is possible that many of the women, children, and other non-combatants may have fled the lower mesa in anticipation of a battle prior to Vargas's

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[26] The estimated number of ground-floor rooms for the period 1681-1694 is 217, and the estimated total room count for this period (including second and third floor rooms, but excluding kivas) is 388. Additional rooms were added after the battle at Astialakwa in 1694. See above, *Architectural Plan*.

arrival. The figure of 500 warriors is thus of limited utility in estimating the population of Patokwa in 1692. Vargas's count is obviously a rough, rounded estimate, and given the hostile context in which it was made it is likely an inflated statistic. It is also possible that some of these warriors were inhabitants of other pueblos who came to Jemez as reinforcements in anticipation of a battle, a situation documented at other reconquest-period battle sites (Kessell et al 1998:236). The fact that people from Santo Domingo were there suggests that some of the population of Boletsakwa may have been present at San Diego Mesa that day (Kessell and Hendricks 1992:522). Thus it is likely that not all of these 500 warriors were residents of Patokwa. They were certainly not all Towa speakers. Conversely, Vargas also specifically states that some "Apaches were lodged" in the room blocks of Patokwa (Kessell and Hendricks 1992:522), suggesting that at least some of the non-Jemez warriors were residing at Patokwa, even if only temporarily.

Assuming that Vargas's count of 500 warriors may be inflated, and taking into account the problem of non-resident warriors, a conservative reckoning might put the number of resident warriors at Patokwa that day at 250. Using this figure, it is possible to estimate the total population of Patokwa based on analogy with Pueblo populations in 1789. That year, a census was conducted by Governor Fernando de la Concha in which the total populations of 19 New Mexican Pueblos were recorded, along with the number of warriors at each of these pueblos (TABLE 5.1; Simmons 1979:185). According to this data, 20.56 percent of the average Pueblo population was identified as warriors in 1789. By applying this average to the number of estimated resident warriors at San Diego Mesa (250), the total population at Patokwa in 1692 could be calculated as high as 1216 persons.

Table 5.1: New Mexican Pueblo Populations from the 1789 Census of Governor Fernando de la Concha (from Simmons 1979:185)

Pueblo	Total Population	Number of Warriors	Warriors as a Percentage of Total Population
Acoma	783	150	19.15
Cochiti	527	120	22.77
Isleta	383	75	19.58
Jemez	265	75	28.30
Laguna	653	100	15.31
Pecos	138	40	28.99
Picuris	213	41	19.25
Pojoaque	77	8	10.39
Sandia	252	55	21.83
San Felipe	260	56	21.54
San Ildefonso	317	74	23.35
San Juan	205	44	21.46
Santa Ana	399	80	20.05
Santa Clara	201	48	23.88
Santo Domingo	493	120	24.34
Taos	479	120	25.05
Tesuque	152	45	29.61
Zia	222	45	20.27
Zuni	2437	450	18.47
Totals:	8456	1746	20.65 %

In January of 1695 Vargas wrote of "the Jemez nation, which has its pueblo on the mesa of San Diego, with its minister, whose parishioners are composed of 405 persons" (Espinosa 1988:149; see also Kessell et al. 1998:586). This is the most useful demographic data contained in the historical record with reference to Patokwa, yet it is important to note that this number refers to the post-1694 battle populace and is probably significantly lower than the population of Patokwa at its peak, due not only to those killed in the battle but also to the likely occurrence of people fleeing the Jemez Province both before and after the battle.

Number of Rooms

One of the most common methods of estimating a past Pueblo population via the archaeological record is based on the estimated number of occupied rooms at a site (Smith et al. 1966; Kintigh 1985; Dohm 1990). In order to apply this method the proportion of rooms occupied at a given time must first be determined, however. This is particularly difficult to accomplish based solely on surficial data. Previous studies in the Zuni area have circumvented this problem by assuming that between 50 percent (Smith et al. 1966:12) and 80 percent (Watson et al. 1980:207) of a pueblo was occupied at any given time. Kintigh takes the median of these, using an assumption of an average of 65 percent of rooms occupied at a pueblo at a given time (Kintigh 1985:22). The situation at Patokwa is different from that of typical pre-contact Pueblos, however, as the historic component was inhabited for two relatively short, discrete periods (1681-1696 and 1703-1716+) rather than a single sustained occupation. Thus the percentage of rooms occupied at Patokwa at any given time is likely to be higher than average because it is assumed that

not as many will have fallen into disuse or disrepair as those of a pueblo occupied for longer periods of time.

Another complicating factor regarding the application of room counts to the estimation of population at Patokwa is the fact that previous studies utilizing this technique have relied heavily upon the assignation of function to rooms ("storage" versus "habitation," for example), a determination that is impossible to make based solely upon surficial data (Hill et al. 2004:692). Thus Hill's oft-cited figure of 2.8 persons per habitation room, based on ethnographic observations at Hopi pueblos (Hill 1970:75-77), is not useful in relation to the Patokwa data set. Alternatively, estimates based on the total number of rooms per person, such as Dohm's study of 25 historic pueblos, can be useful in estimating the population of Patokwa. Dohm recorded a range from 0.219 to 1.344 rooms per person, with a mean of 0.60 rooms per person (Dohm 1990:212), noting that the number of rooms per person increased with increasing site aggregation.

Assuming the post-1694 room estimate at Patokwa (including second and third story rooms, but not including kivas or the four rooms of the convento and mission church) of 416 is not wholly inaccurate, a maximum estimate—that is, one that assumes the entire site to be occupied contemporaneously—yields a peak population at Patokwa of 693 persons (416 rooms divided by 0.60 rooms per person). Alternatively, if a more conservative estimate is employed assuming that only 65 percent of the total number of rooms was occupied (following Kintigh 1985) at the zenith of Patokwa's growth, the population can be estimated at 450 persons (65 percent of 416 rooms = 270 rooms divided by 0.60 rooms per person).

Floor Area

An alternative measure on which to base population estimates is the internal floor area of rooms, which may be more accurately predicted based solely on surficial data than the total number of rooms (although the problems of room function and percentage occupied at any given time still apply). Unfortunately, there is no consensus regarding the amount of floor area typically utilized per person. Many previous estimates of population based on floor area have attempted to provide a general figure applicable cross-culturally (Naroll 1962; LeBlanc 1971; Cook 1972; Brown 1987), and while revised estimates have been suggested for use in the Southwest (Clarke 1974) and elsewhere (Casselberry 1974), this method has not been widely applied in Ancestral Puebloan archaeology (Cameron 1999b:210). Furthermore, as Dohm (1990) has demonstrated, this figure is likely to vary among differing pueblos, regions, and time periods.

Preucel's study of Kotyiti provides some baseline evidence from a contemporaneous site with a very similar layout from which an estimation of population at Patokwa can be predicted (Preucel 1998). Based on documentary sources, Preucel estimates the population at Kotyiti to be at least 454 (Preucel 1998:74). The total floor area of all rooms at Kotyiti, including second story rooms, is 2304.6 m^2, resulting in an average of 5.1 m^2 of floor area per person. Based on the assumptions described above, the total floor area at Patokwa post-1694 (including second and third story rooms, but not including kivas or the mission complex) is approximately 5200 m^2. Applying the figure of 5.1 m^2 per person yields an estimate of 1020 persons living at Patokwa at its peak.

Demographic Trends at Patokwa

Hence depending upon the method used, population estimates at Patokwa vary between a low of 405 persons and a high of more than three times that much, 1216. While there are certainly complicating factors calling the accuracy of each of the above estimates into question (Nelson et al. 1994), a determination of the exact number of persons living at Patokwa at a given time is less important than the documentation of larger-scale demographic trends in relative population throughout the Revolt period. In other words, it is less useful to debate whether this site housed 1020 versus 1216 persons at its peak than it is to note that the population fluctuated significantly at different times during the occupation of Patokwa. Indeed, the discrepancies between the documentary-based population estimates and those based upon archaeological data attest to an important fact of life in the Revolt era pueblos: mobility was the norm (Herr and Clark 1997), and the populations of Pueblo villages during this period were apt to vary widely based upon local and regional conflicts and related changes in the political and economic climates of the Pueblos.

Figure 5.19 and Table 5.2 summarize the demographic trends at Patokwa during the Pueblo Revolt period utilizing conservative population estimates, based upon textual and archaeological data. A communal migration of Jemez persons to Patokwa in 1681 provided a relatively large founding population. Evidence for this large-scale communal migration is suggested by the architectural layout of Patokwa (see below, *Discussion*). The departure of a portion of the Jemez population to Boletsakwa in the early 1680s may have reduced the population of Patokwa shortly after it was founded. In 1694 Vargas described being visited by two Jemez captains "who had separated themselves from that

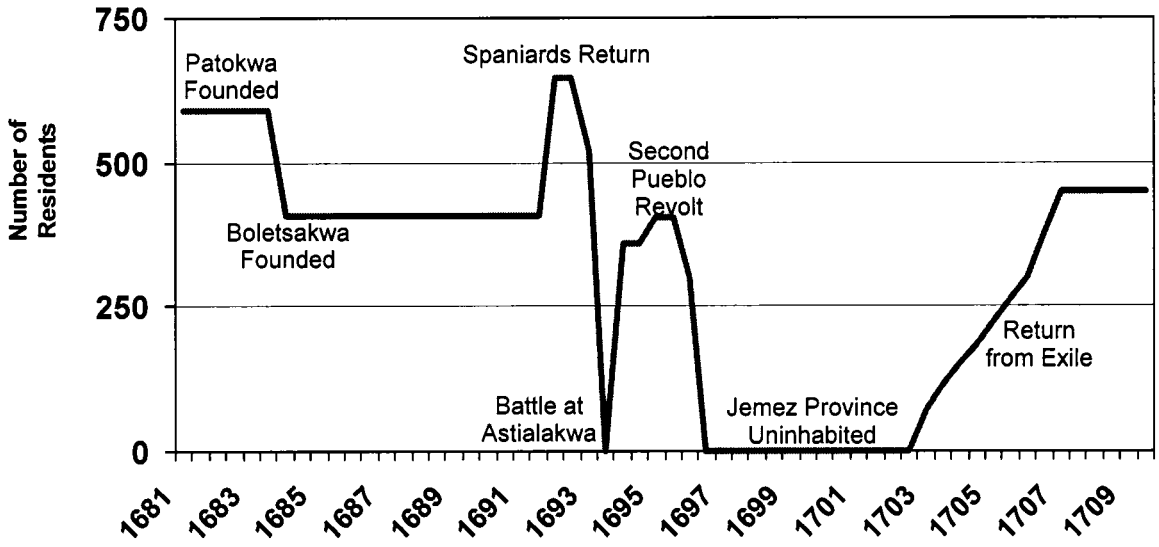

Figure 5.19: Patokwa demographic trends, 1681-1709

Table 5.2: Patokwa population estimates, 1681-1709

Year	Population	Source of Estimate
1681-1683	588	Number of rooms in core architecture (without outlying room blocks) divided by 0.60 rooms per person
1684-1691	409	Number of rooms in core architecture (without outlying room blocks) divided by 0.60 rooms per person, minus ½ estimated population of Boletsakwa (179); Kessell et al. 1998:402-403
1692	647	Total number of pre-1694 rooms divided by 0.60 rooms per person; Kessell and Hendricks 1992:520
1693	519	Number killed, captured, or escaped during the battle in 1694; Kessell et al. 1998:325, 327, 374
1694 (Jan.-Jul.)	0	Kessell et al. 1998:367
1694 (Aug.-Dec.)	361	Number captured after battle; Kessell et al. 1998:327
1695	405	Espinosa 1988:149; Kessell et al. 1998:586
1696	300	Espinosa 1988:252
1697-1702	0	Espinosa 1998:271; Kessell et al. 1998:881, 1064, 1102
1703	75	Bloom and Mitchell 1938:107-108
1704	150	"
1705	225	"
1706	300	"
1707	450	Bloom and Mitchell 1938:108
1708-1709	450	65% of total number of rooms including post-1694 additions (without convento) divided by 0.60 rooms per person

pueblo and gone to [San Juan] mesa in years past with the Keres from Santo Domingo Pueblo" (Kessell et al. 1998:402-403). If this was in fact the case, it suggests that the population of Patokwa fell just a few years after the pueblo was established, but probably remained relatively stable for the remainder of the 1680s.

Upon the return of the Spaniards in 1692 the population likely spiked again, with an influx of warriors from neighboring tribes and Pueblos who came to Patokwa in anticipation of a battle (Kessell and Hendricks 1992:522). As the Spaniards re-established missions and colonial settlements in 1693, residents of Patokwa probably began to leave the Jemez province, resisting the re-colonizing efforts of the Spaniards through a strategy of mobility. Following the battle at Astialakwa in 1694 the population was reduced further, followed by a slight increase as a result of the return of warriors and evacuees in the aftermath of the 1694 battle (Kessell et al. 1998:374).

During the Second Pueblo Revolt some of the Jemez people again fortified themselves at Astialakwa while others fled the province entirely, and by July 1696 Patokwa was empty (Espinosa 1998:271; Kessell et al. 1998:881, 1064, 1102). For the next six years the pueblo remained vacant. Patokwa may have been re-inhabited as early as 1703 with the return of Jemez émigrés from their self-imposed exile at the Hopi pueblos (Bloom and Mitchell 1938:107-108), among the Navajo, and other places. This influx of refugees continued throughout the first decade of the 1700s. Architectural evidence suggests that the eighteenth century population of Patokwa may have been slightly smaller than the original founding populace. New rooms were constructed in the northeast and southwest corners of the plazas sometime after 1694, and considering the

documentary evidence (which suggests a declining population from 1694 to 1696), it stands to reason that these rooms must have been constructed after 1703.

Discussion

Without the benefit of visible walls to provide data on individual room sizes and wall intersections, it remains difficult to reliably infer information regarding the construction of Patokwa. However, the spatial organization of Patokwa does impart some valuable information regarding the coordination and control of construction activities. Patokwa's room blocks are arranged in what has been termed a "linear plaza" form (Cameron 1999b:207); that is, the pueblo is made up of multiple long, narrow rows of rooms that define proportionally large, enclosed plazas. This distinctive type of site layout results from construction activities in which many rooms are built at the same time by erecting two or more parallel axial (long) walls first, then subdividing the space between them with multiple (shorter) cross walls to form individual rooms. This technique, termed "ladder-type" construction (Creamer et al. 1993:16; Cameron 1999b:207), has been linked to coordination and control of labor above the household level (Cordell 1998:27; Kidder 1958:63) because it is typically undertaken by large communal work groups rather than individual family units (Lange and Riley 1966:97; Hill 1982:73; Robinson 1990; Cameron 1999b:207).

The linear plaza form has been contrasted with "agglomerative" layouts (Mills 1998; Cameron 1999b:207), characteristic of pueblos formed by dense clusters of individually constructed rooms surrounding relatively small plazas. Agglomerative construction does not require a supra-household coordination of labor; it is accomplished

room-by-room, presumably by members of discrete households or extended families (Cameron 1999b:208). Agglomerative pueblos display a lack of shared walls and variable wall azimuths, resulting in room blocks without the long, unbroken, shared azimuths displayed at Patokwa. Linear plaza pueblos tend to be associated with proportionally larger plazas because these areas result from pre-construction planning and demonstrate a shared understanding by the community residents regarding the size and organization of the plaza space. They are typically expanded through the addition of new rooms and room blocks displaced from the original plan, preserving the planned central plazas (Cameron 1999b:227-230). Conversely, agglomerative pueblos can more easily accommodate small groups of immigrants through the addition of individual rooms as new households join the community.

Linear plaza layouts have been associated with the Eastern Pueblos,[27] patrilineal descent, and patrilocal or neolocal residence patters, whereas agglomerative layouts have been linked to Western pueblos (Hopi and Zuni in particular) and matrilineal descent patterns (James 1997:435; Cameron 1999b:206-207, 226). Furthermore, linear-plaza designs are associated with large-scale, well-organized communal migrations because of their evidence for planned and organized construction.

The documentary record suggests that just such a large-scale community migration took place in the Jemez Province following the Pueblo Revolt of 1680 (Chapter IV). The core dual-plaza component of Patokwa (Room blocks I, II, III, IV, and V) was likely constructed by communal labor groups during the organized migration of a large

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[27] Linear plaza layouts and ladder-type construction has been noted in a few ancestral Western Pueblos as well, such as the Homol'ovi Pueblos and Fourmile Ruin (Cameron 1999b:226)

number (if not the majority) of Jemez persons to Patokwa in 1681. The architectural remains at Patokwa suggest that most rooms within individual room blocks share wall azimuths, a configuration typical of ladder construction. There are few projecting rooms that deviate from the predominant linear alignments of the long room blocks. Furthermore, ladder-type construction has been identified through patterns of wall intersections at Kotyiti (Preucel 1998:46) and Boletsakwa (see *Boletsakwa Architectural Plan* and *Discussion,* below), two nearby early Revolt era dual plaza pueblos, providing additional support for the argument that the main room blocks of Patokwa resulted from communal ladder-type construction.

Room blocks vi, vii, viii, and ix were probably constructed later to accommodate immigrants into the Patokwa community. The Vargas journals suggest that in the latter years of the Pueblo Revolt era, Patokwa was a multi-ethnic community. In 1692 Vargas noted the presence of a number of non-Jemez persons at Patokwa, including a significant population of "Apaches" (probably Navajos) residing there (Kessell and Hendricks 1992:522). There were also a sufficient number of persons from Santo Domingo present to warrant a translation of Vargas's address into Keres. It is possible that these outlying room blocks may have lodged some of the non-Jemez residents of Patokwa, or that they served as temporary housing for the reinforcements from other pueblos who may have come to aid the people of Patokwa in the event of a battle with the Spaniards. However, the Spaniards and their allies consistently referred to Patokwa as a Jemez pueblo and San Diego Mesa as a Jemez refuge, suggesting that the majority of its occupants were primarily Towa-speaking and ethnically Jemez, and the other groups reported to be there were either visitors, temporary residents, or considered outsiders.

BOLETSAKWA

Identification Numbers

LA 136, AR-03-10-03-00002, FS 2, J-13, NM HPD 954

Synonymy

Beo le tsa kwa; Buletukwa; Buletzikwa; Boletsokwa; Bul-itz-e-qua (translation: "pueblo of the abalone shell" [Bloom 1922:25])

Previous Research

Excavations under the direction of Bertha Dutton in the 1960s (Bohrer 1968); Bandelier 1892:207; Harrington 1916:405; Bloom 1922:25; Reiter 1938:20; Ellis 1956:27; Elliott 1982:13, 1986a:179, 2002a:53-54; Barrett 2002a, 2002b; Liebmann 2004; Liebmann et al. 2005; additional maps by Mera (1920s-1930s) and Preucel, Ferguson, and Liebmann (2000) are located in the Laboratory of Anthropology's ARMS site files

Elevation

2206 meters (7240 feet)

Environmental Setting

Boletsakwa is located on the southeast arm of a high, steep sided *peñol* located between two canyons (FIG. 5.20). The pueblo is situated approximately 143 meters above the canyon bottoms, which are watered by semi-permanent streams. The geology of the upper mesa is igneous in origin, comprised of the Tshirege member of the

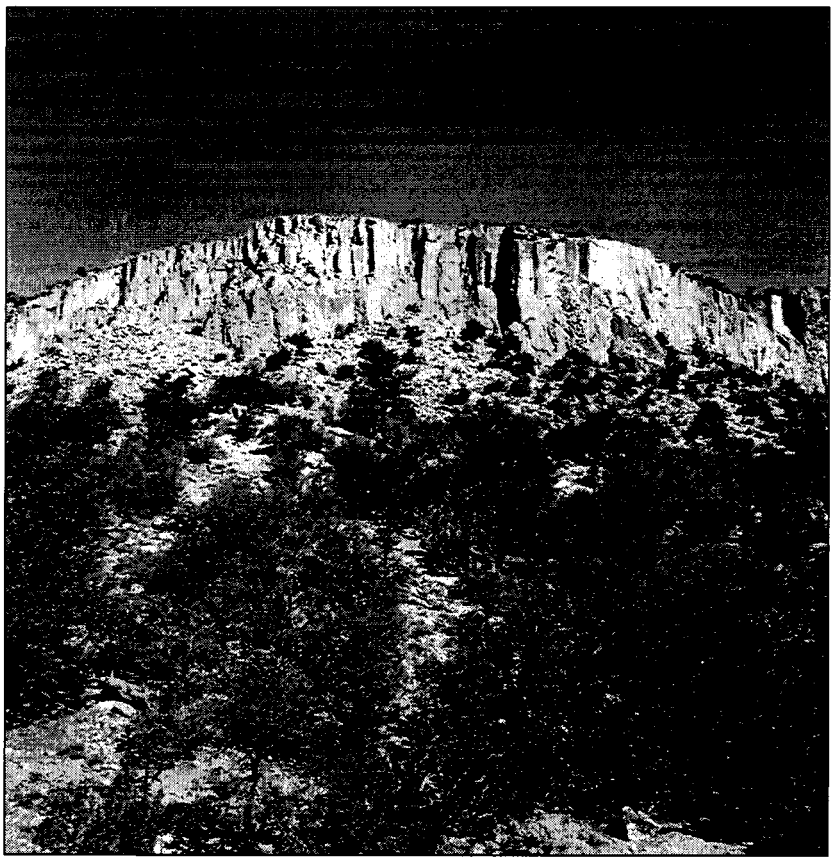

Figure 5.20: Southeast end of San Juan Mesa from below

Bandelier Tuff Formation (Smith et al. 1970). Boletsakwa is located in the transition zone between a lower montane coniferous association and a coniferous woodland association of vegetation, with Ponderosa Pine, two-needle (Colorado) piñon, and Gambel Oak comprising the modern vegetation pattern around the site (Miller et al. 1993).

Dates of Occupation

A.D. 1250-1400, based on ceramic data (Elliott 2002a:53); **A.D. 1680-1695**, based on dendrochronology (TABLE 5.3) and documentary evidence (Kessell et al. 1995: 416, 445; Kessell et al. 1998: 339-340, 372, 403, 586).

Tree ring dates suggest that Boletsakwa was constructed between 1680 and 1683, with a cluster of beams dating to 1683. Vargas reported a group of Jemez and Santo Domingans living there in November 1693 (Kessell et al. 1995:416). The site was apparently vacated sometime between the autumn of 1693 and summer of 1694, when at least some of its inhabitants moved to Astialakwa (Kessell et al. 1998:371); one of the combatants captured in the days after the battle at San Diego Mesa led Vargas and his soldiers to Boletsakwa with a promise to recover vast stores of corn (the granaries were never located, however, and the prisoner was executed) (Kessell et al. 1998:339-340). Following the battle at Astialakwa, Vargas stated that the room blocks at Boletsakwa "had been swept clean and nothing had been left in them" (Kessell et al. 1998:339), from which he concluded that the site had been "abandoned, apparently at the beginning of winter [late 1693-early 1694]" (Kessell et al. 1998:372). Boletsakwa was re-inhabited after the battle, and on 28 September 1694 Vargas bestowed the staffs of office upon the

Table 5.3: Tree-ring dates from Boletsakwa (Robinson et al. 1972)

Catalog Number	Species	Date
RG-379	PP	1492p-1656v
RG-766	PP	1472p-1663v
RG-764	PP	1621p-1680v
RG-763	PP	1646p-1680v
RG-765	PP	1647p-1680cG
RG-768	PP	1641p-1681vv
RG-757	PP	1650p-1681r
RG-758	PP	1650p-1682vv
RG-758	PP	1628p-1683v
RG-767	PP	1647p-1683v
RG-758	PP	1658p-1683v
RG-758	PP	1653p-1683r
RG-758	PP	1650p-1683r

Key:
PP—ponderosa pine
Year alone—no pith ring present
p—pith ring present
v—subjectively near a cutting date
vv—no way of determining actual cutting date
c—outermost ring is continuous around the entire section
G—beetle galleries present
r—outermost ring is not continuous around the entire section

captains, war captains, and fiscales of the pueblo (Kessell et al. 1998:406). This reoccupation seems to have included only the Jemez population of Boletsakwa, however, as one month later Vargas reported that the people of Santo Domingo had returned "from the mesa where they have come down" back to their original pueblo, but that "in this brief time they have scarcely been able to repair most of the houses in this pueblo" (Kessell et al. 1998:577). Sometime between January and December of 1695, the Jemez occupants of Boletsakwa apparently followed suit, leaving San Juan mesa to re-settle Walatowa (Espinosa 1988:149, 158, 170; Chapter IV). No further mention of Boletsakwa appears in the documentary record after the founding of the San Juan de los Jemez mission at Walatowa in 1695 (Espinosa 1988:158, 170), so christened possibly because its parishioners had been relocated from the mesa of the same name. Although it is possible that Boletsakwa was reoccupied after the Second Pueblo Revolt in 1696 (Kessell et al. 1998:797), it is more likely that the former residents of San Juan mesa occupied a different mesa-top site at this time, possibly Kwastiyukwa (Chapter IV).

The site has remained an important traditional cultural property for the Pueblo of Jemez through the past three centuries, and is frequently visited by tribal members today. Thus it should not be considered "abandoned."

Cartographic Methodology

The GMAP carried out a high-resolution architectural and topographic survey of Boletsakwa during the 2004 field season (Liebmann 2004). Because numerous standing walls and in-situ masonry alignments are visible on the surface of Boletsakwa today, mapping concentrated primarily on documentation of extant architecture. A total station

was used to record the three-dimensional locations of all visible in-situ architecture as well as discrete topographic reference points covering the surface of all areas of the pueblo and the surrounding features. A primary site datum was established in the southern plaza area of the Revolt era pueblo and assigned the arbitrary coordinates of 100 N, 100 E, 100 Z (this is the coordinate system that appears on all figures herein. Note: all measurements are in meters). Mapping commenced by first recording the locations of all discernible in-situ masonry alignments. In areas where in-situ architecture was not present or the masonry was not visible, additional topographic data was collected in order to estimate the size and extent of the architecture. The distance between and density of recorded topographic points varied depending on the microtopography of the area being surveyed—areas of greater relief were recorded with a higher density and greater overall number of points. A total of 2184 individual points were recorded (including architectural and topographic data) covering both the northern and southern components of Boletsakwa (FIG. 5.21). This data was then projected using Surfer 8.0 software to produce high-resolution topographic maps accurate to within 20 cm (FIG. 5.22).

Architectural Plan and Description

Like Patokwa, Boletsakwa consists of two distinct spatial and temporal components (FIG. 5.23; Elliott 2002a:53; Liebmann 2004; Liebmann et al. 2005). A late Coalition/early Classic period (A.D. 1250-1400) settlement, approximately 4213 m^2 in area is located in the northern half of the site (FIG. 5.24). No standing walls are visible in the older section, and much of the masonry from this earlier settlement appears to have been borrowed for the construction of the Revolt era pueblo. However, large amounts of

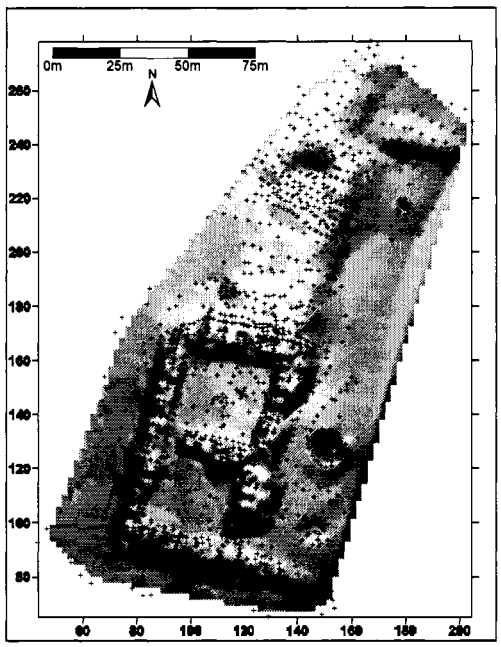

Figure 5.21: Locations of recorded data points at Boletsakwa

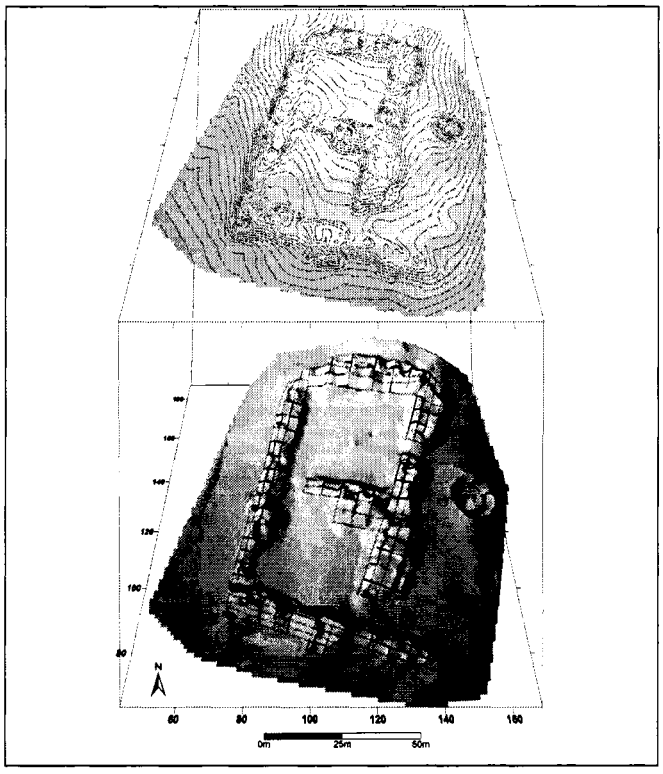

Figure 5.22: Contour and 3-D topographic maps of Boletsakwa (.2 m contour intervals)

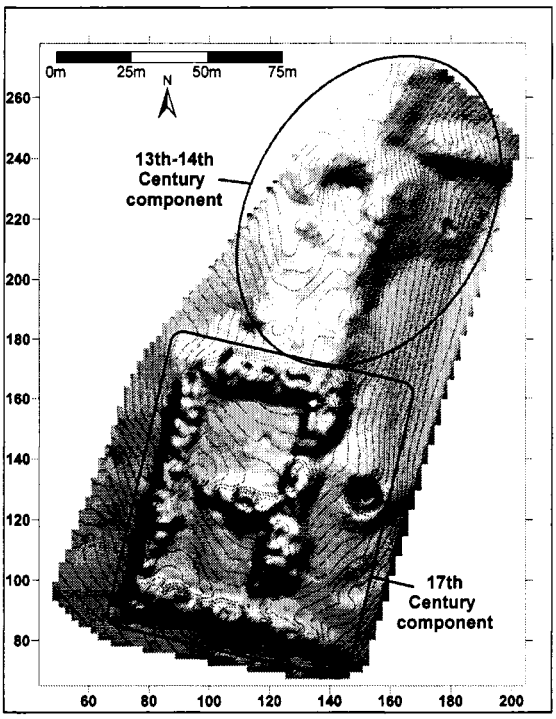

Figure 5.23: Topographic map of Boletsakwa depicting early and late components

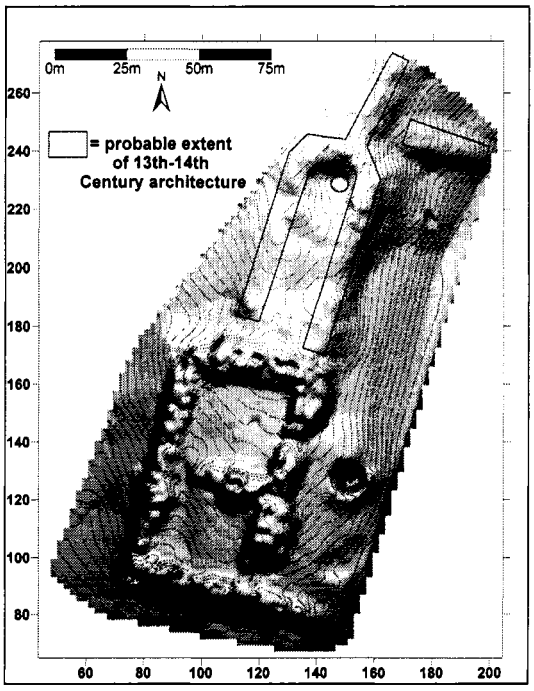

Figure 5.24: Architecture of the early (13^{th}-14^{th} C.) component of Boletsakwa (.2 m contour interval)

rubble are still present and the extent of the earlier room blocks can be inferred based on these remnants and topographic data. The Coalition/Classic period remains consist of a large, U-shaped Room block with a kiva depression at the north end of a central plaza, an additional northern Room block extension, and a separate, detached eastern Room block.

The later, architecturally distinct Pueblo Revolt era village (A.D. 1680-1695, FIG. 5.25) is approximately 6891 m^2 in area, and is located adjacent to and south of the thirteenth to fourteenth century remains. (It is possible that parts of the seventeenth century village are superimposed upon additional Coalition/Classic period remains as well.) The Revolt era component of Boletsakwa consists of two roughly square plazas (measuring approximately 32 m along the north-south axis and 34 m east-west) separated by a central Room block, surrounded by additional room blocks to the north, south, east, and west. Walls are simple biflagged semicoursed masonry of welded Bandelier Tuff from the Tshirege member. Open "gateway" passages into the plaza are located in the southeast and southwest corners of the south plaza and on the eastern side of the north plaza. A large kiva with partially exposed walls (interior diameter: 8.7 m; interior circumference: 25.5 m) is located east of the north plaza, outside the eastern room blocks. A slight depression south of this kiva and east of the south plaza may indicate the presence of an additional kiva.

A large scatter of shaped tuff masonry in the north plaza may represent the remains of an as-yet unidentified structure; however, none of the stones appear to be in-situ or in any kind of alignment, and there is no discernable depression in the area indicating the presence of a subterranean kiva. (There is a very small looter's pit in the north plaza, but this is unrelated to the stone scatter). Additionally, a roughly circular

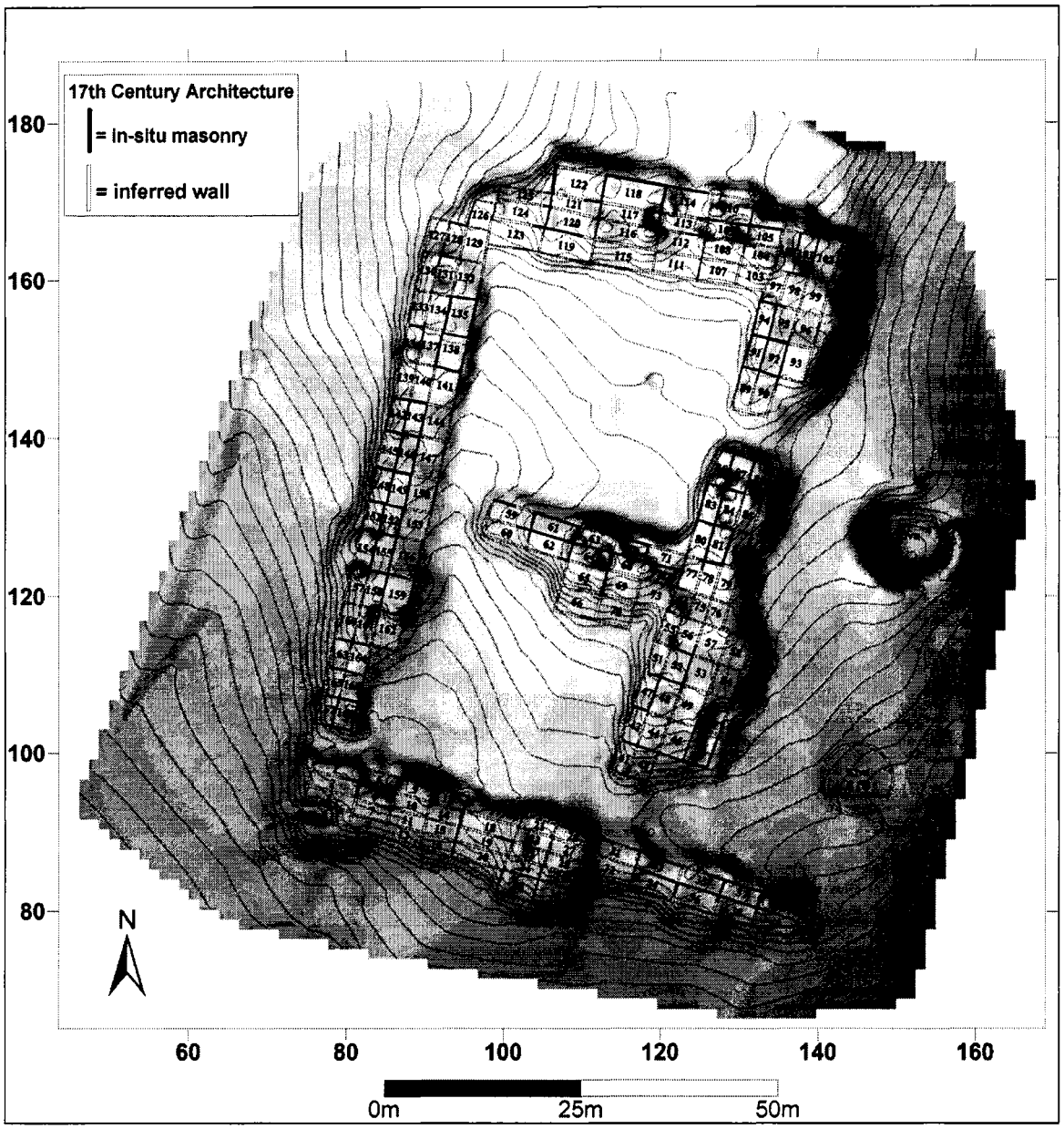

Figure 5.25: The Pueblo Revolt era component of Boletsakwa (.2 m contour intervals)

collection of smaller stones in the southeast gateway may represent a shrine, though the antiquity of this feature is unknown.

Vargas visited San Juan mesa only once (August 4, 1694), noting "they had occupied it like the rebels" (Kessell et al. 1998:339), a possible commentary on the architectural similarities between Boletsakwa and Patokwa. Nearly a month later he provided an additional, puzzling description of the architecture of this site: "there is a strong pueblo with a plaza that has four house blocks" (Kessell et al. 1998:372). His mention of "a plaza" as opposed to two plazas is curious; however, Vargas also occasionally refers to a singular plaza at Patokwa (Kessell et al. 1995:442; Kessell et al. 1998:405), even after explicitly describing it as a dual-plaza pueblo (Kessell and Hendricks 1992:520; Kessell et al. 1995:202). It could be that additional rooms and/or a second plaza were added at Boletsakwa after August of 1694, but it is more likely that Vargas simply remembered the layout of Boletsakwa incorrectly or did not care to provide a more accurate account of the site. (This description was, after all, written nearly a month after his visit and included in a document summarizing more than ten weeks' worth of travel and warfare between June 14 and Sept 1, 1694.)

Looting and Vandalism

Figure 5.26 depicts excavated areas visible at Boletsakwa today. More than 20% of the ground-floor rooms (35 of 168) exhibit evidence of excavation, in addition to the obvious digging that has taken place in the large kiva. Although some of these areas could be remnants of the Girl Scout Archaeological Unit excavations led by Bertha Dutton in the 1968 (Bohrer 1968), the majority are a result of vandalism and pothunting.

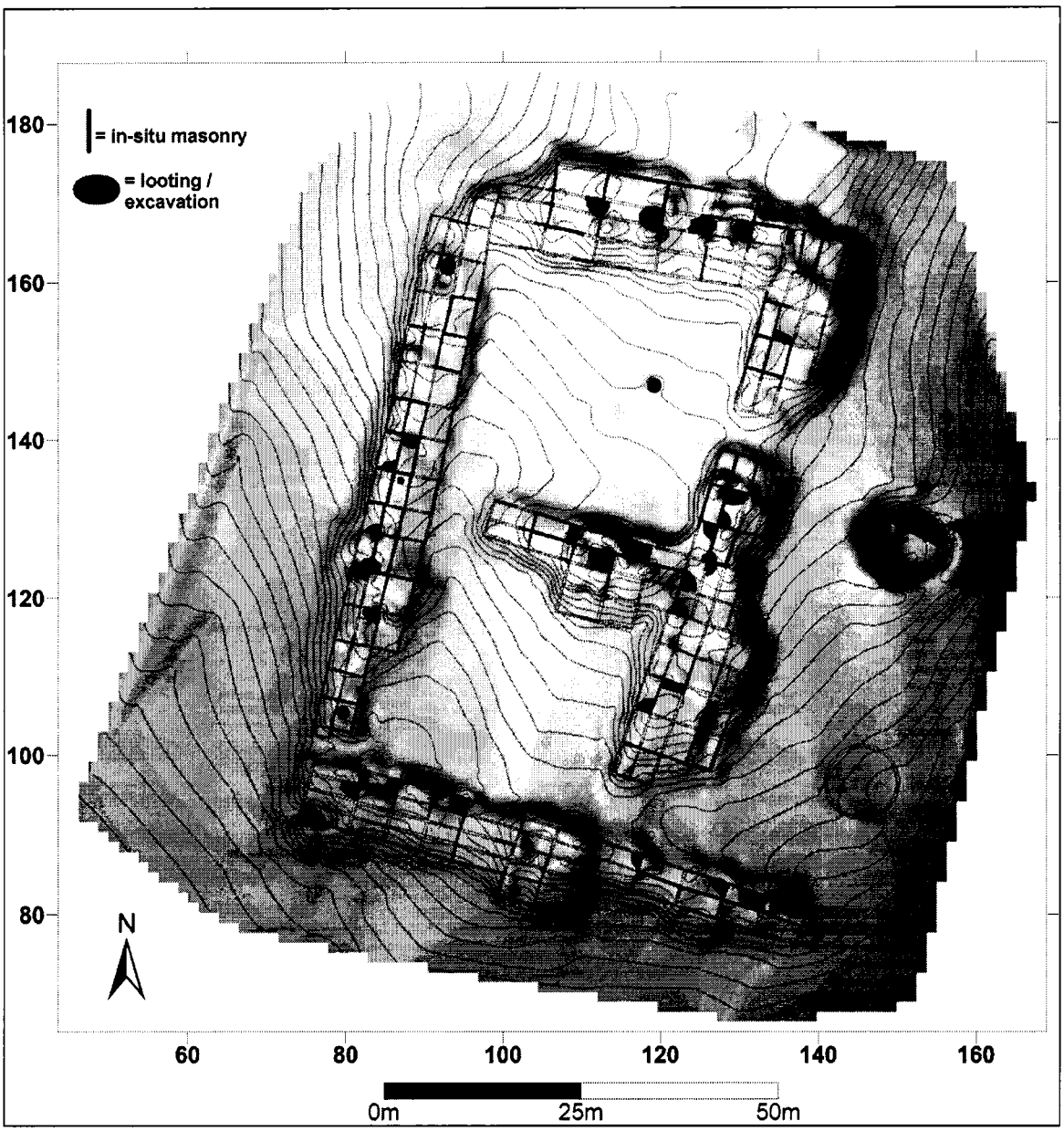

Figure 5.26: Evidence of looting at Boletsakwa

The grazing of cattle on the site has caused additional damage over the past 75 years (Elliott, personal communication 2004).

Room Estimate

GMAP investigations documented 168 ground-floor rooms at the Revolt era component of Boletsakwa[28] (see FIG. 5.25). I derived this estimate by first recording in-situ wall remnants and standing walls, then using these data to infer the probable location and extent of walls that are not presently visible. In areas where wall segments were either completely degraded or not visible, intra-site microtopography and the dispersion of wall fall and rubble were utilized to determine the probable extent of walls and rooms.

In order to account for multi-story architecture, I examined the topography within individual room blocks. By applying the same techniques and analogies used in determining the height of room blocks at Patokwa (see *Patokwa Room Estimate,* above) to the topographic data collected at Boletsakwa (FIG. 5.27), it is possible to infer the height of individual rooms (FIG. 5.28). These techniques indicate that there were 47 second-floor rooms in the Revolt era architecture of Boletsakwa, resulting in an estimate of 215 total rooms for the period between 1680-1695.

Appendix A presents data on room dimensions and wall intersections of the 168 ground-floor rooms identified at Boletsakwa. Floor area was determined using AutoCAD architectural drafting software rather than by multiplying the measurements of average room lengths and widths. This method is superior to L x W estimates as the AutoCAD

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[28] Room estimates pertain to the seventeenth century component of Boletsakwa only. Because of the degraded nature of the Coalition/Classic Period architecture and the fact that no quantitative measurements of room sizes could be attained from surficial data in this area, no estimates of individual room dimensions or counts were attempted for the earlier component.

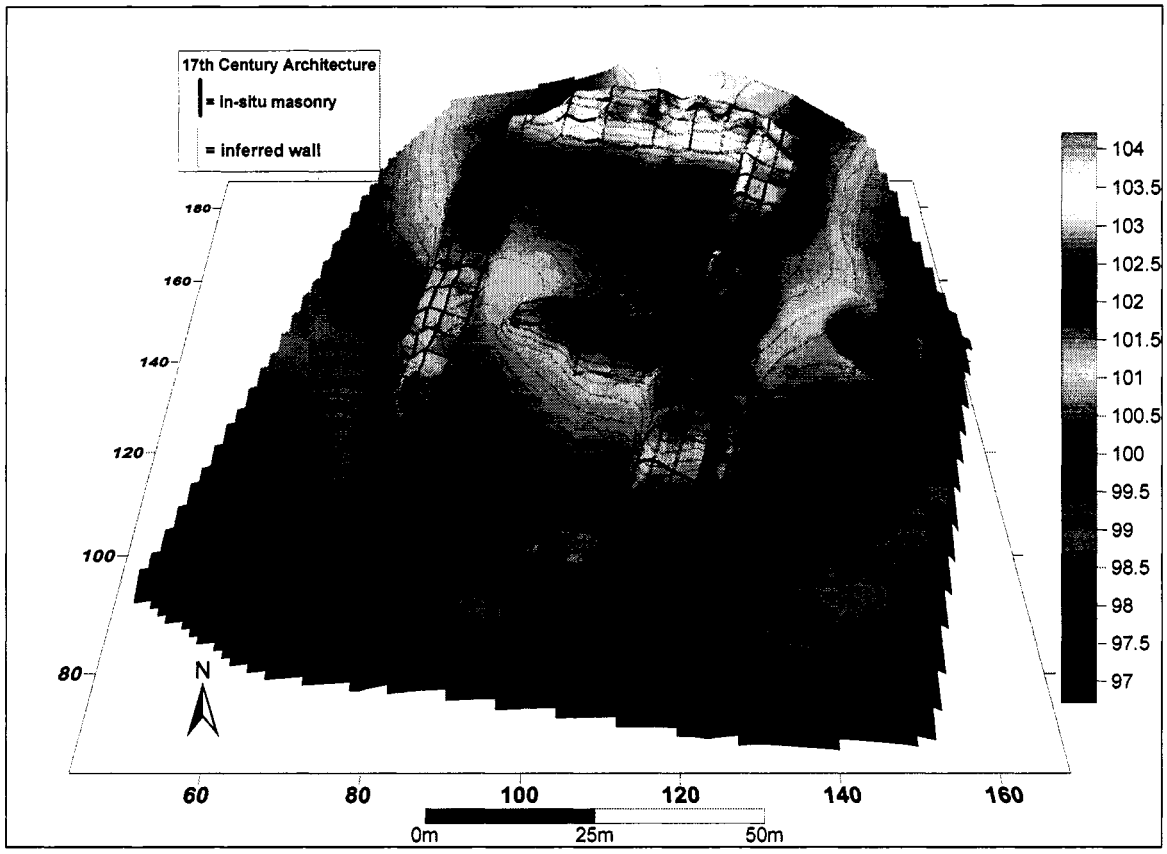

Figure 5.27: Boletsakwa ground-floor room estimate projected onto elevation data

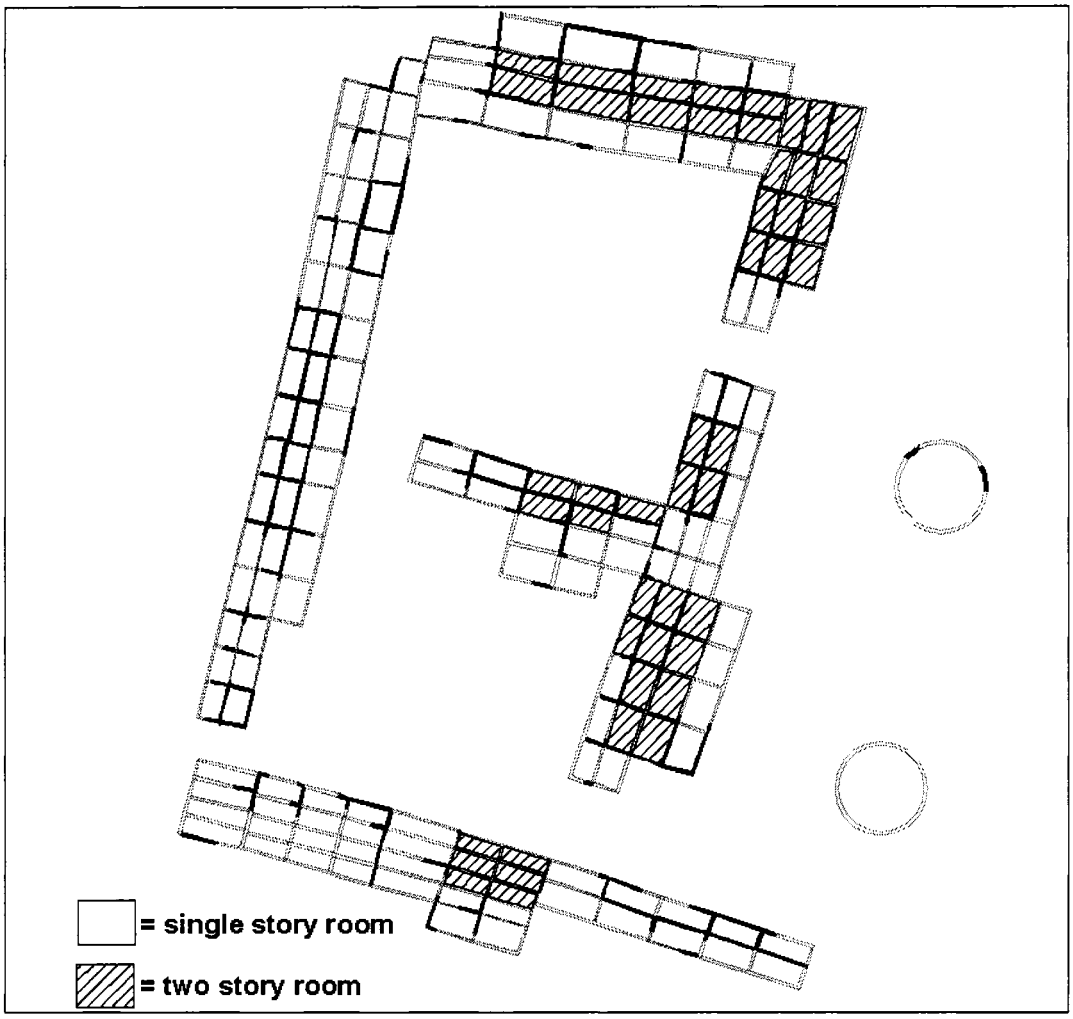

Figure 5.28: Boletsakwa room elevation estimates, plan view

calculations account for any irregularities in room dimensions, such as walls that are not straight, or corners with angles greater or lesser than 90 degrees (Riggs 1994:23-26).

Included in Appendix A is a calculation of the Confidence Interval (CI) for each floor area estimate. The CI is a measurement of the presumed relative accuracy of the floor area estimate for each room. The formula for determining the CI is: (1.0 x each in-situ wall or wall segment visible in a room) + (0.5 x each in-situ wall segment in adjacent rooms in presumed alignment with missing or invisible walls). The maximum possible CI is 4.0 (indicating a high degree of confidence in the accuracy of the estimated floor area), the minimum is 0.0 (indicating a low degree of confidence in the accuracy of the estimated floor area). For example, if in-situ segments of the north and east walls of room X are visible, its CI would be determined by adding 1.0 (north wall) + 1.0 (east wall) = 2.0. If the adjoining rooms displayed no in-situ wall segments in alignment with the presumed south and west walls of room X, its final CI remains 2.0. However, if the adjoining rooms display in-situ wall segments in alignment with the "invisible" walls of room X, 0.5 is added for each segment (up to a maximum of 1.0 for each wall if segments are visible in adjacent rooms on either side of room X). Thus, if the presumed west wall of room X was in alignment with one visible section of the west wall in the room adjacent (to the north or south), its CI would rise to a 2.5. A CI of 4.0 indicates either a room in which parts of all four walls remain, or three walls remain with two segments in adjacent rooms in presumed alignment with the missing wall, or two walls remain with four segments in adjacent rooms in presumed alignment with the missing walls. A CI of 3.5 or higher indicates a floor area estimate that is highly likely to be accurate.

I developed the CI in order to establish a reliable estimate of the average floor area at Boletsakwa. Disregarding the CI, the average floor area for all 168 ground floor rooms (excluding kivas) at Boletsakwa is 10.7 m^2 (3.2 m^2 sd). However, when the CI is taken into account and the average floor area is calculated including only the 65 rooms at Boletsakwa with a CI of 3.5 or higher, the average floor area is 11.1 m^2 (3.6 m^2 sd). The results of the CI calculations suggest that the estimate of 11.1m^2 is a more reliable (and likely more accurate) estimate of average floor area for the ground floor rooms at Boletsakwa between 1680 and 1695.

The average room length recorded at Boletsakwa is 4.9 m (1.1 m sd) and the average width is 2.2 m (0.5 m sd).[29] A scatter plot of room sizes (FIG. 5.29) reveals a relatively even distribution of rooms. This implies that room function was independent of room size, a conclusion bolstered by the floor area histogram (FIG. 5.30), which reveals a broad overlap in the distribution of room areas with no clear break points.

Population Estimate

There are no known recorded population estimates or census data in the historical record regarding Boletsakwa, but the measures of numbers of rooms and floor area described above can be used to produce preliminary demographic calculations of the Pueblo Revolt era population. Assuming that all rooms were occupied contemporaneously (a reasonable hypothesis considering the brief duration of occupation at the Revolt period component of Boletsakwa—possibly as short as 12 years), and applying Dohm's average of 0.60 persons per room (Dohm 1990:212) to the total count

[29] These figures are derived from the 67rooms with a CI of 3.5 or greater. Disregarding the CI, the average length of all 168 rooms is 4.7 m (0.9 sd), and the average width is 2.3 m (0.5 m sd).

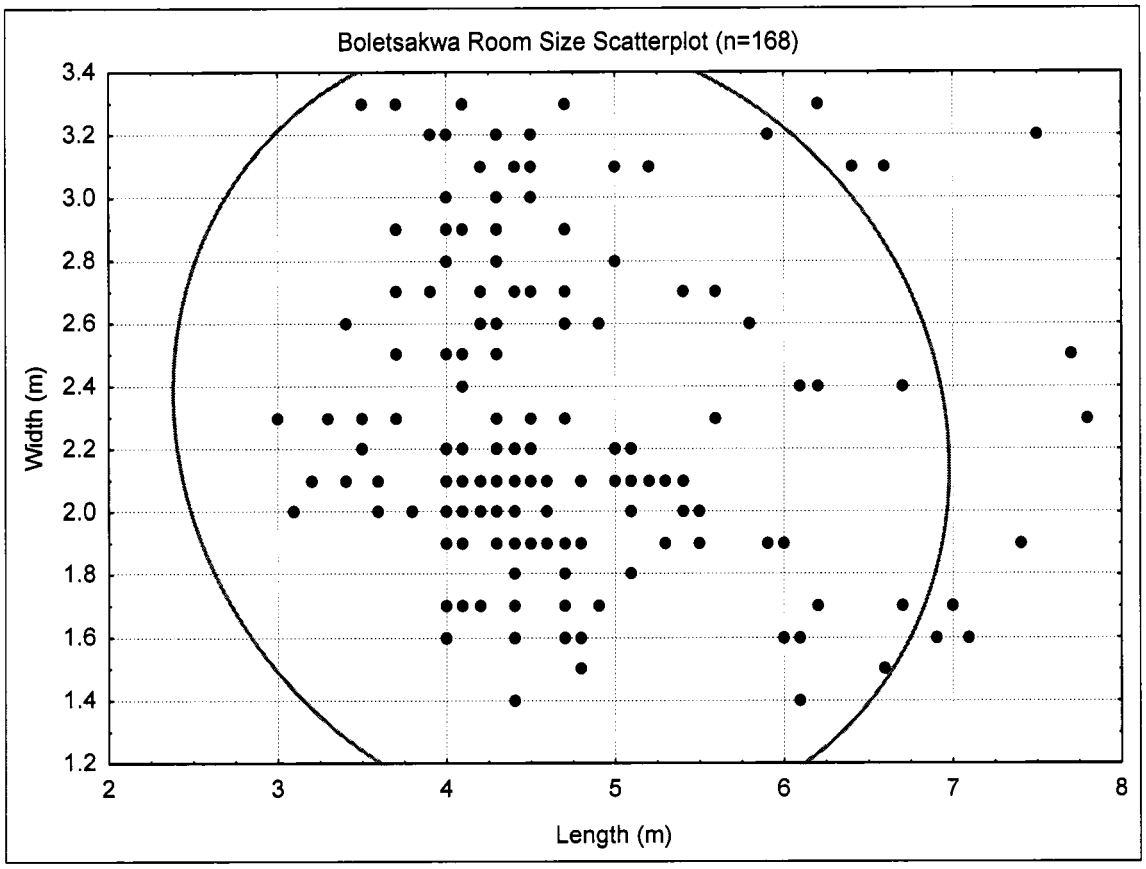

Figure 5.29: Bivariate plot of room lengths and widths for Boletsakwa. Points outside of circular boundary represent statistical outliers.

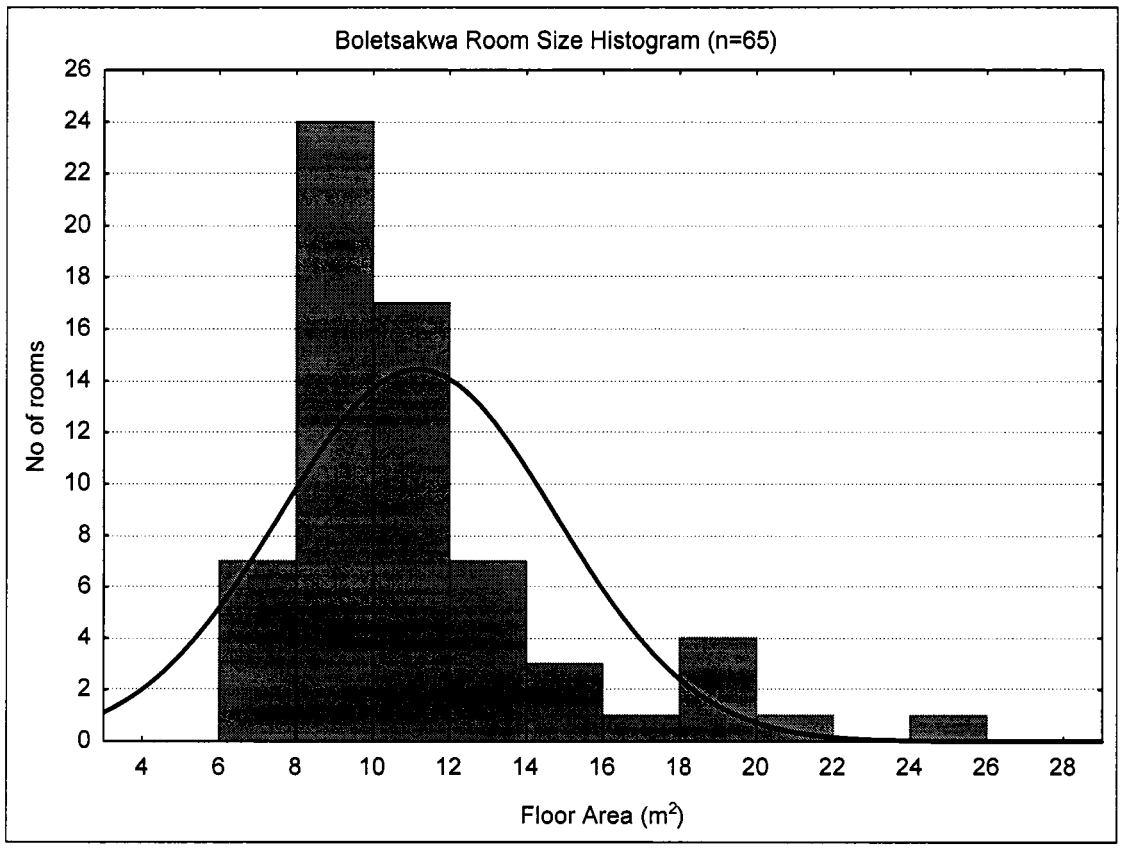

Figure 5.30: Room size histogram for Boletsakwa (rooms with CI of 3.5 or greater)

of 215 rooms (including second story rooms) at Boletsakwa yields a population estimate of 358 persons.

An alternative assessment can be derived by applying figures based on Preucel's Kotyiti data (5.1 m^2 per person)[30] to the total floor area of the Revolt era component of Boletsakwa, including the second story rooms (2298.9 m^2), resulting in an estimated population at Boletsakwa during the Revolt era of 451 inhabitants.

Discussion

Based on the currently available tree-ring data, the Pueblo Revolt era component of Boletsakwa appears to have been constructed between 1680 and 1683, possibly by a faction that had recently split from Patokwa. A 1694 reference in the Vargas journals implies that part of the founding population of Patokwa left San Diego Mesa (probably during the early 1680s) to establish Boletsakwa on San Juan Mesa. Vargas describes being visited by two Jemez captains "who had separated themselves from that pueblo and gone to [San Juan] mesa in years past with the Keres from Santo Domingo Pueblo" (Kessell et al. 1998:402-403). If Patokwa was founded by the coalescence of Jemez populations from multiple sites (Walatowa and Giusewa?), it is not surprising that a faction may have broken off to found a new settlement, as there would likely have been conflicts related to leadership and authority at the newly amalgamated community.

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[30] Considering Dohm's (1990) assertion that site layouts have a considerable effect upon the amount of floor area per person (i.e. houses in nucleated pueblos typically contain more floor area per person than houses in dispersed pueblos), it makes sense to apply the estimate of 5.1 m^2 per person from Kotyiti, a site with similar spatial organization, rather than the lower estimate of 3.3 m^2 per person at Astialakwa (see below, *Astialakwa Population Estimate*).

Like Patokwa and Kotyiti, Boletsakwa is a linear plaza pueblo, with long narrow room blocks defining two large, enclosed plazas. Wall intersection data confirms that many rooms at Boletsakwa were built in episodes of simultaneous construction (Appendix A) with ladder-type construction employed in room blocks throughout the pueblo. Construction activities were organized and coordinated above the household level, suggesting a degree of centralized leadership in the Boletsakwa community. Boletsakwa exhibits traits consistent with a high degree of architectural planning, such as shared wall azimuths, room blocks arranged at approximately right angles, and plazas of similar size.

Boletsakwa is repeatedly referred to as a multi-ethnic community in the documentary record, comprised of both Jemez and Santo Domingo peoples (Kessell et al. 1995: 416, 445; Kessell et al. 1998: 403, 406, 586; Espinosa 1988:129, 149). However, unlike Patokwa (and Kotyiti) there are no outlying room blocks separated from the main plazas at Boletsakwa. This suggests an integrated community that coalesced more or less at the same time, with little subsequent immigration following its initial establishment (though rooms 31-40 are possible later additions, as well as rooms 41-58, which share wall azimuths that diverge slightly from the orientation of the plazas). The documentary record implies that the Santo Domingo population of Boletsakwa was not an itinerant populace receiving temporary shelter at the site or an outside group of interlopers, but rather that these people were permanent residents of the pueblo, living side-by-side with the local Jemez population. These descriptions contrast with those of Patokwa, which is consistently referred to as a Jemez pueblo, although there are numerous mentions of persons of other ethnic groups residing there (if only temporarily).

CERRO COLORADO

Identification Numbers

LA 2048; J-22

Synonymy

Zia Mesa, Mesa Colorado, Red Mesa, Saiyatukikyokwa (Old Zia Pueblo); Tutiqua (translation unknown)

Previous Research

Holmes 1905:200-201; Reagan 1909:713-714, 1917:27-30 (includes mention of "considerable digging" by the author); Ellis 1956:32-33; Lange et al. 1984:164; Barrett 2002a, 2002b; Elliott 2002a:56; Liebmann 2002b, 2003, 2004; Liebmann et al. 2005

Holmes published the first and only known map of this pueblo in the early twentieth century (FIG. 5.31), describing the site as:

> a considerable ruin, which does not bear evidence, however, of long continued occupancy. The summit of the mesa is without trees and almost without soil, and water must have been obtained from far below. The walls of the ruin stand in places five or six feet in height; but they are formed of rough, loosely laid stones, and are extremely thin and unstable. They could not have been high at any time, as there is a marked absence of debris, and the dearth of pottery and kitchen refuse would seem to stamp the place as a temporary or emergency abode. The site is favorable for defense, and there are traces of defensive walls along the margin of the summit. The buildings are irregular in plan and comprise three groups, the full length of the groups being about 450 feet and the width 350 feet. . . . The pottery of this site is partly archaic, while traces of later Pueblo work are common, and the presence of bits of porcelain would seem to indicate post-Spanish occupancy. Fragments of metates and mullers of the usual type occur, as well as numerous minor relics of obsidian, agate, and other varieties of stone. (Holmes 1905:200-01).

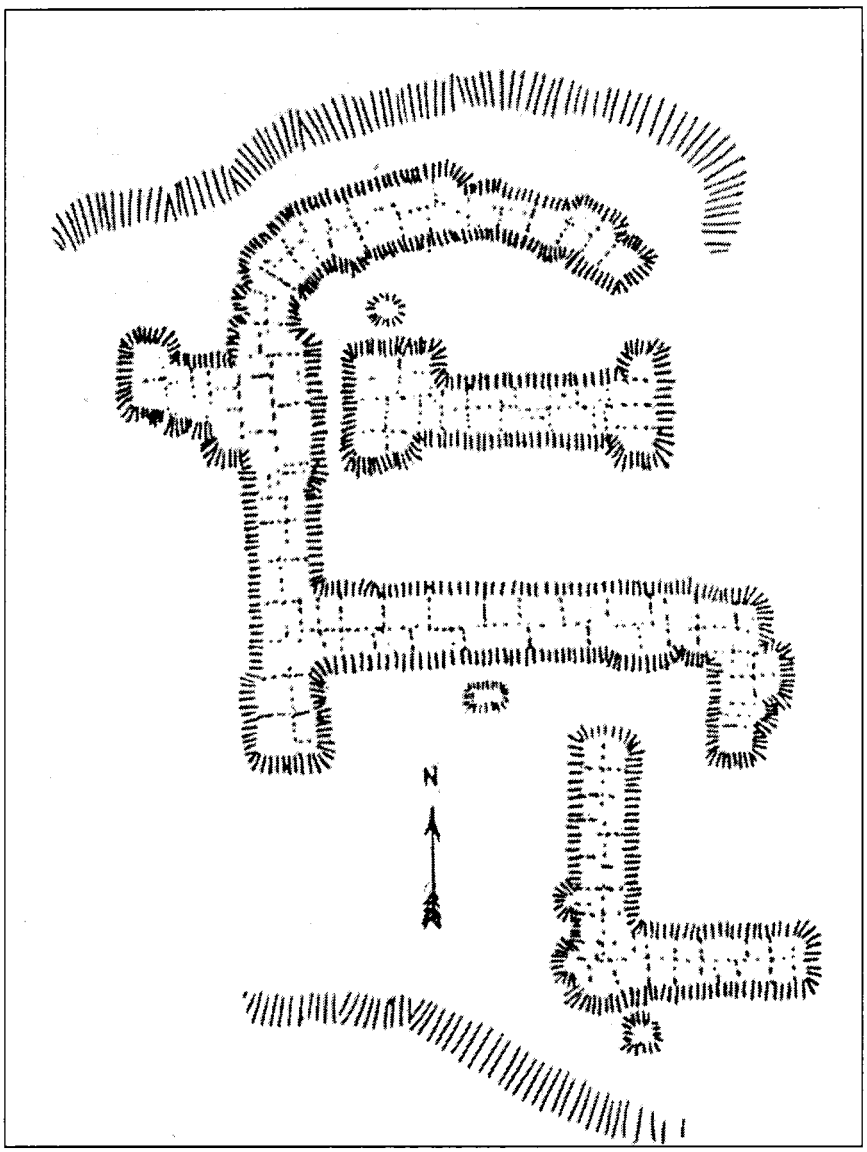

Figure 5.31: Holmes' 1905 map of Cerro Colorado

Holmes's observations regarding Cerro Colorado were remarkably accurate, especially considering his lack of knowledge regarding the historical references to this site in the Vargas journals. His characterization of Cerro Colorado as a defensive pueblo occupied for a short time and post-dating Spanish contact is nearly as correct and accurate an assessment as can be made today, more than a century later.

Elevation

1878 meters (6160 feet)

Environmental Setting

Cerro Colorado is located on the Jemez Indian Reservation, approximately 3.8 kilometers (2.4 miles) west of the modern village of Walatowa. The site sits on the mesa of the same name (FIGS. 5.32 & 5.33), a sandstone outcropping of the Chinle Formation formed by an anticlinal uplift along the Nacimiento fault line (Smith et al. 1970). The site is positioned on the northwest extent of the mesa, approximately 150 meters (500 feet) above the springs and basin below. Modern vegetation around Cerro Colorado is sparse, with few semi-mature stands of one-seed Juniper present.

Dates of Occupation

A.D. 1689-1693/94, based on ceramics (Liebmann 2004; Chapter VI) and documentary evidence (Kessell and Hendricks 1992:26, 518-520; Kessell et al. 1995:113, 117, 201, 434; Kessell et al. 1998:234; 323-324)

Cerro Colorado was founded after Jironza's attack on Zia Pueblo in August 1689. Although it was reported that more than 600 residents of Zia were killed in this battle and

Figure 5.32: Aerial view of Cerro Colorado

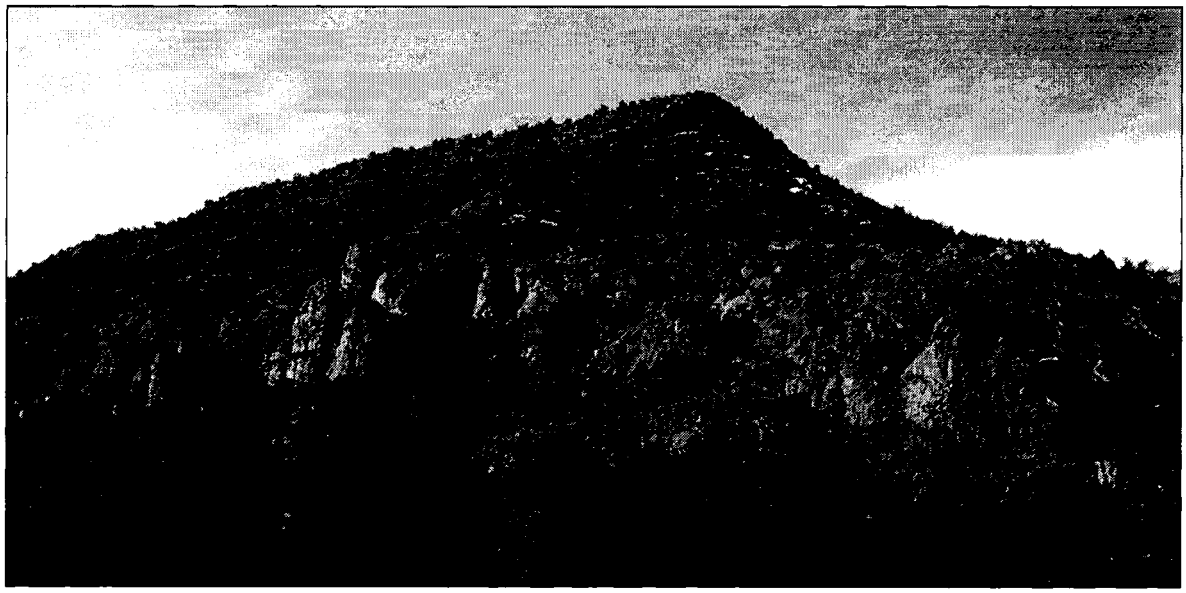

Figure 5.33: Cerro Colorado/Zia Mesa from the northeast

70 taken prisoner (Kessell and Hendricks 1992:25-26), Vargas later claimed that "most were away from the pueblo" that day, "hunting, fishing, and gathering fruit in the forest" (Kessell et al. 1995:145). These survivors went on to establish Cerro Colorado (Kessell et al. 1995:201), probably in September of 1689. Jemez oral histories assert that the Zias requested and were granted permission to move closer to the Jemez people (who were by this time living at Patokwa) for protection (Jemez tribal representative, personal communication 2004). Over the next three years, allies from Santa Ana and Santo Domingo reportedly joined the Zia at their new pueblo (Kessell and Hendricks 1992:431, 609; Kessell et al. 1995:113, 408). Vargas visited the site in October 1692 (Kessell and Hendricks 1992:518-519), and again 13 months later (Kessell et al. 1995:434). There are no further mentions of Cerro Colorado in the documentary record after November 1693. By the summer of 1694 the Zia had returned to their original pueblo (LA 28), which Vargas visited on July 23 (Kessell et al. 1998:323). Thus Cerro Colorado was probably occupied between September 1689 and late 1693/early 1694, for a total of just over four years. There is no ceramic, architectural, or documentary evidence of any earlier or later periods of habitation. The dearth of pottery at the site supports the conclusion that Cerro Colorado was occupied for a relatively short period of time (Holmes 1905:201; Ellis 1956:33; Chapter VI).

The site has remained an important traditional cultural property for the Pueblo of Zia through the past three centuries (Ellis 1956:30-33). Thus it should not be considered "abandoned."

Cartographic Methodology

Cerro Colorado was mapped during the summers of 2002 and 2003 (Liebmann 2002, 2003). Although the walls no longer stand "five or six feet in height" as Holmes reported nearly a century before (1905:200), many wall alignments and Room block outlines are still clearly visible on the surface, allowing for an accurate determination of the extent of the room blocks and number of rooms. In 2002 a GPS-based map was constructed with the help of student participating in the Pecos Pathways Program. These students performed the initial architectural survey of the site, recording the number, location, and approximate floor area of rooms. Paul Chinana (Jemez DRP) and James Gachupin (USFS Santa Fe National Forest Jemez Ranger District) recorded the exterior boundaries of the room blocks using a Trimble GPS unit. The GPS data was then combined with the individual room data compiled by the students and plotted on aerial photos of the mesa using ArcGIS mapping software (FIG. 5.34).

In 2003 this map was improved through a total station survey of the architectural remains at Cerro Colorado. Because of the high visibility of architectural remains on the surface, we were able to record the locations and approximate extents of individual rooms throughout the pueblo, providing a more accurate room count as well as better information regarding floor areas and wall azimuths. A primary site datum was established at the west end of the southern plaza and assigned the arbitrary coordinates of 300 N, 300 E, 300 Z (this is the coordinate system that appears on all figures herein. Note: all measurements are in meters). The total station was then used to record the three-dimensional locations of all visible in-situ architecture. In areas where individual walls were covered by collapsed masonry we relied on the microtopography of the extant

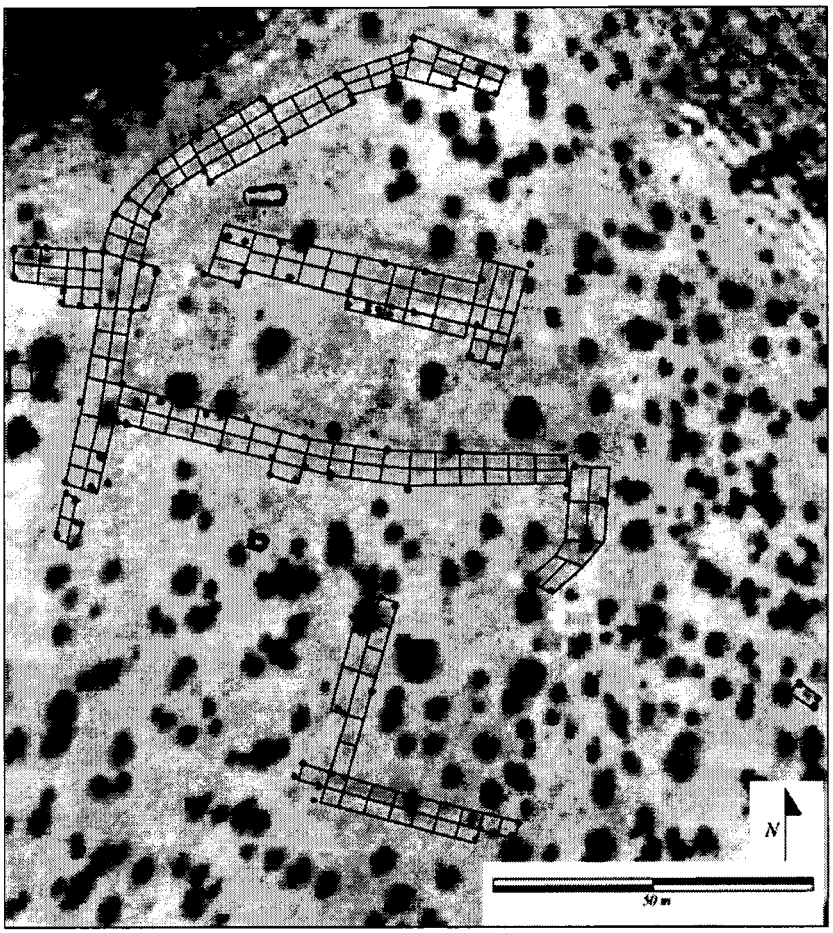

Figure 5.34: GPS-derived map of Cerro Colorado projected onto aerial photo

rubble to determine the approximate locations and extents of walls and floor areas. In virtually all rooms a clear depression was visible near the center of the room, with rubble sloping up and outward from the low point, peaking at the presumed location of the original walls. At least four points were recorded in each room, one in each interior corner. Additional points were recorded along the exterior walls to determine the precise locations and extents of rooms and room blocks. Due to the relatively high visibility of these rooms, mapping focused exclusively on the documentation of architecture. No specific topographic data was collected, but the elevation values of the architectural data were later used to derive the rough maps of intra-site topography used as backgrounds in the figures herein. A total of 914 individual points were recorded at Cerro Colorado (FIG. 5.35). These data were then imported into Surfer 8.0 mapping software and AutoCAD drafting software.

Upon reviewing the CAD-based architectural plans, it became apparent that our attempt to conservatively estimate room size in the field sometimes resulted in an over-estimation of wall thickness (some appearing more than .5 m in width). In-field observations documented an average wall thickness at Cerro Colorado between 25 and 35 cm (consistent with walls at Kotyiti [Preucel 1998:52a], Patokwa, Boletsakwa, and Astialakwa). Thicker walls result in an under-estimation of floor area in those rooms, skewing both the average floor area and total floor area estimate. The CAD-based architectural plan was thus revised where appropriate, with walls depicted between 25 and 35 cm in width. The corrected final architectural plan is shown in Figure 5.36.

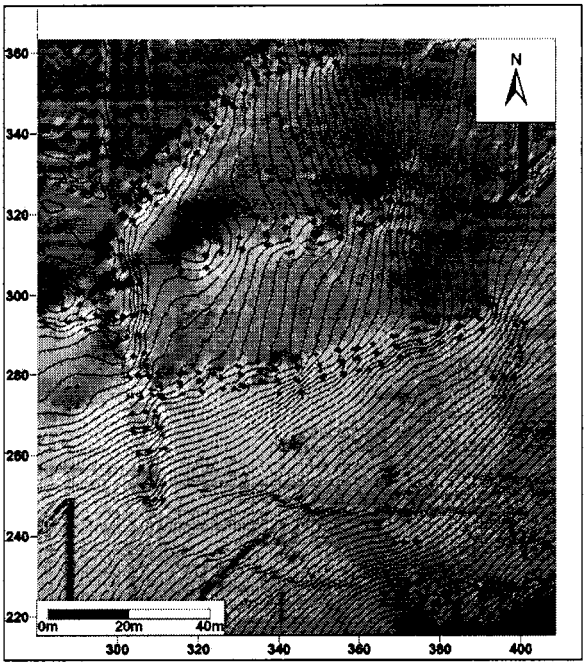

Figure 5.35: Locations of recorded data points at Cerro Colorado (50 cm contour interval)

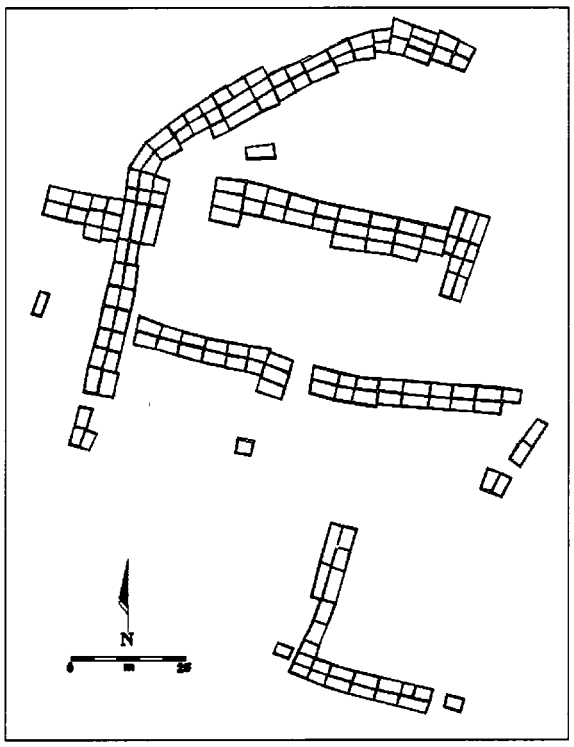

Figure 5.36: Cerro Colorado plan view architectural map

Architectural Plan and Description

Cerro Colorado is a single-component Pueblo Revolt era site covering approximately 12,682 m^2 in area. It consists of four main room blocks arranged around two long plazas on an east-west axis; the southern plaza is rectangular while the northern plaza is irregularly shaped due to the topography of the mesa and the curving Room block to the north and west. The east ends of both plazas are open, and an additional "gateway" opening provides access to the central area of the southern plaza. A detached L-shaped Room block lies southeast of and down slope from the main room blocks (south of the main plaza). Additional detached one- to three-room structures are scattered to the southwest, south, and southeast of the main room blocks. A stone scatter in the west end of the north plaza may represent the remains of a room or that of a shrine. Walls consist of simple biflagged uncoursed masonry made from unshaped, roughly shaped, and irregularly shaped red sandstone quarried from the immediate vicinity (FIG. 5.37). No mortar was visible in any of the standing walls, and no in-situ masonry feature presently stands higher than 50 cm. No kiva depressions were observed anywhere on the mesa top.

Vargas visited Cerro Colorado in October of 1692 and November of 1693, but does not provide a detailed description of the architectural plan. He mentions the presence of a plaza and indicates that the pueblo contained multi-storied room blocks (Kessell and Hendricks 1992:518; Kessell et al. 1995:434-435), but offers no further information.

Figure 5.37: Typical Cerro Colorado wall

Looting and Vandalism

Cerro Colorado is remarkably well preserved and has not suffered extensive damage due to looting or vandalism. Its location on the Jemez Pueblo reservation has indubitably aided in the protection of this site, as it is not accessible to the general public (as are Patokwa, Boletsakwa, and Astialakwa) and has never been privately owned. Possible evidence of looting was recorded in 13 rooms (Liebmann 2002); some of these pits may be the remnants of the "extensive digging" reportedly performed by Reagan (1917:30).

Room Estimate

GMAP investigations recorded 168 ground-floor rooms at Cerro Colorado (FIG 5.38). This estimate is based on the presence of in-situ walls and/or room depressions as well as the dispersion and location of masonry rubble. I place a high degree of confidence in the accuracy of this estimate. In order to account for second-story architecture, an in-field analysis of intra-site topography was performed to determine the existence and locations of probable multi-storied rooms as indicated by Vargas (Kessell and Hendricks 1992:518; Kessell et al. 1995:435). This analysis found evidence for at least 11 second-story rooms, resulting in a total estimate of 179 rooms at Cerro Colorado for the period 1689-1694.

Appendix B details the dimensions and floor area for each of the 168 ground floor rooms documented at Cerro Colorado. Due to problems related to estimating the floor area and wall thickness in some of these rooms (described above, *Cartographic Methodology*) I am less confident in the accuracy of these estimates; however I am

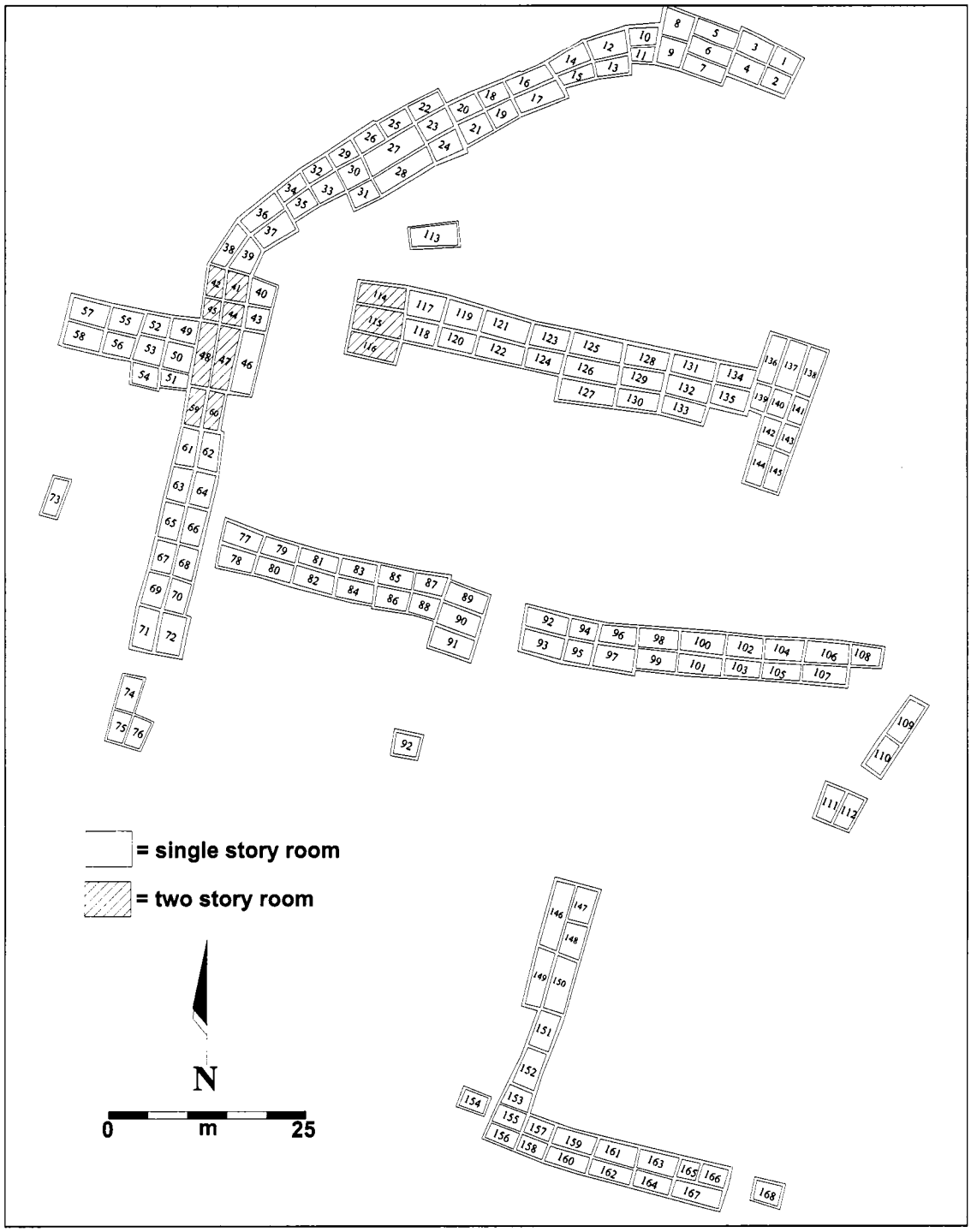

Figure 5.38: Cerro Colorado room identifications and elevation estimates, plan view

Confident that all length and width estimates are accurate within 30 cm. Appendix B presents data on the approximate dimensions and estimated floor area of Cerro Colorado. Floor area was determined using AutoCAD software rather than by multiplying the measurements of average room lengths and widths. The average floor area at Cerro Colorado is 12.0 m^2 (3.2 m^2 sd). The average room length recorded at Cerro Colorado is 4.7 m (1.2 m sd) and the average width is 2.5 m (0.3 m sd). The standard deviations show that there is considerably more variation in room length than width. A scatter plot of room sizes (FIG. 5.39) reveals a relatively even distribution of rooms. This implies that room function was independent of room size, a conclusion bolstered by the floor area histogram (FIG. 5.40), which reveals a broad overlap in the distribution of room areas with no clear break points.

Population Estimate

There are no population data recorded in any known historical documents regarding Cerro Colorado, but the room counts and measurements of floor area described herein can be used to produce preliminary demographic calculations of the Revolt era population. Assuming that all rooms were occupied contemporaneously (a reasonable hypothesis considering the brief duration of occupation at Cerro Colorado), and applying Dohm's average of .60 persons per room (Dohm 1990:212) to the total count (including second story rooms) of 179 rooms at Cerro Colorado yields an estimate of 298 persons. An alternative assessment can be derived by applying figures based on Preucel's Kotyiti

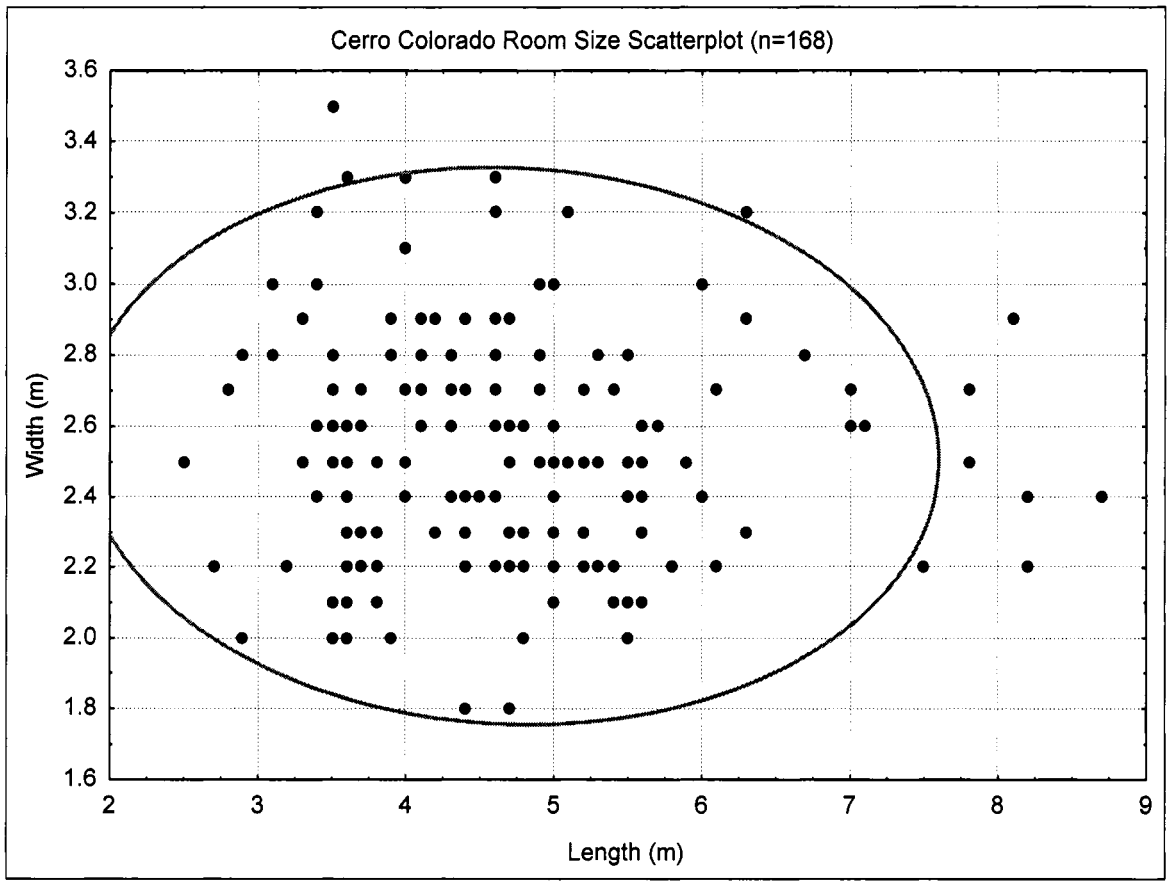

Figure 5.39: Bivariate plot of room lengths and widths for Cerro Colorado. Points outside of circular boundary represent statistical outliers.

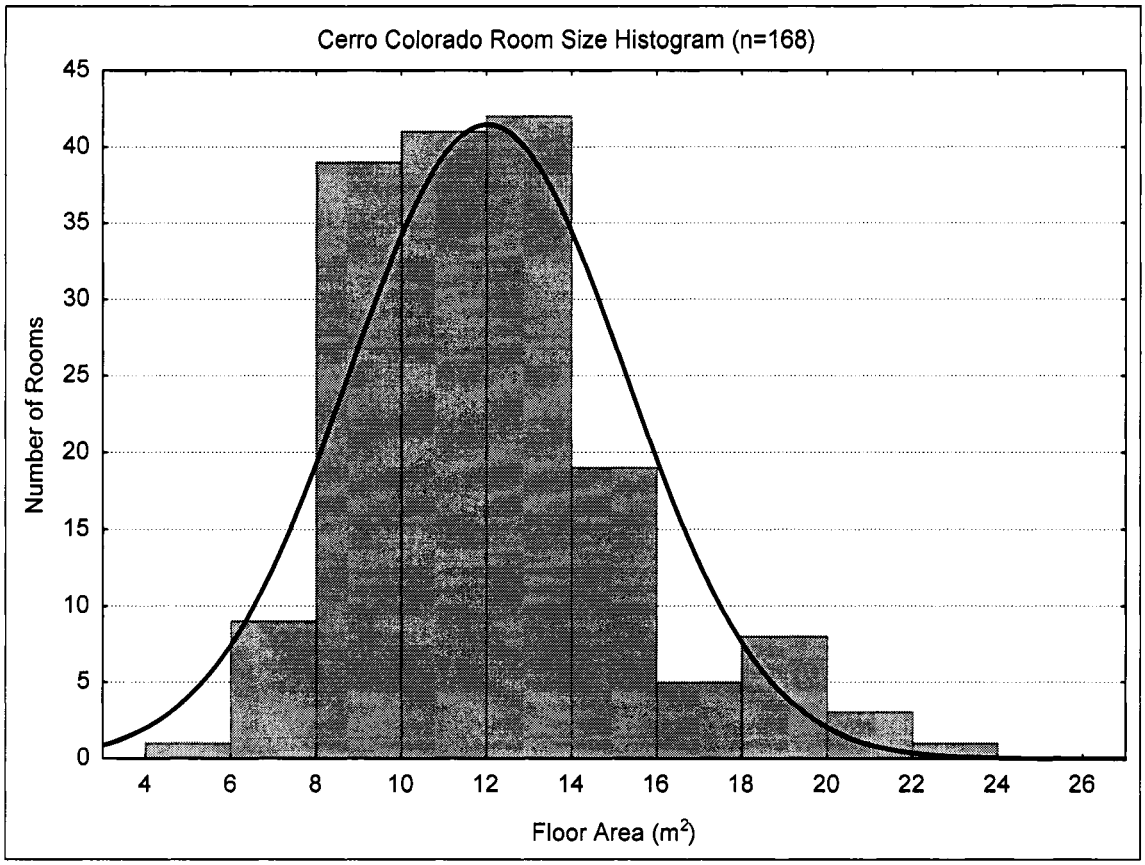

Figure 5.40: Room size histogram for Cerro Colorado

data (5.1 m^2 per person)[31] to the total floor area of the Pueblo Revolt era component of Cerro Colorado, including the second story rooms (2156.8 m^2), resulting in an estimated population of 423 inhabitants.

Discussion

Documentary evidence and Pueblo oral traditions suggest that Cerro Colorado was initially settled by a mass migration of people from Zia and Santa Ana into the Jemez Province in 1689 (Kessell and Hendricks 1992:26, 431, 518-520; Kessell et al. 1995:113, 117, 201, 434; Kessell et al. 1998:234; 323-324). Like Patokwa, Boletsakwa, and Kotyiti, Cerro Colorado exhibits long narrow room blocks defining proportionally large plazas. Unlike the dual-plaza pueblos constructed early in the Pueblo Revolt period however, there is only limited evidence of ladder-type construction. This evidence is found mainly in the room blocks surrounding the southern plaza, with rooms of similar sizes and walls with shared azimuths (Rooms 63-70; 77-84; and 98-107). This evidence supports the notion that the site was constructed at least in part as a result of communal migration. However, in the absence of data concerning patterns of bonding and abutment (Wilcox 1975), wall-facing (Reid and Shimada 1982:14), or dendrochronology, it is impossible to definitively determine the construction sequence at Cerro Colorado. Furthermore, these clusters of possible ladder-constructed rooms are surrounded by smaller groups of one to six rooms that do not share wall alignments and appear to have

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[31] Considering Dohm's (1990) assertion that site layouts have a considerable effect upon the amount of floor area per person (i.e. houses in nucleated pueblos typically contain more floor area per person than houses in dispersed pueblos), it makes sense to apply the estimate of 5.1 m^2 per person from Kotyiti, another linear plaza pueblo, rather than the lower estimate of 3.3 m^2 per person from Astialakwa, a site with a dispersed architectural layout (see below, *Astialakwa Population Estimate*).

been constructed independently. In any case, it is plausible to conclude that the rooms surrounding the southern plaza were likely the first constructed at Cerro Colorado, with the north plaza and outlying room blocks added in different or subsequent episodes of construction.

The rooms defining the northern plaza, by contrast, appear to have been formed primarily through agglomerative construction. Variation in room sizes, orientations, and wall alignments suggest that the majority of the rooms in the northernmost (curvilinear) Room block are the result of discrete episodes of building activity in which one to six rooms were erected at a time. They do not display evidence of communal organization of labor; rather, they were likely built by individual households or kin-based work groups. Rooms 1-39 appear to have been constructed after the rooms defining the southern plaza, beginning with Rooms 38 and 39 and culminating with the construction of Rooms 1 through 4.[32] Whatever the construction sequence was, the wall alignments in the northernmost Room block prove that these rooms are definitely the result of agglomeration, not ladder-type construction. Agglomerative construction has been linked to both the longevity of occupation at a site and the immigration of new social groups into previously existing communities (Cameron 1999a:111). Since Cerro Colorado was occupied for only four years, the former can safely be eliminated as a primary explanation for the agglomerative construction. More likely it resulted from the

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[32] It is possible, of course, that Rooms 1-39 were constructed earliest—beginning with 1-4, ending with 38 and 39—and that the Room blocks surrounding the southern plaza were added later. However, the right angles that define the western edges of the southern plaza imply that this was a planned and agreed-upon organization of space, and thus it seems unlikely that the southern plaza Room blocks would have been appended to previously existing rooms. The most parsimonious explanation of the development of the plazas at Cerro Colorado thus suggests that construction of the Room blocks surrounding the southern plaza preceded those of the northern plaza.

immigration of additional households into the Cerro Colorado community following the initial establishment of the village.

Further evidence for a substantial amount of immigration into the Cerro Colorado community is provided by the numerous outlying rooms and room blocks present in this village. Outlying rooms are common features in Pueblo sites, and form a unique architectural category indicative of population growth (Cameron 1999a:105). Like agglomerative construction, outliers have been linked to the occasional establishment of a new house for a new family, and are consistent with both internal population growth and the immigration of new persons into a community. Again, the short duration of occupation at Cerro Colorado supports the latter as the most plausible explanation for the construction of outliers at this village.

The presence of a significant amount of agglomerative construction and the numerous outliers at Cerro Colorado may be related to the multi-ethnic populace of the site. Vargas refers to persons from Santa Ana and Santo Domingo living with the Zia at Cerro Colorado (Kessell and Hendricks 1992:431, 609; Kessell et al. 1995:113, 408). Thus Santa Ana and Santo Domingo seem to have been the main exporters of émigrés joining the Zia at Cerro Colorado. The architectural data suggests that either individual small groups of immigrants trickled into the Cerro Colorado community over time, or that architecture and spatial organization were utilized to maintain boundaries between social groups, or both.

Based on the architectural evidence cited above, the original founding population could not have numbered more than 300-400 persons. If Jironza's estimate of 600 killed during the 1689 battle at Zia is true, then more than 60 percent of the population of Zia

would have been massacred during this battle. However, these figures conflict with Vargas's repeated statements that relatively few Zia were killed that day, the majority escaping the slaughter because they were out of the pueblo, hunting, fishing, and tending to their fields (Kessell et al. 1995:117, 145, 201). Vargas obtained this information directly from survivors of the battle (Kessell and Hendricks 1992:431). These statements, combined with the architectural evidence from Cerro Colorado, suggest that the number of casualties reported in Jironza's 1689 battle was greatly exaggerated.

Although it is often assumed that the people of Zia and Santa Ana sided with the returning Spaniards at the end of the Pueblo Revolt era without exception, the historical record suggests that a degree of factionalism may have occurred within the Cerro Colorado community during the reconquest period. Antonio Malacate,[33] identified as the Zia "governor and captain" (Kessell et al. 1995:199) and a "compadre and very good friend" of Vargas (Kessell et al. 1995:427, 440) moved from Cerro Colorado to Kotyiti in late 1693, where he "stirred up those Indians and had them rise up against the royal crown" (Kessell et al 1995:540). The residents of Cerro Colorado unsuccessfully insisted that he return, reportedly telling him "If you go, you will be our enemy, since we made peace last year and must keep it" (Kessell et al. 1995:404). Thus it seems that some residents of Cerro Colorado did not side unambiguously with the Spaniards in the 1690s, continuing their resistance through mobility and insurrection at other sites.

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[33] "Malacate" is apparently derived from the Nahuatl word *malacatl* (literally "spindle" or "winch") an epithet meaning busybody or person in constant motion (Kessell and Hendricks 1992:488n68).

ASTIALAKWA

Identification Numbers

LA 1825, AR-03-10-03-00278; J-1; J-56; J-57; FS 360; NM HPD 278

Synonymy

Astialaqua, Ateyala-keokva, Asht-ia-la-qua, Asht-ya-laqua, Aatiluqua, Aatiyelequa, A-stio-le-kwa (translation: "grinding stone lowering place" [Sando 1982:12]); Mun-stia-shun-qkio-kwa, Matdyashungkwa, Mashtiashinkwa (translation: "big thumb hilltop place" [Sando 1982:12]; "place of the thumb" [Reiter 1938:21], referring to the peñol of San Diego Mesa, because its shape is similar to the profile of a hand with the index finger extended and the thumb on top of the index finger's knuckle),[34] Kyokwa, Kiakwa (translation unknown)

Previous Research

Loew 1875:343; Holmes 1905:203-205; Harrington 1916:396-397; Reagan 1917:31; Parsons 1925:2-3; Bloom 1931:162; Alexander and Reiter 1935:9[35]; Bloom and Mitchell 1938:107; Reiter 1938:20-21, 37-38; Scholes 1938; Mera 1939:58-61; Ellis 1956:37-38; Warren n.d; Sando 1979b:419, 1982:119-121; Dougherty 1980; Elliott 1982:39-40, 1986a:177-179; 2002a:49-51; Liebmann 2001, 2002a, 2003, 2004; Barrett 2002a, 2002b; Hendricks 2002; Liebmann et al. 2005

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[34] Bloom (1931:162n5) translates Mashtiashinkwa as "place of the index finger," but Jemez tribal members concur that this translation is incorrect (Jemez tribal representative 2005).

[35] Alexander and Reiter mention "major excavations" at Astialakwa; however, Reiter does not note any such excavations in the Unshagi report (Reiter 1938). Furthermore, Reiter and Alexander (1935) do not mention the 1914 excavations at Kwastiyukwa (LA 482). This suggests that the 1935 reference to excavations at Astialakwa is probably a mistake, resulting from the inadvertent transposition of the names of these two sites (Elliott 1986a:14).

In 1905 Holmes published the first known map of Astialakwa (FIG. 5.41) providing the following description of the site:

> The ruins stand a short distance back from the front of the promontory and near the brink of the cliffs on the west side. The walls are of unhewn stone, and bear evidence of hurried and apparently incomplete construction, there being a noticeable absence of debris of any kind. Traces of mortar occur in the walls, and a little plaster still remains on the interior surfaces. The walls are in no place more than five or six feet in height. The buildings are in a number of groups . . . there are few traces of household refuse on the almost naked rock surface of the site, but remnants of mortars and mullers of the usual type, as well as of pottery of several varieties, were found—the white ware with decorations in black, of the ancient type; numerous pieces of bowls and pots which show designs in greenish glaze; plain dark and gray cooking pots; and red and black decorated ware of modern type. There were also fragments of large metates. There can be little doubt that this village was built at the period of Spanish encroachment by the people of the villages below as a place of refuge and defense, and it was here, according to historical accounts, that they were defeated by the Spaniards and compelled to descend to the lowlands . . . It is an interesting fact that along the margins of the precipice are traces of defensive works built of stone. (Holmes 1905:203-205).

In 1979 Julia Dougherty conducted three days of survey on the peñol, producing a second map of the site (FIG. 5.42).

Elevation

2036 meters (6680 feet)

Environmental Setting

Astialakwa is located on a high, steep sided mesa located in the Santa Fe National Forest. The peñol is surrounded by sheer cliffs towering 320 meters above the two rivers to the east and west (FIGS. 5.43 & 5.44). The geology of the peñol is igneous in origin, comprised of the Tshirege Member of the Bandelier Tuff Formation (Smith et al. 1970). The modern vegetation pattern around Astialakwa is a coniferous woodland association

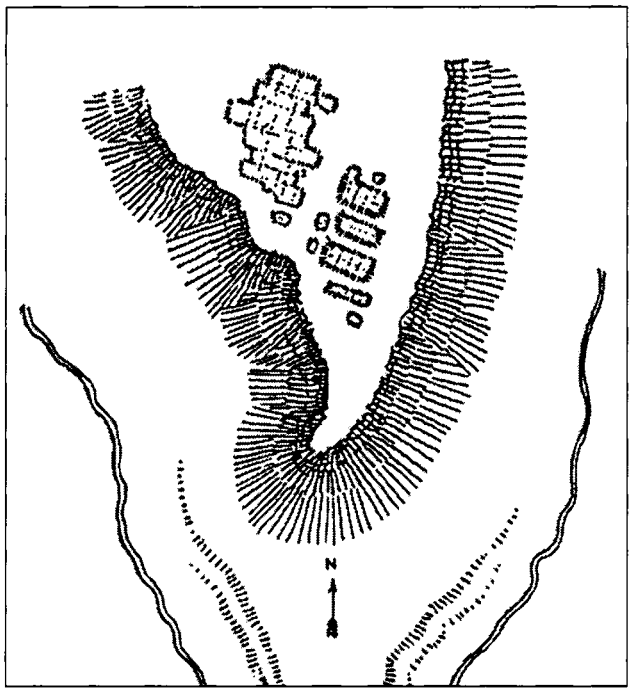

Figure 5.41: Holmes's 1905 map of Astialakwa

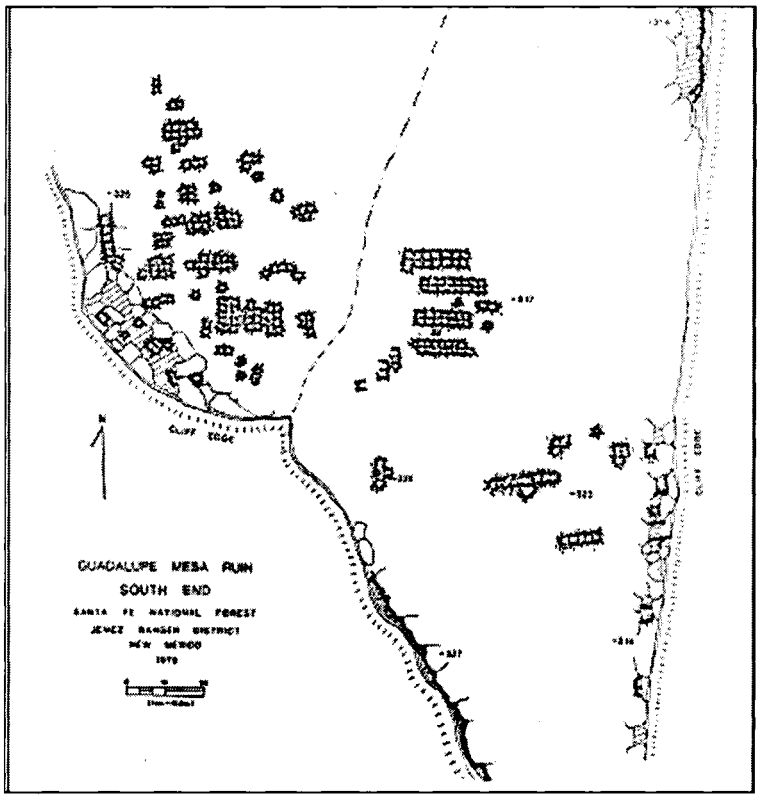

Figure 5.42: Dougherty's 1980 map of Astialakwa

Figure 5.43: Aerial view of San Diego peñol

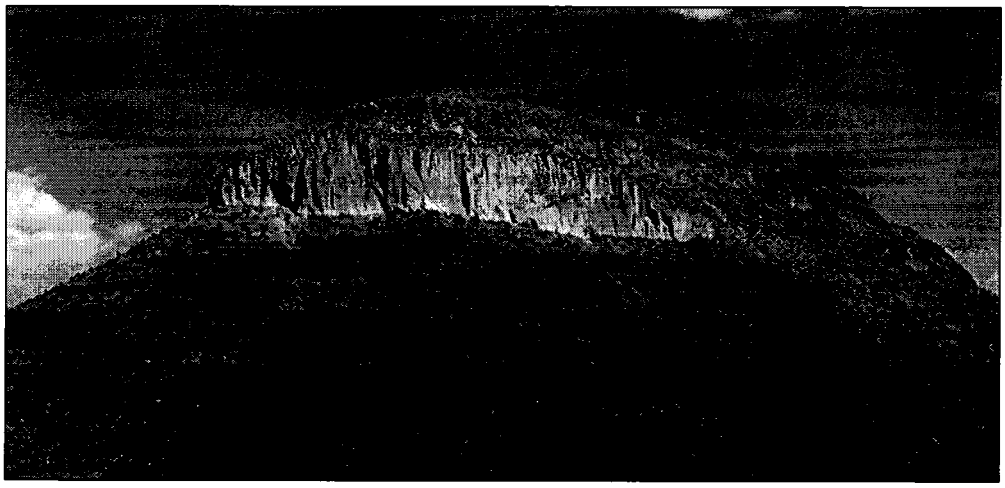

Figure 5.44: San Diego peñol from the southeast

of two-needle (Colorado) piñon and one-seed Juniper, with occasional ponderosa pines present on the north end of the peñol (Miller et. al. 1993).

Dates of Occupation

1693-1696, based on ceramics (Chapter VI) and documentary evidence (Espinosa 1988:252, 271; Kessell et al. 1995:404; Kessell et al. 1998:323-337, 366-372, 792-799, 881)

Although no tree-ring dates have yet been recovered from Astialakwa,[36] documentary evidence suggests that the majority of the pueblo was constructed in a period of just eight months, between November 1693 and July 1694. In November 1693 it was reported to Vargas that the Jemez "had begun to move their provisions from their pueblo on the mesa [Patokwa] up into the monte" (Kessell et al. 1995:404), although when visiting San Diego Mesa later that month he found the population still living at Patokwa (Kessell et al. 1995:441-442). Upon returning for the battle in July however, he discovered that Patokwa had been abandoned, with the majority of the Jemez people fortified in a new village (Astialakwa), high on the peñol above (Kessell et al. 1998:367). Following the battle Vargas ordered Astialakwa burned (Kessell et al. 1998:337), forcing its occupants to return to Patokwa (Kessell et al. 1998:405-406). For two years Astialakwa likely remained uninhabited, a charred and empty reminder of the bitter battle of 1694.

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[36] Any remains of vigas recovered from Astialakwa in the future could be expected to return dates in the early 1680s as well as (or instead of) the mid-1690s. Vargas reported that some of the original vigas from Patokwa were removed and re-used in the construction of Astialakwa (and subsequently burned following the 1694 battle). In a letter dated September 1, 1694, Vargas notes that upon "entering into the pueblo on the mesa [Patokwa], that not only had the enemies abandoned it, but they also had taken the doors from most of their houses, and the metates from all of them. From others they had taken some beams for construction on the peñol" (Kessell et al. 1998:367).

Astialakwa was reoccupied following the Second Pueblo Revolt of June 4, 1696 (Espinosa 1988:252; Kessell et al. 1998:792-799). This reoccupation was probably relatively brief—less than one month—as the peñol was attacked again on June 29. Although the occupants were able to resist the initial attack at Astialakwa, a second skirmish near Walatowa took a high toll (Kessell et al. 1998:792-799). Following the 1696 battle there is no evidence for subsequent long-term inhabitation at Astialakwa. The site has remained an important traditional cultural property for the Pueblo of Jemez through the past three centuries and is frequently visited by tribal members today; thus it should not be considered "abandoned."

Cartographic Methodology

The GMAP carried out a high-resolution architectural survey of Astialakwa over the course of four field seasons between 2001 and 2004 (Liebmann 2001, 2002a, 2003, 2004). Because standing walls and masonry rubble are clearly visible in each Room block at Astialakwa, mapping concentrated on the documentation of architectural data, although additional topographic points were recorded in order to document the relation of architecture to the natural topography of the peñol.

Within each Room block, mapping progressed by first recording all in-situ masonry features and standing walls with a total station. The locations and dimensions of interior and exterior walls were recorded (length and width only; height was measured by hand and recorded on the room attribute recording form, detailed below), along with the locations of any additional architectural features, such as doorways, vents, and benches. Following the total station recording, digital plan view images of each architectural

feature were recorded by mounting a camera on a five-meter photo tripod (FIG. 5.45). A remote control was used to trip the shutter on the camera, and three successive images of each room were recorded. Following the total station recording and plan view digital image documentation of each feature, written documentation of additional characteristics regarding masonry, architectural elements, looting, and the general conditions of each room were recorded (Appendix A), along with profile digital images of standing walls and in-situ features (FIG. 5.46). This written documentation included wall measurements (length, width, height, and number of courses remaining), patterns of bonding and abutment, and masonry characteristics such as masonry type (flagged/biflagged vs. tabular, simple vs. compound), style of coursing (uncoursed, semi-coursed, or fully coursed), and type of construction (wet-laid, dry-laid, or dry-laid/mudded). Additionally, measurements were taken to determine the average size of the masonry blocks used in the construction of each room. These measurements were obtained by leaning a .25 m^2 square wooden frame against a section of standing wall and measuring the size of the masonry blocks within this frame, as well as recording the number of chinking stones present between courses. For the purposes of this study, a masonry block was defined as any stone in a wall with at least one dimension (length, width, or height) larger than 20 cm, while chinking stones were those in which all three dimensions were less than 20 cm. In practice, however, this definition rarely needed to be applied, as there was almost always a noticeable discrepancy between chinking stones and bricks. In rooms without .25m^2 of standing wall remaining, a representative sample of masonry blocks from the rubble within that room was measured by laying the wooden frame horizontally on a section of wall fall/rubble. Finally, any other notable characteristics of each room (such

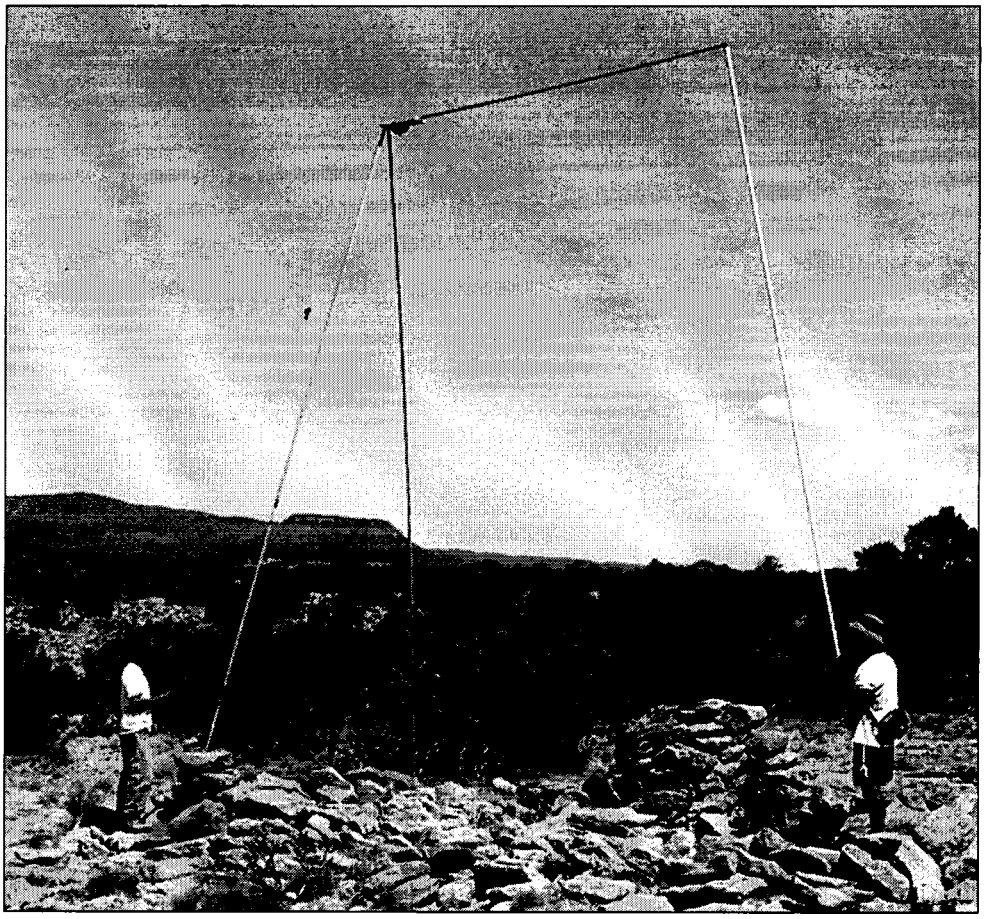

Figure 5.45: Digital image plan view recording of room S2-5 with photo tripod

Figure 5.46: Typical Astialakwa wall profile (Room E1-2, north wall interior, looking east)

as evidence and extent of looting, possible vigas/dendro samples, architectural features rubble within that room was measured by laying the wooden frame horizontally on a section of wall fall/rubble. Finally, any other notable characteristics of each room (such as evidence and extent of looting, possible vigas/dendro samples, architectural features such as ventilators and doorways, evidence of burning, etc.) were noted in the "Features and Room Description" section on the bottom of each form.

Following the in-field documentation, the total station data was downloaded and plotted using Sitemap 1.2 and AutoCAD software. The plan view digital images of each room were merged using Canon Photostitch software, producing a single low-level aerial image of each room and/or feature (FIG. 5.47). The merged plan view images were then imported into the AutoCAD map and aligned with the total station data. (Typically this rectification was achieved by lining up the in-situ walls in the digital image with the total station data; in images where in-situ features were not visible, pinflags whose locations had been recorded with the total station were used to georectify the digital images with the total station data). Each in-situ masonry block visible in the digital image was traced in AutoCAD, and this data was used to infer the locations and dimensions of walls no longer in-situ (FIG. 5.48). Finally, the topographic data recorded at Astialakwa was projected using Surfer 8.0 mapping software and the resulting contour map was merged with the architectural data, producing the final map of Astialakwa (FIG. 5.49).

Architectural Plan and Description

Astialakwa is a single-component Pueblo Revolt era village covering approximately 42,723 m^2 of the southern tip of the peñol. The architecture consists of 62

Figure 5.47: Plan view of room E5-1

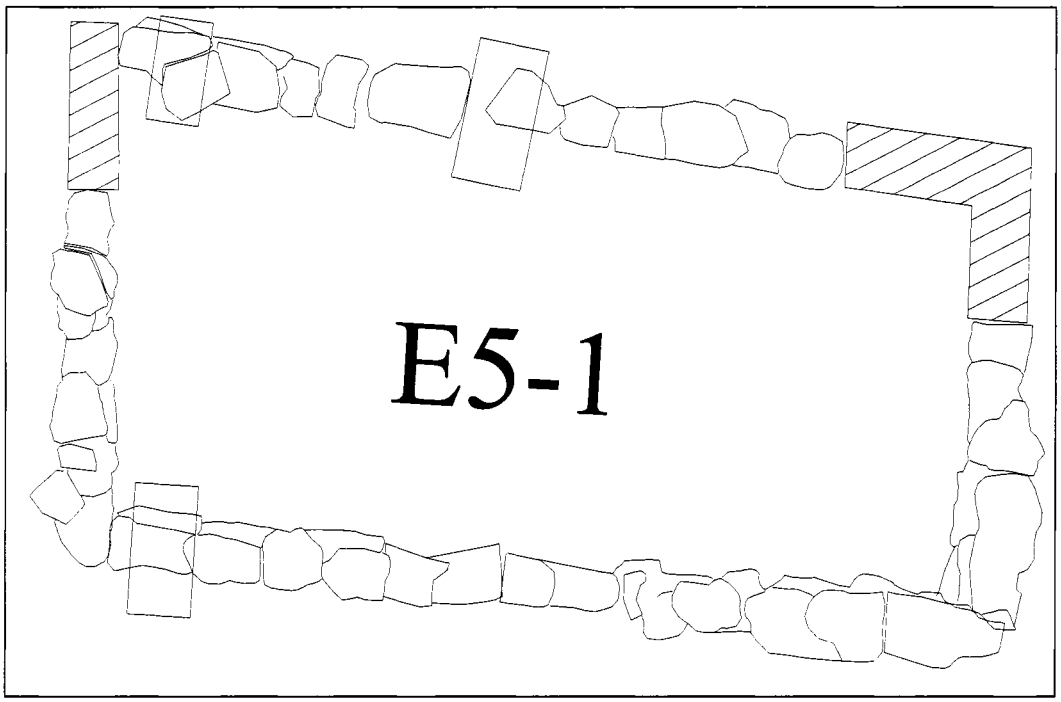

Figure 5.48: CAD documentation of Room E5-1 (hatched areas = inferred walls; rectangular boxes = doorways/ventilators)

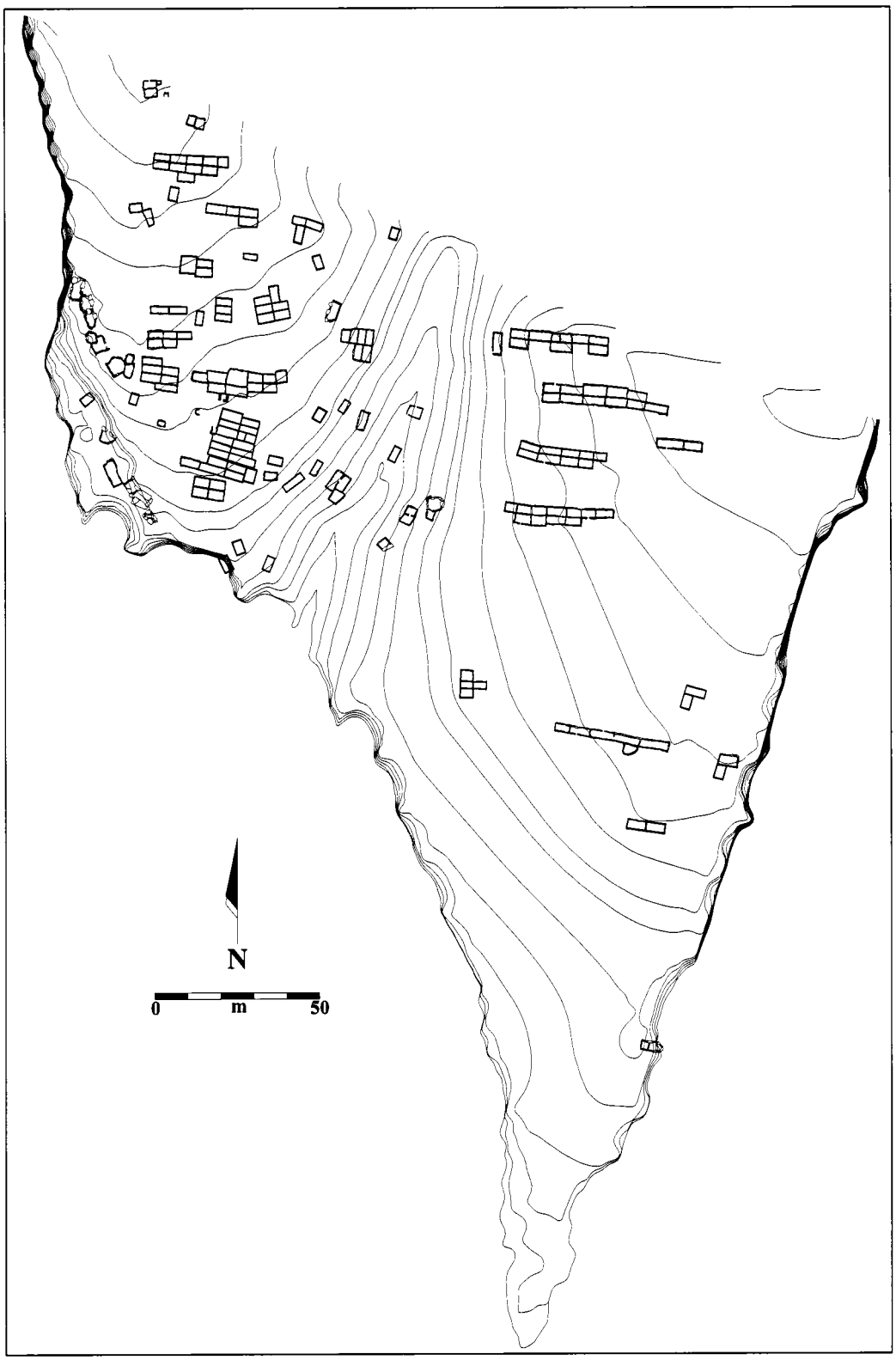

Figure 5.49: Astialakwa architecture

discrete room blocks (containing between one and 14 rooms each) dispersed in an irregular arrangement across the mesa top. Walls are made of simple biflagged semicoursed masonry of Bandelier Tuff quarried from the surrounding geological stratum. Many walls and basal foundations of these rooms are still in-situ and visible on the surface; in other areas the walls have collapsed, but the resulting masonry rubble piles and patterned wall fall are not yet obscured by topsoil accretion (as is the case at Patokwa). All rooms at Astialakwa appear to have been single-story edifices based on extant amounts of rubble. Around the edges of the mesa, elements of the natural topography such as boulders and caves have been incorporated into many of the rooms.

Rooms and room blocks cluster into three main groups—an eastern group, a western group, and a southern group (FIG. 5.50), with a 5-10 m deep arroyo separating the western group from the eastern. A plaza is located among the central rooms of the western group Defensive walls were constructed around the southern tip and southwest edge of the peñol (as well as along the northern and northeastern edges). No evidence for subterranean kivas was identified in the course of the architectural survey. Piles of cut stone masonry are located throughout the pueblo, with two U-shaped stone features identified as possible shrines by Jemez tribal representatives. Additionally, two areas of rock art containing pecked petroglyphs have been identified on vertical rock faces below the mesa top.

Although Vargas visited the site the day of the battle in 1694, he does not provide a description of the architecture of Astialakwa beyond mentioning that the Jemez were living "in the houses they had occupied on the rock." These houses contained "many

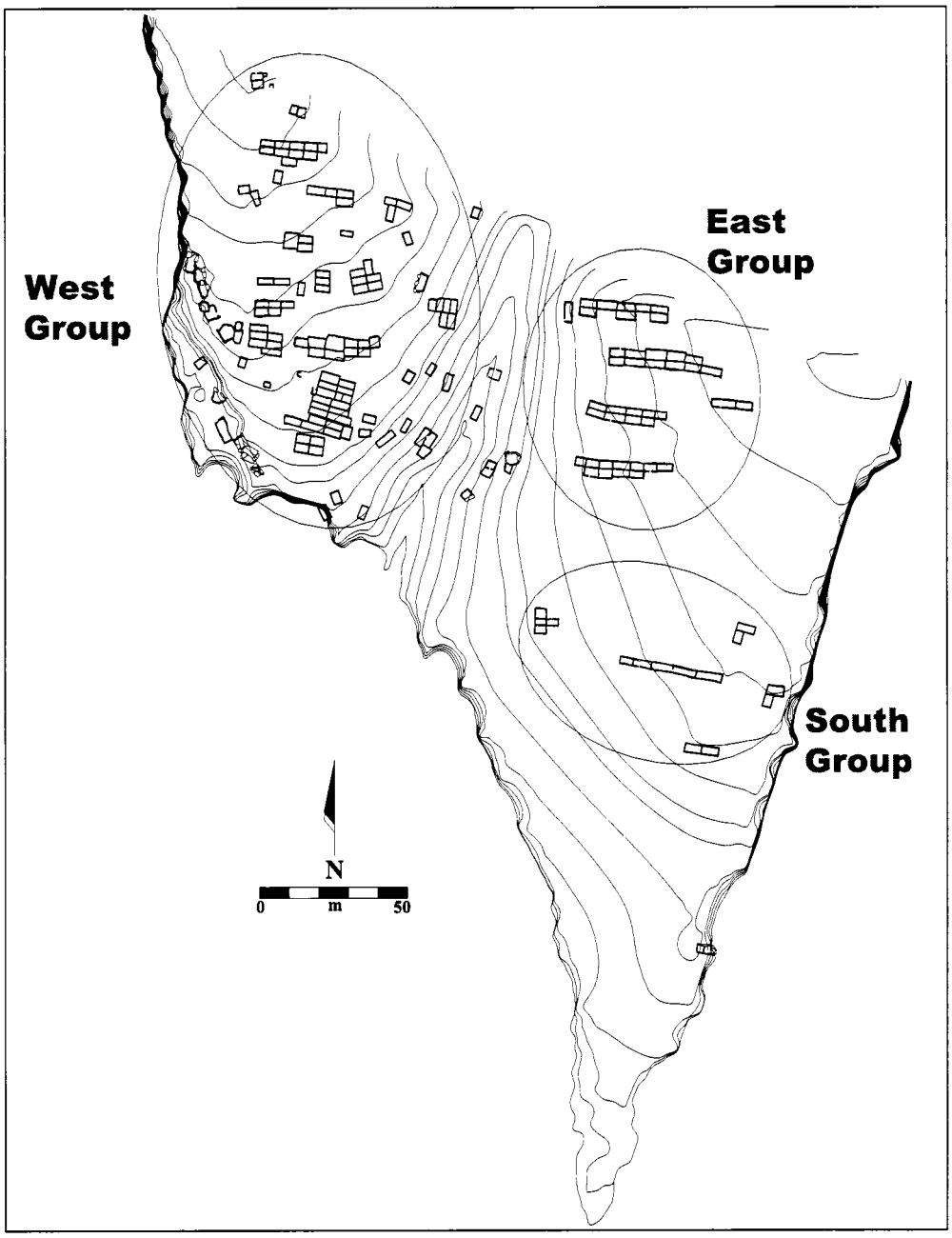

Figure 5.50: Architectural groups at Astialakwa

loopholes" (small windows) constructed to allow the occupants to defend themselves by firing arrows at their attackers from inside their houses (Kessell et al. 1998:325-327).

Looting and Vandalism

Astialakwa has suffered significant damage due to looting and vandalism over the past 45 years. A 1960 investigation found "minor pothunting evident," but little change from the early twentieth century (Snow 1973). Today, however, nearly 40 percent of the rooms (75 of the estimated 190) display evidence of disturbance and/or vandalism (FIG. 5.51). Multiple reports of looting have been filed since the 1970s, and in at least two cases the offending parties were caught. Complete ceramic vessels in the Museum of New Mexico collections (Elliott 2002a:52-53) and illustrated by Mera (1939:58-61) further attest to the fact that the site has been the locus of pothunting during the twentieth century. Furthermore, the US Forest Service has documented an instance of vandalism in 1994 that disfigured a panel of rock art with modern graffiti (Moots 1995).

In recent years less nefarious, but nonetheless harmful forms of vandalism have compromised the integrity of the site. Rooms have been constructed by piling the stones from fallen walls and dismantling evidence related to the construction of the pueblo. The two most obvious examples are the "rooms" constructed to the south of S2-2 and W21-8, though as recently as 2004 new construction occurred in W3-8 and W3-9, dismantling evidence relating construction activities at Astialakwa.

Room Estimate

The GMAP architectural survey documented 190 estimated rooms in 62 discrete room blocks at Astialakwa (FIG. 5.52). I derived these figures by first documenting in-

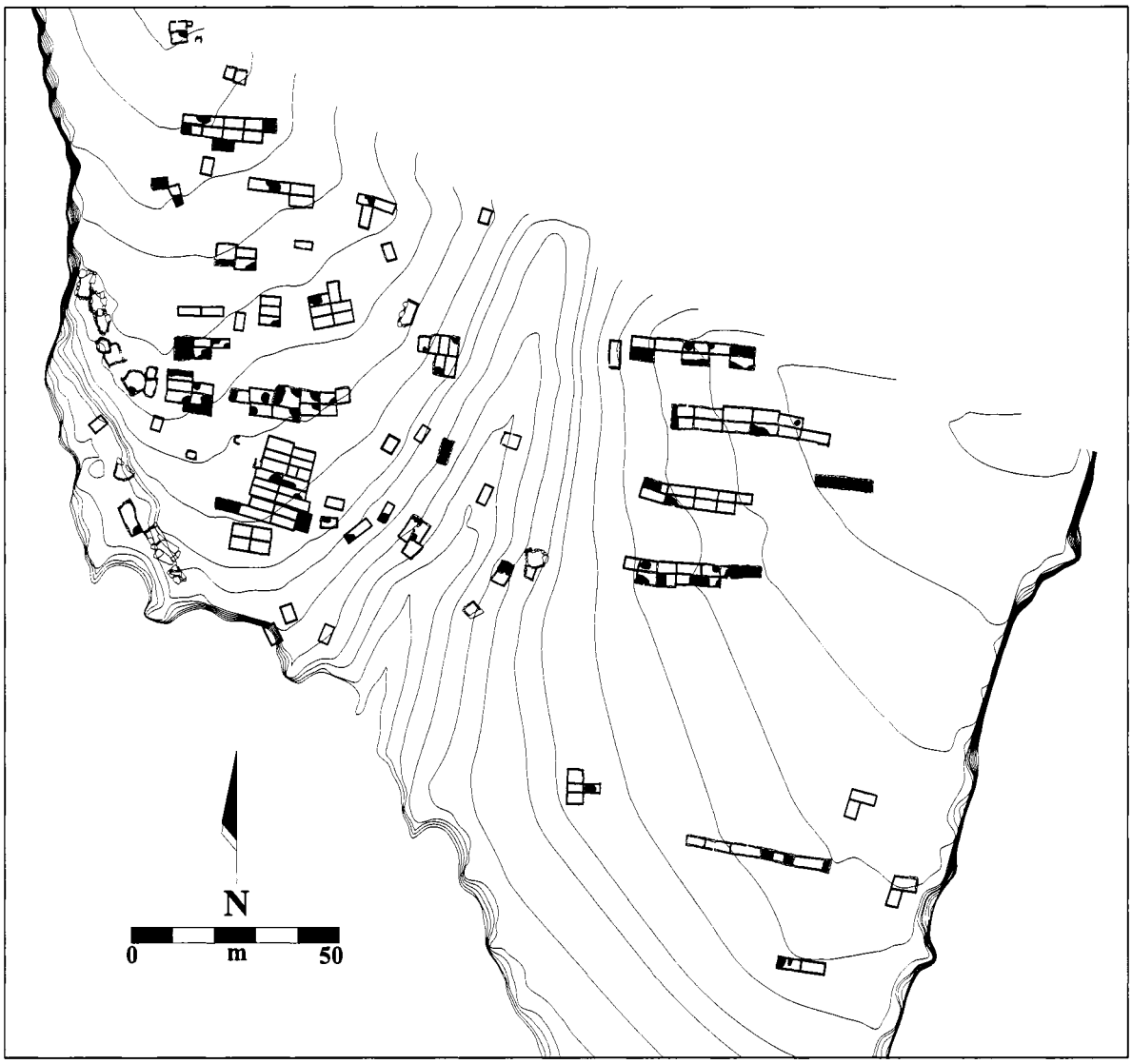

Figure 5.51: Areas impacted by looting at Astialakwa, 1 m contour interval

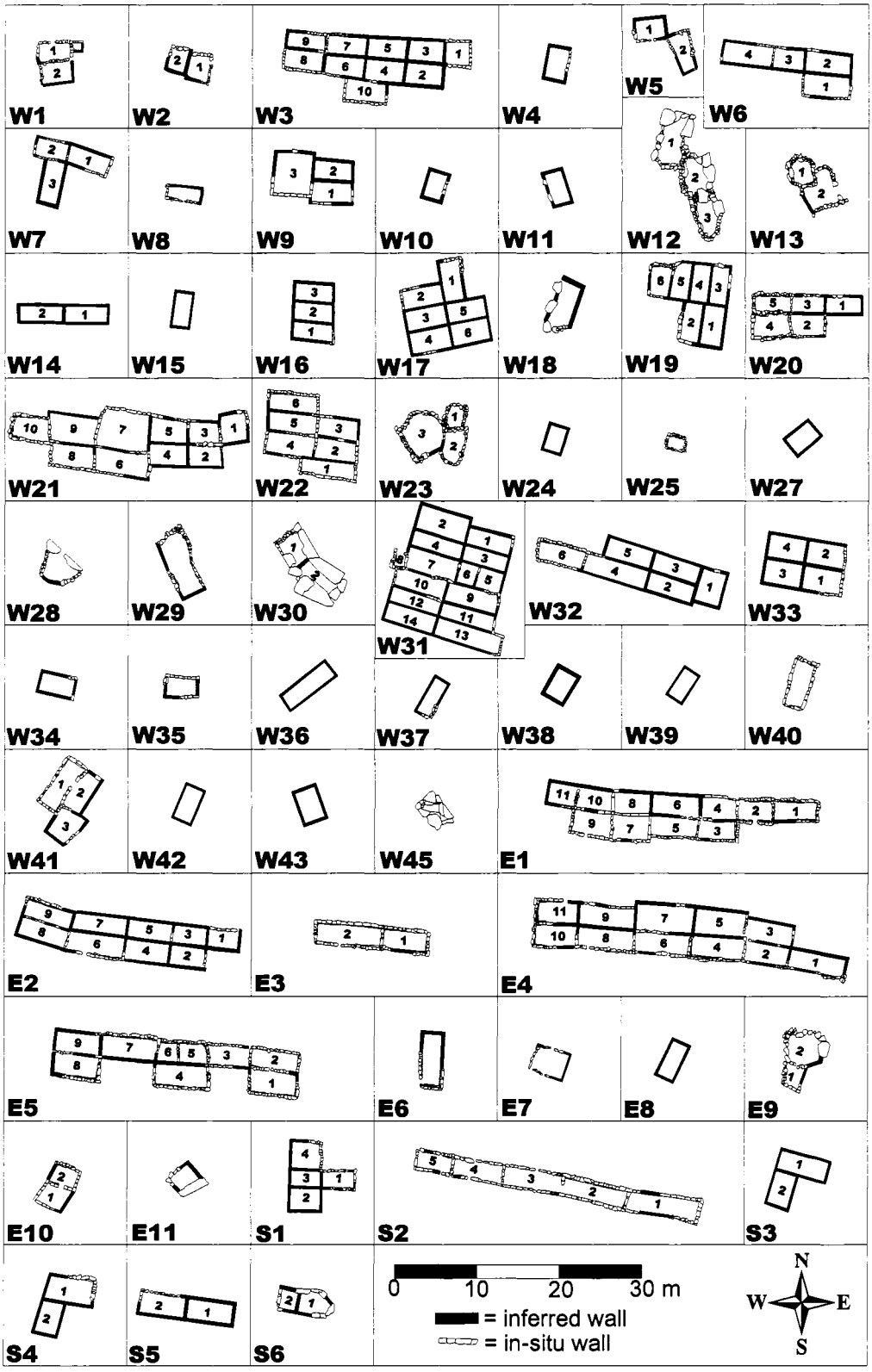

Figure 5.52: Astialakwa architectural units dating to the Pueblo Revolt Era

situ basal foundations and standing walls, then using these data to infer the probable location and extent of walls that are not presently visible. In areas where wall segments were either completely degraded or not visible, the dispersion of wall fall and rubble were utilized to determine the probable extent of walls and rooms.

Appendix C presents data on room dimensions and wall intersections of the 190 ground-floor rooms identified at Astialakwa. Included in Appendix C is a calculation of the Confidence Interval (CI) for each room estimate (see above, *Boletsakwa Room Estimate* for a complete explanation of the CI formula). Floor area was determined using AutoCAD–derived estimates rather than by multiplying the measurements of average room lengths and widths. The average floor area at Astialakwa is 11.0 m^2 (4.3 m^2 sd).[37] The average room length recorded at Astialakwa is 4.8 m (1.4 m sd) and the average width is 2.3 m (0.6 m sd); the standard deviations reveal that there is slightly more variation in room length than width. A scatter plot of room sizes with a CI of 3.5 or greater (FIG. 5.53) illustrates a relatively even distribution of rooms, although six can be identified as statistical outliers. The floor area histogram (FIG. 5.54) depicts a similarly broad overlap in the distribution of floor areas, with only one major break point at the upper end of the distribution (caused by the unusually large area of room W21-7).

Population Estimate

Vargas captured 361 residents of Astialakwa following the battle in 1694 (Kessell et al. 1998:327). Three weeks later two Jemez warriors who had escaped during the

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[37] The figures presented here regarding room dimensions represent the average of the 76 rooms with a CI of 3.5 or higher. For all 190 rooms (disregarding the CI), the average floor area is 10.6 m^2 (3.5 m^2 sd), with an average length of 4.7 m (1.3 m sd), and average width of 2.3 m (0.5 sd).

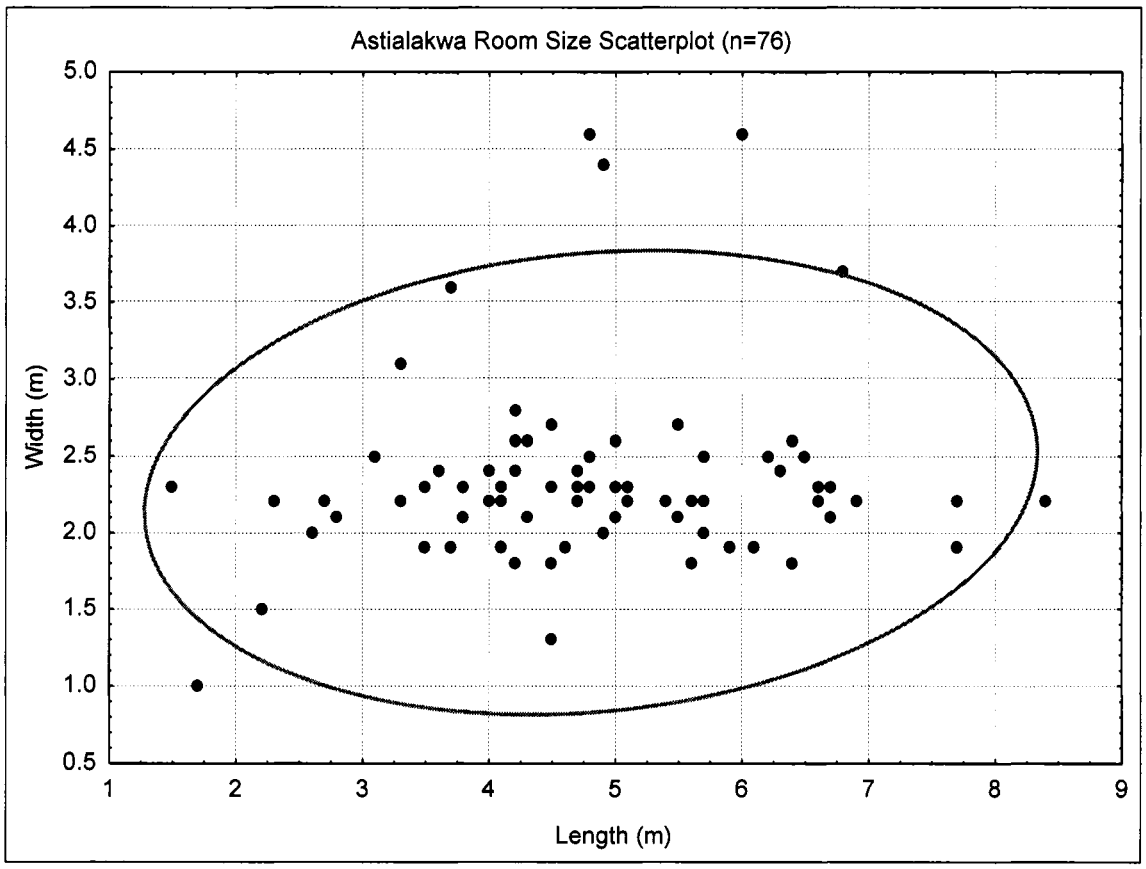

Figure 5.53: Bivariate plot of room lengths and widths for Astialakwa (rooms with a CI of 3.5 or greater). Points outside of circular boundary represent statistical outliers.

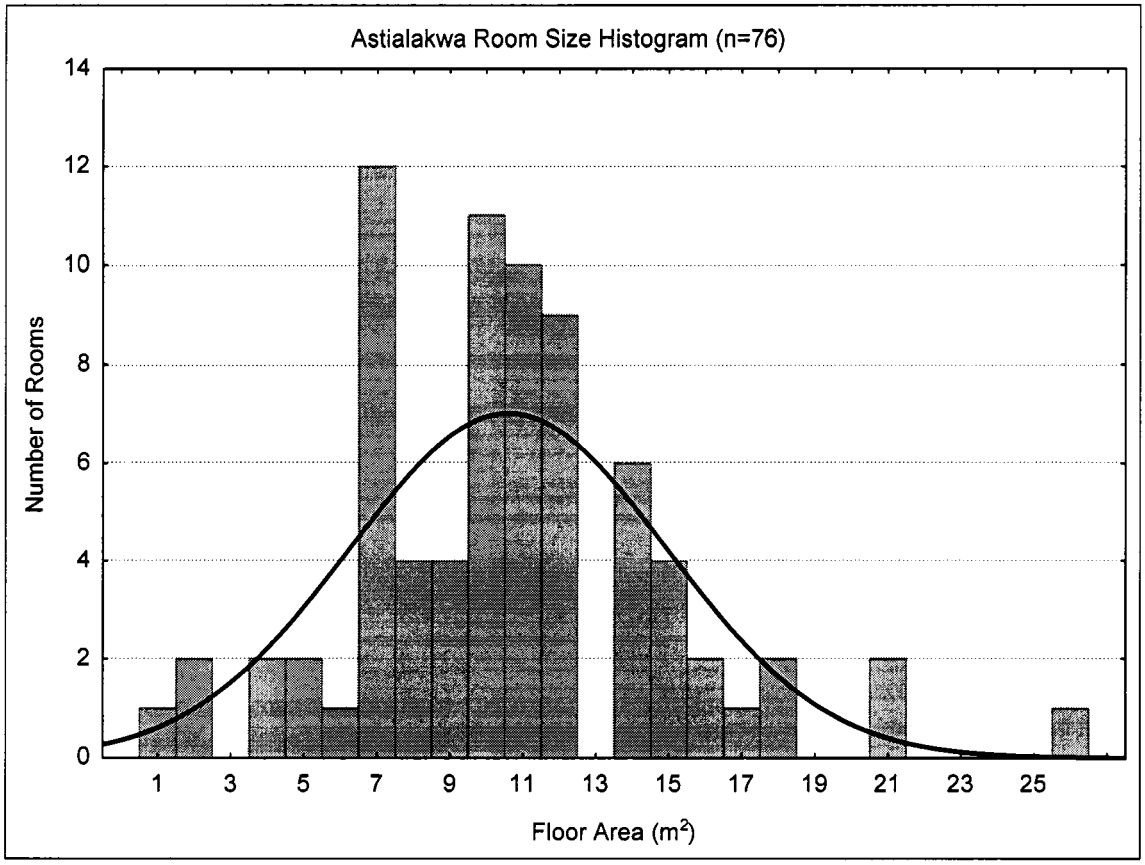

Figure 5.54: Room size histogram for Astialakwa (rooms with a CI of 3.5 or greater)

battle reported that an additional 82 had survived (Kessell et al. 1998:349-50, 374). Adding this figure to the 84 persons reportedly killed in the battle (Kessell et al. 1998:368) results in a total population of at least 527 persons at Astialakwa in late July of 1694. This figure may be slightly higher than the actual number of long-term residents, however, as it could include some warriors who were not living permanently at Astialakwa but came to San Diego Mesa in the days preceding the battle to aid in the impending combat, a situation documented at other reconquest-period battle sites (Kessell et al 1998:236).

Using the reported figures, the average floor area per person at Astialakwa can be calculated at 3.3 m^2 per person (total floor area: 2020.5 m^2). This figure is lower than the 5.1 m^2 estimated at Kotyiti (Preucel 1998), a result that is to be expected considering Dohm's (1990) assertion that houses in nucleated pueblos (such as Kotyiti) typically allocate more floor area per person than houses in dispersed villages (such as Astialakwa).

Discussion

Construction

Documentary evidence suggests that the majority of construction at Astialakwa was completed in a period of just 8 months, between November 1693 and July 1694 (Kessell et al. 1995:404, 441-442; Kessell et al. 1998:367). The architectural data gathered by the GMAP (including patterns of bonding and abutment) demonstrate that no ladder-type construction was utilized in the building of Astialakwa; rather, homes were erected in discrete groups of one to four rooms at a time. For example, the long room blocks of the east group (E1, E2, E4, and E5; see FIG. 5.52), all display conclusive

evidence of agglomerative construction in the form of abutted corners and variable room widths and wall azimuths. As noted above, agglomerative construction does not require supra-household coordination of labor; it is typically accomplished by members of individual households or extended families. Pueblos resulting from agglomerative construction display a lack of shared walls and variable wall azimuths, and often contain proportionally smaller plazas than linear plaza pueblos (Cameron 1999b:207-208), although prototypical agglomerative pueblos are usually much more compact than Astialakwa.

There is strong evidence to suggest that construction on some of the architectural units at Astialakwa was begun but never completed, probably interrupted by the Spaniards' attack in 1694.[38] The GMAP documented 16 stone piles of upright cut tuff blocks, stacked in circular patterns (FIGS. 5.55 and 5.56). These piles occur in close proximity to architectural remains in all areas of Astialakwa, including the eastern, western, and southern groups. The size of the stones is consistent with that typically employed in the masonry exhibited at Astialakwa, thus the piles appear to represent an intermediate stage in the construction process. The stones were cut from the surrounding tuff bedrock of the mesa top, and then stacked in preparation for final shaping and inclusion in the walls of the surrounding rooms. Similar piles are exhibited in areas of recent construction at Jemez Pueblo today, where adobe bricks are frequently stacked on end as part of the construction process (FIG. 5.57). Stone piles S4-A, S4-B, E2-A, and

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[38] While it is possible that this unfinished construction post-dates the 1694 occupation, areas definitively reoccupied in 1696 (such as Room block E5, see *Evidence of the 1696 Reoccupation* below) display no evidence of such incomplete building episodes. Thus the 1694 battle seems the most likely explanation for the evidence of interrupted construction at Astialakwa.

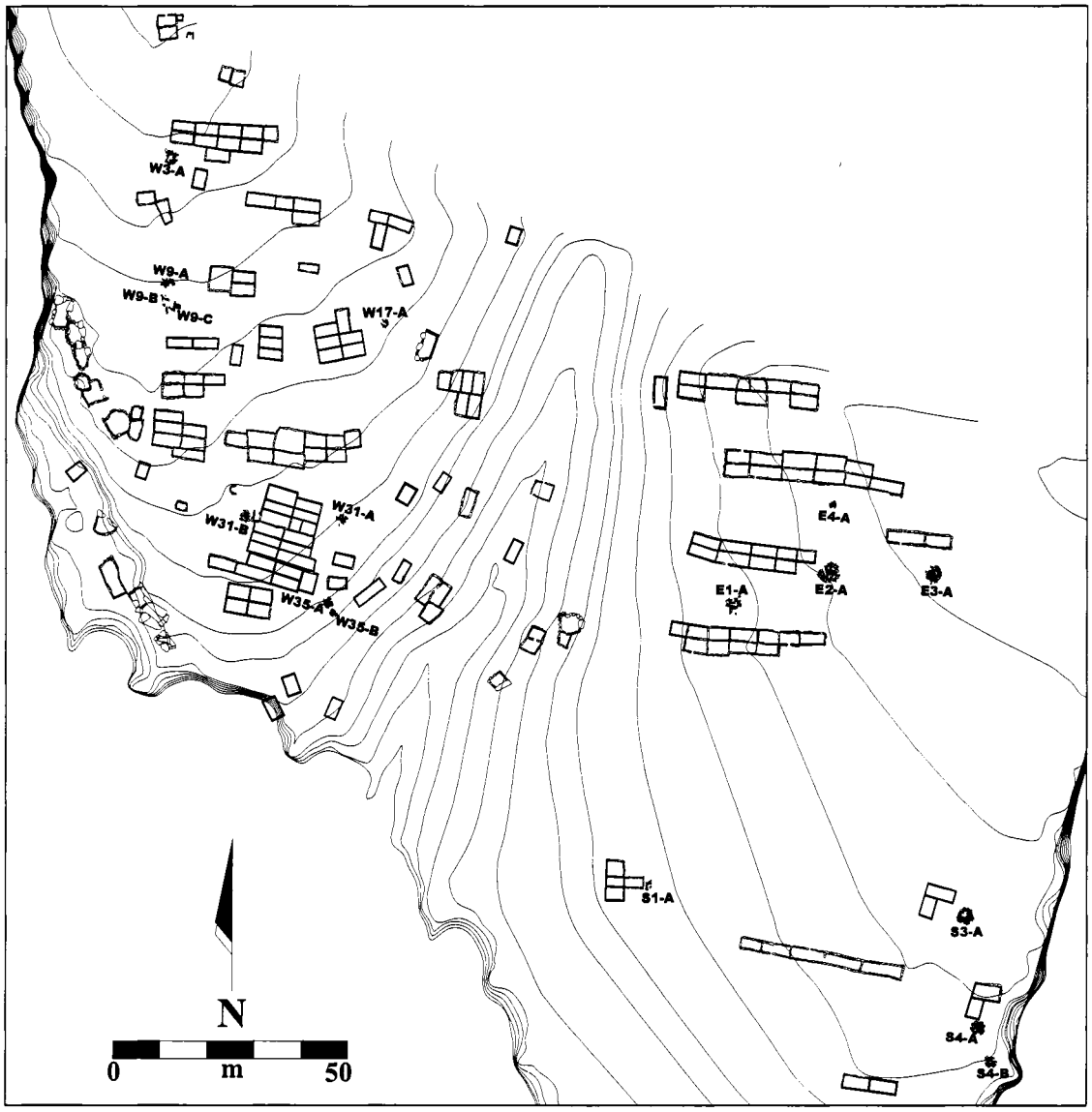

Figure 5.55: Locations of stone piles at Astialakwa

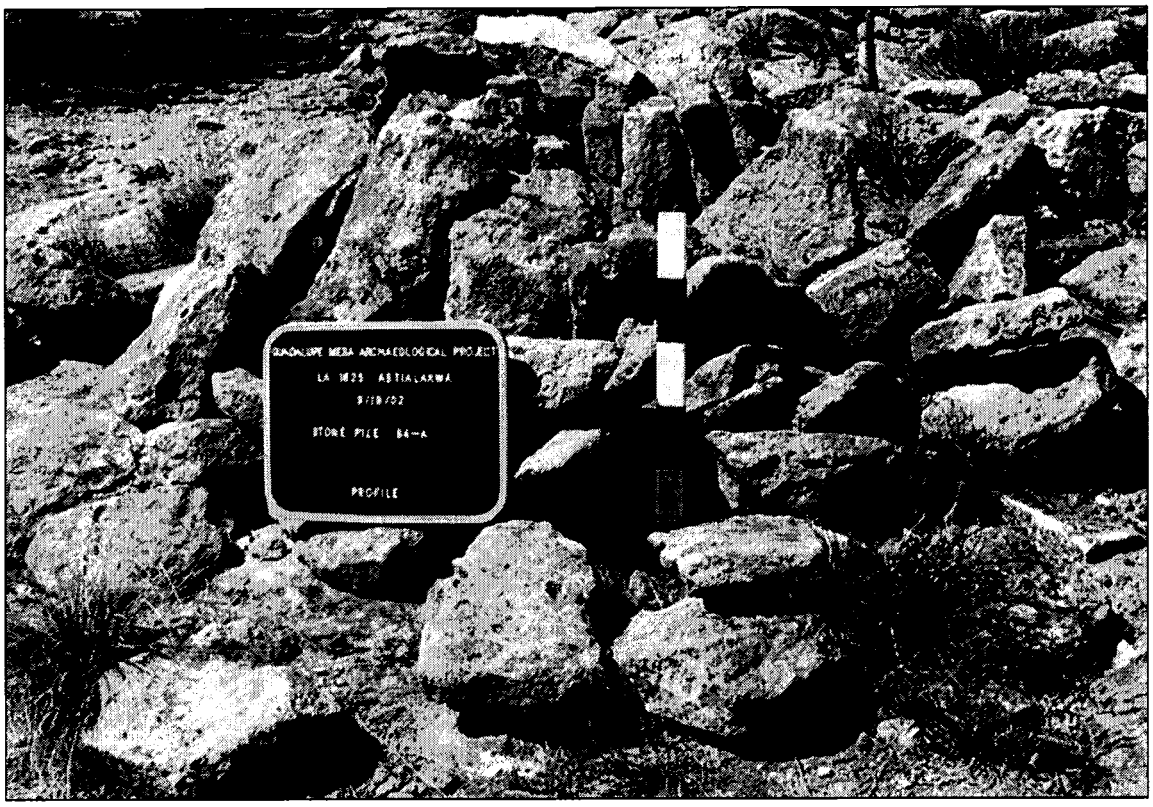

Figure 5.56: Typical Astialakwa stone pile (S4-A, from the east)

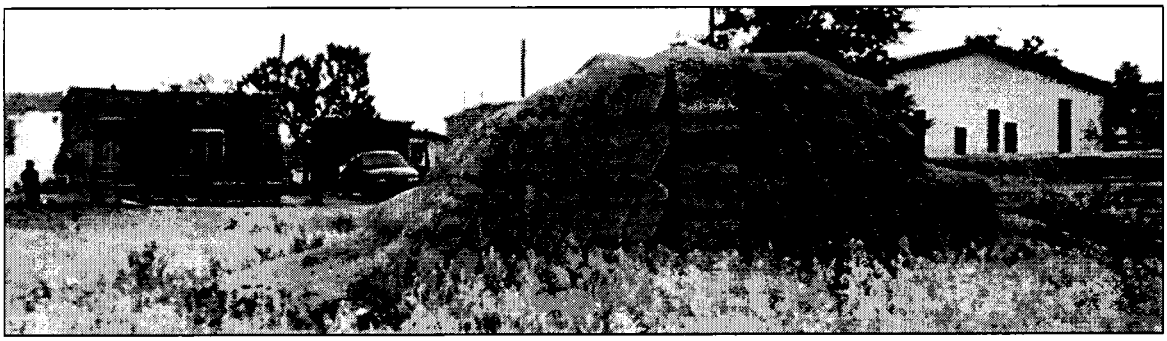

Figure 5.57: Modern adobe construction pile at Jemez Pueblo, October 2005

W3-A are all located near architectural remains that exhibit less masonry and wall fall debris than expected for rooms with full-size walls (specifically, S4-1 and S4-2, the southeast end of Room block E2 adjacent to E2-1, and W4), suggesting that these piles were created as part of the construction process in these nearby rooms. Other piles, such as W31-A, W31- B, W17-A, W9-A, W9-B, and W9-C may be the remnants of completed building episodes, the "leftovers" of construction.

Site Layout

The area bounded by roomblocks W16, W17, W20, W21, and W22 is identified as the primary (and sole) plaza at Astialakwa (FIG. 5.58). Evidence supporting this conclusion includes the central location of this space, the relatively flat topography of the area, and the fact that it is surrounded by roomblocks on three sides (four if W19 is included). Jemez oral histories speak of their ancestors dancing at Astialakwa on the night of July 23, 1694, in preparation for the impending battle that took place the following morning (Simpson 1852:22). This dancing probably occurred in this central plaza. No plaza area was identified among the east group because all doorways in these roomblocks were located exclusively in south-facing walls (in Rooms E1-2, E1-9, E2-6, E3-2, E4-4, E5-4, and E5-8 [FIG. 5.59]). If the areas between any of these roomblocks were regarded as plazas, it is expected that doorways would open into these areas from both the north and south sides, allowing access to the plaza from the adjacent architectural units. No north-facing doorways were documented in any of these room blocks, suggesting that the areas between them were not regarded as communal gathering spaces.

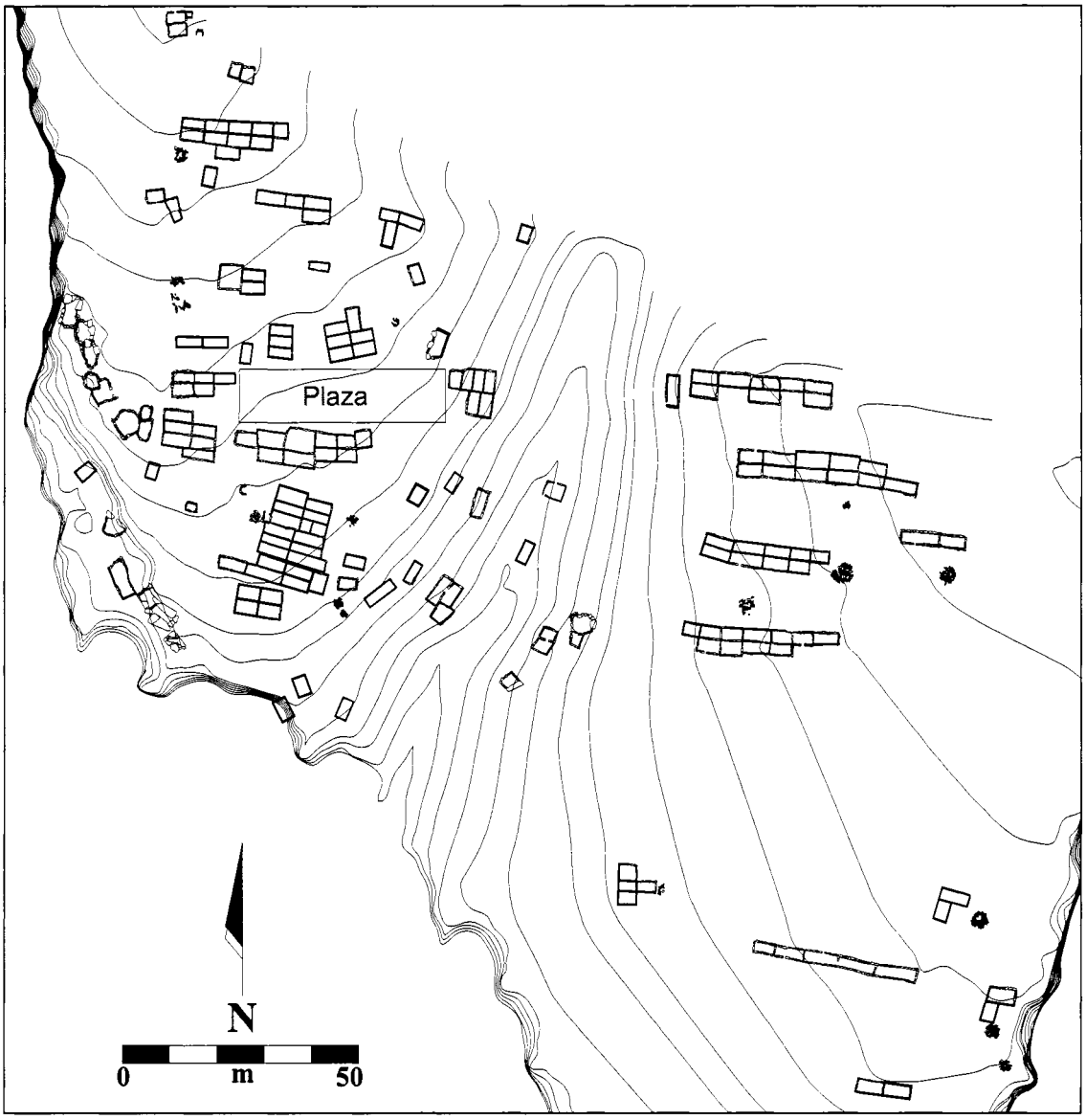

Figure 5.58: Location of plaza at Astialakwa

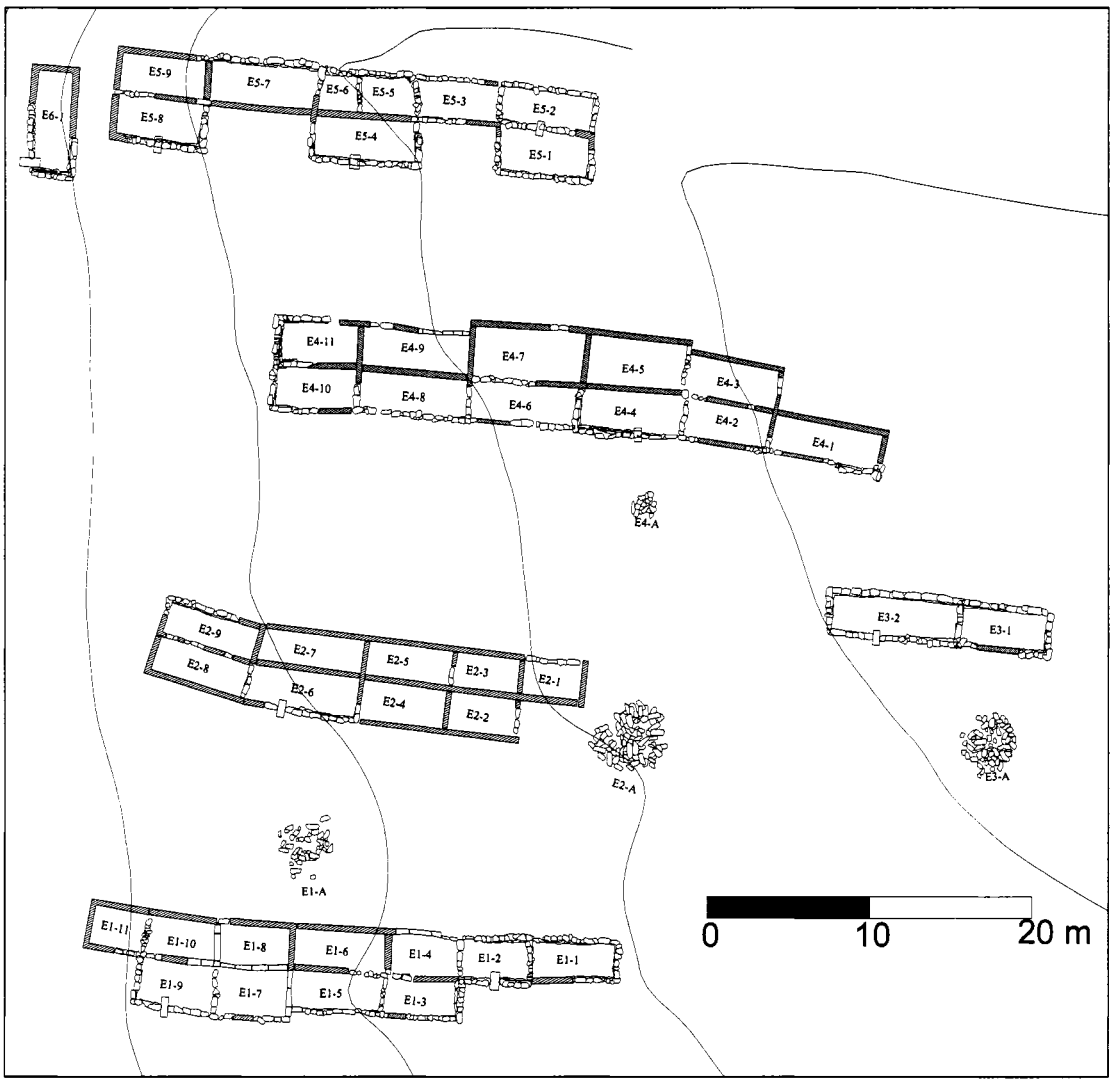

Figure 5.59: Detail of Room blocks E1, E2, E3, E4, E5, and E6
(doorways represented by rectangular boxes)

As mentioned above, the 62 discrete roomblocks at Astialakwa cluster into three main groups—a west group, an east group, and a south group (FIG. 5.50). The west group is regarded as the core of Astialakwa due to the presence of the plaza and the fact that it is the largest of the three groups, containing 45 roomblocks with an estimated 123 rooms, and comprising 62.5 percent (1263.4 m^2) of the total floor area of the site. It is separated from the east and south groups by a 5-10 m deep arroyo that remains dry in all but the most severe downpours. The east group contains 11 discrete roomblocks with an estimated 50 rooms and 28.3 percent of the total floor area of Astialakwa (571.9 m^2). The core of this east group is architecturally distinct as the majority of its rooms cluster into four long roomblocks containing 9-11 rooms each. The south group is spatially segregated from the other two groups by more than 45 m of open space. It is also the smallest of the three groups, containing just six roomblocks, 17 rooms, and 9.2 percent of the total floor area of the site (185.2 m^2).

The spatial organization of Astialakwa into these three clusters may be related to the processes of coalition and integration among the differing groups that came together at Astialakwa.[39] It appears that some, if not all of the inhabitants of Boletsakwa joined the Jemez of Patokwa at Astialakwa in anticipation of the battle, based on the fact that a Santo Domingan from Boletsakwa was captured by the Spaniards following the battle (Kessell et al. 1998:332) and that Boletsakwa was subsequently found to be uninhabited (Kessell et al. 1998:339). Thus there were likely at least three distinct groups inhabiting Astialakwa: the Jemez from Patokwa, the Jemez from Boletsakwa, and the Santo

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[39] Additionally, an "Apache" (probably Navajo) warrior was reportedly captured during the battle (Kessell et al. 1998:325).

Domingo from Boletsakwa. This could account for the spatial organization of Astialakwa into three distinct clusters of architecture; however, this is a speculative observation, and additional fieldwork would be necessary to corroborate the spatial organization of Astialakwa with these three social groups.

Non-habitation Architecture

Astialakwa includes multiple rooms with irregular plans due to the incorporation of natural features such as large boulders in their construction (roomblocks W12, W13, W28, W30, W45, and S6); at least three of these rooms were constructed through the modification of natural caves (W30-1, W30-2, and W45) and are presumed to have served primarily as storage areas, likely for the copious amounts of maize reportedly stockpiled there (Kessell et al. 1998:328-331, 336-337, 341, 368-372). Areas along the mesa edge appear to have been favored for maize storage, and some of these areas may also have served as food preparation areas, as an intact mano and metate were found in structure S6-1. Additional small rooms such as W25, W2-1, W2-2, E-11, E-9-1, and E9-2 likely also served as storage facilities.

Two stone features were identified as shrines by Jemez Pueblo tribal representatives, labeled W1-shrine and W26-shrine on Figure. 5.60. Both structures are U-shaped masonry features consisting of multiple courses of tuff stones, with an interior diameter of approximately 1.1 m each (FIGS. 5.61 & 5.62). Stone pile S3-A, while not constructed in the same U-shaped form, may be a circular shrine as well (FIG. 5.63). S3-A consists of significantly smaller stones than the construction piles described above, and displays an open center area.

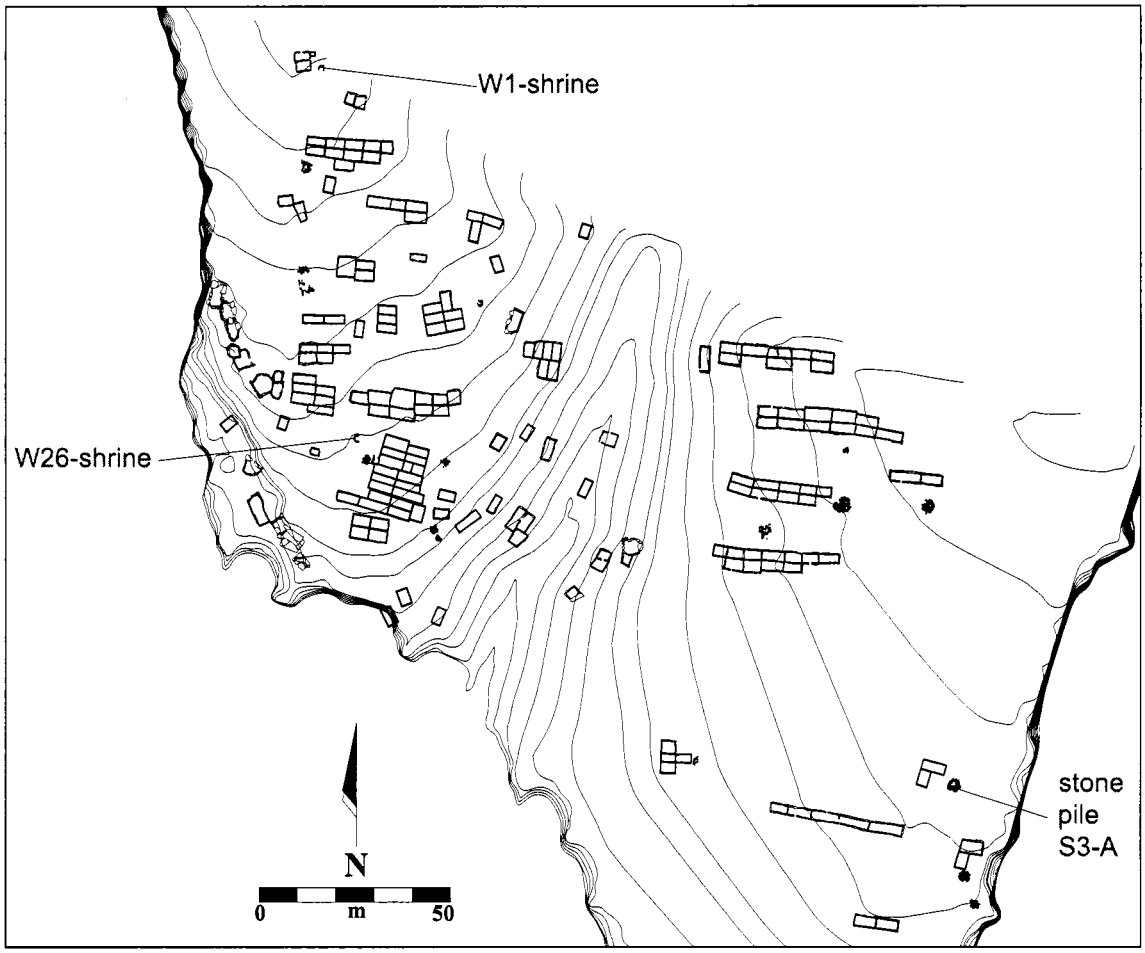

Figure 5.60: Locations of possible shrine features at Astialakwa

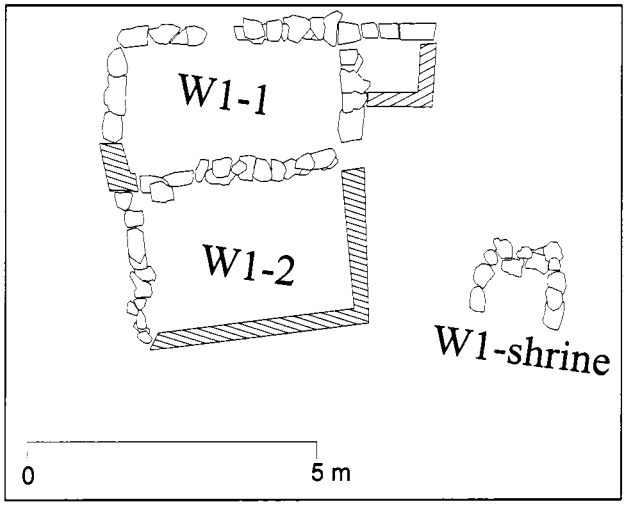

Figure 5.61: W1-shrine, detail

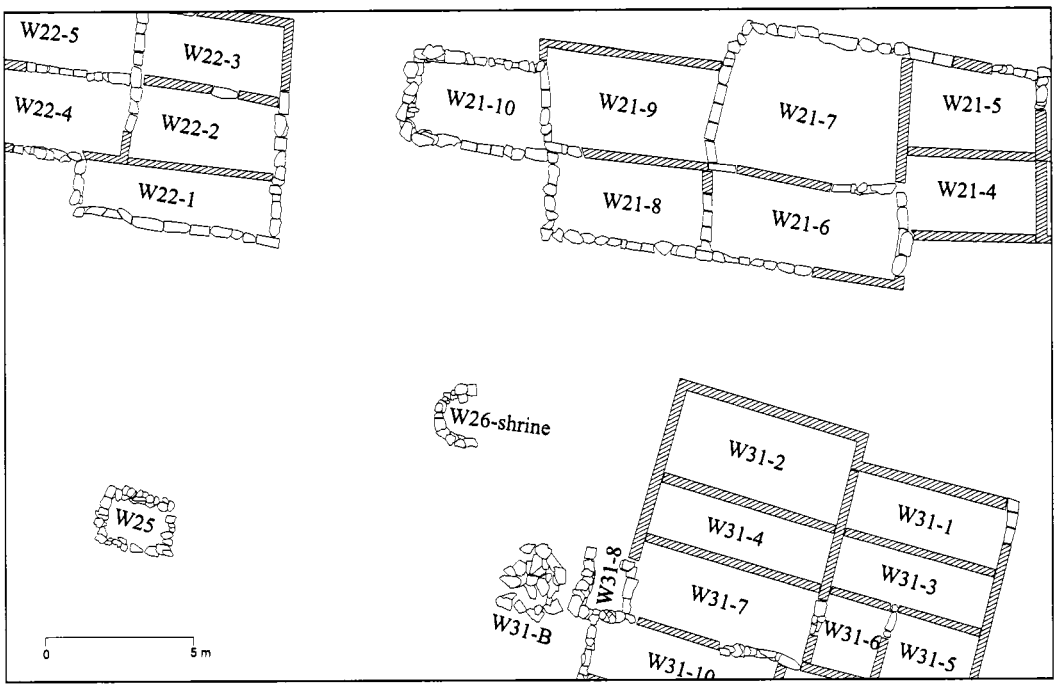

Figure 5.62: W26-shrine, detail

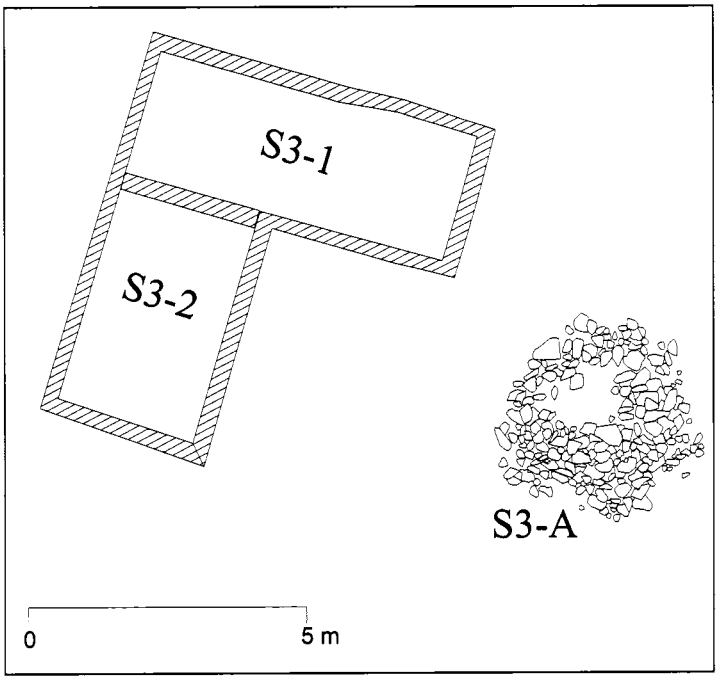

Figure 5.63: S3-A, detail

No evidence for subterranean kiva architecture has yet been observed at Astialakwa, and although room W23-3 has a distinctive semi-circular plan, it is not particularly large (floor area = 18.2 m^2) and displays no additional features that would suggest a special use for this room. Rooms W21-7 and W9-3 do encompass comparatively large floor areas (26.9 m^2 and 21.1 m^2 respectively) and are considered statistical outliers, suggesting that they may have been the locus of special functions such as supra-household gatherings. Furthermore, W9-3 displays distinctive masonry, with significantly larger tuff blocks arranged in fully coursed, single-tabular walls (as opposed to the simple biflagged semicoursed masonry that characterizes all other architecture at the site).

Rock Art

Two areas of pecked petroglyphs have been identified at Astialakwa. On the eastern edge of the mesa, immediately south of Room block S6, are two large panels displaying images of corn plants, animal tracks, birds, and geometric designs (FIG. 5.64). The south-facing panel was disfigured by modern graffiti in 1994 (Moots 1994). On the western edge of the mesa is a single pecked anthropomorphic "warrior" image (FIG 5.65; Elliott 2002a:53). This image is more than one meter in height, and depicts a human in profile holding a recurved bow in the left hand and an arrow in the right. The figure wears a fringed sash at the waist (a possible kilt?) and a pointed cap on its head. Although there is no way to securely establish the date that any of these rock art images were created at the present time, the Pueblo Revolt era is the only time that the peñol was the locus of long-term habitation; thus in the absence of conflicting evidence, it is assumed that these images were created between 1694 and 1696.

Figure 5.64: East petroglyph panel

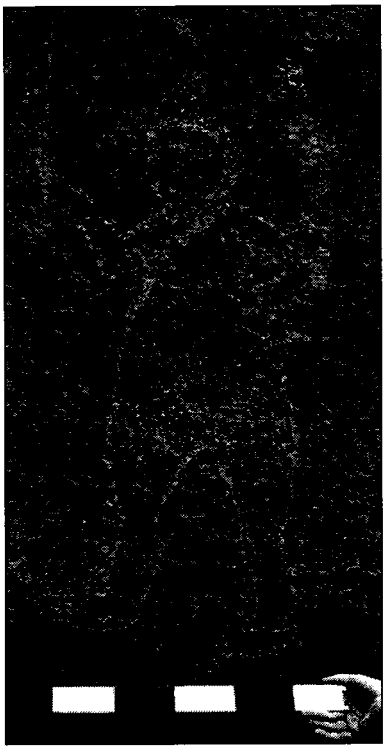

Figure 5.65: "Warrior" petroglyph

Non-Ceramic Artifacts

A number of non-ceramic artifacts were found during the mapping of Astialakwa (ceramics are discussed in Chapter VI). As mentioned above, an intact mano and metate were located in structure S6-1 (FIG. 5.66). These were the only artifacts that were permanently collected during the course of GMAP research, and they are now on display in the Walatowa Visitor Center. Other artifacts found during mapping include a worked and perforated piece of shell that may have been worn as a pendant (FIG. 5.67) as well as multiple lithic projectile points made from chert and obsidian. Three metal artifacts were found in and around the rooms, including a roughly rectangular fragment of iron, a flat, ring-shaped piece of iron (not jewelry; FIG. 5.68) and a rectangular piece of copper (FIG. 5.69).

Ann Ramenofsky (Department of Anthropology, University of New Mexico) and Michael N. Spilde (Research Scientist, Institute of Meteoritics, Earth, and Planetary Sciences, University of New Mexico) analyzed the copper fragment using Scanning Electron Microscopy. They examined 13 areas, covering both sides of the fragment, concluding that:

> copper and chlorine are present in significant amounts in almost all spectra . . . Tin is present in patches and appears to have been a coating on top of the copper. We, of course, don't know how it was applied. It also does not appear that the tin formed with copper (making a bronze) rather than a tin coating on top of the copper. (Ramenofsky and Spilde 2005:1)

The thickness of the fragment (1.5 mm) attests to its possible protective (rather than decorative) function, possibly as a piece of armor. The fragment appears to have been

Figure 5.66: Mano and metate in situ, room S6-1

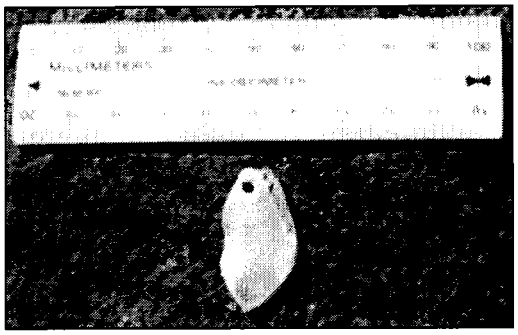

Figure 5.67: Shell pendant

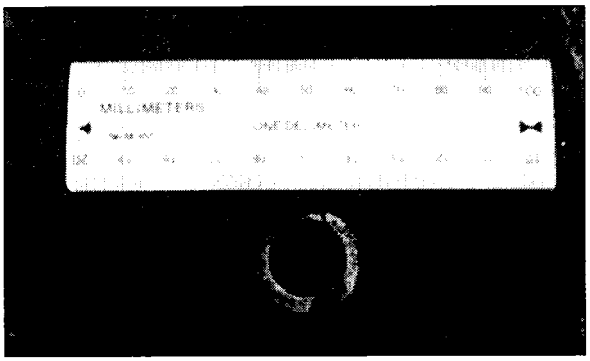

Figure 5.68: Iron ring

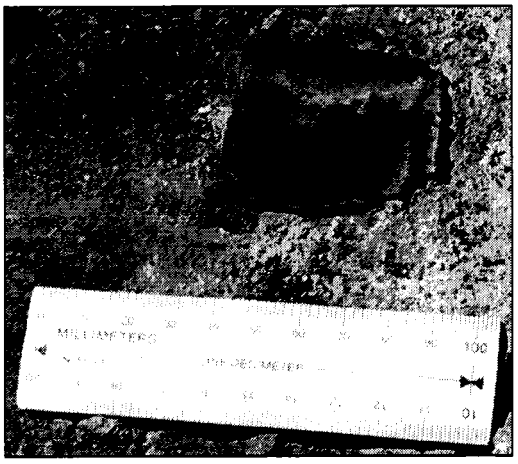

Figure 5.69: Copper fragment

modified, with signs of cutting along the edges. A groove along one edge suggests that it may have functioned as part of a hinge at one time.

Agriculture and Animal Husbandry

The only direct evidence for horticultural practices on the mesa top is a roughly constructed, semi-circular check dam of unshaped tuff blocks located north of the western architectural group (FIG. 5.70). This check dam serves the dual purpose of preventing erosion while at the same time retaining moisture, duties it still performs admirably in the twenty-first century. Today, grasses on the upper (northwest) side of the retaining wall are more lush than those of the surrounding mesa top, and this area is frequented by grazing mule deer and large quantities of rabbits. The Vargas journals clearly state that the valleys on the east and west sides of the mesa were the primary locations of maize cultivation for the residents of San Diego Mesa (Kessell et al. 1998:323, 366); thus the area behind this check dam may have served as a grazing location or as a secondary area of maize cultivation.

Vargas recorded that 172 head of sheep and goats and "some horses" were confiscated from the residents of Astialakwa following the 1694 battle (Kessell et al. 1998:327, 368). Some of the architecture of Astialakwa may have been constructed as pens for the smaller animals. Specifically, features W27, W28, and W29, located on the western edge of the mesa in an area approximately three meters below the mesa top, all display less masonry wall fall than most of the mesa-top architecture (FIG. 5.71). This could be because these structures did not exhibit full-size walls and may have served as unroofed animal pens. Additionally, Structure E7, located in the bottom of the arroyo bisecting the site, is a likely candidate for animal penning for the same reasons. Animals

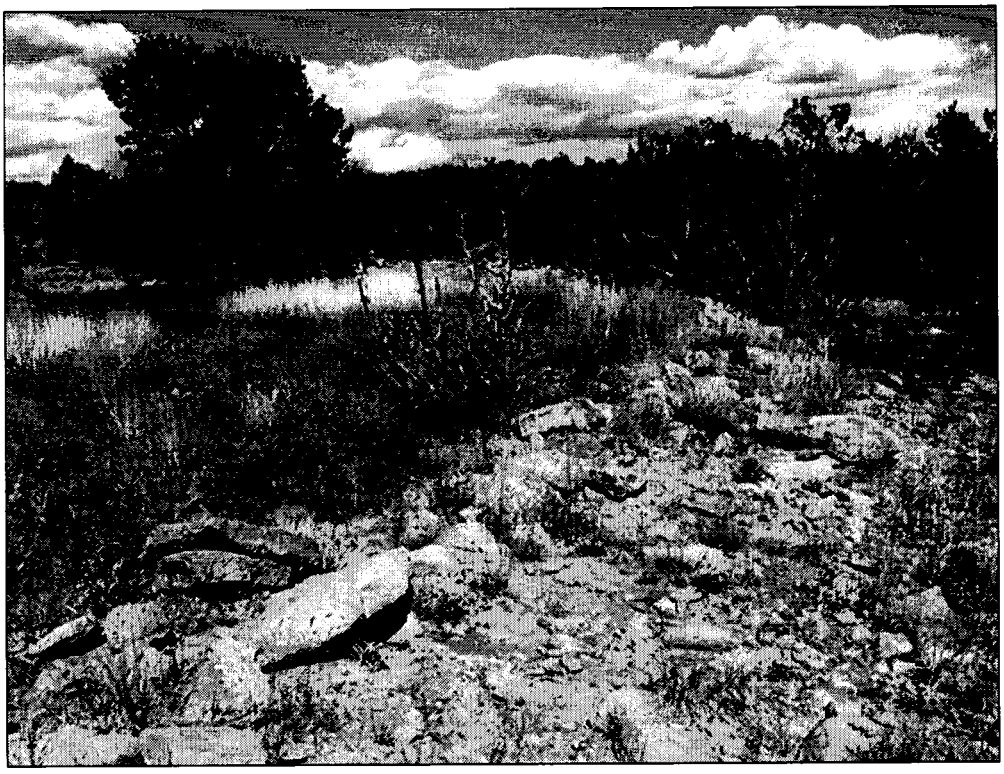

Figure 5.70: Check dam from the south

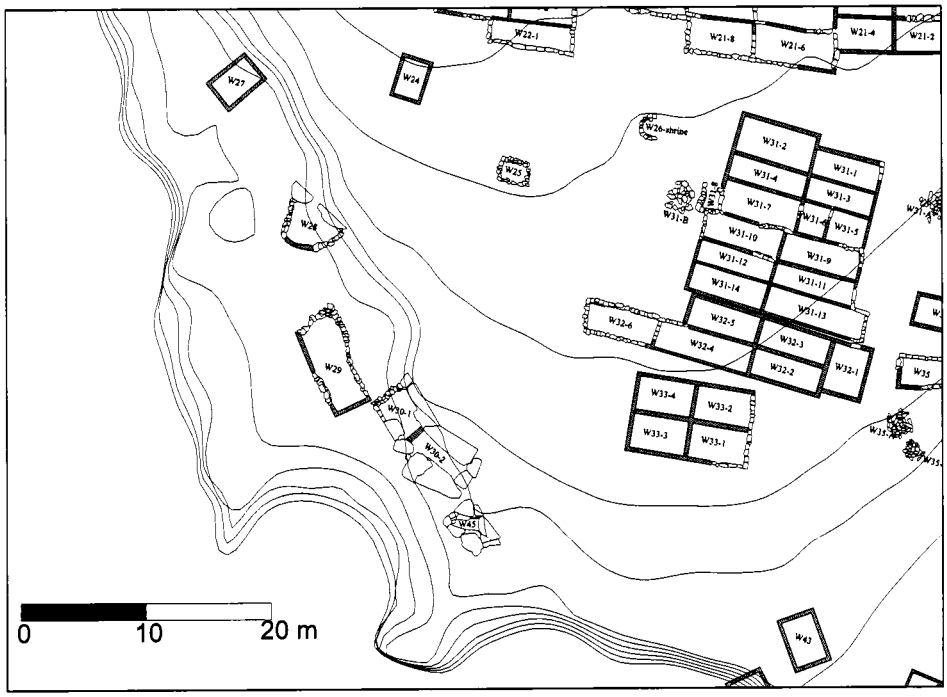

Figure 5.71: W27, W28, W29, detail

unroofed animal pens. Additionally, Structure E7, located in the bottom of the arroyo bisecting the site, is a likely candidate for animal penning for the same reasons. Animals were also probably corralled in the walled area on the southeast side of the peñol (FIG. 5.72). Although these walls resemble the defensive walls located on the south and north ends of the peñol (see below), the sheer cliffs directly under this section make it impossible to access this area from below. Thus it seems a reasonable assumption that these walls were constructed for the purpose of keeping animals in rather than keeping humans out.

Battlefield Archaeology at San Diego Mesa

Archaeological evidence related directly to the battle of July 24, 1694 is abundant at Astialakwa. Defensive fortifications were constructed (presumably in preparation for the 1694 battle) along the southern and northern extents of the peñol, as well as along its northeast side (FIGS. 5.72 and 5.73). These fortifications consist of linear arrangements of unshaped tuff stones piled as high as 50 cm in places. Similar fortifications have been reported at the Revolt period villages of Kotyiti (Preucel 1998), Black Mesa (Harrington 1916), and Dowa Yalanne (Ferguson 1996). Furthermore, piles of fist-sized granite cobbles (manuports from the Permian geological stratum below the peñol) were recorded at the trailheads southwest of Astialakwa and on the north end of the mesa, as well as near the northeast fortifications. These piles served as stores of ammunition for the slings of Pueblo warriors during their battles with the reconquering forces. Vargas recounts that the people of Astialakwa "shot many arrows, threw stones, and tumbled boulders down" upon his soldiers (Kessell et al. 1998:367), and these piles are the remnants of these tactics. Their locations in three distinct areas indicate that the inhabitants of the peñol

Figure 5.72: Locations of walls (thick lines) and sling-stone piles (stars) at San Diego peñol

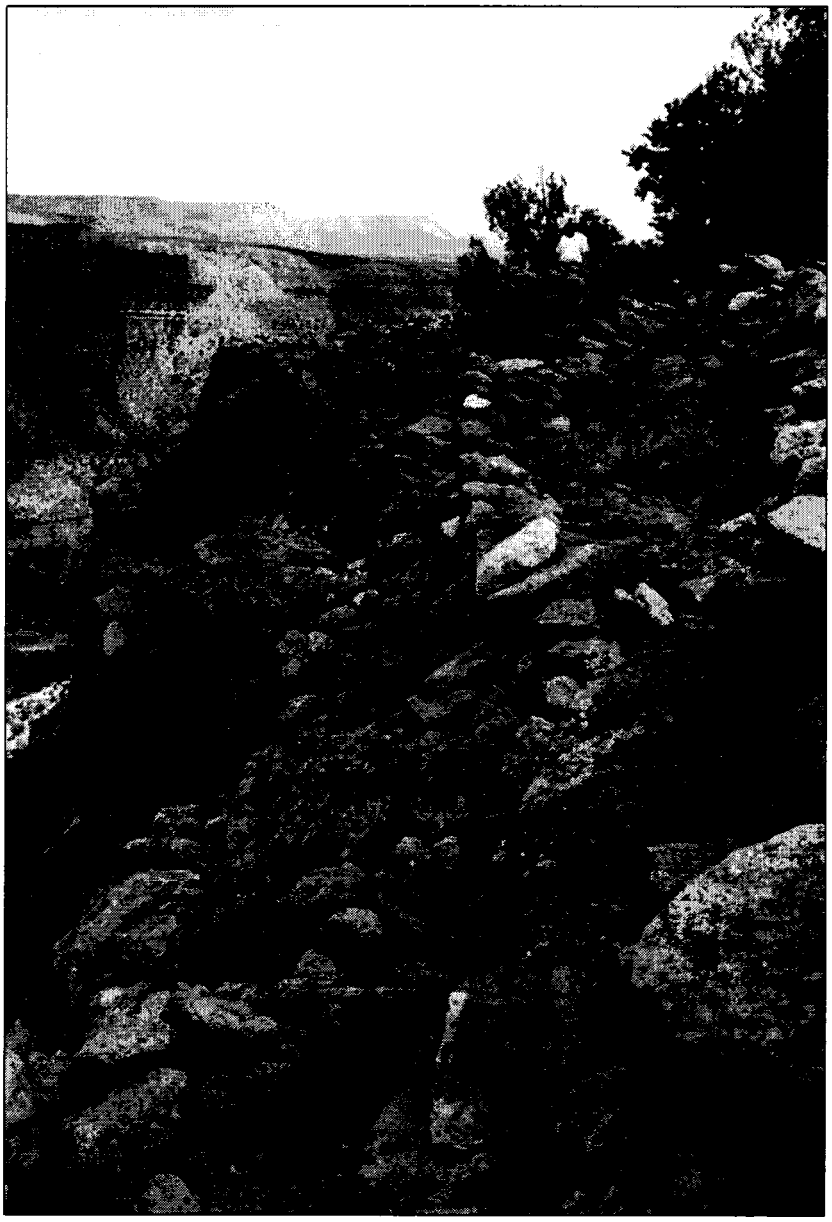

Figure 5.73: Defensive walls on the north end of San Diego peñol

anticipated the multi-fronted, "pincer-style" battle tactics employed by Vargas (for he had used this strategy just three months prior in his attack on Horn Mesa [Kessell et al. 1998:192-193]). Furthermore, they correctly predicted where the opposing forces would attempt to gain access to the peñol—the north and south ends. (No attempt was reportedly made to access the peñol at the northeast end in the location of the third ammunition stockpile.) Apparently once the battle began and gunshots were fired on the north end of the mesa, warriors rushed from the village to help defend against the attack, leaving the south end vulnerable (Kessell et al. 1998:367).

Once the mesa top had been breached, the reconquering forces set fire to some of the houses at Astialakwa in the course of the battle, suffocating five men and one woman (Kessell et al. 1998:368). Rooms E2-9 and E9-3 are identified as two of the structures burned during the battle. The fill from these rooms contains an abundance of burned corn; because all the edible corn was removed from Astialakwa in the nine days following the battle (Kessell et al. 1998:337), it stands to reason that rooms exhibiting an abundance of burned corn were set ablaze during the battle.

The fact that broken pottery is scattered uniformly among the architectural units of Astialakwa, with no circumscribed midden area, provides further testimony to the destruction that took place during the battle of 1694 and its aftermath. During the inhabitation of Astialakwa it is likely that residents disposed of refuse over the sides of the mesa; yet pottery is scattered throughout the site in greater abundance than expected for a site occupied for only eight to nine months. (There is much more pottery at Astialakwa than at Cerro Colorado for instance, which was occupied for a period of close to four years). The most parsimonious explanation for this profusion of pottery is that

much of it was broken and scattered during the course of the battle and in subsequent days by the reconquering forces and their allies.

Following the removal of stored maize and other foodstuffs from Astialakwa, Vargas ordered the entire pueblo to be "burned and reduced to ashes," an order carried out by Capt. Antonio Jorge on August 2, 1694 (Kessell et al. 1998:337). Evidence for burning was found in 147 of the 190 rooms at Astialakwa (77%), either in the form of burned tuff, burned plaster, or charred material in the room fill (FIGS. 5.74, 5.75, and 5.76).

Evidence of the 1696 Reoccupation

As discussed above, Astialakwa was reoccupied between June 4 and June 29, 1696 (Espinosa 1988:252; Kessell et al. 1998:792-798, 881). Material evidence of this reoccupation exists in Room block E5, where multiple rooms exhibit burned tuff masonry, but no charred material was found in the fill Rooms E5-1, E5-2, E5-3, E5-6, E5-7, E5-9). This suggests that these rooms were swept clean sometime after the 1694 burning of Astialakwa. Additionally, architectural renovations such as a sealed doorway in room E5-4 (filled in with wet-laid masonry) and the abutted wall between rooms E5-6 and E5-7 (subdividing what appears to have been a single room into two) provide further evidence supporting the hypothesis that these rooms were re-occupied during June 1696.

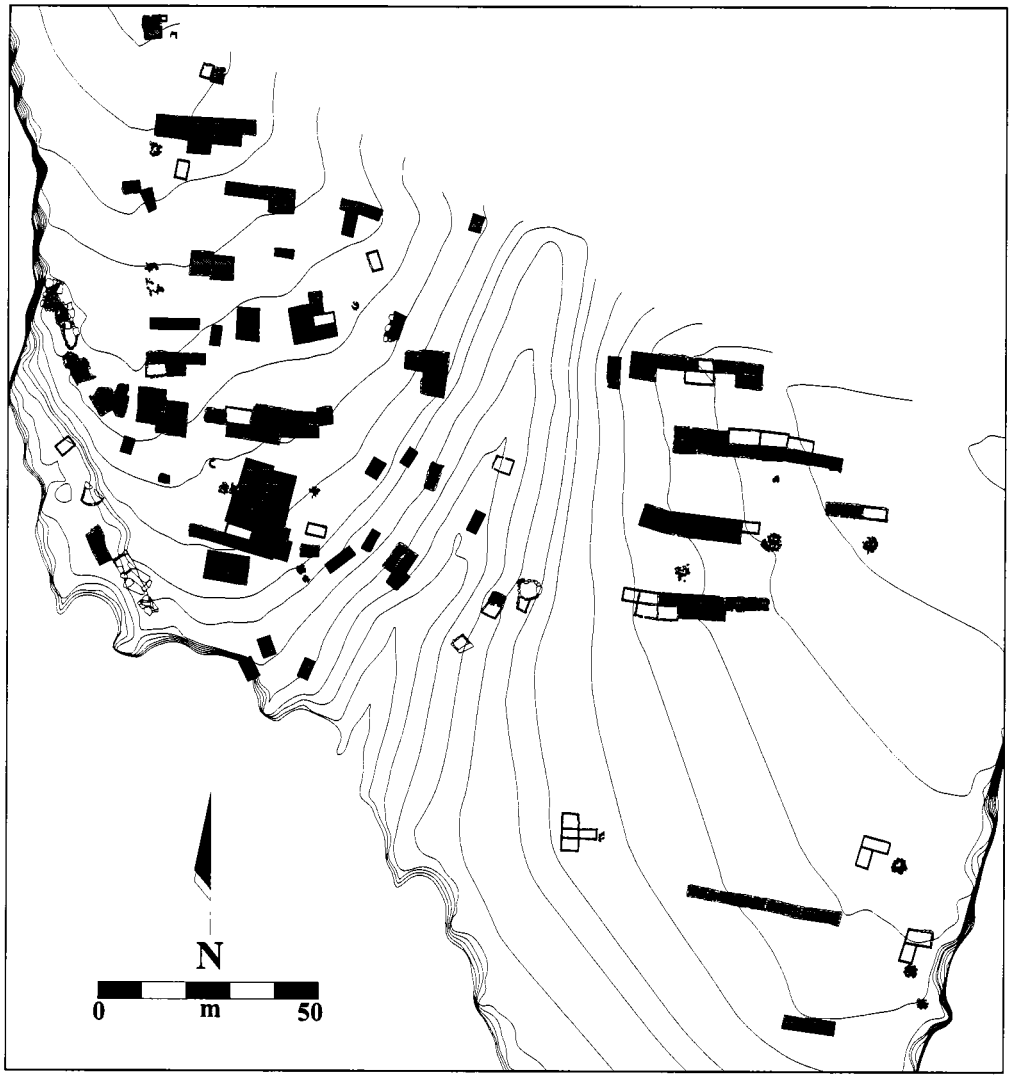

Figure 5.74: Rooms with evidence of burning at Astialakwa

Figure 5.75: Burned tuff in the north wall of room W21-5

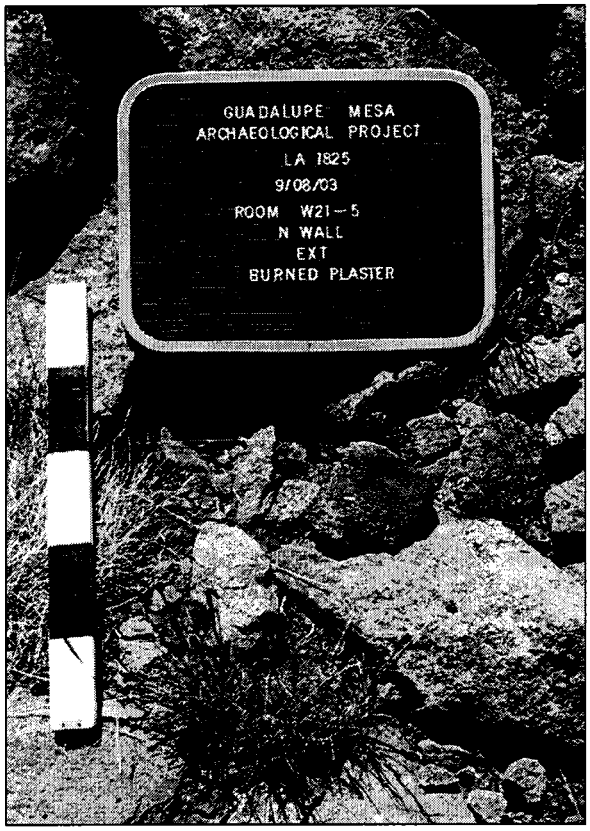

Figure 5.76: Burned plaster in the north wall of room W21-5

CHAPTER VI: THE ARCHAEOLOGY OF THE PUEBLO REVOLT ERA IN THE JEMEZ PROVINCE: CERAMIC DATA

One of the primary characteristics of a revitalization movement as defined by Wallace is a pattern of rapid, intentional changes in *multiple elements* of a culture (Wallace 1970:188, my emphasis). By stressing the critical aspect of transformation in more than a single feature, Wallace differentiates revitalization movements from discrete, individual acts of agency. This observation directs archaeological attention to the fact that multiple artifact classes are likely to be impacted by revitalization movements. Following from this observation, this dissertation examines evidence for revitalization in multiple categories of material culture. Chapter V focused on the architecture of Patokwa, Boletsakwa, Cerro Colorado, and Astialakwa, while Chapter VI examines a second artifact class—the ceramic assemblage of Pueblo Revolt era villages in the Jemez Province. The ceramics of the aforementioned sites provide additional lines of evidence relating to the social practices of revitalization (specifically, nativism and revivalism) enacted by members of these communities. Additionally, ceramic analysis can provide a window into Pueblo social and economic relations at multiple scales—the intra-site, intra-regional, and macro-regional levels—as well as offering insight into the formation of Pueblo identities and gender-specific responses to the post-Revolt world.

This chapter begins with an overview of the pottery of the Jemez Province, followed by a review of studies of Revolt era ceramics in other regions of the Pueblo world. It goes on to describe the typology of northern Rio Grande Pueblo ceramics utilized in GMAP investigations, providing brief descriptions of the major wares

exhibited in the Jemez Province Revolt era assemblage. Finally, the methodology of GMAP ceramic investigations is presented, along with the results of the study of the ceramic assemblages from Patokwa, Cerro Colorado, and Astialakwa.

The Ceramics of the Jemez Province

To speak of "the ceramics of the Jemez Province" is necessarily tautologous, given that the region is defined by the spatial extent of Jemez Black-on-white pottery (Elliott 1986a:1; Chapter IV). The ubiquitous presence of this distinctive type has been noted since the earliest days of archaeological investigations in the area (Holmes 1905:206), and the existence of large quantities of Jemez Black-on-white pottery remains *the* defining characteristic of ancestral Jemez archaeological sites. Jemez Black-on-white ceramics dominate the decorated ware assemblages of every large pueblo site in the Jemez Province dating from A.D. 1350-1680 that has been subjected to systematic analyses to date (Reiter 1938; Shepard 1938; Reiter et al. 1940; Lambert 1981; Elliott 1991, 2002b, 2005; Futrell 1998; Reed and Goff 1999; Kulisheck 2005; Nelson 2005).[40] Reiter and Shepard's investigations of the Unshagi ceramics—the earliest, most comprehensive, and still best analyses of Jemez ceramics yet performed—found that Jemez Black-on-white comprised 92.6 percent of the decorated ware assemblage at that pueblo (Reiter 1938:189-192). Similar results have been reported at other sites throughout the Jemez Province: at Giusewa, 94.1 percent (Lambert 1981; Elliott

[40] The sole exception is Walatowa (Dodge 1982), discussed below, although investigations there apparently did not include areas occupied prior to the eighteenth century.

1991:80, 2005:24); at Kiatsukwa, 99.5 percent; at Kwastiyukwa, 82.0 percent; at Nanishagi, 86.6 percent; and at Seshukwa, 72.6 percent (Futrell 1998:290).[41]

Jemez Black-on-white is often considered exceptional among northern Rio Grande ceramic types due to its perceived homogeneity and lengthy temporal extent (Kulisheck 2005:292). Indeed, petrographic analyses of ceramics from Unshagi (Shepard 1938:205) and Giusewa (Warren cited in Lambert 1981) confirm that the tempering materials used in Jemez Black-on-white sherds unearthed at these sites remained remarkably uniform through the centuries. However, the popularity of the notion that Jemez Black-on-white pottery remained stoically invariant and homogenous throughout its 300-plus-year history is inversely proportional to the amount of research performed on this type; despite the tens of thousands of Jemez Black-on-white sherds collected from Jemez sites in the early twentieth century, today little is definitively known regarding its origins and development. In an attempt to rectify this lack of understanding, both Elliott (1986a:187) and Kulisheck (2005:291) have defined patterns of temporal variation within this enigmatic type, classifying vessels into early, late, and historic varieties based on attributes such as the location of design elements and distinctions in form. At Giusewa, the seventeenth century Spanish presence had a measurable effect upon the production of Jemez Black-on-white ceramics, resulting in the manufacture of new forms (soup plates, cups, and ecclesiastical artifacts including a chalice, candleholder, and a cross) as well as the prominent use of the Greek cross motif (Lambert 1981:224-228; Elliott 1991:81).

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[41] Futrell's study of ceramics from Kiatsukwa, Kwastiyukwa, Nanishagi, and Seshukwa cannot be considered comprehensive as it is based exclusively on rim fragments, resulting in significantly smaller sample sizes ranging from 182-385 sherds per site.

Conversely, the Utility wares of the Jemez Province display undisputed evidence of change through time. Although even less attention has been paid to Jemez Utility wares (also known as "Culinary" wares) than to Jemez Black-on-white, significant patterns of temporal variation have been defined for these pottery types in the Jemez Province. These transformations generally correspond with those previously identified in other regions of the northern Rio Grande (Kidder and Shepard 1936; Habicht-Mauche 1993; Vint 1999), including a shift from corrugated designs to smeared ("blind" or "obliterated") types to plain, undecorated vessels (Reiter 1938:103). Furthermore, changes in temper ratios were detected among the plain wares of Unshagi, shifting from predominantly tuff in the earliest levels to predominantly andesite in the latest (92.6% tuff/7.4% andesite in the former and 5.8% tuff/94.2% andesite in the latter [Shepard 1938:207]).

Previous analyses of Jemez ceramics give some insight into trade relations among Jemez and non-Jemez persons in the pre-Revolt period as well (Reiter 1938; Shepard 1938; Lambert 1981; Elliott 1991, 2005; Futrell 1998; Graves and Eckert 1998). Ceramic studies both within the Jemez Province and in surrounding regions suggest that Jemez peoples were fairly xenophobic prior to A.D. 1680, evidenced by a lack of trade wares from non-Jemez groups (Reiter 1983:103; Lambert 1981; Elliott 1991:80; Futrell 1998:289). At Unshagi, just 3.2 percent of the assemblage was classified as non-local (Reiter 1938:103); similarly, at Giusewa 3.0 percent of the sherds were identified as trade wares (Elliott 1991:80). The majority of these non-local types were Rio Grande glaze wares, and petrographic analyses indicate that of these the most common tempering material was basalt, suggesting that exchange occurred primarily with the Zia area to the

south, albeit infrequently and in low quantities (Shepard 1938:211; Warren quoted in Lambert 1981:228). Stylistic analyses of pre-Revolt Jemez Black-on-white report little evidence for interaction with Tewa peoples to the northeast (Graves and Eckert 1998:276; Morley 2002:237-239), with somewhat stronger connections to the glaze ware region east and southeast of the Jemez Province (Graves and Eckert 1998:276; Futrell 1998:290). Furthermore, Jemez Black-on-white is not found in significant quantities in either the Tewa or glaze ware-producing regions (Futrell 1998:289-290).

The limited quantities of glaze wares that have been found on pueblos throughout the Jemez Province provide crucial temporal information regarding the occupation of these sites, establishing the timeline for Classic-period settlement in the region (Elliott 1982). A recent study of Amoxiumqua ceramics in the National Museum of Natural History collections "place its major occupation to the early 1500s and ending during the mid-1600s" (Nelson 2005:4), based on a lack of Glaze C ceramics, relatively large quantities of Glaze E, and the absence of Glaze F sherds from this assemblage. The frequency of glaze wares at Kiatsukwa, Kwastiyukwa, Nanishagi, and Seshukwa is reported in Futrell's study of ceramic zones in the northern Rio Grande (Futrell 1998:288); however, the small sample sizes (less than 90 glaze ware sherds per site) make large-scale inferences difficult. At Giusewa, glaze wares (specifically, the presence of Glaze A sherds) provide good evidence for a relatively early founding date (A.D. 1300-1400s [Nelson 2005:6-7]). Recent analyses have also revealed "an unexpectedly high frequency" of glaze ware sherds at the opposite end of the spectrum as well. Glaze F appears in relatively high quantities, which has been interpreted to suggest a pueblo presence at the mission after its presumed 1630's abandonment by the Spaniards (Elliott

1991:80, 2005:24). However, if Schaafsma's early date for Glaze F production of A.D. 1625 is correct (Schaafsma 2002a:195), the high percentage of Glaze F at Giusewa may instead reflect the unexpected consequence of increased trade with the glaze ware-producing neighbors of the Jemez as a by-product of the Franciscan presence in the region. At Walatowa, the total absence of glaze wares—as well as Jemez Black-on-white—was an unexpected finding of the only documented study of sub-surface remains yet conducted there (Dodge 1982). These investigations found primarily eighteenth century types, including high percentages of undecorated, smudged utility wares (suggesting that the sections monitored are not representative of the entire span of occupation of the village).

The general ceramic trends in the Jemez Province from A.D. 1350-1680 can be summarized as follows: Jemez Black-on-white dominated the decorated ware assemblage at all sites, with an extremely conservative tradition of tuff-tempering present throughout its lifespan (Shepard 1938:205; Warren cited in Lambert 1981:220). Plain wares were locally produced, with tempering materials shifting from primarily tuff early on to primarily andesite by the early seventeenth century (Shepard 1938:207). Little trade with glaze ware-producing regions was performed, but when ceramic exchange did occur it was primarily with Zia peoples to the south. Trade with Tewa peoples was exceedingly rare. Finally, the Spanish presence in the Jemez Province in the early seventeenth century had a measurable impact on the stylistic and formal attributes of Jemez Black-on-white pottery (Lambert 1981; Elliott 1991).

The Ceramics of the Pueblo Revolt Era: Previous Investigations

Although preliminary ceramic inventories of some of the Pueblo Revolt era sites of the Jemez Province have been performed, these studies are generally based upon extremely small sample sizes and often utilize collections amenable only to analyses of occurrence, not frequency (Elliott 1982, 1986b; Marshall 1993[42]). Furthermore, none of these studies have attempted to examine evidence for revitalization at Patokwa, Boletsakwa, Cerro Colorado, or Astialakwa.

Ideologies of nativism and revivalism influenced ceramic production in many other areas of the Pueblo world in the wake of the rebellion, as reported at ancestral Hopi (Adams 1981, 1989), Zuni (Mills 2002), and Cochiti (Capone and Preucel 2002) pueblos. In the post-Revolt ceramic assemblage at the Hopi village of Walpi, Adams found that "All trappings of Spanish form and design were eliminated . . . The manufacturers were reasserting traditions in ceramic production and use, which symbolized the 'conquest' of the Spaniards and their material culture by Pueblo values and beliefs" (Adams 1989:85). The influx of Rio Grande émigrés to the Hopi pueblos during the Pueblo Revolt period influenced ceramic production as well, as reflected in post-1690 Hopi vessel forms and design motifs that resemble Tewa Wares and late Glaze ware pottery (Adams 1981:325-326).

Zuni ceramics display strong evidence for nativism and revivalism during this period as well. In the mid to late sixteenth century, the dominant ceramic types produced

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[42] Marshall was apparently unaware of any historical references to Patokwa, and erroneously concluded that the historic period component was occupied from A.D. 1725-1800.

by Zuni potters were matte-painted wares (Mills 2002:89). Beginning around 1630, glaze-paint technologies were reintroduced to Zuni potters, probably resulting from the arrival of Franciscan missionaries who brought Rio Grande ceramic technologies with them (Mills 2002:90). Following the Pueblo Revolt, Zuni women ceased the production of glaze-painted pottery entirely, shifting back to the manufacture of matte-painted polychromes in what Mills interprets as "an intentional act to mark a break with earlier ceramic production" (Mills 2002:93). Nativism appears to have played a primary role in this transformation, as "the association of the mission with this vessel type may have been one the Zunis would want to leave behind them" (Mills 2002:93). This dramatic break in ceramic technology included the introduction of a new ware, more homogenous in design elements and form than the much more diverse corpus of pre-Revolt Zuni ceramics. This new type, Ashiwi Polychrome, replaced Matsaki Buff Ware (Brown-on-buff and Polychrome varieties) and Hawikuh Glaze Ware (Glaze-on-red and Polychrome varieties) to become the exclusive decorated ware produced by Zuni potters in the wake of the Pueblo Revolt (Mills 2002:92-93). Ashiwi Polychrome vessels display highly standardized decorative elements, in particular, representations of feathers. This new, more uniform type suggests the creation of a more homogenous Zuni identity in the period following the Pueblo Revolt (Mills 2002:94).

The Zuni ceramic evidence also corresponds with the notion that a larger pan-Pueblo identity developed during the Revolt period, as Ashiwi Polychrome bears strong similarities to ceramics manufactured at other pueblos during this period, particularly Acoma (Dillingham and Elliott 1992; Mills 2002:92). Furthermore, the increase in bird and feather motifs following the Revolt has been noted not only at Zuni, but in Rio

Grande assemblages following 1680 as well (Mobley-Tanaka 2002:81). A Mills notes, this "region-wide stylistic horizon . . .suggests a unity that cross-cuts language groups and other important social differences among the Pueblos" (Mills 2002:95) and was likely related to the pan-Pueblo revitalization movement initiated by Po'pay.

Revivalism played a prominent role in post-Revolt ceramic production in the northern Rio Grande region as well, as evidenced in the ceramic assemblage of the ancestral Cochiti refuge pueblo of Kotyiti. The glaze wares found there display evidence for the revival of archaic design elements, embodied most prominently in the double-headed key motif (Capone and Preucel 2002:108). Although this ornamentation appears from Glaze B (A.D. 1400-1450) through Glaze F (A.D. 1625-1700) times, Kidder notes that its appearance is relatively rare during the Glaze E (A.D. 1515-1625) period (Kidder and Shepard 1936:227). Following the Pueblo Revolt, however, use of the double-headed key motif became frequent and widespread among glaze ware potters, appearing in more than one-third (36%) of all identified designs on Kotyiti glaze ware. This design element has been noted on glaze-painted pottery at other Revolt era sites as well, including Old San Felipe, Boletsakwa, Cerro Colorado, and Astialakwa (Capone and Preucel 2002:108). The revival of the hooked triangle motif on Tewa wares follows a similar pattern; it was identified in the Kotyiti Tewa ware assemblage, and also appears on contemporaneous Kotyiti glaze wares and Ashiwi Polychrome vessels (Capone and Preucel 2002:110).

The Kotyiti ceramic assemblage has been used to both corroborate and question the Spanish documentary record as well. Petrographic investigations, architectural data, and spatial analyses of intramural sherd distributions combine to reveal evidence for the

incorporation of non-local inhabitants into the Kotyiti community. Two-thirds of the basalt-tempered (and thus presumably non-local) glaze wares at Kotyiti were found in rooms appended to older roomblocks (Capone and Preucel 2002:107). This has been interpreted as evidence for the "refugee effect"—the immigration of San Felipe families into the Kotyiti community after its founding. This migration is corroborated by historical documents (Kessell et al. 1995:200).[43] But the high numbers of Tewa wares in the Kotyiti assemblage challenge historical reports that the Tewas were at war with the Keres during the Spanish interregnum (Kessell and Hendricks 1992:26), instead documenting close ties among the people of Kotyiti and the Tewa communities of the Española Valley during the Pueblo Revolt era (Capone and Preucel 2002:111).

The general trends of the ceramics of Revolt era pueblos outside of the Jemez Province include evidence for increased interaction among traditionally distinct regions, both in terms of trade and direct migration. Similar trends in decorative elements, such as the adoption of more homogenous pan-Pueblo motifs, the revival of archaic designs, and the creation of new styles are common throughout the Pueblo world. In some areas nativism seems to have played a prominent role in the shaping of post-Revolt material culture, inaugurating entirely new vessel types in an attempt to wash away all elements of Spanish colonialism.

Northern Rio Grande Ceramic Typology

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[43] The alternative interpretation that these could have been trade wares is not favored by the authors because of the corroborative historical records (Capone and Preucel 2002:112 n. 9).

The ceramic typology utilized in this study employs a modified version of the type-variety system (Wheat et al. 1958; Philips 1958; Gifford 1960), following Habicht-Mauche (1993). This classification relies heavily upon Mera's (1935, 1940) observations that the spatial distributions of decorated Pueblo ceramics in the pre-Hispanic and early Historic northern Rio Grande region was restricted, with approximate boundaries maintained along what are presumed to have been linguistic and ethnic lines (Ford et al. 1972; Wilcox 1991:129; Graves and Eckert 1998:264). A modified system is necessary because the current study focuses on an unusually brief time span in comparison to previous investigations employing the type-variety system in the northern Rio Grande (Habicht-Mauche 1993; Kulisheck 2005), during which these traditional boundaries began to break down while new ones were formed, as will be demonstrated below. Thus the hierarchical ranking of types to clarify relations of affinity through time (characteristic of classic type-variety studies) is not a critical portion of the current analysis, as documentary and tree-ring evidence provide temporal control for the sites under investigation (Chapter V). Still, it remains desirable to retain previously established sorting categories in order to promote comparative studies across space and time.

An outline of the classificatory system used in this study is presented in Table 6.1. Four hierarchical categories were used: ware, series, type, and variety. Following Wheat et al., a *ware* refers to "a large grouping of pottery types which has little temporal or spatial implication but consists of stylistically varied types that are similar technologically and in method of manufacture" (Wheat et al. 1958:35). Based on these criteria, the ceramics from the Revolt period sites of the Jemez Province can be divided

Table 6.1: Ceramic sorting categories used in this study

Ware	Series	Type	Varieties	Estimated Dates (A.D.)	References
Utility Wares	*Santa Fe*	Rio Grande Corrugated	Indented, washboard, clapboard, ribbed	1025-1300	Kidder and Shepard 1936:304; Habicht-Mauche 1993:13; Vint 1999:390
		Rio Grande Blind Corrugated	smeared, obliterated, wiped, blind	1250-1500	Reiter 1938:107; Habicht-Mauche 1993:14; Kulisheck 2005:287
		Jemez Plain	basalt tempered, tuff tempered	1300-1825	Reiter 1938:103; Kulisheck 2005:283
Decorated Wares	*Rio Grande B/w*	Santa Fe B/w	Santa Fe, Pindi	1175-1350	Habicht-Mauche 1993:19
	Jemez	Jemez Black-on-white		1350-1680	Reiter 1938; Elliott 1986, 1991; Kulisheck 2005:292-93
	Zia	Puname Polychrome		1690-1760	Harlow and Lanmon 2003:31; Liebmann this volume
	Jemez Province Revolt	Jemez River Polychrome	basalt tempered, tuff tempered	1680-1720	Harlow and Lanmon 2003:31-33; Liebmann, this volume
		Historic Red	basalt tempered, tuff tempered, sand tempered	1680-1830	Kidder 1936:287-290; Lambert 1981; Liebmann, this volume
	Rio Grande Glaze	Glaze A	Agua Fria Cienegulla, San Clemente	1315-1425	Vint 1999:391, Schaafsma 2002a:195
		Glaze B	Largo	1415-1450	Schaafsma 2002a:195
		Glaze C	Espinoso	1450-1500	Schaafsma 2002a:195
		Glaze D	San Lazaro	1490-1525	Schaafsma 2002a:195
		Glaze E	Puaray, Escondido, Pecos	1515-1625	Vint 1999:391, Schaafsma 2002a:195
		Glaze F	Kotyiti, San Diego	1625-1700	Schaafsma 2002a:195; Harlow and Lanmon 2003:32

	Tewa	Wiyo B/w		1300-1400	Schaafsma 2002a:196
		Tewa Polychrome		1650-1730	Schaafsma 2002a:196
		Tewa Red		?1650-	Schaafsma 2002a:149
		Kapo Black		1680-1760	Mera 1939:14; Harlow 1973:40; Schaafsma 2002a:150
		Kapo Grey		1680-1760	Mera 1939:14; Harlow 1973:40; Schaafsma 2002a:150
		Tewa B/w		1680-1750	Mera 1939; Frank and Harlow 1974; Schaafsma 2002a:151
	Northern Tewa/Tiwa	Micaceous			
	Zuni	Ashiwi Polychrome		1680-1750	Mera 1939; Mills 2002
	Hopi	Jeddito Yellow		1625-1740	Dongoske and Dongoske 2002:119

into two basic categories: Utility Wares (equivalent to Colton's [1953:26] Rio Grande Grey Ware), and Decorated Wares (Vint 1999).

A *series* describes a grouping of types that have a more restricted geographical distribution than the ware of which they are a part. As utilized in previous studies, series typically imply a temporal component as well, with a sequence of types that generally succeed each other through time (Colton 1953:52; Habicht-Mauche 1993:9). While the temporal component of the series category is retained here for the glaze-paint series (Mera 1933), it is less useful for dealing with variations within the matte-painted pottery (particularly the Tewa series), due to the brief temporal span of the Pueblo Revolt era.

The primary sorting category utilized in this study is that of *type*. Types refer to groupings of ceramics with unique clusters of attributes characteristic of a particular time and place, and are the conventional categories utilized in the sorting of Southwestern ceramics. The attributes of northern Rio Grande pottery most commonly used to identify typological categories include: 1) surface treatment and finish; 2) paint type; and 3) paste composition, texture, and color (Habicht-Mauche 1993:9), although studies of Historic period Pueblo ceramics often rely heavily upon variation in form to designate discrete types (Harlow 1973; Frank and Harlow 1974; Harlow and Lanmon 2003).

The category of *variety* is employed in order to differentiate significant variation within a type. A variety differs from the larger type of which it is a part in only one minor attribute, and "in terms of geographical distribution and time span it may be equal to that of the type, although generally it is more restricted in one or both of these elements" (Wheat et al. 1958:34-35). The designation of varieties was used sparingly, only in cases where technological differences among sherds (such as a variation in

tempering materials) presented important information regarding the likely origins of vessels.

There are valid criticisms of the normative type-variety system employed in this study, however. The most significant of these critiques points out that by forcing sherds into idealized "types" significant variability may be masked, and information regarding important temporal, spatial, cultural, or behavioral patterns may be missed (Habicht-Mauche 1993:11). Nevertheless, the type-variety method was chosen for the present study because of the long history of type-based classification in the study of northern Rio Grande ceramics, allowing for comparison with previous studies.

Utility Wares

The Utility Ware category is a catch-all designation applied to any sherd that does not exhibit painted decoration or evidence of polishing or slipping. It includes undecorated vessels, corrugated ceramics decorated via surface impressions, and rough utility types, incorporating a large range of variability in surface treatment and paste composition. Temporal variation in the Jemez Province appears to follow that of the northern Rio Grande as a whole (Kulisheck 2005:281), in the sequence labeled as the Santa Fe Series (Habicht-Mauche 1993:13). Previous investigations have concluded that the Utility Wares of the Jemez Province were typically produced locally and not traded in the Classic and Spanish Colonial periods (Shepard 1938:206-207).

Rio Grande Corrugated, A.D. 1025-1300

For the purposes of this study, corrugated types—that is, any unpainted sherd with evidence of intentional corrugation, indentation, incision, striation, basket-impression, punctuation, retention of coil construction patterns, or other form of deliberate relief in

the vessel surface (excluding "smeared," "blind," and "obliterated" surfaces)—have been collapsed into a single category. Varieties include indented, clapboard, washboard, and ribbed forms. Although others have noted the temporal variation represented by different surface relief treatments (Wilson 2005:14-19), a single category is employed here because it is generally agreed that Rio Grande Corrugated types pre-date the Pueblo Revolt era by at least a century or more (Vint 199:390), thus the notation of presence/absence of this type is sufficient for the analysis employed herein. Rio Grande Corrugated pottery has been poorly defined in the Jemez Province (Kulisheck 2005:286), and the date range used here is based on that used for the Pajarito Plateau and the Santa Fe area (Vint 1999; Habicht-Mauche 1993).

Rio Grande Blind Corrugated, A.D. 1250-1500

This type follows Kulisheck's (2005:287) designation and is equivalent to Habicht-Mauche's Tesuque Grey (1993:14-15). Rio Grande Blind Corrugated subsumes all previously identified "smeared," "obliterated," "wiped," and "blind" types from the Northern Rio Grande. Surface treatments include smeared, wiped, scraped, and rubbed corrugated surfaces, and although grey hues are typical, colors range from black to red to yellow. Although temporal and geographical variation in surface treatments of Rio Grande Blind Corrugated vessels have been noted in other studies (Wilson 2005:14-19), a single category is employed here because it is generally agreed that Rio Grande Blind Corrugated types pre-date the Pueblo Revolt era by at least a century or more. Reiter notes that within the Jemez Province (as in other areas of the northern Rio Grande), Rio Grande Blind Corrugated vessels are gradually supplanted by Jemez Plain vessels in the fifteenth century (Reiter 1938:103).

Jemez Plain, A.D. 1300-1825

The designation "Jemez Plain" was applied to all sherds not exhibiting signs of painted decoration, slipping, polishing, or intentional modification of surface relief. Additionally, sherds with micaceous temper were excluded from this category. It includes types identified in previous studies as "culinary" and "utility" wares (Reiter 1938:103; Shepard 1938:206). Jemez Plain is a negative category, defined by virtue of what it lacks (decoration), rather than what is exhibited, and as a result this category has the potential to be divided into several different types and varieties (Kulisheck 2005:285). Tempering materials are variable with tuff and basalt being the most prevalent in the Pueblo Revolt era assemblages, but vitreous andesite has been identified in plain wares at Unshagi (Shepard 1938:206-207). Unlike previous studies of Jemez plain wares (Dodge 1982; Reed and Goff 1999; Kulisheck 2005) the presence or absence of smudging and interior smoothing (attributes that have been used to subdivide this type in order to highlight temporal variation) was not noted during this study.

Decorated Wares

The Decorated Ware category applies to any sherd displaying signs of painted decoration, slipping, or intentional polishing. The series classifications identified here are primarily inferred from previous studies, but are crucial for the interpretation of trade relationships and migration within the Pueblo Revolt period. Whenever possible, series categories were created to reflect the ethnic identities of the producers (e.g. Jemez Series, Zia Series, Tewa Series, Zuni Series, and Hopi Series), but because this study examines only the types found at the Jemez Province Revolt era sites, the various preceding and subsequent types of each series are not reviewed here. In cases where the establishment

of ethnic identities of the producers of a series was not viable, either due to a multi-regional/multi-ethnic distribution of types (e.g., the Rio Grande Glaze Series) or ambiguities regarding the ethnic identities of makers (e.g., the Jemez Province Revolt Series), alternative labels were applied in an attempt to reflect the common attributes shared by all types within that series.

Santa Fe Black-on-white, A.D. 1175-1300

Santa Fe Black-on-white is the most widely distributed white ware in the northern Rio Grande area (Mera 1935), and is easily identifiable by its carbon paint and distinctive grey-blue paste. The date range reported here represents its common distribution throughout the northern Rio Grande, though dendrochronological evidence suggests that it was used at Arroyo Hondo until at least A.D. 1410 (Habicht-Mauche 1993:19). Its occurrence in the Jemez Province has been poorly defined, as it has not been identified in any large quantity in excavated assemblages from the region (Kulisheck 2005:290).

Jemez Black-on-white, A.D. 1350-1680

Jemez Black-on-white is characterized by a thick, highly polished slip ranging from "oyster white" (10yr8/1-2) to "pearl grey" (5yr7.5/1) and organic paint ranging from deep black (2.5y2/0) to medium brown (5yr 6/1). It is tempered nearly exclusively with tuff. It has been documented in excavated contexts at Unshagi (Reiter 1938; Shepard 1938), Giusewa (Lambert 1981; Elliott 1991, 2005), Amoxiumqua (Nelson 2005), Kiatsukwa, Kwastiukwa, Nanishagi, Seshukwa, (Futrell 1998:290) and at various fieldhouses throughout the Jemez Province (Reed and Goff 1999; Kulisheck 2005). Estimates for beginning dates range from A.D. 1300 (Whatley and Delaney 1995) to 1375 (Elliott 1994), but the first secure dates come from Unshagi at around 1400 (Reiter

1938). Debates surrounding its origin fall into two camps, one hypothesizing its local development out of Vallecitos B/w (which in turn was a late local variant of Santa Fe B/w) (Elliott 1994; Whatley and Delaney 1995), the other conjecturing that it originated as a variant of Gallina B/w that displaced Vallecitos B/w (Reiter 1938; Ford et al. 1972; Peckham 1990). Elliott (1994) and Kulisheck (2005) suggest speculative temporal markers differentiating early Jemez Black-on-white from late varieties, including a higher ratio of open forms to closed vessels in earlier varieties, a transition in slip color from white to tan and grey in later varieties, and the appearance of Spanish forms such as soup plates and cups in the historic period.

Puname Polychrome, A.D. 1690-1760

Puname Polychrome was produced along the southern Jemez River (a region known as *los Punames* to Spanish colonialists, translated as "people of the west" from the Keresan language [Harlow and Lanmon 2003:31]) by Zia and Santa Ana peoples in the late seventeenth and early eighteenth centuries. It is characterized by a white slip on the middle and upper bodies of jars and interior and upper exteriors of bowls, mineral matte paint (Harlow and Lanmon 2003:32), and basalt temper (Harlow 1973:51). Motifs include design panels broken by double vertical lines and red rims, with rows of circular arcs common. Although Harlow hypothesizes a pre-Revolt starting date (between A.D. 1650 and 1675), a beginning date of 1690 is suggested here based upon the low frequencies of Puname Polychrome found in the Jemez Province Pueblo Revolt era ceramic assemblages.

Jemez River Polychrome, A.D. 1680-1720

Jemez River Polychrome is a recently identified type, first recognized and described by Harlow (Harlow and Lanmon 2003:31-33). It is identified by its black (5yr2.5/1 to 7.5yr 2/0) and red (10r4/8) matte organic paint on unslipped vessels with paste varying from brick red (10r4/8) to light red (2.5yr6/6). Red lines framed by black outlines on either side are common motifs. Two varieties have been identified, basalt-tempered and tuff-tempered. Harlow and Lanmon hypothesize that Jemez River Polychrome is a transitional type between San Diego Polychrome (the Puname variety of Glaze F, see below) and Puname Polychrome, produced during the Pueblo Revolt era (Harlow and Lanmon 2003:33). The ending date used here is slightly later than that originally proposed by Harlow (A.D. 1700), based on the presence of Jemez River Polychrome at Patokwa, which was occupied through at least A.D. 1716 (Chapter V).

Historic Red, A.D. 1680-1830

Historic Red was first identified as a type by Kidder (Kidder and Kidder 1917:338; Kidder and Shepard 1936:287-290, 541-544), who called it "Plain Red" and noted that while the prehispanic period was characterized by smooth-surfaced decorated wares and rough-surfaced undecorated (culinary) wares, during the historic period there appeared a new, hybrid type: "vessels with smooth finish but without decoration of any sort . . . They began to be made late in Glaze V and remained in fashion until the abandonment of the pueblo" (Kidder and Shepard 1936:287). Shepard hypothesized that Historic Red was a post-Revolt innovation (Kidder and Shepard 1936:547). The Historic Red type is sometimes equated with "Salinas Red," previously reported in the Salinas and Cochiti districts (Toulouse 1949; Warren 1979:239; Hayes et al. 1981:101). This type of

unpainted pottery increased in frequency through the seventeenth century in the latter levels at Abò, Quarai, and Las Humanas (Hayes et al. 1981:101). The term "Historic Red" is utilized here following Lambert (1981), who was the first to identify it in ancestral Jemez contexts at Giusewa.

For the purposes of this study, Historic Red pottery is characterized by a lack of painted decoration, polished jar exteriors with unpolished interiors, and polished interiors and exteriors of bowls ranging from light orange (2.5yr6/4-6) to red (10r5/6). Three varieties have been identified in the Jemez Revolt period assemblage: basalt-tempered, tuff-tempered, and sand-tempered.[44] Although Historic Red vessels are not painted, this type is included among the Decorated Wares because of its characteristic polished surfaces (indeed, it was first classified as "Polished Red" by Kidder in one of the early publications on Pecos [Kidder and Amsden 1931:131]). It is also probable that some of the sherds identified as Historic Red originated as unpainted regions Glaze F or Jemez River Polychrome vessels.

Rio Grande Glaze Series, A.D. 1315-1700

The classification of the Rio Grande Glaze Series utilized in this study is based on Mera's (1933) revision of Nelson's (1916) and Kidder and Kidder's (1917) sequences, derived from the observed temporal variations among open vessel rim forms, although distinctions based on surface attributes such as paint characteristics are sometimes possible as well, particularly with reference to the later types. At least ten different varieties have been identified among the six widely accepted Rio Grande Glaze types (A-

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[44] Shepard identified two varieties at Pecos, sand-tempered and tuff-tempered, comprising 97.4% and 2.6% of the total assemblage, respectively (Kidder and Shepard 1936:541).

F), based largely on differences in tempering materials (Shepard 1942; Warren 1979). In the Jemez Province, glaze wares were not locally produced during the pre-Hispanic and early Historic periods, and comprise a relatively small percentage of the overall ceramic assemblage (Reiter 1938:108; Shepard 1938, 1942; Warren cited in Lambert 1981:228). Pueblo potters ceased production of glaze wares throughout the northern Rio Grande region around A.D. 1700, possibly because increasing mining activities of Spanish colonists restricted Native access to lead mines (Warren 1979:191).

For the current analysis the most important type in the Rio Grande Glaze Series is Glaze F, as it was the only type produced during the Pueblo Revolt era. Previous studies have identified multiple varieties within this type, specifically the Kotyiti Glaze varieties: Glaze-on-yellow, Glaze-on-red, and Glaze Polychrome (Vint 1999; Schaafsma 2003a:195). Kotyiti Glaze types tend to be tuff tempered, although basalt-tempered varieties have been identified as well (Capone and Preucel 2002:106).[45] Frank Harlow and Dwight Lanmon (2003:31-33) identify the Puname area variety of Glaze F as San Diego Glaze Polychrome. The current study uses the terminology "Kotyiti Glaze" to refer to all tuff-tempered varieties of Glaze F, and San Diego Glaze to refer to the basalt-tempered varieties.

Tewa Series, A.D. 1300-1750

The ceramic types of the Tewa series share a characteristic fine tuff temper and lower average firing conditions, resulting in softer and more friable pastes relative to the Jemez and Rio Grande Glaze Series ceramics (Stubbs and Stallings 1933; Harlow 1973;

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[45] An additional variety, San Marcos Glaze Polychrome, has been utilized in other studies (Kulisheck 2005:280).

Frank and Harlow 1974:16; Schaafsma 2002a:147). A distinctive feature of Historic period Tewa ceramics is "the production of vessels that were covered entirely or partially with well-polished slip and which were not painted. Differential firing and smudging techniques render the vessels red, black, gray, or several other colors" (Schaafsma 2002a:148). These types, distinguished primarily by different surface colors, are referred to by the names Kapo Black, Kapo Gray, and Tewa Red.

Many of the type designations for the Tewa Series are based on characteristics of whole vessels or very large sherds (Frank and Harlow 1974). Because many of the painted types have large areas of unpainted slip that are generally red (e.g. Tewa Polychrome), some of the sherds identified as Tewa Red in this study may have originated as unpainted regions of Tewa Polychrome or Pojoaque Polychrome. Similarly, the sherds identified as Tewa Black-on-white may be derived from the painted portions of Tewa Polychrome vessels (Schaafsma 2002a:149-151). Thus it is likely that some mixing of sherds among the established Tewa types has occurred in the samples reported below.

Other Trade Wares

Small numbers of sherds were identified from areas outside the Jemez, Tewa, and Rio Grande Glaze Series regions. A few unpainted sherds with micaceous paste were found, presumably imported from the Tewa/northern Tiwa regions. One Hopi sherd was identified in the Jemez Pueblo Revolt era ceramic assemblage (identified on the basis of its distinctive thick, foamy paste) along with a single Ashiwi Polychrome sherd from Zuni.

Methods of Analysis

Ceramic samples were collected from three of the four Jemez Province Revolt era sites discussed in Chapter V: Patokwa, Cerro Colorado, and Astialakwa. No samples were collected at Boletsakwa for two reasons: 1) GMAP survey was not able to identify any clear midden area in the immediate vicinity of the Pueblo Revolt component of the site (probably because refuse was disposed of by discarding it over the western edge of the mesa); and 2) even if midden areas had been identified below the steep western mesa edge, it is likely that the Revolt period assemblage would be co-mingled with the earlier Classic-period component of Boletsakwa, making the analysis of revivalism (and to a lesser extent, nativism) during the Pueblo Revolt era difficult if not impossible.

The ceramics collected from Patokwa, Cerro Colorado, and Astialakwa were analyzed according to a standardized four-step process: 1) All surface sherds larger than 2.25 cm^2 were collected from selected 5 x 5 m units, non-randomly placed in areas exhibiting high concentrations of surface artifacts (middens). 2) The collected sherds were washed and classified according to ceramic type and, when possible, vessel form (e.g. jar rim, jar body, bowl rim, or bowl body). 3) Among types where it was desirable to determine tempering materials in order to assign a variety, the edges of sherds were filed in order to produce a "clean" cross-section, and the tempering material was examined using an optical stereoscopic microscope at 40x magnification. 4) Details regarding the type, variety, form, and weight of classified sherds were recorded in a digital database (Appendix D). A total of 3967 sherds were analyzed from nine sample units.

Because the sherds analyzed in this study were typically very small (averaging less than nine cm^2), it was often impossible to determine if they originated as part of an unpainted area on a painted vessel, or whether they issued from an unpainted bowl or jar. Hence some mixing of types undoubtedly occurred during the course of this study, as sherds typed as unpainted may have actually derived from a painted vessel. This is particularly apt to have occurred within the Historic Red sample, which likely includes unpainted sherds that originated as part of Glaze F (Kotyiti or San Diego) or Jemez River Polychrome vessels. Thus it is possible that sherds from a single vessel were classified into two (or more) types.

Following the assignment of type and variety, 55 sherds comprising a sample of Historic Red, Glaze F, and Jemez Black-on-white types from all three sites were thin-sectioned and subjected to petrographic analysis in order to verify or correct the preliminary tempering identifications performed in Step 3. Petrography was performed by David V. Hill (Appendix E), and confirmed that the preliminary identifications of basalt, tuff, and sand tempers using optical microscopy were generally accurate, although Hill's petrographic analysis provided a more detailed and nuanced account of variation among tempering materials than was provided by my initial tempering identifications. Following these analyses, all sherds were returned to their original locations by re-scattering them within the same 5 x 5 m units from which they were collected, thus minimizing the impacts of this study on the archaeological resources. Results of the ceramic samples collected at each site are presented below.

Summary of Results

Astialakwa

Ceramics were collected from three sample units at Astialakwa, one from each of the intra-site settlement clusters (the West, East, and South groups; FIG. 6.1). A total of 973 sherds were collected and analyzed. A summary of this assemblage is detailed in Table 6.2. The results from Astialakwa are presented first because this assemblage generally pre-dates that of Patokwa. This may seem counter-intuitive, as Astialakwa was founded in 1693-94 while the Pueblo Revolt era component of Patokwa was established in the early 1680s (Chapter V). However, the relatively even distribution of ceramics across the site and lack of clearly defined midden areas suggests that the majority of the pottery evident on the surface at Astialakwa today was likely broken during the battle of 1694 and subsequent destruction of the village by Vargas's forces. Thus Jemez people must have had to replace their ceramic assemblage following the battle while they were living at Patokwa (where habitation extended until at least 1716). For this reason, the ceramics of Astialakwa primarily reflect ceramic production and exchange prior to 1694, while the Patokwa Historic period assemblage is most likely comprised of a significant percentage of post-1694 ceramics.

The most surprising aspect of the Astialakwa assemblage is the relatively low percentage of Jemez Black-on-white; whereas in pre-Revolt Jemez sites such as Giusewa and Unshagi Jemez Black-on-white typically comprises more than 40 percent of the assemblage (Reiter 1938; Lambert 1981; Elliott 1991), at Astialakwa it makes up just 13 percent of the total. Similarly, lesser but still substantial increases in glaze wares and

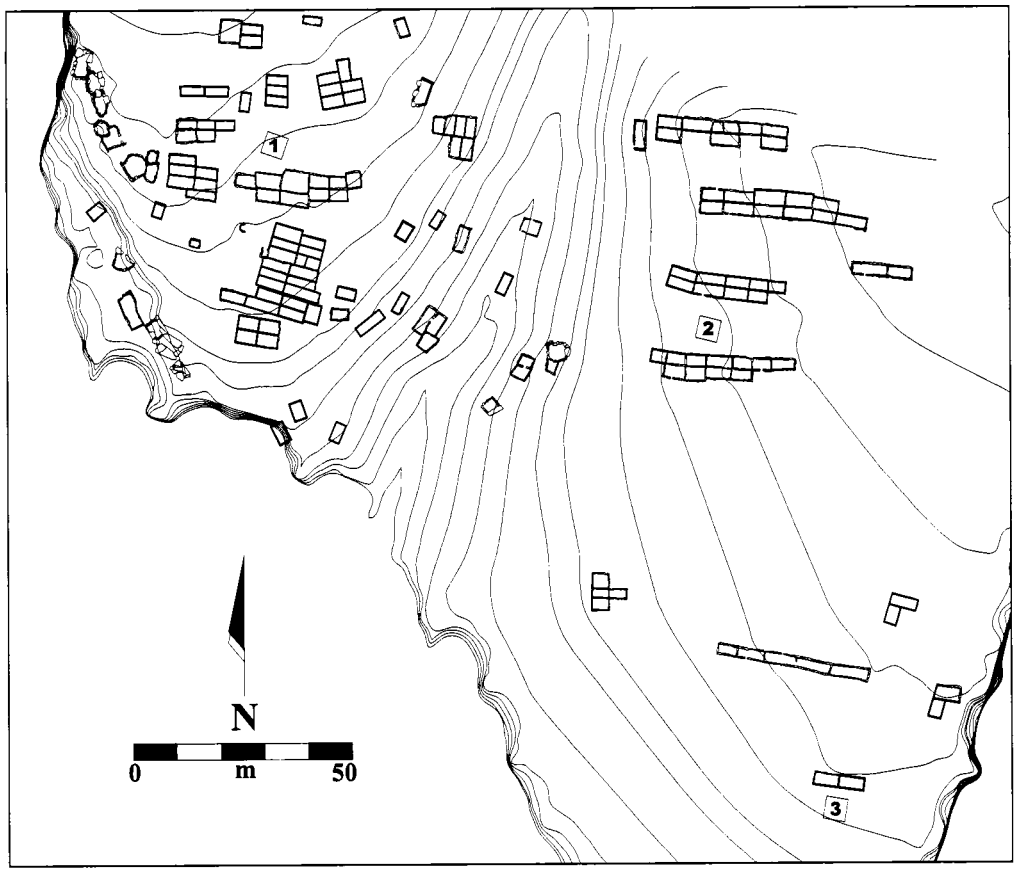

Figure 6.1: Locations of ceramic sample units (nos. 1-3) at Astialakwa

Table 6.2: Astialakwa ceramic summary (Units 1, 2 & 3)

Type	Number	Weight (g)	Percent of total (based on weight)
Jemez Plain	283	1291.1	39.0
Jemez Black-on-white	153	430.9	13.0
Glaze E	1	6.3	0.2
Glaze F	89	239.6	7.2
Unidentified Glaze	22	56.9	1.7
Jemez River	13	37.0	1.1
Historic Red	258	774.5	23.4
Puname Poly	28	90.9	2.7
Tewa Poly	15	52.9	1.6
Tewa Red	43	142.0	4.3
Kapo Black	31	56.5	1.7
Hopi Yellow	1	6.6	0.2
Unidentified	36	121.1	3.7
Totals:	973	3306.3	100%

Tewa Series ceramics are evident when compared to pre-Revolt Jemez assemblages (see below). Finally, the introduction of new types, most significantly Historic Red (comprising 23% of all ceramics) is marked in the Astialakwa samples.

The most surprising aspect of the Astialakwa assemblage is the relatively low percentage of Jemez Black-on-white pottery. Whereas at pre-Revolt Jemez sites such as Giusewa and Unshagi Jemez Black-on-white typically comprises more than 40 percent of the assemblage (Reiter 1938; Lambert 1981; Elliott 1991), at Astialakwa it makes up just 13 percent of the total. Similarly, lesser but still substantial increases in glaze wares and Tewa Series ceramics are evident when compared to pre-Revolt Jemez assemblages (see below). Finally, the introduction of new types, most significantly Historic Red (comprising 23% of all ceramics) is marked in the Astialakwa samples.

Patokwa

Ceramics were collected from four sample units at Patokwa (FIG. 6.2). Three of these (Units 4, 5, and 6; TABLE 6.3) were selected because of their close proximity to the Historic period component of the site, in an attempt to isolate the Pueblo Revolt era assemblage and minimize the "contamination" of these samples by earlier Classic period ceramics. The fourth sample (Unit 7; TABLE 6.4) was taken from the south side of the Classic period mound in an attempt to isolate this assemblage from the historic remains. The northernmost sample (Unit 4) was collected in an area with a high concentration of sherds, but it should be noted that this area has been disturbed by earth-moving equipment in the past (see Patokwa Looting and Vandalism, Chapter V). A total of 1961 sherds were collected from the four sample units—1346 from Units 4, 5, and 6 and

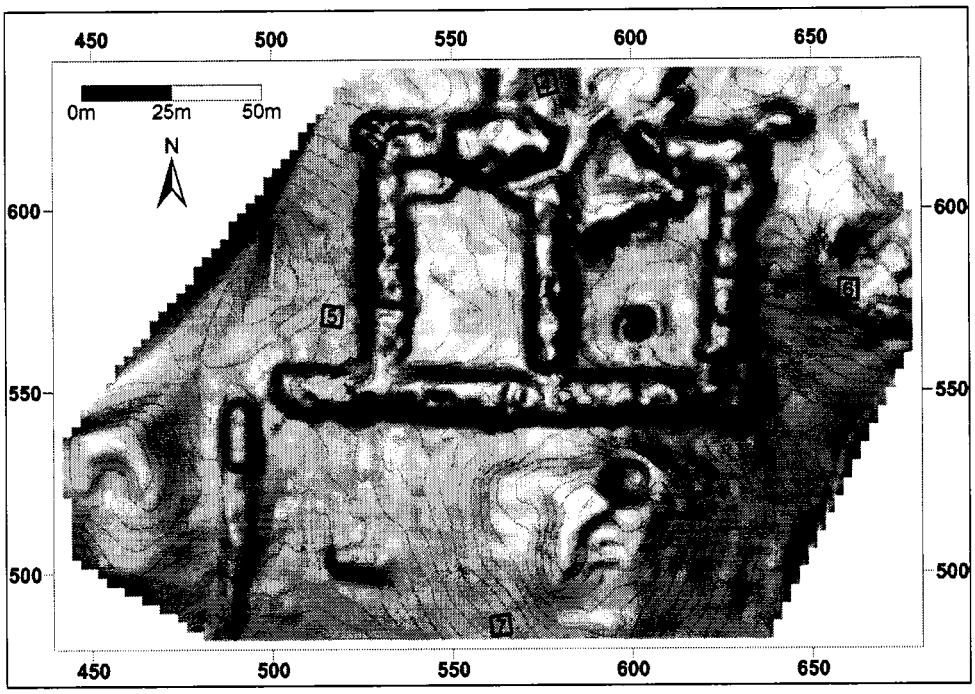

Figure 6.2: Locations of ceramic sample units (nos. 4-7) at Patokwa

Table 6.3: Patokwa Historic period component ceramic summary—Units 4, 5, & 6

Type	Number	Weight (g)	Percent of total (based on weight)
Rio Grande Blind Corrugated	1	3.1	0.1
Santa Fe B/w	2	5	0.1
Jemez Plain	634	2661.6	46.8
Jemez Black-on-white	18	85.8	1.5
Glaze B	1	14.9	0.3
Glaze C	1	7	0.1
Glaze E	2	18.6	0.3
Glaze F	186	817.9	14.4
Unidentified Glaze	3	7.6	0.1
Jemez River	32	143.7	2.5
Historic Red	278	1241.2	21.8
Puname Poly	37	149	2.6
Tewa Poly	28	102.4	1.8
Tewa Red	44	151.2	2.7
Kapo Black	1	7.2	0.1
Kapo Grey	3	7.4	0.1
Micaceous	6	26.5	0.5
Ashiwi Poly	1	5.4	0.1
Unidentified	68	229.8	4.0
Totals	1346	5685.3	100%

Table 6.4: Patokwa Classic period component ceramic summary—Unit 7

Type	Number	Weight (g)	Percent of total (based on weight)
Rio Grande Corrugated	17	42.8	2.2%
Rio Grande Blind Corrugated	97	388.5	20.3%
Santa Fe B/w	1	3.5	0.2%
Wiyo B/w	1	3.7	0.2%
Jemez Plain	203	607.8	31.8%
Jemez Black-on-white	276	795.3	41.6%
Unidentified Glaze	1	2.2	0.1%
Jemez River	1	1.7	0.1%
Tewa Poly	5	25.1	1.3%
Tewa Red	2	4.3	0.2%
Unidentified	11	36.7	1.9%
Totals	615	1911.6	100%

and 615 from Unit 7. The results from Units 4, 5, and 6 are presented separately from Unit 7 in order to facilitate comparisons of the Pueblo Revolt era assemblage of Patokwa with those from of Astialakwa and Cerro Colorado.

The Historic period samples from Patokwa (Units 4-6) display similar patterns to that of Astialakwa: a decrease in Jemez Black-on-white (in even greater proportions than that of the Astialakwa sample), an increase in trade wares, and the introduction of new types, most significantly Historic Red. The Classic period sample (Unit 7), by contrast, exhibits frequencies equivalent to other pre-Revolt Jemez samples—more than 40 percent Jemez Black-on-white, extremely low amounts of trade wares, and high percentages of utility wares.

Cerro Colorado

Ceramics were collected from two sample areas (Units 8 and 9) at Cerro Colorado (FIG. 6.3; TABLE 6.5). Due to a general dearth of surface ceramics at this site—as noted a century ago by Holmes (1905:200)—it was not feasible to collect samples from any more than these two units, nor were any additional midden areas identified at other locations around the site from which to sample.

The Cerro Colorado sample differs from that of the Jemez pueblos in significant, though not unexpected ways. Jemez Black-on-white is non-existent at Cerro Colorado, and Tewa wares are far less numerous. Glaze ware and utility ware frequencies are comparable. Puname Polychrome is present in higher quantities (as is anticipated at a site occupied by people from Zia and Santa Ana). The most surprising aspect of this

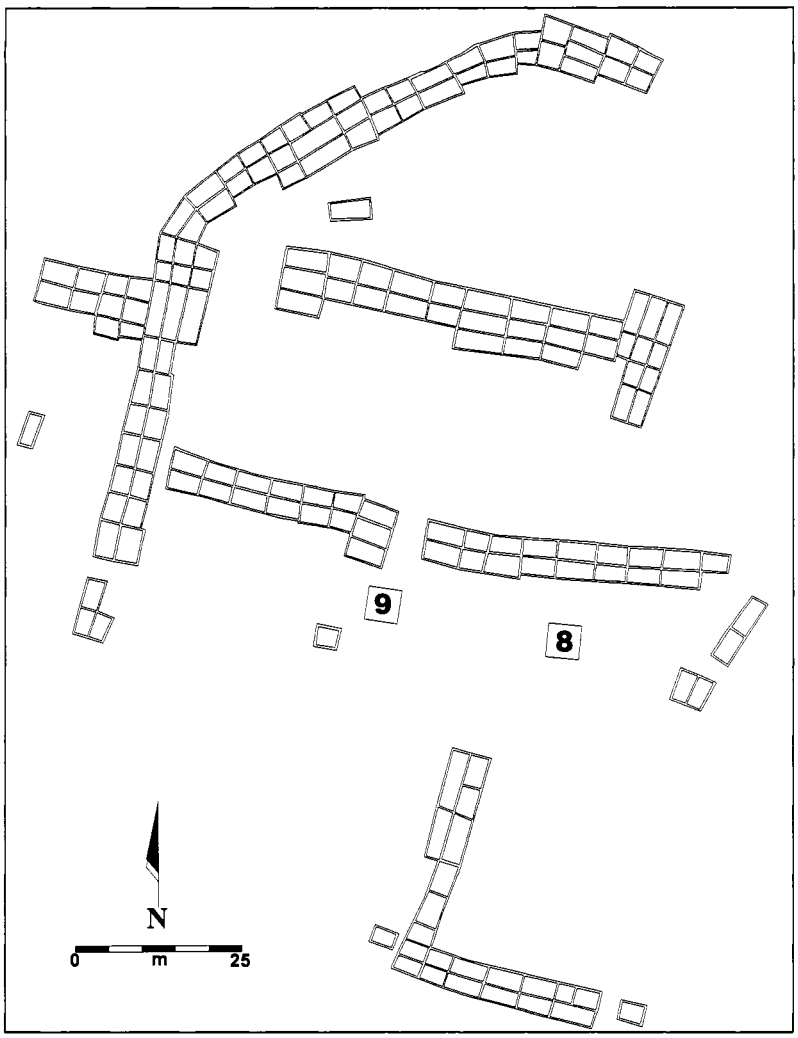

Figure 6.3: Location of ceramic samples (Units 8 & 9) at Cerro Colorado

Table 6.5: Cerro Colorado ceramic summary—Units 7 & 8

Type	Number	Weight (g)	Percent of total (based on weight)
Plain	401	1293.2	38.9
Jemez River	43	120.1	3.6
Historic Red	418	1378.8	41.4
Puname Poly	54	109.4	3.3
Glaze F	104	331.4	10.0
Unidentified Glaze	2	2.3	0.1
Tewa B/w	2	4.4	0.1
Unidentified	27	88.1	2.6
Totals:	1051	3327.7	100%

Interpretation

Three broad, interrelated trends can be discerned from the above data concerning the ceramics of the Revolt period in the Jemez Province: 1) the production of Jemez Black-on-white ceramics decreased significantly by or during the Revolt period, and ceased entirely by 1694 at the latest; 2) there was a significant increase in trade among Jemez pueblos and neighboring regions during the Revolt era; and 3) new ceramic types were introduced into the Jemez assemblages in the years following 1680.

The Cessation of the Jemez Black-on-white Tradition

The most significant and surprising finding of this study is the relatively low proportion of Jemez Black-on-white ceramics at the Revolt period pueblos. Jemez Black-on-white is by far the dominant decorated ware at all documented ancestral Jemez pueblos prior to the Pueblo Revolt period (Reiter 1938; Lambert 1981; Elliott 1991, 2005; Futrell 1998; Morley 2002).[46] At the pre-Revolt Jemez pueblos of Unshagi and Giusewa for example, Jemez Black-on-white comprises 43.0 percent of the combined assemblages (Reiter 1938:103; Elliott 1991:80). In contrast, at the Pueblo Revolt era sites of Astialakwa and Patokwa (Units 1-6), Jemez Black-on-white accounts for just 5.7 percent of the total assemblage (FIG. 6.4). If the comparison is limited solely to decorated wares the disparity is even more striking (FIG. 6.5): Jemez Black-on-white makes up 93.8 percent of the decorated assemblage at these pre-Revolt sites (Reiter

[46] The possible exception to this rule may be Walatowa; however, its seventeenth century component has not yet been identified.

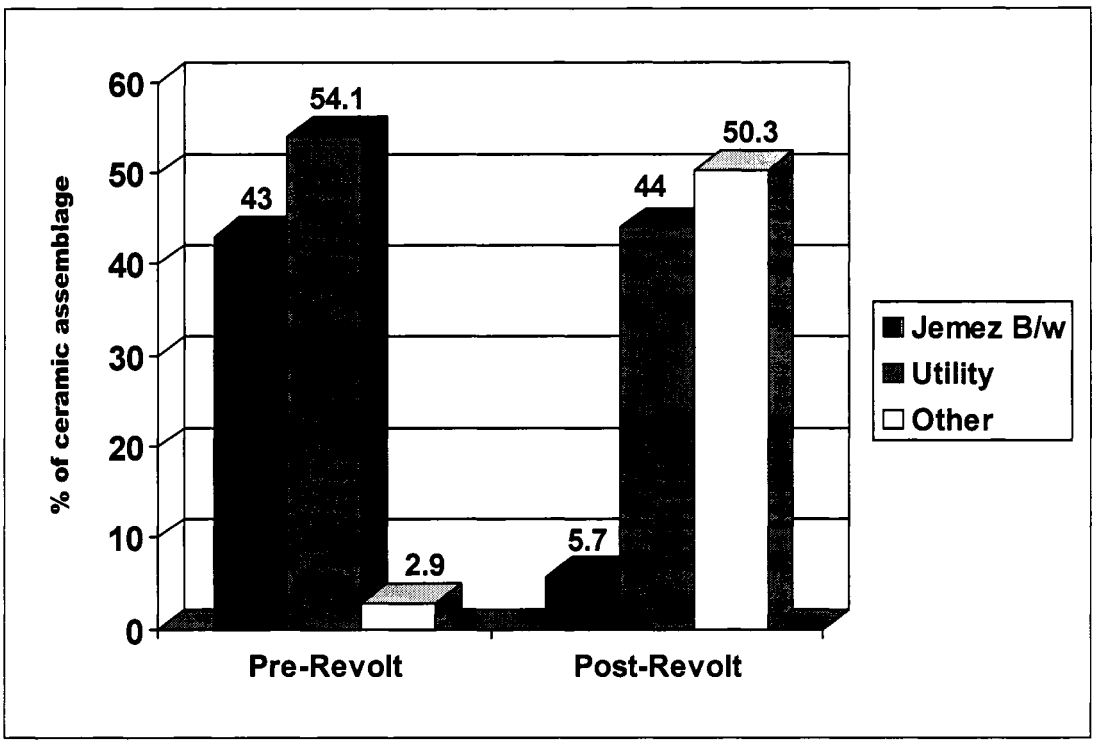

Figure 6.4: Comparison of Pre- and Post-Revolt ceramic assemblages from Jemez Villages (Pre-Revolt=Unshagi & Giusewa; Post-Revolt=Astialakwa & Patokwa)

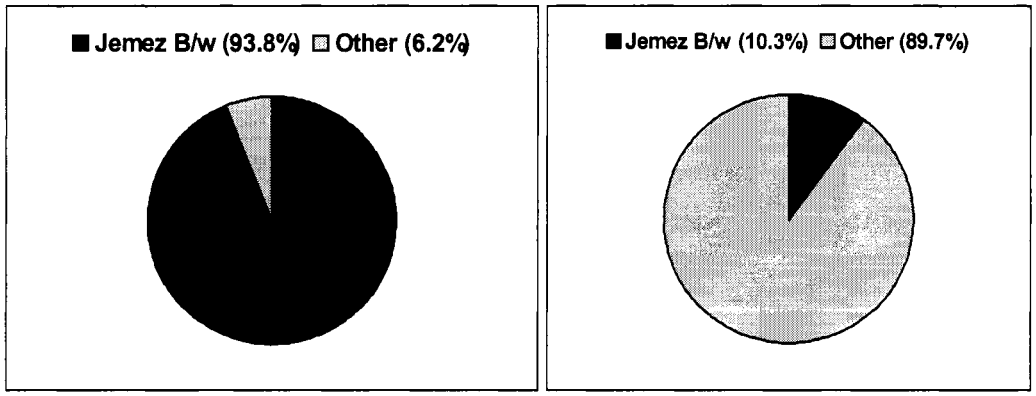

Figure 6.5: Comparisons of decorated wares from Pre- and Post-Revolt Jemez Villages (Pre-Revolt=Unshagi & Giusewa; Post-Revolt=Astialakwa & Patokwa)

pre-Revolt sites (Reiter 1938:189-192; Elliott 1991:80),[47] but just 10.3 percent of the Pueblo Revolt era assemblage. From these figures it can be concluded that the production of Jemez B/w decreased markedly by (or during) the Pueblo Revolt period.

A closer examination of the ceramic samples from Astialakwa and Patokwa reveals additional variation in the frequency of Jemez Black-on-white *within* the Pueblo Revolt period. At Astialakwa, Jemez Black-on-white comprises 13 percent of the total assemblage (21.4% of the decorated wares), while in the historic component samples from Patokwa (Units 4-6), Jemez Black-on-white sherds represent just 1.5 percent of the total assemblage (2.8% of all decorated wares). As noted above, the pottery from Astialakwa primarily reflects ceramic production and exchange prior to 1694, while the Patokwa Revolt era assemblage is comprised of a significant percentage of post-1694 ceramics (FIG. 6.6). This pattern suggests that while the production of Jemez Black-on-white substantially decreased at some time prior to 1694, it ceased entirely following the 1694 battle at Astialakwa. In fact, it is probable that the manufacture of this distinctive Jemez type was terminated earlier in the Pueblo Revolt period, possibly immediately following the uprising in August 1680. If this were the case, it is expected that the Jemez Black-on-white vessels manufactured before production was halted would remain in the ceramic assemblage for some time after; thus the 13 percent found at Astialakwa may represent curated vessels that were produced prior to the 1680s. After these vessels were shattered on the peñol in 1694 it appears that no additional Jemez Black-on-white was produced (based on the Patokwa assemblage). Furthermore, the fact that no Jemez

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[47] Jemez Black-on-white averages approximately 85% and 88% of the decorated ware assemblages at other pre-Revolt Jemez pueblos as reported by Futrell (1998:290) and Morley (2002:124) respectively.

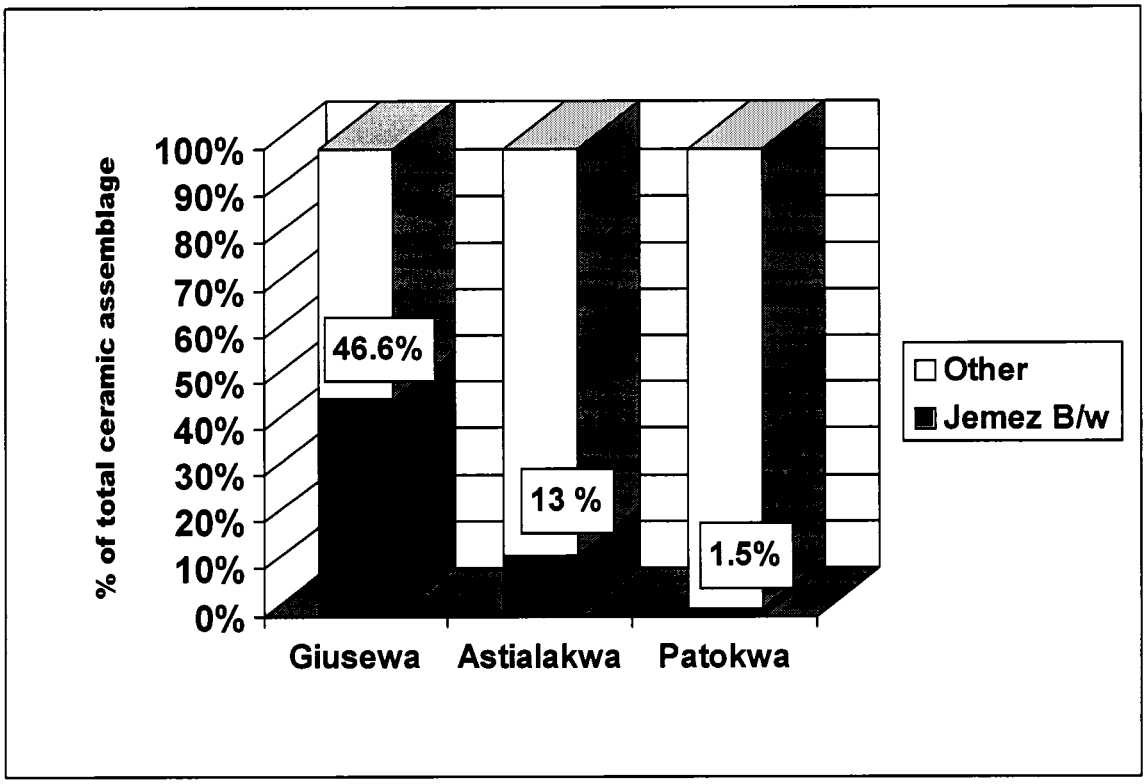

Figure 6.6: Proportion of Jemez Black-on-white ceramics at Giusewa (pre-Revolt), Astialakwa (predominantly pre-1694), and Patokwa (predominantly post-1694)

Black-on-white sherds were found at Cerro Colorado at all (a site occupied between 1689 and 1694) supports the theory that production of Jemez Black-on-white had terminated by the late 1680s.

Increase in Trade Wares

Coterminous with the decline of Jemez Black-on-white in the Pueblo Revolt period assemblages is an increase in trade wares, suggesting that the years between 1680 and 1696 witnessed a considerable intensification in exchange among the Jemez pueblos and those of surrounding regions. The glaze wares offer a striking illustration of this surge in trade. Previous studies have concluded that Rio Grande Glaze Wares were not locally produced within the Jemez Province prior to the Pueblo Revolt (Reiter 1938:103, 108; Shepard 1938:205; Warren quoted in Lambert 1981:228), when they comprised approximately 2.8 percent of Jemez ceramic assemblages (2.9% at Unshagi [Reiter 1938:103] and 2.8% at Giusewa [Elliott 1991:80], respectively). At Astialakwa and Patokwa, however, the proportion of glaze wares rises to 13 percent of the total (9.2% at Astialakwa and 15.2% of the historic component at Patokwa).

A similar pattern occurs with regard to the Tewa Series. Prior to the Pueblo Revolt, Tewa wares comprised approximately 0.1 percent of documented Jemez assemblages (0.1% at Unshagi [Reiter 1938:189-192] and less than 0.2% at Giusewa [Elliott 1991:80]). At the Revolt era pueblos, however, 5.8 percent of the ceramics hailed from the Tewa region (7.6% at Astialakwa and 4.7% of the Historic period component at Patokwa). This intensification of exchange between the Jemez and Tewa peoples following the Pueblo Revolt calls into question historical reports that the Jemez were at

war with the Tewa during the Spanish interregnum (Sanchez 1983:134; Kessell and Hendricks 1992:26).[48] Similar doubts have been raised regarding Cochiti/Tewa relations in the wake of the Pueblo Revolt based on the prevalence of Tewa pottery at Kotyiti (Capone and Preucel 2002:111). In contrast, the Keres living at Cerro Colorado seem not to have engaged in trade with the Tewas, with Tewa ceramics representing just 0.1 percent of that assemblage. This suggests the possibility that some, but not all of the Keres may have been at war with the Tewas during the Spanish interregnum, partially verifying Escalante's 1778 account (Twitchell 1914, 2:276; Velez de Escalante 1983 [1778]).

The Introduction of New Ceramic Types

In addition to an increase in Tewa and glaze-painted pottery, the ceramic assemblages of the Pueblo Revolt era sites of the Jemez Province contain new types not previously found in this area. One of these, Jemez River Polychrome, was only recently identified as a discrete type and named by Harlow and Lanmon (2003:31). They suggest a short-lived period for this type limited exclusively to the Revolt era (Harlow and Lanmon 2003:33). Indeed, the relatively meager representation of this type in all three of the post-Revolt samples (1.1% at Astialakwa, 2.5% at Patokwa, and 3.6% at Cerro Colorado) suggests that this matte-painted red ware never attained wide usage in the Jemez Province during the Pueblo Revolt period.

Far more prominent in the post-Revolt ceramic assemblages is Historic Red pottery, accounting for 22.4 percent of the sherds at the Jemez sites (23.4% at Astialakwa

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[48] Escalante's 1778 letter states that"The Keres, Taos, and Pecos fought against the Tewas and Tanos," but does not mention the Jemez (Twitchell 1914, 2:274; cf. Sanchez 1983:133).

and 21.8% at Patokwa, respectively) and 41.4 percent at Cerro Colorado. As mentioned above the tabulations of Historic Red probably include some mixing of other types, including unpainted sherds originating from Glaze F and Jemez River vessels, thus artificially inflating the proportion of this type within the Revolt era assemblages. Even so, the sudden explosion of Historic Red in these assemblages cannot be attributed solely to the mixing of types during classification. Historic Red is the predominant decorated ware at all three of the sites sampled for this study, and thus it can reasonably be concluded that this is a type in and of itself and not simply an artifact of classification.

The rise in production of Historic Red may be related to a decline in the manufacture of glaze-painted vessels during this period; in fact, this type has been described as "Glaze F without the glaze" (Snow quoted in Pecos Archaeological Survey 1995:52). Although it is often assumed that the cessation of the glaze-paint tradition in the Southwest is linked to the restriction of Puebloan access to lead sources by Spanish colonists following the reconquest (Warren 1979:191; Snow 1982:260), the ceramics of the Pueblo Revolt era raise questions regarding this assumption. Mills posits that "the end of glaze-paint technology at Zuni was an intentional act to mark a break with earlier ceramic production," unrelated to the exploitation of lead sources by the Spaniards (which never occurred in the Zuni region as it did in the Rio Grande) following the reconquest (Mills 2002:93).[49] In relation to Rio Grande Glaze Wares, Warren suggests that "most of the accessible ore had already been mined by ca. A.D. 1700. With increasing depths, lead content of the ore tends to increase which might account for the

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[49] It is possible that some Zuni ceramics were made with Rio Grande ores (Mills personal communication 2006).

seventeenth-century runny glazes caused by high lead content" (Warren 1979:191). If the difficulty of controlling glaze paint due to its decreasing viscosity was deemed to be disadvantageous by seventeenth century Pueblo potters, it may have caused them to abandon glaze-paint designs altogether. The increase in production of unglazed vessels (including Historic Red and matte-paint wares such as Jemez River) during the late seventeenth and early eighteenth centuries thus may be due as much or more to the depletion of lead resources as to the restriction of access to lead sources by Colonial powers. The prevalence of Historic Red at Cerro Colorado and Astialakwa supports this conclusion. These assemblages pre-date Spanish control of Rio Grande lead mines (first recorded in 1709 [Warren 1979:191]), yet display a significant proportion of non-glazed pottery, which is probably related to the decline in production of glaze wares.

Regardless of the underlying causes behind the production of these new types, the location of their manufacture remains unclear. Were Historic Red and Jemez River vessels produced locally, within the Jemez Province? Or were these types obtained exclusively via trade with other regions (as is the case for the pre-Revolt glaze wares at Jemez sites)? If they were locally produced, were these new types manufactured at the Jemez pueblos of Astialakwa and Patokwa, or solely at the Keres pueblo of Cerro Colorado? Here petrographic analysis can be useful in determining the locus of production. As noted by Shepard, Pueblo tempering traditions are generally conservative and geographically localized:

> Extreme conservatism in the selection of temper is illustrated by the customs of some Pueblo potters. The Rio Grande potters of San Ildefonso, Santa Clara, and San Juan use fine volcanic ash, and the prehistoric pottery of the region shows a continuous use of this temper for certain types back to the earliest times. Zia pottery is tempered with ground basalt, and the same temper occurs in the

> prehistoric Glaze-paint ware of this area. Again, Acoma and Zuni potters use potsherd, which carries on the tradition of the prehistoric peoples in these localities. (Shepard 1995 [1956]:164)

In the Jemez Province, volcanic tuff was used to temper Jemez Black-on-white vessels throughout its 350-year history, as well as a large portion of pre-Revolt utility wares (Shepard 1938; Warren quoted in Lambert 1981:220), while the majority of glaze wares found at pre-Revolt Jemez sites were tempered with basalt and are thought to have been obtained in trade from pueblos in the Puname region (Shepard 1938:207; Warren quoted in Lambert 1981:228).

The results of the temper analysis for Historic Red and Jemez River Polychrome establish that two main tempering traditions are represented within the Jemez Revolt Series, basalt and tuff. Of the total Historic Red assemblage from all three sites, 74.4 percent was basalt tempered, and 23.3 percent was tempered with tuff (with an additional 1.6% was tempered with sand, with 0.7% unknown/unidentified). Of the total Jemez River Polychrome assemblage, 82.0 percent was basalt tempered, while the remaining 18.0 percent was tempered with tuff.

While it would be easy to assume that the three-quarters of these samples exhibiting basalt temper were made by Zia potters and the tuff-tempered variety were made by the Jemez, the simple correlation of basalt temper with Zia manufacture is complicated by the fact that basalt outcrops occur naturally in the immediate vicinity of Patokwa. Thus it is reasonable to entertain the possibility that Jemez potters incorporated new tempering materials (specifically basalt) following the Pueblo Revolt in order to take advantage of local resources. As Shepard notes:

> changes in paste composition are often found when a stratigraphic sequence of pottery types is followed through. In all such instances the cause of change, whether a native development or the result of the influence of people with a different ceramic tradition or change in population, should be sought. Premature generalizations regarding conservatism should not be allowed to limit or discourage such investigations. (Shepard 1995 [1956]:164)

Explaining Ceramic Changes in the Jemez Province during the Pueblo Revolt Era

The post-Revolt ceramic assemblage of the Jemez Province clearly differs markedly from that of pre-Revolt Jemez pueblos. How then are we to explain the simultaneous termination of the Jemez Black-on-white tradition, introduction of new types, and increase in trade wares that occurred between 1680 and 1696? Three general hypotheses can be suggested:

Hypothesis 1) Jemez potters completely abandoned the production of ceramics during the Pueblo Revolt era, leading to the termination of Jemez Black-on-white and reliance upon trade for pottery procurement. Previous studies of Jemez ceramics have speculated that the production of painted vessels by Jemez potters ended around the turn of the eighteenth century, after which time only a coarse utility ware was produced and the Jemez people obtained decorated vessels exclusively through trade, mainly with Zia (Frank and Harlow 1990:116; Whatley and Delaney 1995:101). Such a scenario implies a radical change in the economic role of Jemez women during the Pueblo Revolt period, as well as a considerable increase in ceramic production—possibly craft specialization—by the potters of the Puname pueblos in order to meet the demands of the Jemez.

Community-based specialized ceramic production has been identified in regions throughout the Southwest, including the northern Rio Grande (Shepard 1942; Warren 1969; Habicht-Mauche 1993, 1995:190; Mills and Crown 1995a), although it is important

to note that in all cases, this production was not attached to an elite class nor organized above the household level (Mills and Crown 1995b:13). Ethnographic studies have correlated ceramic specialization with agricultural and economic marginality cross-culturally (Reina 1960, 1969; Nash 1961; Allen 1984; Graves 1991; Stark 1991; Arnold 1993; Deal 1998; but see Harry 2005 for a critique of this notion), noting that pottery specialists typically trade their wares for food. In the case of the Revolt era pueblos of the Jemez Province, it could be posited that Zia (and possibly Santa Ana) potters shifted to ceramic specialization as a way to offset the damage to crops and stored foodstuffs suffered in the attacks by Reneros in 1687 and 1688 (Kessell and Hendricks 1992:24; Kessell et al. 1995:145, 217) and Jironza in 1689 (Kessell and Hendricks 1992:25-26). In this scenario, the destruction of their home pueblos and the migration of the survivors to Cerro Colorado are assumed to have placed them in a position of economic and agricultural marginality. In order to obtain foodstuffs via exchange, these refugees may have increased ceramic production for trade with the Jemez, many of whom were then living at Patokwa. The documentary record supports the "pull factors" on the Jemez side of this equation, offering clear evidence for the production of surplus food by the residents of Patokwa—in Spanish accounts of both the abundant crops growing in the *milpas* (fields) surrounding San Diego Mesa (Kessell et al. 1995:404, 442) and in the copious amounts of corn stored at Astialakwa in 1694 (Kessell et al. 1998:327-328, 369).

Hypothesis 2) An alternative hypothesis to account for ceramic changes following the Pueblo Revolt in the Jemez Province is a combination of increased trade and the local manufacture of new types. In this scenario, the new ceramic types—Historic Red and Jemez River Polychrome—would have been produced at least in part by Jemez potters,

but conventional tempering traditions (tuff at Jemez, basalt at Zia) would also be maintained. This model is appealing in that it can accommodate any rise in trade that may have resulted from increased ceramic production or specialization by the Puname pueblos without necessitating the radical reorganization of economic roles of Jemez women that would accompany a complete abandonment of a 350-year tradition of ceramic production.

Hypothesis 3) A third possibility to explain these changes is a shift in ceramic production by Jemez potters to include the adoption of new ceramic technologies (basalt temper) as well as the production of new types. Such a shift has precedence in the Jemez Province; at Unshagi, the temper of Utility wares changed from predominantly tuff in the earliest (fourteenth century) levels to predominantly andesite in the latest (seventeenth century) strata (Shepard 1938:207). Maria Nieves-Zedeño (1995) links large-scale shifts in ceramic production to residential mobility, because moving leads to new and increased interaction among communities, brings potters into contact with new materials, and facilitates co-residence (which in turn leads to the transfer of technological knowledge from immigrants to local potters). As noted in Chapters IV and V, all these situations—increased interaction, movement to new locations, and co-residence—characterize Pueblo Revolt era settlement in the Jemez Province.

In order to evaluate these hypotheses, it is necessary to discern whether Jemez potters adopted basalt-tempering following the Pueblo Revolt, or whether conservative tempering traditions persisted with basalt-tempered ceramics attained exclusively through trade. Here it is useful to compare the Jemez Revolt Series ceramics with the Utility ware assemblage (FIG. 6.7). As with Historic Red and the Jemez River Polychromes,

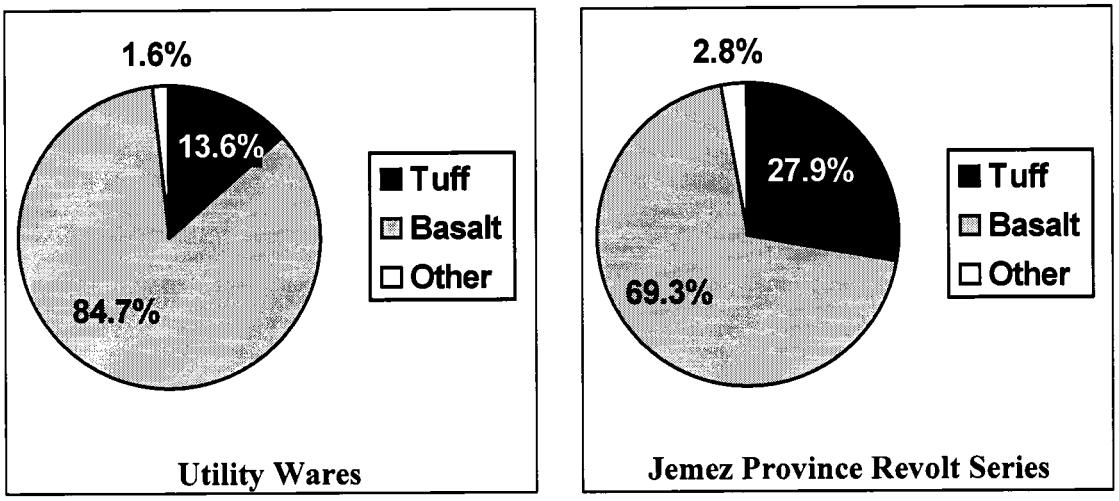

Figure 6.7: Comparison of tempering materials among the Utility Wares and Jemez Province Revolt Series ceramics at Astialakwa and Patokwa (Units 1-6)

two main varieties of temper are represented among the utility wares at Astialakwa and Patokwa: basalt and tuff. At Ancestral Towa pueblos, utility wares are thought to have been locally manufactured and not widely traded (Kidder and Shepard 1936:297; Reiter 1938:103; Shepard 1938:209). If this was the case at the Pueblo Revolt era sites of the Jemez Province as well, the fact that the majority of Jemez Plain ceramics at Astialakwa and Patokwa are tempered with basalt (84.7%) could suggest that Jemez potters may in fact have adopted new ceramic technologies during this era, specifically the tempering of vessels with basalt. The tuff-tempering tradition persisted as well, albeit to a lesser extent (13.6%). The fact that basalt tempering is more prevalent among the utility ware assemblage than among the Jemez Province Revolt Series ceramics further strengthens this argument. While a case could be made for the notion that all the Historic Red and Jemez River Polychrome ceramics at Astialakwa and Patokwa may have been obtained through trade (thus attributing the basalt temper to Zia potters), the fact that basalt temper is even more common among the utility wares—which were presumably not obtained through trade—undermines this notion.

In light of this data, the three aforementioned hypotheses can be critically reviewed. Hypothesis 1, suggesting that Jemez potters abandoned the production of ceramics completely and obtained all of their pottery through trade following the Pueblo Revolt, can be rejected. The presence of tuff-tempered utility wares at Astialakwa and Patokwa (albeit in relatively small amounts—5.6% and 17.5% of the utility assemblages respectively) strongly suggests that Jemez potters continued to manufacture ceramics on some level throughout the Pueblo Revolt era, even if on a reduced scale. However, the notion that residents of Cerro Colorado may have shifted to communal ceramic

specialization, or at least significantly increased their ceramic productivity, should still be entertained. Similarly, the high proportions of basalt-tempered utility ware at Astialakwa and Patokwa necessitates the rejection of Hypothesis 2, which does not allow for the adoption of new tempering technologies, relying instead upon the maintenance of traditional tempering traditions.

Hypothesis 3, suggesting increased trade as well as the adoption of new ceramic technologies by Jemez potters, is the best supported of the three proposed scenarios. The petrographic data concerning the utility wares from Astialakwa and Patokwa strongly supports the conclusion that Jemez potters adopted basalt as a tempering material by or during the occupation of Patokwa. Whether this shift in technology was instigated by contacts with other communities, the migration of Jemez potters to a new location (with abundant local basalt resources), or co-residence of potters from other communities at Patokwa remains uncertain. Whatever the cause(s), the adoption of basalt tempering by Jemez potters after the Revolt is puzzling. Both Patokwa and Astialakwa are in close proximity to vast quantities of volcanic tuff; thus the implementation of new and different tempering materials was not a necessity, but a conscious choice. This change remains all the more confusing because the long-established Jemez tradition of tuff tempering persisted (albeit on a reduced scale) even after basalt was utilized.

Chapter VII will interpret the changes in the ceramics of the Jemez Province Revolt era pueblos in light of the revitalization movement that occurred during this period. Ceramic, architectural, and spatial data from Patokwa, Boletsakwa, Cerro Colorado, and Astialakwa will be combined with information gleaned from primary

historical documents in order to analyze the social practices of revitalization employed by Pueblo peoples in the wake of the Revolt of 1680.

CHAPTER VII: THE SOCIAL PRACTICES OF REVITALIZATION IN THE JEMEZ PROVINCE, A.D. 1680-1696

As documented in Chapters V and VI, the archaeological record indicates that a number of significant transformations took place between 1680 and 1696 in the Jemez Province, including:

- a shift in settlement patterns, with migration out of mission pueblos located in the valley bottom to new villages erected on the tops of mesas;
- the construction of aggregated, dual-plaza pueblos early in the Pueblo Revolt era, in contrast to the dispersed villages built in the 1690s and thereafter;
- a dramatic increase in interaction with neighboring regions;
- the cessation of traditional black-on-white ceramic production; and
- the concurrent adoption of new pottery technologies and styles.

Clearly the Pueblo Revolt era was a time of immense change for the inhabitants of the Jemez Province. This chapter will examine the ways in which these transformations in material culture were recursively shaped by the discourse of revitalization espoused by Po'pay and the leaders of the Pueblo Revolt. This will be accomplished through an examination of the archaeological record that incorporates theories of semiotics (Peirce 1992, 1998; Parmentier 1994; Preucel and Bauer 2001) and postcolonialism (Bhabha 1994) in the interpretation of the architecture and ceramics of Patokwa, Boletsakwa, Cerro Colorado, and Astialakwa. In the process an alternative history of the Pueblo Revolt will be forged (Schmidt and Patterson 1995; Colwell-Chanthaphonh and Ferguson

2006) that considers the behaviors of commoners as well as leaders, and the material culture of Puebloans as well as the words of Spaniards. This analysis allows a glimpse into the social practices of revitalization that occurred between 1680 and the early 1690s in New Mexico that historical documents alone cannot provide.

Nativism and Revivalism in the Documentary Record

From the opening moments of the Revolt era, Pueblo peoples began to put into practice the nativism and revivalism championed by Po'pay and his inner circle of war captains. The first and most obvious of these acts was the killing of 19 priests and two lay brothers in pueblos throughout New Mexico in the days following August 10, 1680 (Hackett and Shelby 1942, 2:3), including the execution of Fray Juan de Jesús by the Jemez at Walatowa (Hackett and Shelby 1942, 1:80). Nativism fueled the raiding of churches and haciendas in the early days of the Pueblo Revolt era as well, with the chapel of San Miguel in Santa Fe reduced to ashes (Hackett and Shelby 1942, 1:14). But even in these initial, frenzied days of zealous revitalization Pueblo responses to the calls for nativism and revivalism were clearly varied and complex. For example, while the priests at Santo Domingo were killed in August of 1680, the church was initially left undisturbed, with Christian images, altars, silver chalices, sacred vessels, a censer, and a lamp found intact within the sealed church (Hackett and Shelby 1942, 1:21). The Pueblo of Isleta did not participate in the initial uprising at all, sparing the Spaniards living there and refusing to aid the rest of the Pueblos in the general rebellion (Hackett and Shelby

1942, 1:li, 66-67, 2:330). Indeed, Pueblo captives testified to Otermín "that it is true that there were various opinions among [the Pueblo people]," and they were "of different minds" (Hackett and Shelby 1942, 2:235, 240) regarding the possible return of Spaniards, suggesting that Pueblo adherence to Po'pay's doctrine of nativism was far from unanimous. This raises questions regarding what exactly Po'pay and his retinue of war captains instructed Pueblo peoples to do in the days following August 10, 1680. How was the discourse of revitalization constructed? More importantly, how did the non-elite masses of Pueblo persons respond to the instructions of these leaders?

The documentary record provides some of the answers to these questions. Reports from captive Puebloans interrogated by Otermín during his abortive attempt to reconquer the region in 1681 concur that following the Revolt, Po'pay toured the pueblos with his co-collaborators, espousing a message of nativism and revivalism. In addition to a general directive that people should rid their lives of foreign influence and return to living "in accordance with the law of their ancestors" (Hackett and Shelby 1942, 1:248), Po'pay ordered the implementation of specific nativistic and revivalistic rites. Based on the statements of eight of the aforementioned informants (TABLE 7.1), Po'pay's mandates included six core directives: 1) the burning of churches and destruction of Christian paraphernalia; 2) the erection and re-consecration of kivas and shrines; 3) ritual cleansing in order to annul the sacrament of Christian baptism; 4) the abandonment of European (baptismal) names; 5) the prohibition of Castilian speech, particularly any utterance of the names of Jesus and Santa Maria; and 6) the dissolution of Christian marriages. Furthermore, one individual reported that Po'pay demanded the destruction of

Table 7.1: Puebloan testimony regarding Po'pay's directives concerning nativism and revivalism (X = informant declares that this directive was ordered by Po'pay and/or leaders of the Revolt)

Name, *Pueblo*	**Destruction of Christian paraphernalia**	**Kivas and shrines erected**	**Ritual bath**	**Rescinding of baptismal names**	**Prohibition of Castilian language/ Words**	**Dissolution of Christian Marriages**	**Page nos. in Hackett and Shelby 1942, 2**
Juan, *Tesuque*	X			X	X	X	233-238
Josephe, *unknown*	X	X	X	X	X	X	238-242
Lucas, *Socorro*	X	X					243-245
Pedro Naranjo, *San Felipe*	X	X	X	X		X	245-249
Juan and Francisco Lorenzo, *San Felipe*	X	X			X	X	249-253
Juan/Vnsuti, *Alameda*	X					X	344-346
Jeronimo, *Puaray*	X		X			X	359-362

Spanish-introduced seeds as well, though this deponent further testified that the Puebloans did not adhere to this additional decree (Hackett and Shelby 1942, 2:235).

As noted in Chapter III, the documentary record clearly indicates that the first two of these mandates—the destruction of Christian paraphernalia and the erection and re-consecration of kivas and shrines—were carried out in many pueblos. Although some mission architecture survived the initial uprising, by late 1681 churches were sacked and destroyed in the pueblos of Taos, Picuris, San Juan, Santa Clara, Santo Domingo, San Felipe, Sandia, Isleta, Senecú, Socorro, Alamillo, Sevilleta, Alameda (Hackett and Shelby 1942), Pecos (Hayes 1974), and among the Zuni (Smith et al. 1966) and Hopi pueblos (Montgomery et al. 1949). New kivas and shrines were constructed at the villages of Cochiti, Santo Domingo, San Felipe, Puaray, Sevilleta, and Alameda (Hackett and Shelby 1942, 2:286). As for the other four directives—ritual bathing, the abandonment of baptismal names, prohibition of the Castilian language, and the dissolution of Christian marriages—the record is more ambiguous. While there is no reason to doubt that ritual cleansings did take place, there is also no evidence to indicate whether Christian marriages were in fact dissolved on a large scale, nor whether the use of Castilian speech was discontinued among the Puebloans. According to the documentary record, with the exception of Po'pay the great majority of the leaders of the Pueblo Revolt continued to be identified by their Spanish names after 1680 (at least in testimony to the Spaniards), including Luis Tupatú of Picuris, Alonso Catití of Santo Domingo, Francisco "El Ollita" of San Ildefonso, Luis Cunixu of Jemez, Antonio Malacate of Zia, and Tano leaders Juan of Galisteo, Antonio Bolsas, and Cristóbal Yope (Hackett and Shelby 1942; Sanchez 1983). Admittedly however, these texts do not

record how Pueblo people identified themselves to each other during the Spanish interregnum, an example of the biases inherent in the documentary record.

The historical record clearly states that despite Po'pay's mandate to "instantly break up and burn . . . everything pertaining to Christianity" (Hackett and Shelby 1942, 2:247), in practice the Pueblos' nativism was not so complete (Liebmann 2002b). Ecclesiastical items were found undamaged by the Spaniards at Santo Domingo, Alameda, Sandia, and Isleta in 1681 (Hackett and Shelby 1942, 2), while in 1692 Vargas reported finding an altar at Zuni decorated with "four silver chalices with their patens . . . a gold-plated silver monstrance with its crystal, just like new . . . sacred vestments . . . [and] three images of Christ Jesus," along with a missal, flanked by two burning candles (Kessell et al. 1995:207). As noted in Chapter III, adaptations to the original doctrine of a revitalization movement are an expected component of the revitalization process (Wallace 1956: 274-275). Thus the Puebloan practices of selective nativism noted here are not surprising. The continued use of Christian accoutrements at the Revolt era Pueblos demonstrates that the actions of the devotees of revitalization movements often differ from the official doctrines espoused by leaders.

Historical documents single out the leaders of the Pueblo Revolt as some of the primary practitioners of this selective nativism. Po'pay and his compatriots revised and adapted their original nativistic proscriptions in a situation reminiscent of the pigs on Orwell's *Animal Farm* (1945). Following the Revolt, Po'pay reportedly "took from the churches the ornaments and holy vessels which he wished and divided the rest among the captains and inferior governors" (Twitchell 1914, 2:272). The Keres leader Alonso Catití dressed in priests' vestments, decorating his home with carpets and cushions seized from

chapels, and drinking from a chalice (Sanchez 1983:135; Kessell and Hendricks 1992:16). While some of this was done in the Pueblo tradition of ritual mockery (Preucel 2006), other acts, such as Po'pay's imposition of an *encomienda*-like tax upon the pueblos, was a direct imitation of the Spaniards. On his post-Revolt tour, Po'pay announced that the pueblos "must pay him in wool, cotton, and other things, whenever he visited them" (Twitchell 1914, 2:272) in the manner of a Spanish governor. The textual record thus suggests that many of the Puebloans, including Po'pay, practiced a selective nativism in the wake of the Pueblo Revolt that diverged from his original anti-Spanish diatribes.

The Material Practices of Revitalization

Unfortunately, historical documents do not provide a clear account of how the non-elite devotees of Po'pay's revitalization movement enacted the calls for nativism and revivalism after 1680. Textual sources often privilege the actions of leaders, neglecting to record the practices of common persons. In the case of the Pueblo Revolt era revitalization movement, Spanish sources specifically document the actions of elites such as Po'pay and Alonso Catiti, but neglect to account for the experiences of the unnamed commoners. The archaeological record can help to give a voice to these faceless masses (Spivak 1988). Material culture provides a window into the everyday actions of common persons living in actively revitalizing communities. An archaeological account of the Pueblo Revolt allows for the writing of a new and alternative history, proceeding from

the bottom up and taking into account the actions of non-elite members of the movement as well as the words of the leaders.

Another shortcoming of text-based accounts of the Pueblo Revolt period is their tendency to provide details regarding the practices of revitalization only at the beginning and ending stages of the Revolt era, as reviewed in Chapter III. The Spaniards were exiled from the Pueblo world between 1680 and 1692, and the Puebloans did not record their versions of these events in writing, leaving the history of the intervening years of Pueblo independence unwritten. Archaeology provides a valuable perspective for enriching our understanding of the events that transpired during this period (Preucel 2002a). The study of Pueblo material culture from the Revolt era offers a view of history independent of the Spanish chronicles, allowing a glimpse into the lives of Pueblo peoples between 1680 and 1696 through the artifacts and architecture they created.

The Architecture of Revitalization

The architecture of the Revolt era pueblos of the Jemez Province is a material sign of the social practices of revitalization enacted by Pueblo people during this tumultuous period. Between 1680 and 1683, the Jemez left their mission village(s) and constructed two new pueblos on the tops of mesas: Patokwa and Boletsakwa (probably with the help of the Keres of Santo Domingo at the latter). The people who constructed these new villages utilized corresponding arrangements of architectural units, resulting in pueblos

with very similar spatial organization: both had two plazas bisected by a central roomblock (FIGS. 5.11 and 5.25).

This compact, dual-plaza form was a departure from that of the mission village(s) that the Jemez inhabited immediately prior to the Revolt. Although no graphic depiction of Walatowa prior to 1849 is known to exist (Weber 1985:253), Vargas provides a description of the pueblo after visiting in 1692, saying that it "has 12 plazas, cuarteles, and sound dwellings" (Kessell et al. 1995:203). Modern investigations of Walatowa reveal no evidence for a compact, linear-plaza or aggregated pueblo in this area, and certainly no remains of a pueblo large enough to contain 12 standard-sized plazas. Rather, this account seems to suggest that in the late seventeenth century Walatowa was not a compact ladder-constructed pueblo, but displayed a dispersed arrangement of roomblocks ("cuarteles") scattered around multiple open areas (the 12 "plazas")—the same form it exhibited in the nineteenth century, and similar to its present-day layout. The aggregated, dual-plaza form of Patokwa and Boletsakwa was thus a departure from the more dispersed spatial organization of the primary Jemez mission village occupied between the 1630s and 1680.

As noted in Chapter V, the aggregated, "linear plaza" form of these pueblos was a result of ladder construction (Cameron 1999b:207). Ladder construction is an index of coordination of labor and control above the household level (Cordell 1998:27; Kidder 1958:63) because it is typically undertaken by large communal work groups rather than individual family units (Lange and Riley 1966:97; Hill 1982:73; Robinson 1990; Cameron 1999b:207). These types of linear plaza pueblos result from pre-construction planning and demonstrate a shared understanding by their residents regarding the size and

organization of the plaza space. Furthermore, linear-plaza designs are associated with large-scale, well-organized communal migrations (Cameron 1999b:227-230)—the same type of resettlement that Spanish documents suggest occurred at Patokwa and Boletsakwa between 1680 and 1683 (Hackett and Shelby 1942, 2:236, 306, 360; Kessell et al. 1995:203).

The architecture of Patokwa and Boletsakwa thus demonstrates: 1) a significant departure from the dispersed spatial organization of the main Jemez mission village occupied just prior to their construction (Walatowa); 2) the result of intentional planning and design; and 3) construction by an organized labor pool coordinated at the community level, suggesting a modicum of centralized leadership. This final attribute is particularly significant with regard to the social practices of revitalization. Centralized leadership is a common component of any revitalization movement (Wallace 1956:273), and indeed, strong centralized leadership is reflected in the ladder-constructed architecture of Patokwa and Boletsakwa.

The dual-plaza form was also employed by the builders of the pueblo of Kotyiti (Preucel 1998, 2000a, 2000b, 2006)—an ancestral Cochiti Revolt era pueblo located on a mesa less than a day's walk to the east, probably also constructed in 1681 (based on the documentary record [Hackett and Shelby 1942, 2:306]; tree-ring dates reveal that construction continued through 1691 [Preucel 1998:33-34]). All three sites share a strikingly similar organization of architectural space (FIG. 7.1), with two plazas, and likely two kivas (although as noted in Chapter V, the evidence for the west kiva at Patokwa and the south kiva at Boletsakwa is equivocal).

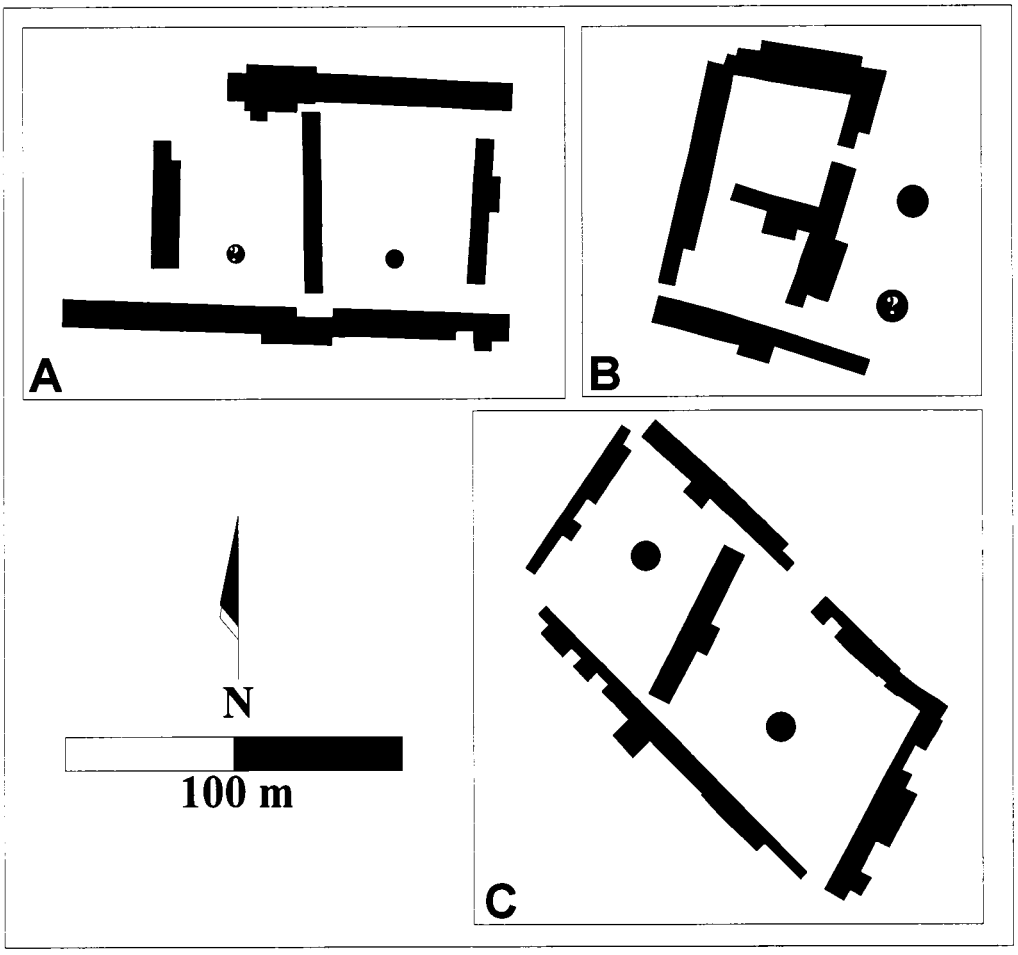

Figure 7.1: Architectural layouts of the early Pueblo Revolt era components of A) Patokwa; B) Boletsakwa; C) Kotyiti

The repetition of the dual-plaza form among these early Revolt era pueblos suggests that their similarity in spatial organization is not a mere coincidence. The interpretation of these repeated forms can be grounded in the semiotic theories of Peirce (1992, 1998). Preucel and Bauer (2001) and Preucel (2006) have explored the applications of Peircean semiotics in archaeological interpretation. In semiotic terms, the formal resemblance between two or more signs is known as iconicity (Peirce 1992:143-144). The dual-plaza pattern is an icon, or a sign whose meaning is grounded in formal resemblance (Parmentier 1994:17). In simpler terms, the fact that the dual-plaza form is shared and repeated among Patokwa, Boletsakwa, and Kotyiti tells us that this is an iconic sign, and that there is meaning in this particular form.

J. Daniel Rogers (2005:342) notes that icons "inherently refer to past time," because they rely on repetition and replication to transmit meaning. All revivalistic discourses must by necessity employ iconic signs in the spread of their messages because by definition they refer to cultural practices thought to have been characteristic of previous generations (Wallace 1956:257), and the Pueblo Revolt era revitalization movement is no exception. This allusion to the past was an explicit component of Po'pay's revivalist discourse, which promoted among the Pueblos a return "to the state of their antiquity" through living "in accordance with the laws of their ancestors" (Hackett and Shelby 1942, 2:248). According to Pueblo witnesses, Po'pay specifically implicated the construction of new architecture in this revivalist discourse as well: "[Po'pay] saw to it that they at once erected and rebuilt their houses of idolatry which they call estufas . . . and that they could erect their houses and enjoy abundant health and leisure" (Hackett and Shelby 1942, 2:248). The iconic dual-plaza form utilized by the builders of Patokwa,

Boletsakwa, and Kotyiti is an example of this revivalist-inspired construction. Preucel has suggested that the layout of Kotyiti embodies fundamental principles of Keres cosmology (Snead and Preucel 1999), and as Ortiz notes (1972:142), "all peoples try to bring their definitions of group space somehow into line with their cosmologies, but the Pueblos are unusually precise about it." The dual-plaza plan may represent an idealized form of what was considered to be an archetypal pre-Hispanic village, a concept shared among the designers and builders of these three pueblos. This is even more significant in light of the fact that the Jemez had recently left the dispersed mission pueblo of Walatowa. The construction of new, compact, dual-plaza pueblos following the Pueblo Revolt appears to be linked to Po'pay's revivalist discourse, in an attempt to return to traditional architectural forms after 1680.

Iconicity is just one way in which the meaning of signs can be grounded, however. Peirce notes two additional qualities of sign relations through which meaning is transmitted as well: indexicality and symbolism. Indexical signs transmit meaning through the spatial and/or temporal contiguity of sign and object, by "pointing to" these relationships (a weathervane is the classic example, transmitting meaning about the wind by pointing to the direction from which it blows). Symbols transmit meaning by virtue of socially shared conventions (a flag, for example, has no intrinsic meaning but is recognized to represent a nation-state through social convention [Preucel 2006]). Symbolic meaning, then, is arbitrary while iconic and indexical meanings are not. These sign categories are not mutually exclusive, but often work together to transmit meaning as indexical icons, iconic symbols, symbolic indices, etc. In fact, all indices involve icons and all symbols are indexical because they act through replication.

Dual-plaza Pueblos: An Index of Moietal Social Organization

The dual-plaza form of the pueblos of Patokwa, Boletsakwa, and Kotyiti is not only an icon; it includes indexical properties as well. Southwestern archaeology has a long history of interpreting architecture as an index of social organization, albeit without the explicit use of Peirce's terminology (Bandelier 1884; Cushing 1886, 1888; Kidder 1927; Roberts 1939; Hill 1970; Longacre 1970; Dean 1970; Hegmon 1989; Lipe and Hegmon 1989; Ferguson 1996). Specifically, moiety divisions in past Puebloan communities have been argued to be identifiable through patterns of duality in architecture (Hill 1970:36; Vivian 1970:80-82; Rohn 1971:39-40; Clemen 1976:127-128; Fritz 1978; Lowell 1996:77; Fowles 2005). Communities utilizing a dual system of social organization require physical space in which the two groups (or their representatives) can perform their respective activities (Lowell 1996:82). In historical Rio Grande pueblos the influence of moietal social organization on architecture and settlement is well documented, with dwellings arranged around two plazas (Parsons 1929:91; White 1962:183; Dozier 1970:155) or in two groups, one for each moiety (Fox 1967:12, 14; Brown 1979:273; Jorgensen 1980:191-92, 239; Fowles 2005:28-29). If moieties were important organizational subsystems in the Pueblo Revolt era, they would be expected to influence the architecture constructed during this period, manifested in some type of binary spatial organization (Hill 1970:36)—such as the presence of two discrete plazas separated by a central roomblock. The dual-plaza layout of Patokwa, Boletsakwa, and Kotyiti suggests that a dual division was present in these communities

following the Pueblo Revolt. By analogy to the modern Keres and Jemez, these two plazas probably index a social division partitioned into the Turquoise and Pumpkin groups, or possibly the two Jemez men's societies, the Eagle and Arrow (Ellis 1964:11).

This emphasis on moietal social organization in the Revolt era pueblos was likely linked to Po'pay's call for revivalism. Dualism has been identified as a fundamental organizing concept of modern Rio Grande Pueblo culture, and is related to the maintenance of balance in the ritual and cosmological realms (Ortiz 1969). This balance was upset by Spanish colonization. In particular, Franciscan missionaries actively participated in the disruption of Pueblo ritual life in the seventeenth century (Spicer 1962:160-161; Kessell 1979:110; Gutiérrez 1991:72; Riley 1995:261), with the suppression of the kachina religion becoming particularly intense in the 20 years preceding the Pueblo Revolt (Riley 1999:157). The strong emphasis on duality in the post-Revolt pueblos of Patokwa, Boletsakwa, and Kotyiti may represent an attempt to restore balance, and to return to traditional forms of Pueblo social organization that had been disrupted, or at least forced underground, by Spanish colonization.

Although it is unclear whether or not a moietal system of social organization existed among the Jemez prior to the Pueblo Revolt, dual divisions in ancestral Puebloan communities have been suggested to date back to the fourteenth century among other northern Rio Grande Pueblo groups (Fowles 2005), to the thirteenth century in east-central Arizona (Lowell 1996), and to the ninth century in the Chaco Canyon community (Vivian 1970:78-83). Circumstantial evidence indicates that moietal social organization was being practiced among the Tewa at the time of the Pueblo Revolt. Ortiz (1980:20) suggests that Po'pay's name indexes his role as a leader of the summer moiety at San

Juan. Furthermore, San Juan oral traditions maintain that their dual-division system was directly impacted by the arrival of the first Spanish colonists in 1598. Moieties are cited as the basis for the spatial separation that existed between the villages of Okeh (home of the winter moiety) and Yungue (home of the summer moiety) prior to colonization, with the inhabitants of Okeh displaced by the arrival of the Oñate party (Ortiz 1979:281; Ellis and Ellis 1992; Riley 1999:75). There is little evidence, however, to suggest either the presence or the absence of moieties in the communities of the Jemez Province prior to 1680.

In any case, the architecture of Patokwa, Boletsakwa, and Kotyiti indicates that dual divisions were fundamental organizing principles of these communities when these pueblos were designed and constructed in the early 1680s. Ethnographic analogy suggests that moietal forms of social organization commonly arise when multiple groups coalesce into a single community (Lowie 1948:247; Smith 1960:39-40; see Fowles 2005:39-40), a common occurrence in Pueblo communities following the Pueblo Revolt (Schroeder 1972:56-59). This was definitely the case at Boletsakwa, which was inhabited by an amalgamation of people from Jemez and Santo Domingo (Kessell et al. 1995: 416, 445), as well as at Kotyiti, which was comprised of people from Cochiti, San Felipe, and San Marcos (Kessell and Hendricks 1992:515). At Patokwa the situation is less clear; it definitely housed people who had been living at Walatowa, and may have incorporated others from Giusewa as well if Jemez people were in fact still living there up until 1680 (Elliott 1991:80-81). And while Patokwa was inhabited primarily by Towa-speaking Jemez persons, "Apaches" (probably Navajos) and people from Santo Domingo were reportedly lodged there in 1692 as well (Kessell and Hendricks 1992:521-

522), although this may have been a temporary arrangement. In this light, it is interesting that the name "Patokwa" has been translated as "turquoise-moiety place" (Sando 1979b:419), referring directly to the importance of moietal social organization at that pueblo.

The Cultural Landscape of Revitalization

The revitalization movement espoused by Po'pay impacted more than just the layout of the new pueblos constructed by the Jemez and Keres in the early 1680s. Revivalism may have influenced the location of these sites within the existing cultural landscape as well. Both Patokwa and Boletsakwa were constructed directly adjacent to the remains of early Classic period (A.D. 1325-1450) villages (FIG. 7.2). As noted in Chapter V, this is not an instance of re-occupation or the modification of earlier architecture. The Revolt period villages were constructed anew, and deliberately placed directly next to the remains of these earlier pueblos.[50] The mesa tops on which these villages are located are large enough that Patokwa and Boletsakwa could have been built hundreds of meters away from these earlier sites, but the Pueblo Revolt era peoples deliberately chose to construct their new villages in direct proximity to the remains of pueblos that were vacated prior to European contact.

While defensibility was almost surely a consideration in the selection of these locations (for both the Revolt era and Classic Period inhabitants), this was probably not

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[50] A significant amount of Kwahe'e Black-on-white ceramics at Kotyiti (20% of the total assemblage) indicates an earlier (Coalition period, A.D. 1025-1175) occupation at that site as well (Preucel et al. 2002:83)

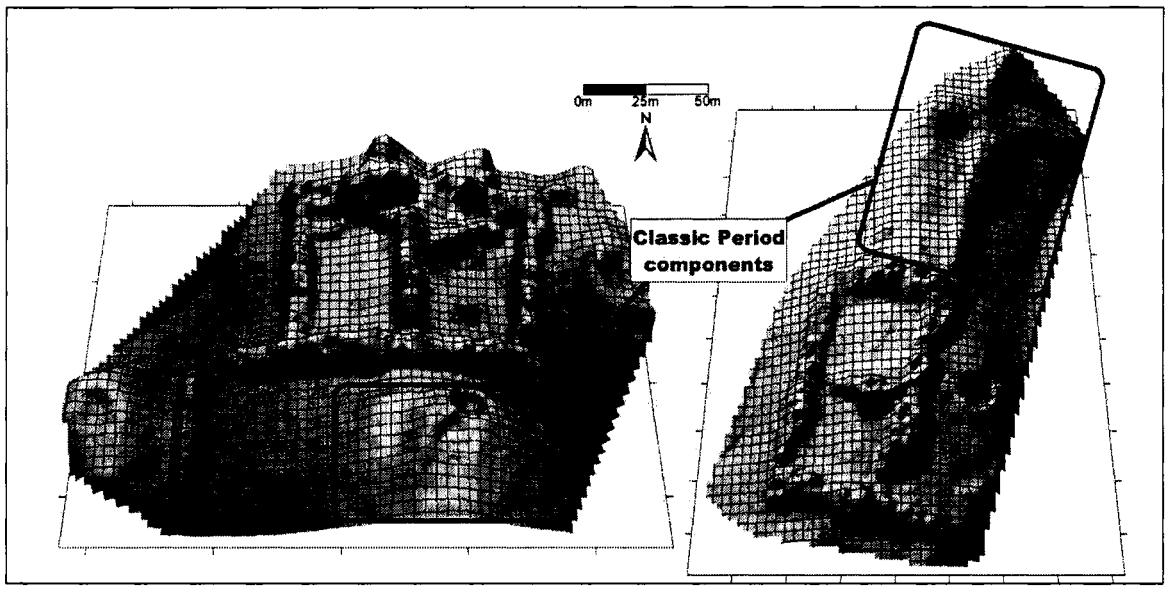

Figure 7.2: Contiguity of Pueblo Revolt era and Classic-period components at Patokwa (left) and Boletsakwa (right)

the sole determining factor. In fact, when in 1694 it became apparent to the occupants of Patokwa and Boletsakwa that armed conflict with the Spaniards an inevitable and imminent, both of these villages were vacated in favor of the much more defensive pueblo of Astialakwa. Alternative hypotheses might posit that Patokwa and Boletsakwa were located directly next to the remains of these earlier pueblos in order to utilize their masonry in the construction process. Stone-robbing does appear to have contributed to the construction of the Pueblo Revolt era component of Boletsakwa, but was not employed extensively at Patokwa. The Classic period remains at Patokwa incorporated large amounts of unshaped river cobbles, while the masonry of the Historic period component is primarily shaped sandstone. Based on this practice, there appears to have been a minimal amount of stone-robbing during the construction of Patokwa in the 1680s. For these reasons, I suggest that the location of the Revolt era pueblos directly next to the Classic period remains relates to the revivalistic element of the revitalization movement. Their location within the larger cultural landscape indexes the relationship between the Revolt period inhabitants and their pre-Hispanic ancestors. Following the Revolt, the Jemez people attempted to return not only to the ways in which their ancestors lived, but to the places in which their ancestors lived as well.

Selective Revivalism and the Invention of Tradition

The construction of Patokwa and Boletsakwa does not represent a straightforward return to a pristine, pre-Hispanic Pueblo condition, however. In fact, the architecture of the Jemez Revolt era pueblos differs from that of pre-Hispanic sites in the Jemez

Province in significant ways. For example, a comparison of the floor area of pre-Hispanic rooms at Ancestral Jemez villages versus those of the Pueblo Revolt era reveals that the rooms constructed after 1680 were notably larger, and exhibit a considerably greater range of variation (FIG. 7.3). This conclusion is based on CAD-derived measurements of the floor area of 99 rooms at Unshagi (mean= 8.04m^2, sd=2.50m^2; APPENDIX F), compared to the 65 rooms in the Pueblo Revolt era component at Boletsakwa with a confidence interval of 3.5 or greater (mean=11.13m^2, sd=3.59; APPENDIX A).[51]

This larger room size is an index of Spanish influence. One unintended consequence of the imposition of the encomienda system on the Pueblos seems to have been an increase in average floor area of Pueblo rooms. In the early seventeenth century, encomenderos levied heavy taxes upon Pueblo households, regardless of the number of family members living under one roof. Fray Alonso Benavides described the situation in 1630:

> it has been established by the first governors of New Mexico, and is being continued by order of the viceroy that each house pay a tribute consisting of a cotton blanket, the best of which are about a yard and a half square, and a fanega of corn. This is understood to be for each house and not for each Indian, even though many Indian families live in such houses. It often happens that the pueblos increase or decrease in houses, or, if one tumbles down, its dwellers move to that of their relatives, and none of these pay tribute, except for the house in which they live. (Hodge et al. 1945:169-170)

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[51] These particular sites were chosen for comparison because Unshagi (occupied from A.D. 1375 until the early 1600s [Reiter 1938]) is the only pre-Colonial pueblo in the Jemez Province for which accurate data regarding the room size of more than eight rooms has been published; and because although the construction of both Patokwa and Boletsakwa appear to have been influenced by revivalism, room size data is available only for Boletsakwa (Chapter V).

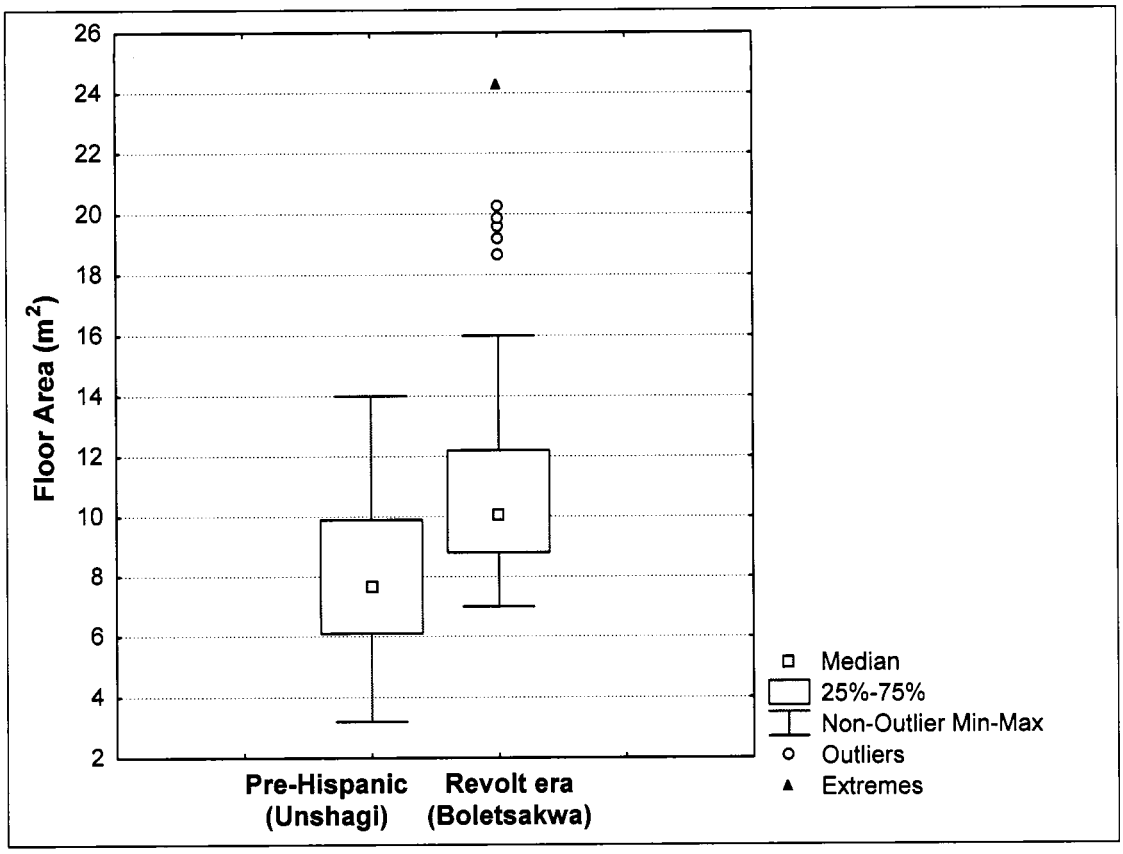

Figure 7.3: Box-and-whiskers plot comparing room sizes of Ancestral Jemez pueblos. Floor areas of Pre-Hispanic rooms from Unshagi (Appendix E) appear in the plot on the left, with the Pueblo Revolt era rooms from Boletsakwa (Appendix A) on the right.

To minimize the burden of these taxes, many Pueblo families consolidated their households in the early seventeenth century (Anderson 1985:365); over time, this appears to have resulted in the construction of larger rooms to accommodate these increased numbers. Additionally, James (1997:437) suggests that the "introduction of metal axes, draft animals, and wagons resulted in the cutting and transport of heavier roof timbers and supports," producing larger rooms in historic pueblos than in their pre-Hispanic predecessors. Whatever the cause, the rooms of the post-Revolt pueblos of the Jemez Province were on average considerably larger than those of the pre-Hispanic period—an innovation resulting from Spanish interaction that was retained even among the dual-plaza pueblos that were consciously designed to emulate the architecture of their ancestors.

Furthermore, none of the large, pre-Revolt pueblos of the Jemez Province display the same iconic dual-plaza layout as Boletsakwa and Patokwa (Elliott 1986a:176-177; FIG. 7.4). Regardless of what the specific revivalistic connotations of the dual-plaza form were for Jemez people, this layout did not directly reproduce pre-Hispanic Jemez architectural plans (although it is admittedly difficult to determine the original layouts of these earlier sites, as most were occupied for far longer spans than the Pueblo Revolt era villages and therefore display architectural modifications that may obscure their original plans). The construction of Patokwa and Boletsakwa was not a simple restoration of "the state of their antiquity" (Hackett and Shelby 1942, 2:248). Rather, these sites exemplify the invention of tradition (Hobsbawm and Ranger 1983).

"Invented tradition," as defined by Eric Hobsbawm (1983:1), "is taken to mean a set of practices . . . which seek to inculcate certain values and norms of behavior by

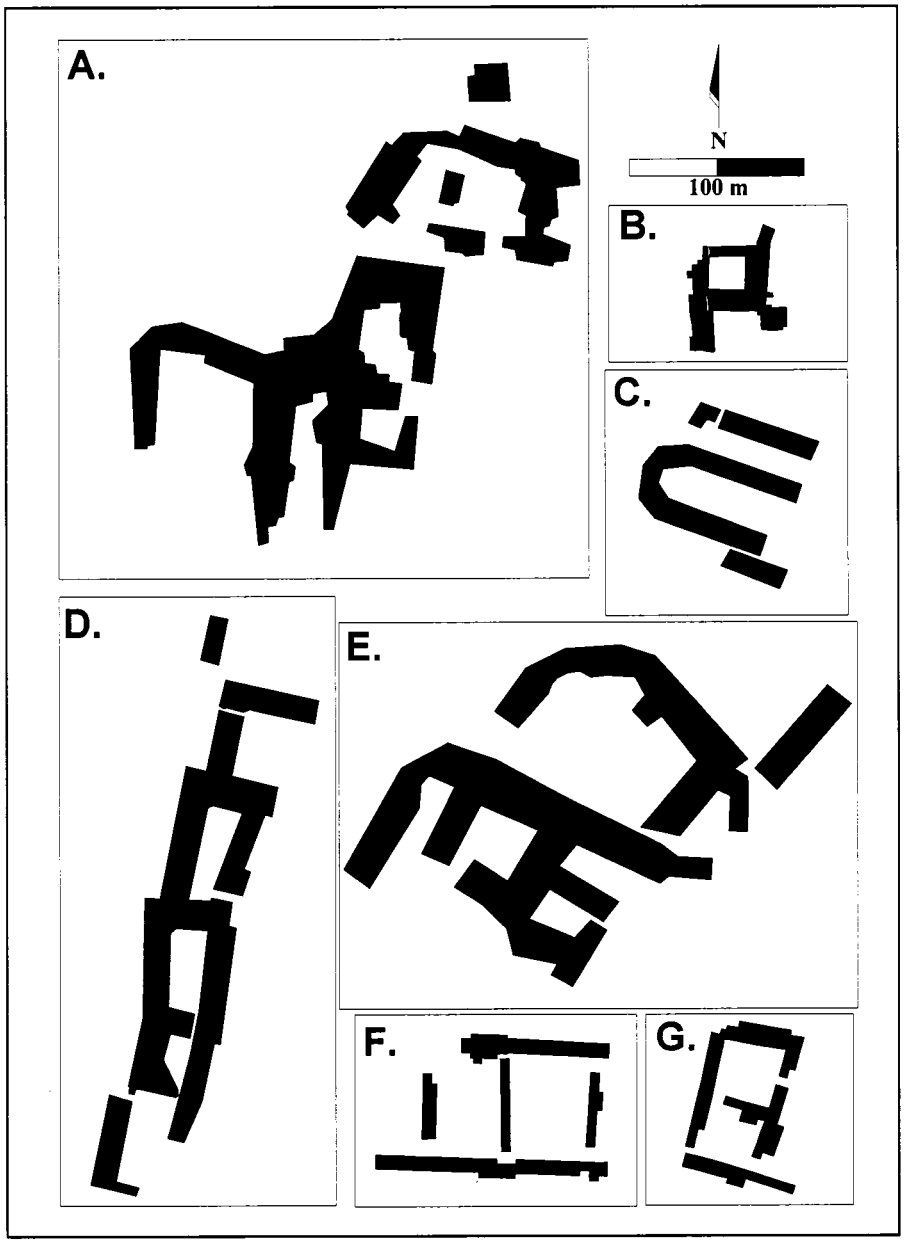

Figure 7.4: Architectural layouts of Ancestral Jemez pueblos: A) Kwastiyukwa (A.D. 1350-1650); B) Unshagi (A.D. 1375-1620); C) Nanishagi (A.D. 1350-1500); D) Seshukwa (A.D. 1350-1650); E) Amoxiumqua (A.D. 1350-1600); F) Patokwa (A.D. 1681-1716); G) Boletsakwa (A.D. 1681-1695)

repetition, which automatically implies continuity with the past." Although the practices selected to imply this continuity may correspond with the past in the minds of the practitioners, these behaviors often incorporate more innovation than duplication. As Hobsbawm notes, "the peculiarity of 'invented' traditions is that the continuity with [a historic past] is largely factitious" (Hobsbawm 1983:2). The case of the dual-plaza forms of the early Revolt era pueblos is an example of this phenomenon. The dual-plaza plan appears to have been utilized at Patokwa and Boletsakwa (and Kotyiti) as a result of Po'pay's calls for revivalism and because of its perceived connections to the past, even though this layout does not correspond directly with the architecture of the pre-Hispanic period in the Jemez Province.

The fact that invented traditions are mobilized in the process of cultural revitalization is not surprising; indeed, these phenomena are particularly apt to occur in times of rapid socio-cultural transformation. They have been interpreted as attempts to establish control in periods of great change and innovation:

> we should expect [the invention of tradition] to occur more frequently when a rapid transformation of society weakens or destroys the social patterns for which 'old' traditions had been designed . . . or when such old traditions and their institutional carriers and promulgators no longer prove sufficiently adaptable and flexible, or are otherwise eliminated (Hobsbawm 1983:4)

It comes as no surprise then that invented traditions are common in colonial contexts, including seventeenth century New Mexico. Spanish colonization and missionization certainly had adverse effects upon Pueblo cultures and societies in the early and mid 1600s (Chapters III and IV), resulting in conditions ripe for the invention of revivalistic traditions. Invented traditions have been interpreted as conscious efforts to render parts

of social life unchanging and invariant in an attempt to deliberately re-structure the habits and dispositions of culture (Hobsbawm 1983:2). Thus the construction of the deliberately planned dual-plaza pueblos of Patokwa and Boletsakwa (as well as Kotyiti) can be viewed as attempts to shape the future through the creation of an ostensibly unchanging past.

Furthermore, invented traditions are often imbued with meaning because they are different; they work precisely because they emphasize aspects of past culture that are no longer common. For example, the tradition of British judges wearing wigs gained significance only when other people stopped wearing such wigs (Hobsbawm 1983:4). In the same way, the dual-plaza layout of Patokwa and Boletsakwa only carries meaning because it differs markedly from the more dispersed layouts of the Spanish Colonial mission pueblos inhabited by the Jemez between 1601 and 1680 (Kessell et al. 1995:203; Elliott 1991). That is, the dual-plaza pueblos of the Revolt era in the Jemez Province are iconic signs that index their difference from the early Colonial era via an implied continuity with the pre-Hispanic period.

The Architecture of the Late Revolt Period: Cerro Colorado and Astialakwa

While Cerro Colorado does not exhibit the same enclosed, iconic layout as Patokwa, Boletsakwa, and Kotyiti (FIG. 5.36), it does contain two plazas, possibly indexing the importance of moietal social organization there as well. Yet architectural evidence suggests that unlike Patokwa and Boletsakwa, this was not the result of a single, planned construction event. Rather, the north plaza developed through agglomerative

construction (Chapter V). Variations in room sizes, orientations, and wall azimuths in the northernmost roomblock confirm that these rooms did not result from organized communal labor, and thus that the north plaza probably did not come into being through planned design. Instead, this space formed organically. No attempt was made to construct Cerro Colorado in the same iconic form as Patokwa, Boletsakwa, and Kotyiti. This suggests that either revivalism was not a central tenet of the builders of Cerro Colorado in 1689, or that the people of Cerro Colorado did not employ architecture to communicate revivalism. Alternatively, the Keres who lived there may not have participated in the same discourse of revivalism as the residents of Patokwa, Boletsakwa, and Kotyiti, and thus they may not have shared the same conception of an archetypal "traditional" pre-Hispanic pueblo village.

In contrast, the architectural layout of Astialakwa (FIG. 5.49) differs markedly from that of Patokwa and Boletsakwa (as well as Cerro Colorado). Rather than an aggregated, dual-plaza form, Astialakwa (founded in 1694) exhibits a dispersed plan of largely non-contiguous rooms and roomblocks. This change in layout indexes a shift in the organization of labor employed during the construction of these Jemez villages. While Patokwa and Boletsakwa were built by communal work groups (under the direction of a centralized decision-making authority), at Astialakwa construction was organized on the household level. Wall intersection data (APPENDIX C) confirms that roomblocks at Astialakwa were constructed in segments of one to four rooms at a time, with no more than four rooms resulting from a single construction event. Even among the long roomblocks of the east group that appear at first to represent classic examples of ladder construction (Roomblocks E1, E2, E4, and E5; FIGS. 5.50 and 5.52), patterns of

bonding and abutment demonstrate that building took place on a room-by-room—and probably household-by-household—basis.

Based on architectural evidence alone, the revivalistic element of the revitalization movement appears to have been strongest in the early years of the Pueblo Revolt era. As time passed the movement lost momentum as many of the leaders who championed revivalism early on lost their influence or died—including Po'pay, Alonso Catiti, and El Chato of Taos (Sanchez 1983). Revivalism was apparently no longer a central tenet of the Jemez community when Astialakwa was constructed in 1694, as no effort was made to build this new village in the iconic dual-plaza style as an index of the pre-Hispanic past. This observation is crucial to the writing of an alternative history of the years between 1680 and 1696, as it allows an examination of variability within the Pueblo Revolt era—a topic beyond the purview of traditional documentary-based accounts. This architectural evidence provides a window on the trajectory of the practices of revitalization that followed the Pueblo Revolt. The revitalization movement was apparently strongest between 1680 and 1685 when Patokwa, Boletsakwa, and Kotyiti were constructed. When Cerro Colorado was built in 1689 this revivalistic fervor may have diminished, although traditional forms of social organization were still emphasized. By the time Astialakwa was constructed in 1694 revivalism seems to have no longer been a central tenet of the Jemez and their allies.

One of the factors contributing to the dispersed spatial organization of Astialakwa was the increase in migration of Eastern Pueblo peoples that characterized the end of the Pueblo Revolt era (Herr and Clark 1997). At the time of the reconquest, many Pueblo people chose to leave their home villages, moving from one refuge to another in an

attempt to avoid the crushing blows of the Spanish army. At the same time, warriors moved into new communities in order to aid in battles against the Spaniards and their allies. The layouts of late Revolt era pueblos such as Astialakwa reflect the experimentation that accompanied incorporation of new groups into a single village (Liebmann et al. 2005:57). The clustering of Astialakwa into three groups of roomblocks (FIG. 5.50) may reflect the need to incorporate two separate groups of Jemez people (one from Patokwa and one from Boletsakwa) with the Keres from Boletsakwa and any other newcomers into a single village. This tri-partite spatial organization also may index the subtle social boundaries that were maintained between groups through architecture and the manipulation of open space. Ferguson documents a similar pattern at the Zuni Revolt era refuge of Dowa Yalanne, where he suggests that a dispersed arrangement of roomblocks reflects the "social experimentation" that accompanied the incorporation of previously separate communities into a single village (Ferguson 1996:145). A comparable plan seems to have been utilized to integrate newcomers yet maintain boundaries between different ethnic groups at the Pueblo Revolt era sites of Kotyiti and Kotyiti East, where Preucel has documented the use of diverse architectural styles to maintain boundaries between different ethnic groups (Preucel et al. 2002).

The dispersed plan of Astialakwa suggests that the centralized leadership exhibited early in the Pueblo Revolt era at Patokwa and Boletsakwa was lacking in 1694. This may be related to the struggles associated with the combination of two previously disparate communities. The dispersed settlement layout may also index the fact that there was no single leader coordinating construction activities at Astialakwa. The convergence of the people of Patokwa and Boletsakwa at Astialakwa presumably brought together two

previously separate village-level political systems as well—with two *caciques*, two war chiefs, four war captains, and their multiple attendants. The dispersed site plan of Astialakwa may index the social and political negotiations that would have been necessary for these two groups to coexist. Indeed, it is probably incorrect to speak of a single "Astialakwa community," as this village housed people from multiple different communities.

Revitalization and Ceramic Production

As noted in Chapter VI, ceramics played a role in the revitalization movement of the Pueblo Revolt era as well. Capone and Preucel (2002) document the prevalence of traditional motifs in Kotyiti Glaze Wares and Tewa Polychrome ceramics after 1680 and interpret this as evidence of revivalism. Similarly, Zuni women revived the exclusive production of matte-painted pottery following the Pueblo Revolt, ceasing the manufacture of Hawikuh Glaze Ware (Mills 2002:92-95). Considering these patterns of ceramic revivalism at other post-Revolt Pueblo villages, the decrease in the manufacture of Jemez Black-on-white at Patokwa and Astialakwa is particularly surprising (Chapter VI). Clearly this does not demonstrate a revival of traditional Jemez ceramic production at all. This raises the obvious question: why do Jemez potters so drastically reduce the production of traditional ceramics after the Pueblo Revolt, even as their Keres, Tewa, and Zuni neighbors were reviving traditional pottery styles?

The cessation of production of Jemez Black-on-white does not appear to be associated with revivalism, but rather may be related to the nativistic component of the Revolt era revitalization movement. Although this sounds at first counterintuitive, Spanish influence is known to have affected the production of Jemez Black-on-white in the early seventeenth century at the Ancestral Jemez mission pueblo of Giusewa. Excavations at the mission village have unearthed a number of Jemez Black-on-white artifacts exhibiting Spanish influence, including soup-bowls, cups, candleholders, a nearly complete chalice, and a cross (Lambert 1981; FIG. 7.5). Furthermore, many of the black-on-white vessels from Giusewa exhibit "Greek cross" motifs and other European-influenced design elements (Elliott 1991:81). Based on this evidence, it seems clear that the Spaniards exerted influence on the production of Jemez Black-on-white ceramics in the seventeenth century. The termination of production of black-on-white pottery at Jemez pueblos following the Revolt may have resulted from a conception among Jemez potters of this type as a "contaminated" style. That is, Jemez women had recently been forced to produce European and ecclesiastical forms of Jemez Black-on-white ceramics, and at the time of the Pueblo Revolt they associated the production of black-on-white pottery more with Spanish colonization than with their pre-Hispanic ancestors. Thus following the calls of Po'pay to expunge their world of Spanish influence, Jemez potters drastically reduced the manufacture of the pottery type they had been forced to make into ecclesiastical accoutrements. Jemez oral histories support this interpretation, asserting that the manufacture of black-on-white pottery was intentionally stopped during the Revolt era in a direct response to Spanish influences (Whatley and Delaney 1995:207).

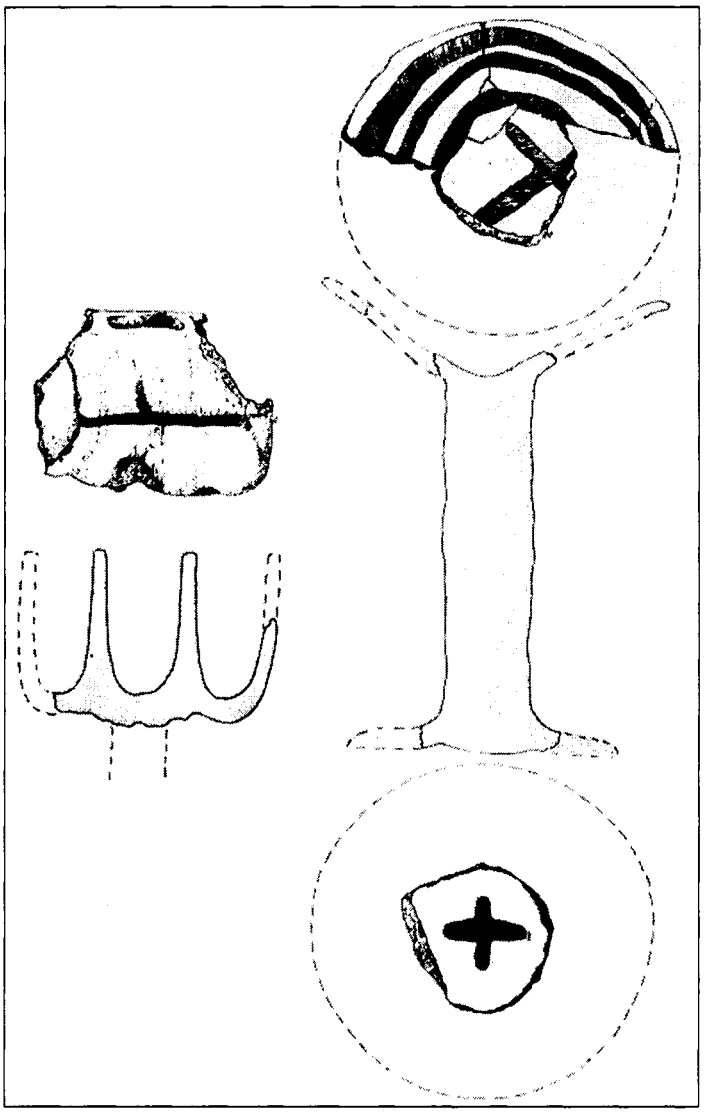

Figure 7.5: Jemez Black-on-white ecclesiastical items found at Giusewa. Left, sconce designed to hold three candles. Right, Fragmentary chalice top, stem, and base (Lambert 1981:227).

A similar nativistic response occurred among Zuni potters of the post-Revolt period. After 1680, Zuni women stopped using the glaze paint technology that had been re-introduced by Franciscan missionaries in the 1630s.[52] Mills (2002:93) interprets this as "an intentional act to mark a break with earlier ceramic production," an expression of nativism that appears to be a direct analogue to the termination of Jemez Black-on-white pottery. Her basis for this interpretation stems in part from the fact that glaze ware was not only re-introduced to Zuni potters by the Franciscans, but used in the mission church at Hawikuu as well (Smith et al. 1966). The baptismal font, for example, was reportedly a glaze-decorated vessel. Mills suggests that: "The association of the mission with this vessel type [glaze ware] may have been one that the Zunis would want to leave behind" (2002:93); just as the association of the missions with Jemez Black-on-white may have been one that the Jemez wanted to leave behind as well.

When the production of Jemez Black-on-white came to an end during the Pueblo Revolt period, other ceramic types necessarily increased in the Jemez assemblages, taking the place of the black-on-white vessels. As noted in Chapter VI, the most prominent of these is Historic Red pottery. If the cessation of the Jemez Black-on-white tradition was indeed a result of Pueblo Revolt era nativism, then the increase in production of Historic Red is an ironic response, as this type appears to have been introduced to the Jemez Province through the Franciscan presence at Giusewa in the early seventeenth century. While it makes up only a miniscule percentage of Giusewa

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[52] Although the end of glaze paint technology in the Rio Grande may be related to Spanish control over access to lead mines in the eighteenth century, "there is no evidence for Spanish exploitation of lead sources in the Western Pueblo area. A long tradition of lead glaze paints is present in the Mogollon Rim and Zuni areas that most likely depended on local lead oxide sources" (Mills 2002:93).

ceramics, most were European-introduced forms (Lambert 1981:229). However, in such small quantities (Historic Red sherds comprise less than 0.1% of the Giusewa assemblage, 35 of 52,285 sherds)—it is possible that these vessels were introduced to the Giusewa ceramic assemblage in the post-Revolt period. Concurrent with the rise in Historic Red is an increase in tradewares at the Jemez Revolt Pueblos. And although the increase in tradewares does not appear to be a direct result of Po'pay's calls for nativism and revivalism, it is a consequence of one of the other elements of the Pueblo Revolt era revitalization movement: a pan-Pueblo ethnogenesis.

Ethnogenesis

One of the most significant social practices resulting from the Pueblo Revolt era revitalization movement was the creation of new social identities that blurred the traditional linguistic-ethnic boundaries that defined Pueblo village clusters during the first eight decades of Spanish colonization (Ford et. al. 1972; Wilcox 1981). "For the first time so far as we know in Pueblo history" Spicer writes, "a supra-village organization came into existence" among the Pueblos in August of 1680 (Spicer 1962:163). This process, commonly labeled ethnogenesis, has been defined as "not merely a label for the historical emergence of culturally distinct peoples but a concept encompassing peoples' simultaneously cultural and political struggles to create enduring identities in general contexts of radical change and discontinuity" (Hill 1996:1). Ethnogenesis is a creative adaptation that is particularly common among indigenous groups that have been drastically impacted by colonial institutions and agendas (Roosens 1989).

In colonial New Mexico, the Spaniards deployed ethnic categories in the context of legitimizing their political and economic system. The ascription of a monolithic "Pueblo" ethnicity to linguistically and culturally diverse peoples allowed asymmetric social and economic relations to appear both natural and broadly applicable (Wilcox 2001; Preucel et al. 2002). What is distinctive about the Pueblo Revolt is that Po'pay appropriated this category in order to mobilize disparate villages against their Spanish colonizers. The foreigners' ethnic category of "Pueblo" was turned on its head to forge political unity and permit collective resistance in 1680.

The increase in tradewares that co-occurs with the decline of Jemez Black-on-white at Patokwa and Astialakwa is a clear indicator of the new relations that developed among the Pueblos following the Revolt of 1680, fostering the creation of new pan-Pueblo identities. The Rio Grande Glaze Wares offer a striking illustration of this surge in trade. As noted in Chapter VI, glaze wares were not locally produced within the Jemez Province, and comprised less than three percent of pre-Revolt Jemez ceramic assemblages (Reiter 1938:103, 108; Shepard 1938:205; Elliott 1991:80). After the Revolt, however, the proportion of glaze wares rose to 13 percent. A similar pattern occurred with regard to Tewa ceramics. Stylistic analyses of Jemez and Tewa black-on-white wares suggest that there was little interaction between these regions previous to 1680 (Futrell 1998; Graves and Eckert 1998; Morley 2002:238). This is confirmed by frequency analyses of ceramics at Ancestral Jemez assemblages. Prior to the Revolt, Tewa ceramics comprised less than 0.1 percent of documented Jemez assemblages (Reiter 1938:189-192; Elliott 1991:80). At the Revolt era pueblos, however, 5.8 percent of the pottery hailed from the Tewa region. The increase in Tewa ceramics at Patokwa

and Astialakwa provides evidence that after 1680, new ties were forged between the Jemez and their Tewa and Keres neighbors. In fact, interaction between these two regions was stronger in the sixteen years following the Pueblo Revolt than it had been for three centuries prior to 1680. This intensification in trade, combined with the increase in Rio Grande Glaze Wares, suggests that the unity among previously disparate Pueblo villages that occurred in the early part of the Revolt era helped to blur the long-established boundaries between ethnic and linguistic groups and establish new, pan-Pueblo identities.

Analyses of ceramics from other sub-regions of the Pueblo world reveal further evidence for the creation of new identities that cut across traditional linguistic-ethnic lines in the wake of the Pueblo Revolt. Mills cites the adoption of matte-paint polychromes at Acoma and Zuni, as well as the use of feather motifs on post-Revolt ceramics across the Pueblo world as "evidence for a region-wide stylistic horizon . . . [which] suggests a unity that cross-cuts language groups and other important social differences among the Pueblos" (Mills 2002:95).

Historians have commonly concluded that any pan-Pueblo unity forged in the Pueblo Revolt era was short-lived, citing later reports that Po'pay was deposed and that the "Keres, Jemez, Taos, and Pecos were at war with the Tano, Tewa, and Picuris" during the mid-1680s (Sanchez 1983:133; see also Kessell and Hendricks 1992:26), although Escalante's 1778 letter does not name the Jemez specifically (Twitchell 1914, 2:276). The comparatively high proportion of Tewa ceramics at the Jemez Revolt era sites calls into question the notion that these groups were at war between 1680 and 1696. Furthermore, archaeological evidence suggests that while some of the Keres did not

engage in direct trade with the Tewa during this period (possibly because of inter-Pueblo hostilities), others did. At Cerro Colorado, Tewa wares comprised just 0.1 percent of the total ceramic assemblage. Conversely, the ceramic assemblage at Kotyiti exhibits a high percentage of Tewa wares (Capone and Preucel 2002), and petrographic analysis indicates that some of these may have been locally manufactured—meaning that Tewa potters were probably living side-by-side with the Keres from Cochiti during the period of Pueblo independence (Preucel 2006).

Thus the archaeological record provides a more refined picture of inter-pueblo relations during the Revolt era than that derived from documentary accounts alone. New relationships were established among many Pueblos in the wake of the Revolt that crossed traditional linguistic-ethnic lines, as exemplified by the increased trade among the Jemez, Tewa, and Keres of Kotyiti. These new relationships recursively shaped the emergence of new, pan-Pueblo identities that occurred after 1680.

A Postcolonial Interpretation of the Pueblo Revolt

The practices of revitalization revealed in the archaeological record of the Jemez Province suggest that Pueblo peoples did not blindly adhere to Po'pay's orders, nor did they enact his calls for nativism and revivalism in a simple and straightforward manner. Although some efforts were made to rid the world of Spanish influences, many "foreign" characteristics were retained after the Pueblo Revolt; and although some ostensibly traditional aspects of pre-Hispanic Pueblo culture were revived, many new forms were

invented during this period as well. As we have seen, the Jemez did not return to the ways of their ancestors between 1680 and 1696—rather, they developed new lifeways that often incorporated the influences of the Colonial past. These confusing changes could be interpreted as evidence that the Pueblo Revolt revitalization movement was ultimately a failure, because it was unsuccessful in purging the world of Spanish influence and bringing about the millennial existence envisaged by Po'pay. Postcolonial studies offer an alternative interpretation, however, suggesting that these patterns of negotiation, invented tradition, and hybridity are in fact typical of the decolonizing process around the world.

Postcolonial scholars have drawn attention to the practice of "decolonizing amnesia" that commonly takes place among societies undergoing the transition from occupation to emancipation. The emergence of independence "is frequently accompanied by a desire to forget the colonial past . . . Principally, postcolonial amnesia is symptomatic of the urge for historical self invention or the need to make a new start—to erase painful memories of colonial subordination" (Gandhi 1998:4). In post-Revolt New Mexico, this decolonizing amnesia was violently enacted through the killing of missionaries and colonial settlers, the burning of churches, the destruction of mission villages, and the demolition of Christian paraphernalia. Among the Jemez, the desire to forget Spanish colonization resulted in the termination of production of Jemez Black-on-white ceramics as well. As postcolonial scholarship makes clear, this type of intense nativism is a common reaction to decolonization in societies the world over.

The initial desire to erase colonial memories is typically followed by what Homi Bhabha (1994:63) calls a re-membering of the past, in which new cultural forms are

created in an attempt to forge a reparative continuity with previous times. The creation of iconic dual-plaza pueblos directly adjacent to the remains of pre-Hispanic villages is an archetypal example of this re-membering process. Postcolonial re-membering is never simply an act of straightforward revivalism, however (Hall 1990). Following initial attempts to repress and repudiate the colonial past, decolonizing societies typically adopt new, hybrid forms of culture that index the fundamental changes that occurred to them through the process of colonization. This hybridization is an essential part of the re-membering process. At the ancestral Jemez pueblos of the Pueblo Revolt era, the adoption of Historic Red pottery is an example of this postcolonial hybridity. Historic Red was introduced to Jemez potters through interactions with Franciscan missionaries (Lambert 1981), but was transformed into a marker of new, pan-Pueblo identities in the wake of the Pueblo Revolt.

Postcolonial studies have frequently utilized the concept of hybridity simply as a gloss for cross-cultural exchange between the colonizer and the colonized. This use has been criticized for neglecting to acknowledge the differential power relations involved in the colonial encounter (Ashcroft et. al. 1998:119). Furthermore, postcolonial studies have primarily emphasized hybridity on just one side of the colonial equation, examining the adoption of characteristics of the colonizer by the colonized. In practice, hybridity has been conceptualized primarily as a unidirectional process—even though the colonizer participates as much as the colonized, as the recipient of influence as well as the supplier (Pratt 1992:4-6).

The archaeology of the Pueblo Revolt highlights a further aspect of hybridity that has been overlooked in previous studies of the decolonizing process. For the most part,

postcolonialists have emphasized the hybridity that occurs between the colonizer and the colonized. This emphasis on colonizer-colonized hybridity has overshadowed the importance and the frequency with which hybridity occurs within colonized populations as well. A common and often unintended consequence of colonization is the miscegenation that occurs among colonized populations in opposition to the colonizers. This phenomenon is exemplified in the formation of new, pan-Pueblo identities that occurred after the Revolt. Hybrid cultural forms (e.g. the feather motif, matte-painted wares [Mills 2002], Historic Red pottery, and the dual-plaza pueblo site plan) were employed after 1680, blurring the traditional lines separating previously discrete linguistic-ethnic populations in the northern Rio Grande. Conceptualizing postcolonial hybridity simply as exchange between the colonizer and colonized ignores the mixture and miscegenation that typically occurs within colonized populations—a result of the racial and ethnic categories commonly employed by the colonizers. This form of hybridity is often articulated in the appropriation and subversion of forms borrowed from the colonizer, hoisting them on their own petard. Po'pay mobilized just such a form of postcolonial hybridity in the formation of the pan-Pueblo alliance that succeeded in expelling the Spaniards in 1680.

To conceive of the Pueblo Revolt revitalization movement as a failure, or an incomplete example of cultural revitalization, overlooks the lessons drawn from ethnographic examples of the decolonizing process. Although the patterns of invented tradition, hybridity, and negotiation seem at first confusing and counterintuitive when analyzed from the perspective of nativism and revivalism, these unanticipated practices are in fact common to the decolonizing experience. The rejection of long-established

aspects of culture (Jemez Black-on-white pottery), the invention of tradition (the dual-plaza layout), and the adoption of Spanish-influenced material culture (Historic Red pottery) by the Jemez people should not be interpreted as a rejection or an incomplete form of Po'pay's revitalization movement. Postcolonial studies demonstrate that these patterns are common forms of anti-colonial resistance.

Chapter VIII concludes this study with a review of the new insights and information that have been derived from this investigation of the Pueblo Revolt period in the Jemez Province. It also discusses the larger implications of these findings for the anthropological study of revitalization movements, as well as general theories of culture change.

CHAPTER VIII: CONCLUSIONS

The preceding study has endeavored to answer two primary questions, the first historical in nature, the second anthropological. What happened in the Jemez Province between the Pueblo Revolt of 1680 and the Spanish reconquest of the 1690s? And what information can the material culture of this period convey regarding the anthropological phenomena of revitalization movements that enhances existing ethnographic and historical studies? This final chapter provides concise answers to these questions, reviewing the major contributions of this dissertation to the study of the Pueblo Revolt specifically and revitalization movements in general.

Chapter VIII begins with a chronological overview of the Pueblo Revolt era in the Jemez Province, filling in the gaps in the documentary record from an archaeological perspective. Through the integration of material culture with Spanish texts and Pueblo oral traditions, an alternative history of this tumultuous period is forged. This new account provides for the first time a comprehensive description of the Pueblo Revolt era in the Jemez Province. In so doing, it highlights the variation in Pueblo behavior that occurred within this period, examining the trajectory of revitalization during the early, middle, and late phases of the Pueblo Revolt era.

The latter half of this chapter examines the implications of this study for the anthropological investigation of revitalization movements across space and time. This dissertation makes a number of major contributions in this vein. First, it emphasizes that revivalistic revitalization movements involve more innovation than duplication, a finding with profound implications for archaeological studies of these phenomena. Second, it

demonstrates that the social practices of revitalization often differ from the directives articulated by the leaders of these movements, and are far more negotiated than previous studies have noted. Finally, it highlights the impacts of revitalization movements on long-term cultural developments, stressing their importance in the formulation of general theories of culture change.

An Archaeological History of the Pueblo Revolt Revitalization Movement in the Jemez Province

The Early Phase of the Pueblo Revolt Era, 1680-1685

The Pueblo Revolt revitalization movement began in the Jemez Province with the execution of Fray Juan de Jesús at the mission village of San Diego de la Congregación/Walatowa in August of 1680. Following this, the Jemez sacked the church, destroying much of the ecclesiastical paraphernalia in a violent display of nativism. The leaders of the Pueblo carefully preserved other Christian items, but removed them from public display (Kessell et al. 1998:237). Initially the residents of Walatowa did not vacate the mission pueblo, living there for as long as sixteen months after the Pueblo Revolt.

In late 1680 or early 1681, Po'pay and his entourage probably visited Walatowa in person, encouraging the Jemez to purge their world of Spanish influences and revive ostensibly indigenous, pre-Hispanic traditions. It may have been at Po'pay's urging that the men of Walatowa reduced the pueblo to ashes in a nativistic conflagration, an act

recorded in Jemez oral traditions (Bloom and Mitchell 1938:108). By December 1681 the residents of Walatowa had left the mission village, moving to the north (Hackett and Shelby 1942, 2:236, 360; Kessell et al. 1995:203) where they began construction on the pueblo of Patokwa. This move may have been instigated by Po'pay's ideology of revitalization, or in response to the threat of the Spanish forces returning during Otermín's abortive attempt at reconquest (Hackett and Shelby 1942, 2:207-361); most likely, both of these factors played a role in encouraging this migration.

The ideology of revitalization among the residents of the Jemez Province was at its most intense during the early 1680s. The village of Patokwa displays evidence for this revivalistic zeal, with architecture that indexes strong centralized leadership, a hallmark of revitalization movements generally (Wallace 1956:273-274). This may reflect a return to traditional Pueblo forms of political and social organization, with a single *cacique* recognized as the ultimate authority—and without competition from those previously appointed under the Spanish-imposed system implemented during the Colonial era (Riley 1999:205). The leader(s) at Patokwa effectively marshaled labor on the communal level, and the construction of the village was a highly planned and organized undertaking designed to promote the revival of traditional Puebloan elements of culture. The dual-plaza plan utilized at Patokwa is an iconic sign of the revivalistic element of the revitalization movement, indexing an emphasis on moietal social organization.

Ceramics were employed in the social practices of revitalization during these early years of the Pueblo Revolt era in the Jemez Province as well. A drastic decrease in the production of Jemez Black-on-white pottery occurred after 1680. This transition was likely related to the nativistic element of the revitalization movement, in an intentional

break with a pottery type that had become associated with Franciscan missionization. The dramatic reduction in the production of black-on-white ceramics in the Jemez Province was accompanied by the manufacture of new types, most notably Historic Red and Jemez River pottery. This transformation incorporated corresponding changes in ceramic technologies as well, with the widespread adoption of basalt temper, displacing tuff as the dominant tempering material employed by Jemez women in the production of decorated ceramics.

These changes in ceramic technology and production were related to the increase in migration among Pueblo peoples that characterized the Revolt era (Schroeder 1972; Herr and Clark 1996). The sudden change in tempering technologies may index the fact that potters who had previously utilized a basalt tempering tradition (probably hailing from the Puname pueblos) took up residence at Patokwa with the Jemez following the Pueblo Revolt. At the same time, an increase in trade and interaction among the Jemez and their Tewa and Keres neighbors occurred on a previously unprecedented scale, along with the adoption of inter-regional ceramic traditions, such as Historic Red pottery. All these changes are recursively related to the pan-Pueblo ethnogenesis instigated by Po'pay's revitalization movement. Following the Revolt, the social practices of revitalization blurred the traditional linguistic-ethnic boundaries that that had previously defined Pueblo village clusters (Ford et al. 1972; Wilcox 1981), resulting in the creation of new, pan-Pueblo identities (Mills 2002; Preucel et al. 2002).

By 1683 construction was underway at the village of Boletsakwa on San Juan Mesa. This pueblo appears to have been founded by a group that separated itself from the Patokwa community (Kessell et al. 1998:402-403), and was composed of both Jemez

and Keres persons (from Santo Domingo). The people of Boletsakwa shared in and continued the discourse of revitalization utilized at Patokwa, employing a similar dual-plaza layout, again emphasizing the importance of duality in this community. Like Patokwa, the architecture of Boletsakwa indexes centralized leadership, the organization of labor on a supra-household level, advanced planning, and intentional design. Through at least 1683, the revivalistic element of the revitalization movement had a strong following among the inhabitants of the Jemez Province living at Patokwa and Boletsakwa (as well as among the people of Kotyiti, which was constructed in the Cochiti district between 1680 and 1685).

The Middle Phase of the Pueblo Revolt Era, 1686-1691

The middle years of the Pueblo Revolt era were a time of considerable turbulence throughout the northern Rio Grande, particularly in and around the Jemez Province. Historical documents suggest that Ute raiders took advantage of the Spaniards' absence to "wage unceasing war" on the Jemez, northern Tiwa, and the Tewa, while the Jemez reportedly "finished off the Piros and [southern] Tiwas" with the help of their Keres allies (Twitchell 1914, 2:277).

Attacks by the Spaniards on Santa Ana in 1687 and Zia in 1689 (Kessell and Hendricks 1992:24-26) compelled the Keres of the Puname region to leave these villages, taking up residence in the Jemez Province, where they constructed Cerro Colorado in 1689. Cerro Colorado shares some of the architectural characteristics of the early Revolt-era pueblos of Patokwa and Boletsakwa; most notably, it has two plazas. This plan may

be an index of the continuing importance of moietal social organization in the middle years of the Pueblo Revolt era, but its spatial organization does not appear to be the result of pre-construction planning that intentionally incorporated revivalistic elements. The pueblo of Cerro Colorado does not employ the same iconic architectural pattern utilized at Patokwa and Boletsakwa (and Kotyiti), with open-ended plazas and no circular or subterranean kivas (if in fact there were any kivas built there at all). Hence the conspicuous architectural signs of revitalization that characterize the early Revolt-era pueblos are not present at Cerro Colorado, suggesting that either its Keres inhabitants did not participate in the same discourse of revitalization as did the residents of Patokwa and Boletsakwa, or that they did so in a different manner.

Escalante's 1778 account of the Revolt era suggests that the pan-Pueblo unity that characterized the early 1680s broke down in these middle years, giving way to the rise of inter-pueblo hostilities: "The rebellious Pueblos of New Mexico became inflamed one against the other and began to wage war. The Keres, Taos, and Pecos fought against the Tewas and Tanos" (Twitchell 1914, 2:276). Other accounts state that the Jemez were part of this alliance against the Tewa as well (Espinosa 1942:23; Sanchez 1983:135; Kessell and Hendricks 1992:27). The archaeological record simultaneously supports some of these assertions and challenges others, indicating that while good trade relations existed between the Jemez and both the Keres and the Tewa, there was by contrast little if any ceramic exchange between the Keres of Cerro Colorado and the Tewa—possibly because of inter-pueblo conflicts.

The political leadership of the Pueblo world was equally volatile during this period. By the mid 1680s[53] Po'pay had reportedly been deposed "for the despotism and severity with which he compelled obedience and for the large tribute which, in his frequent visitations, he compelled them to pay him" (Twitchell 1914, 2:276). Following Po'pay's ouster, Luis Tupatù came to power, sharing control with Alonso Catití (Sanchez 1983:145). Catití died sometime in the 1680s, with Tupatù falling out power in 1688, succeeded again by Po'pay. Not long after this second ascent to leadership, Po'pay died as well, with Tupatù succeeding him once more (Twitchell 1914, 2:276).

The instability that characterized the Pueblo world between 1686 and 1692 appears to be recursively related to the revitalization movement. The breakdown of pan-Puebloism, increasing hostilities among the Pueblos (as well as with their nomadic neighbors) and erratic changes in leadership all combined to undermine the ideology of revitalization which had been so strong in the early 1680s. Hence it is no surprise that the conspicuous signs of nativism and revivalism exhibited in the early phase of the Revolt era are largely absent in these middle years, particularly in the architecture of Cerro Colorado.

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[53] The timing of Po'pay's fall from power is uncertain. Sanchez (1983:133) places this event within a year of August 10, 1680; however, none of the pueblo captives who gave testimony to Otermín in December 1681 and January 1682 mention Po'pay being ousted. The testimony of Juan Punssili recorded by Otermín in 1683 suggests that Tupatu and Catití were in primary positions of leadership by that time, but makes no mention of Po'pay (Sanchez 1983:145). Escalante's chronicle implies that these events occurred nearer the middle of the Revolt era (Twitchell 1914, 2:276).

The Late Phase of the Pueblo Revolt Era, 1692-1696

When the Spaniards returned to the Jemez Province in1692 they received markedly different receptions at Patokwa and Cerro Colorado, reinforcing the notion that the trajectory of revitalization within these communities had diverged during the early and middle phases of the Pueblo Revolt era. At Cerro Colorado, the Keres met the Spaniards "with reverence. They all had crosses in their hands and on most of the houses of the cuarteles of the plaza" (Kessell and Hendricks 1992:518). Any trace of nativism that might have still existed at Cerro Colorado in the middle phase of the Pueblo Revolt era had faded completely by 1692. Conversely at Patokwa the doctrine of nativism seems to have endured; no crosses decorated the houses or the plaza upon the Spaniards return, and Vargas's forces were met by warriors who "joined together in a great cry, as is their custom in war, ambush, and battle" (Kessell and Hendricks 1992:521) in an attempt to intimidate the colonizers.

From 1692 onward, hostilities between the Jemez and the Keres of Cerro Colorado increased. While the people of Patokwa and Boletsakwa remained staunchly opposed to the Spaniards' return, the residents of Cerro Colorado allied themselves with the Spaniards (Kessell et al. 1995:401-405). Tensions between the groups festered for the next two years, with the Keres vacating Cerro Colorado and moving back to their home villages of Zia and Santa Ana in late 1693 or early 1694. Antagonism reached the breaking point in the spring of 1694 when the Jemez repeatedly attacked the pueblos of Zia and Santa Ana (Kessell et al. 1998:234, 278, 283).

At the same time, the Jemez of Patokwa and Boletsakwa began construction on the village of Astialakwa. Unlike its early Revolt era predecessors, the architecture of

Astialakwa does not display signs of revitalization-inspired revivalism. This late Pueblo Revolt era village shows no evidence for centralized leadership, architectural planning, or an emphasis on traditional moietal social organization. In fact, Astialakwa appears to have been largely (if not wholly) unplanned, with construction undertaken by individual households rather than communal work groups. Although the spirit of nativism was obviously strong among the people living at Astialakwa—as attested to by their staunch resistance to the Spaniards in the battle of 1694—the ideology of revivalism appears to have waned considerably by this time, or at least its architectural expression.

Following the 1694 battle at Astialakwa, the Jemez were forced to move back to Patokwa and Boletsakwa. At Patokwa, the mission church of San Diego del Monte was constructed in the northwest corner of the pueblo. After a brief reoccupation of Boletsakwa that village was vacated as well, with its inhabitants moving back to Walatowa where a second mission church, San Juan de los Jemez, was built The construction of these chapels would seem to be a strong indication that the revitalization movement promoted by Po'pay was all but a memory by 1695. In 1696, however, the revitalization ideology was rekindled, and the Jemez rose up against their Spanish colonizers yet again. This revitalization of the revitalization movement differed from the uprising of 1680 in that it appears to have been primarily nativistic, with revivalism playing a considerably reduced role. The churches were again ransacked (Bloom and Mitchell 1938:108n54); and five colonial soldiers, a priest, and a Jemez-born Spanish-sympathizer were executed (Espinosa 1988:252; Kessell et al. 1998:751). Following this second uprising the Jemez left Patokwa and Walatowa, with many taking refuge at Acoma, Zuni, Taos, in the Gobernador region, and among the Hopi villages (Hendricks

and Wilson 1996; Kessell et al. 1998:969, 978, 984, 1004, 1030; 1103; Brugge 2002). In a final nativistic gasp, Jemez warriors and their allies engaged the combined Spanish/Keres forces at Astialakwa one final time on June 29, 1696. This battle effectively signaled the end of not only the Pueblo Revolt era in the Jemez Province, but the revitalization movement as well, with the region entirely depopulated for the next six years.

The evidence reviewed here provides for the first time an archaeological history of the trajectory of the Pueblo revitalization movement during the late seventeenth century. The Pueblo Revolt of 1680 initiated a period of strong nativism and revivalism, engendering the formation of new, pan-Pueblo identities in its early years. This intense revitalization proved difficult to sustain, however, and shows signs of waning in the late 1680s and early 1690s in the Jemez Province. The return of the Spaniards in 1692 reinvigorated an ideology of nativism among the Jemez, although the revivalistic component seems to have diminished significantly by this time. Conversely, the people of Cerro Colorado appear to have abandoned the revitalization ideology completely by 1692, opting instead to ally themselves with the Spaniards. Based on the archaeological and historical evidence reviewed above, it is apparent that the Pueblo Revolt revitalization movement did not follow a clear, simple, or constant trajectory. Rather it waxed and waned throughout the Revolt era, with differential followings among the various Pueblo communities between 1680 and 1696.

Contributions of this Study to the Anthropological Investigation of Revitalization Movements

One of the stated objectives of this dissertation is to utilize the archaeological record of the Pueblo Revolt era to critically reexamine the anthropological study of revitalization movements. This focus on material culture in addition to textual sources has provided a series of observations into these phenomena that enhances existing ethnographic, archaeological, and historical studies of revitalization movements. These insights result directly from the explicit goal of this dissertation to shift the focus of revitalization studies from the causes of these movements to their effects, considering revitalization not as an anomalous event, but as a social practice.

Innovation, Not Duplication

The first of these insights is the observation that the social practices of revitalization primarily involve the creation of new forms, rather than a simple replication of old ones. In other words, revitalization movements are more about innovation than duplication—even overtly revivalistic movements, such as the one initiated by Po'pay in the 1680s. Although they may generate invented traditions that index the past, revivalistic revitalization movements do not typically result in a straightforward resumption of former behaviors, but rather engender innovative and hybrid forms of material culture. The creation of the iconic dual-plaza pueblo architectural plan and the

adoption of new ceramic types such as Historic Red and Jemez River Polychrome by the Jemez are archetypal examples of revitalization-induced innovations.

I do not mean to suggest that the inventive nature of revitalization movements has been overlooked or ignored in previous ethnographic and historical studies. In fact, Wallace identifies cultural innovation as one of the primary functions of revitalization rituals, noting its role in such famous examples as the Ghost Dance, the Handsome Lake religion, and the "peyote cult"/Native American Church (Wallace 1966:209-210). One of the primary contributions of the present study is to emphasize that cultural innovation is common not only to utopian, assimilative, and expropriative revitalization movements, but also to explicitly revivalistic instances of rapid culture change. This is particularly significant for the assessment of revitalization movements in the archaeological record (especially in contexts without supporting textual documentation). In the past, archeological studies employing the revitalization model to interpret material culture have identified the repetition of archaic forms as the defining signature of revivalistic revitalization movements (e.g. Bradley 1996). However, if archaeologists rely exclusively upon the unambiguous correspondence of artifacts with earlier forms in the assessment of revitalization in the archaeological record, we are likely to fail to notice many of the revitalization movements that occurred in the past, particularly those not documented in official histories. As the material culture of the Pueblo Revolt shows, hybridity and innovation should be expected in the archaeological record of revitalization movements, particularly in colonial and postcolonial contexts. The archaeological signature of revivalistic revitalization movements is thus not a straightforward restoration

of the past, but a rapid change in multiple artifact classes that is commonly innovative in character, typically without evidence for transitional forms.

The Negotiated Nature of Revitalization Movements

The second major contribution of this study to the anthropological investigation of revitalization is a reconsideration of the role of the non-elite followers of these movements—the common people—in directing and recursively shaping the practices of revitalization. Classic studies of revitalization have tended to view the followers of these movements as obedient and anonymous groups who unquestioningly comply with the directives of the leaders. While this is sometimes the case (as in the tragically suicidal examples of Jim Jones's People's Temple and the Heaven's Gate cult), this study clearly demonstrates that the actions of followers often differ significantly from the words of the leaders of revitalization movements. In fact, the practices of revitalization are recursively constructed by devotees, and are far more negotiated than previous studies have typically noted. For example, Wallace defined revitalization movements as "the rapid *acceptance* of a pattern of multiple innovations" by members of a society (Wallace 1970:188, emphasis mine), relegating devotees to a role as passive recipients of changes foisted upon them, rather than active agents negotiating the practices of revitalization. A better definition might be "the rapid *creation* of a pattern of multiple innovations," which ascribes a significantly greater degree of agency to devotees. As the material culture of the Pueblo Revolt era shows, the members of these communities were not dupes, but active participants in the recursive construction of the revitalization movement.

The archaeological record of the Pueblo Revolt era clearly demonstrates that revitalizing groups are not as homogenous as previous studies have suggested. Pueblo people clearly negotiated the practices of revitalization in seventeenth century New Mexico, choosing to enact the doctrines of Po'pay in different ways in different places. Although historical documents leave the impression that the Pueblos returned to pre-Hispanic lifeways in a straightforward way after 1680 (Hackett and Shelby 1942), the archaeological record suggests that this was not the case. Some Pueblo women revived archaic pottery designs, while others invented entirely new ones. Some aspects of Spanish culture were purged, while others continued to be mobilized in new, hybrid forms. These observations provide a cautionary note for ethnographers and historians as well as archaeologists. A focus on the social practices of these phenomena—rather than only the official doctrines—results in a recognition of the heterogeneous nature of revitalization movements, and the fact that they are negotiated and (re)constructed from the bottom up as well as the top-down.

The Enduring Consequences of Revitalization Movements

Finally, the focus of this dissertation on the material culture of revitalization movements reveals the profound long-term effects they can have on cultural developments. These phenomena are not, as they have often been characterized in the past, simply anomalous flash-in-the pan events. In fact, even so-called "unsuccessful" revitalization movements—such as the Pueblo Revolt—can have significant consequences over the *longue durée.*

The changes in Pueblo culture wrought in the wake of the Revolt of 1680 have continued to impact the social fabric of the American Southwest even down to the present day. The transformations in settlement patterns and migrations that occurred during the Pueblo Revolt era played a major role in the constitution of the modern Pueblo world (Schroeder 1968). Many new pueblos were founded between 1680 and 1696, some of which continue to be inhabited today (Spicer 1962:192; Dozier 1966; Ellis 1979:438; Houser 1979). Other pueblo communities were reorganized during this era (Ferguson 1996), while entire regions that had been inhabited before the Pueblo Revolt were depopulated between 1680 and 1696 (Hackett and Shelby 1942:203-7; Nelson 1916). Indeed, this era witnessed the last major shift in Pueblo settlement, and the repercussions of this migration and diaspora continue to shape modern Pueblo cultures and communities. Furthermore, the changes in ceramic production that first occurred during the Pueblo Revolt era continue to be utilized in many of the twenty-first century pueblos (Frank and Harlow 1974; Harlow and Lanmon 2003; Chapter VI).

Perhaps the most significant outcome of the Pueblo Revolt was the breakdown of traditional boundaries and creation of new, shared identities among the formerly distinct Pueblos. Po'pay's revitalization movement cemented "among the Pueblos the sense of unity and common purpose necessary to defend Pueblo cultural integrity against Spanish onslaughts" (Ortiz 1994:300). Although it would be incorrect to say that a monolithic, pan-Pueblo identity exists today (indeed, it did not even persist through the mid-1680s), the bonds first forged during the Pueblo Revolt era endure in modern institutions such as the All Indian Pueblo Council and the Eight Northern Pueblos Council.

One of the most important outcomes of the Pueblo Revolt was the new rapprochement that tacitly emerged between the Pueblos and Spaniards in the eighteenth century. No longer were Pueblo people subjected to the exploitive practices of *encomienda* and *repartimiento.* The termination of these Spanish policies had a profound impact on Pueblo communities in the eighteenth and nineteenth centuries. As H. Allen Anderson notes, "Indeed, it has been argued that had it not been for the uprising . . . a settlement pattern similar to that which subsequently appeared in Nueva Vizcaya and other provinces to the south" would have occurred in New Mexico, "with the labor of dependent Indians or poor meztizos supporting widely scattered large holdings" (Anderson 1985:372). Franciscan missionaries became more accommodating of Pueblo religion after the Revolt as well, and less inclined to demand strict allegiance to Christianity (Norris 2000). While the Friars did not approve of the kachina religion, after the uprising of 1680, they did tolerate it. This newfound accommodation helped to ensure the continuation of Pueblo religion, or as Joseph H. Suina (2002) has termed it, "the persistence of the Corn Mothers."

These examples demonstrate that revitalization movements are not simply anomalous and temporary interruptions in the gradual march of cultural evolution. In fact, they have profound impacts on long-term cultural developments, and therefore need to be considered in any grand theory of culture change. If we are to develop truly useful models of long-term culture change, archaeologists need to overcome the general disciplinary apprehension to dealing with the dynamics of culture change over short periods of time, as evidenced by the archaeology of the Pueblo Revolt.

In conclusion, for those who doubt that one person can have any meaningful effect on history, the Pueblo Revolt can be offered to both substantiate this supposition and to refute it. As this study has shown, a revitalization movement initiated by a single man did indeed have profound impacts upon the history of the American Southwest. But Po'pay did not implement his vision of nativism and revivalism single-handedly. The material culture of the Pueblo Revolt demonstrates that in fact, revitalization movements are produced and reproduced not only through the words of elite leaders, but through social practices enacted and negotiated by common persons. As Margaret Mead purportedly said, "Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it's the only thing that ever has." Revitalization movements are examples of this phenomenon. In fact, they have changed numerous worlds, many times over. The challenge for archaeology is not only to identify them in the artifactual record, but also to understand how revitalization movements changed past worlds into the one in which we live today.

APPENDIX A: BOLETSAKWA ARCHITECTURAL DATA

Room ID (* denotes two story room)	Number of Extant Walls (or parts thereof)	Average Room Length (m)	Average Room Width (m)	Estimated Floor Area (m^2)	Confidence Interval[54]	Corner	Intersection Data: B = Bonded A = Abutted
1	2	6.0	1.6	9.2	2.5	SE NE	B A
2	2	6.1	1.4	10.0	2.0	NE	B
3	0	6.1	1.6	10.0	0.5		
4	1	6.2	1.7	10.5	1.0		
5	4	4.4	1.7	7.7	4.0	NE NW SE	A A B
6	3	4.4	1.7	7.6	3.0		
7	0	4.4	1.6	7.2	1.0		
8	0	4.4	1.6	6.7	0.5		
9	3	4.4	1.7	7.6	4.0	NW	A
10	1	4.4	1.8	7.8	2.0		
11	0	4.4	1.6	7.2	0.5		
12	0	4.4	1.6	7.2	0.0		
13	4	4.2	1.7	7.0	4.0	NE SE	B A
14	2	4.1	1.7	7.1	3.0		
15	1	4.0	1.6	6.6	1.5		
16	1	4.0	1.7	6.9	1.0		
17	3	7.1	1.6	11.1	3.5		
18	2	7.0	1.7	12.2	3.5		
19	3	6.9	1.6	11.3	3.0		
20	2	6.7	1.7	11.6	2.5		
21*	2	4.4	1.4	6.3	2.0		
22*	0	4.4	1.7	7.4	2.0		
23*	2	4.4	1.6	7.1	2.5		
24	3	4.4	1.6	7.1	3.0		

[54] The Confidence Interval (CI) is a measure of the presumed relative accuracy of the floor area. CI was determined independently for each room by adding 1.0 for each extant wall (or part thereof) in the room, plus 0.5 for each visible wall segment in adjoining rooms in presumed alignment with missing walls. The maximum possible CI score is 4.0 (indicating a high degree of confidence in the estimated floor area), the minimum 0.0 (indicating a low degree of confidence in the estimated floor area). For example, if in-situ segments of the north and east walls of room X are visible, its CI would be determined by adding 1.0 (north wall) + 1.0 (east wall) = 2.0. If the adjoining rooms displayed no in-situ wall segments in alignment with the presumed south and west walls of room X, its final CI remains 2.0. However, if the adjoining rooms display segments in alignment with these walls, 0.5 is added for each segment (up to a maximum of 1.0 for each wall). Thus if the presumed west wall of room X was in alignment with one visible section of the west wall in the room adjacent (to the north or south), its CI would rise to a 2.5. The maximum CI for any room is 4.0, which indicates either a room in which parts of all 4 walls remain, or 3 walls remain with 2 segments in adjacent rooms in presumed alignment with the missing wall, or 2 walls remain with 4 segments in adjacent rooms in presumed alignment with the missing walls.

25	4	4.5	2.7	12.2	4.0		
26*	1	4.8	1.5	6.8	2.0		
27*	1	4.7	1.7	7.7	1.5		
28*	1	4.7	1.6	7.5	1.5		
29	1	4.8	1.6	7.4	1.5		
30	1	4.7	2.7	12.6	2.0		
31	3	6.0	1.9	11.4	3.5	NE	A
32	1	6.1	2.4	14.7	2.0		
33	3	5.5	1.9	10.7	3.5		
34	2	5.6	2.3	12.6	3.0		
35	3	5.3	1.9	10.1	3.5	NE	A
36	4	5.1	2.2	11.5	4.0		
37	4	4.8	1.9	9.1	4.0	NW NE	A B
38	2	4.9	1.7	10.6	3.0		
39	3	5.1	1.8	9.0	3.0		
40	1	5.1	2.1	10.9	1.5		
41	2	3.8	2.0	7.7	2.5		
42	1	3.7	2.5	9.3	2.0		
43	3	4.3	2.0	8.7	3.0		
44*	2	4.3	2.6	11.4	3.0		
45*	2	4.3	3.2	13.8	2.5		
46	3	4.3	3.0	12.7	3.0		
47	3	4.3	2.0	8.6	3.0	NE SE	B B
48*	3	4.4	2.7	12.3	3.5	NE NW	B B
49*	2	4.5	3.2	14.2	2.5		
50	2	4.5	3.0	13.5	2		
51*	1	4.0	2.0	7.9	2.5		
52*	3	3.9	2.7	10.5	4.0		
53*	1	3.7	3.3	12.2	2.5		
54	0	3.7	2.9	10.9	1.0		
55*	2	4.0	2.0	7.9	2.5		
56*	3	4.0	2.5	10.8	3.5		
57*	1	4.1	3.3	13.4	1.5		
58	0	4.0	2.8	11.5	0.0		
59	3	5.3	2.1	11.4	3.0		
60	2	5.5	2.0	11.4	2.5		
61	4	5.4	2.0	11.1	4.0	NE SE	B A
62	4	5.4	2.1	11.4	4.0	SE	A
63*	2	4.7	1.9	9.2	3.5	SW	B
64*	4	4.8	2.1	10.0	4.0	NW NE SE	B B B
65	2	5.0	2.8	14.3	3.0		
66	1	5.0	3.1	15.5	2.0		
67*	3	4.0	1.9	7.5	3.5	NE SE	B B
68*	2	4.1	1.9	8.0	3.0		
69	2	4.1	2.9	14.0	2.5		

70	1	4.2	3.1	13.0	2.0		
71*	2	4.7	1.8	8.6	3.5		
72	2	4.5	1.9	8.7	3.0		
73	2	4.3	2.9	12.6	2.5		
74	3	3.0	2.3	7.0	3.5	SW	B
75	0	3.1	2.0	6.1	2.0		
76	0	3.2	2.1	6.7	0.0		
77	4	4.0	2.2	8.8	4.0	NE SW	B B
78	2	4.1	2.0	8.3	2.5	NW	A
79	0	4.3	2.1	9.1	1.0		
80*	4	4.5	2.1	9.6	4.0	SE	B
81*	4	4.4	2.1	9.5	4.0	NE SW	B A
82	1	4.4	2.1	9.3	2.0		
83*	4	4.6	2.0	9.5	4.0	NE	B
84*	4	4.5	2.3	10.4	4.0	NW SW	B B
85	1	4.5	2.1	9.5	2.0		
86	3	4.3	2.0	8.6	3.5	SE	B
87	4	4.3	2.5	10.7	4.0	SW	B
88	1	4.1	2.2	9.0	2.0		
89	3	5.1	2.0	14.3	3.0		
90	3	5.0	2.2	14.5	3.0		
91*	4	4.0	2.0	8.0	4.0	NW	B
92*	4	4.1	2.4	9.8	4.0	NW	B
93*	1	4.0	3.0	12.8	2.5		
94*	4	4.2	2.0	12.3	4.0	SW	B
95*	4	4.1	2.5	10.5	4.0	SW	B
96*	2	4.1	2.9	11.7	3.0		
97*	3	4.1	2.0	8.2	3.5		
98*	3	4.3	2.3	9.9	4.0		
99*	0	4.3	2.8	11.9	2.5		
100*	2	5.1	2.1	10.6	2.5		
101*	3	5.2	2.1	10.8	3.0		
102*	1	5.4	2.7	14.9	1.5		
103	0	3.7	2.7	9.7	1.0		
104*	1	4.2	2.6	11.0	1.5		
105*	2	4.0	2.1	8.6	2.5	NW	B
106	2	4.0	2.9	11.7	2.0	SW	B
107	1	4.7	2.6	12.5	1.5		
108*	3	4.9	2.6	12.9	3.0	NE	B
109*	4	5.0	2.1	10.4	4.0	NE NW SE	B B B
110	2	5.2	3.1	15.9	3.0	SE	B
111	1	5.6	2.7	15.1	2.0		
112*	3	5.8	2.6	15.0	3.0		
113*	4	5.9	1.9	11.3	4.0	NE	B
114	3	5.9	3.2	18.7	3.5		
115	1	7.8	2.3	21.8	2.5		
116*	3	7.7	2.5	19.2	3.5		

117*	4	7.4	1.9	13.8	4.0	NE SE	B B
118	4	7.5	3.2	24.3	4.0		
119	3	6.4	3.1	19.6	3.5		
120*	4	6.2	2.4	15.2	4.0		
121*	4	6.1	1.6	10.1	4.0	NE SE	B B
122	3	6.2	3.3	19.9	3.5	SE	B
123	4	6.6	3.1	20.3	4.0		
124	4	6.7	2.4	16.0	4.0		
125	3	6.6	1.5	9.9	3.5		
126	2	3.4	2.6	8.8	2.5		
127	0	4.3	2.2	9.6	1.5		
128	2	4.2	2.1	9.0	3.0		
129	0	4.2	2.7	11.6	2.0		
130	1	4.8	1.9	9.5	1.5		
131	2	4.7	2.3	11.1	3.0		
132	2	4.5	3.0	13.6	3.0		
133	2	4.3	1.9	8.0	2.0		
134	2	4.3	2.3	9.9	3.0		
135	4	4.7	2.9	14.0	4.0		
136	2	4.4	1.9	8.6	3.0		
137	3	4.5	2.1	9.6	3.5		
138	4	4.2	3.1	13.2	4.0		
139	2	4.6	2.0	9.2	3.5		
140	2	4.5	2.1	9.5	4.0		
141	1	4.5	3.1	14.3	3.0		
142	4	4.0	2.0	8.1	4.0		
143	4	4.0	2.0	8.2	4.0		
144	2	3.9	3.2	12.6	3.5		
145	3	4.5	2.1	9.6	3.5	SE	B
146	4	4.6	1.9	8.7	4.0	NW NE SE	B B B
147	3	4.7	3.3	15.2	3.5	NW	B
148	3	4.1	2.1	8.7	3.0	NE	B
149	4	4.1	2.0	8.4	4.0	NE	B
150	2	4.0	3.2	13.1	3.0		
151	3	3.5	2.2	7.0	3.0	SE	B
152	4	3.5	2.2	7.6	4.0	SW	B
153	2	3.5	3.3	11.5	3.0		
154	3	4.6	2.0	9.3	3.0	SE	B
155	4	4.6	2.1	9.9	4.0	NW SW	B B
156	2	4.7	3.3	15.7	3.0		
157	2	4.4	2.0	9.0	2.5	NE	B
158	4	4.4	2.2	9.8	4.0	NW SE	B B
159	2	4.5	3.2	14.7	2.5		
160	2	4.5	2.1	9.4	2.5		
161	4	4.5	2.2	10.1	4.0	NE	B
162	1	4.4	3.1	13.9	2.0		

163	3	3.6	2.0	7.2	3.0	NE	B
164	3	3.7	2.3	8.5	3.0	NW	B
165	3	3.4	2.1	7.2	3.0		
166	3	3.3	2.3	7.8	3.5		
167	3	3.6	2.1	7.2	3.0	SE	B
168	4	3.5	2.3	8.2	4.0	SW	B
Total				1800.5			

APPENDIX B: CERRO COLORADO ARCHITECTURAL DATA

Room ID (* denotes room with second story)	Approximate Room Length (m)	Approximate Room Width (m)	Estimated Floor Area (m^2)
1	3.5	2.5	8.8
2	3.4	2.6	8.8
3	4.4	2.9	12.5
4	4.1	2.8	11.4
5	5.5	2.1	11.4
6	5.5	2.0	11.4
7	5.4	2.1	11.3
8	4.0	3.3	13.3
9	3.5	3.5	12.2
10	3.7	2.3	8.6
11	2.9	2.0	5.9
12	4.9	2.8	13.6
13	4.2	2.3	9.7
14	5.0	2.3	11.6
15	4.4	1.8	8.1
16	5.8	2.2	12.7
17	6.0	2.4	14.8
18	3.6	2.4	8.8
19	3.5	2.5	8.9
20	3.7	2.6	9.7
21	3.9	2.8	11.1
22	4.4	2.2	10.0
23	4.4	2.7	11.6
24	4.1	2.9	12.1
25	4.0	2.4	9.7
26	3.5	2.7	9.6
27	7.8	2.7	21.0
28	7.8	2.5	19.7
29	3.4	2.4	8.4
30	3.3	2.9	9.3
31	3.5	2.5	8.6
32	3.7	2.2	8.4
33	3.7	2.7	10.0
34	3.8	2.1	8.2
35	3.6	2.3	8.6
36	5.5	2.5	13.6
37	5.1	2.5	13.0
38	5.6	2.1	12.2
39	4.1	2.6	10.6
40	3.1	3.0	9.3
41*	3.5	2.8	9.9
42*	3.8	2.3	8.8
43	2.9	2.8	8.2
44*	2.8	2.7	7.5
45*	2.7	2.2	6.0
46	8.1	2.9	23.2

47*	8.2	2.4	19.3
48*	8.2	2.2	18.4
49	3.4	3.0	10.6
50	3.6	3.3	11.8
51	3.5	2.0	7.1
52	3.1	2.8	8.9
53	3.4	3.2	11.3
54	3.5	2.7	9.4
55	4.0	3.1	12.2
56	3.9	2.9	11.2
57	5.0	3.0	15.1
58	4.9	3.0	14.6
59*	4.8	2.3	10.8
60*	4.8	2.0	9.6
61	5.0	2.4	11.9
62	5.0	2.5	12.6
63	4.3	2.6	11.2
64	4.4	2.7	11.9
65	4.6	2.7	12.4
66	4.7	2.6	12.2
67	4.0	2.7	10.7
68	4.0	2.7	10.5
69	4.1	2.8	11.5
70	4.1	2.7	11.2
71	5.3	2.8	13.7
72	5.1	3.2	16.5
73	4.7	1.8	8.5
74	4.3	2.4	10.5
75	3.8	2.2	8.2
76	3.7	2.2	8.0
77	4.9	2.7	13.3
78	4.6	2.6	12.1
79	4.5	2.4	10.9
80	4.6	2.4	11.2
81	5.0	2.2	11.1
82	5.1	2.5	12.5
83	4.7	2.3	10.7
84	4.9	2.5	12.1
85	4.4	2.4	10.5
86	4.3	2.7	11.5
87	4.0	2.5	10.0
88	3.5	2.7	9.4
89	5.3	2.5	13.1
90	5.5	2.8	15.4
91	5.4	2.7	14.9
92	5.5	2.5	14.0
93	5.2	2.7	14.7
94	3.5	2.5	9.9
95	3.5	2.8	9.1
96	4.5	2.4	10.9
97	5.0	3.0	15.1

98	5.0	2.5	12.3
99	5.0	2.6	12.8
100	5.6	2.6	14.6
101	5.6	2.5	13.8
102	4.4	2.7	11.9
103	4.6	2.2	10.2
104	4.9	2.7	13.3
105	4.8	2.2	10.8
106	5.4	2.7	14.5
107	5.6	2.3	13.1
108	3.8	2.5	9.4
109	5.6	2.4	13.1
110	4.7	2.5	11.8
111	4.4	2.3	10.1
112	4.4	2.2	9.7
113	5.9	2.5	14.9
114*	6.1	2.7	16.4
115*	6.3	3.2	20.4
116*	6.3	2.9	18.2
117	4.6	3.3	14.3
118	4.2	2.9	12.4
119	4.6	3.2	14.9
120	4.6	2.9	13.2
121	6.0	3.0	17.9
122	6.1	2.7	16.4
123	4.7	2.9	13.5
124	4.7	2.6	12.3
125	6.7	2.8	19.0
126	7.0	2.6	18.5
127	7.1	2.6	18.9
128	5.7	2.6	15.1
129	5.5	2.5	13.8
130	5.5	2.4	13.3
131	5.6	2.5	14.3
132	5.7	2.6	14.8
133	5.6	2.3	13.0
134	4.8	2.6	12.5
135	4.6	2.8	12.9
136	6.1	2.2	13.2
137	6.0	2.4	14.9
138	6.1	2.2	13.4
139	3.6	2.0	7.2
140	3.6	2.5	8.9
141	3.6	2.1	7.6
142	3.4	2.4	8.2
143	3.5	2.1	7.7
144	5.2	2.2	11.5
145	5.0	2.1	10.6
146	8.7	2.4	21.1
147	4.6	2.8	12.5
148	4.3	2.8	11.9

149	7.5	2.2	16.4
150	7.0	2.7	19.5
151	4.7	2.9	13.8
152	4.9	3.0	14.9
153	3.6	2.6	8.4
154	3.2	2.2	7.0
155	3.7	2.3	8.7
156	3.9	2.0	7.8
157	3.6	2.3	8.4
158	3.6	2.2	8.0
159	5.2	2.3	12.1
160	5.4	2.2	12.1
161	5.2	2.5	13.3
162	5.3	2.2	11.6
163	5.0	2.5	12.8
164	4.7	2.2	10.8
165	2.5	2.5	6.3
166	3.5	2.6	9.1
167	6.3	2.3	14.8
168	3.3	2.5	8.4
TOTAL			2011.5

APPENDIX C: ASTIALAKWA ARCHITECTURAL DATA

Room ID (^{x} denotes feature with walls that were probably less than one story)	Number of in-situ walls (or parts thereof)	Average Room Length (m)	Average Room Width (m)	Estimated Floor area (m^2)	Confidence Interval[55]	Corner	Intersection Data: B = Bonded A = Abutted
S1-1	3	3.7	1.9	7.0	3.5		
S1-2	0	3.6	2.5	8.9	0.5		
S1-3	0	3.5	1.8	6.2	1.5		
S1-4	2	3.3	3.1	10.2	2.5		
S2-1	4	8.4	2.2	18.7	4.0	NW SW	A A
S2-2	4	7.7	1.9	14.5	4.0	NE NW SE SW	B B B B
S2-3	4	6.9	2.2	14.7	4.0	NE NW SE SW	B/A B B/A B
S2-4	4	5.9	1.9	10.9	4.0	NW SW	B/A B
S2-5	4	4.1	1.9	7.6	4.0	NE	B/A
S3-1	0	5.9	2.3	13.3	0.0		
S3-2	0	4.0	2.5	10.0	0.0		
S4-1	2	5.4	2.9	15.5	2.0		
S4-2	0	3.9	2.5	9.8	0.0		
S5-1	0	5.4	2.4	12.6	0.5		
S5-2	2	5.3	2.4	12.9	2.0		
S6-1^x	3	3.6	2.5	7.9	3.0		
S6-2^x	3	2.3	1.9	4.5	3.0		
E1-1	4	4.9	2.0	10.3	4.0	NW	A

[55] The Confidence Interval (CI) is a measure of the presumed relative accuracy of the floor area. CI was determined independently for each room by adding 1.0 for each extant wall (or part thereof) in the room, plus 0.5 for each visible wall segment in adjoining rooms in presumed alignment with missing walls. The maximum possible CI score is 4.0 (indicating a high degree of confidence in the estimated floor area), the minimum 0.0 (indicating a low degree of confidence in the estimated floor area). For example, if in-situ segments of the north and east walls of room X are visible, its CI would be determined by adding 1.0 (north wall) + 1.0 (east wall) = 2.0. If the adjoining rooms displayed no in-situ wall segments in alignment with the presumed south and west walls of room X, its final CI remains 2.0. However, if the adjoining rooms display segments in alignment with these walls, 0.5 is added for each segment (up to a maximum of 1.0 for each wall). Thus if the presumed west wall of room X was in alignment with one visible section of the west wall in the room adjacent (to the north or south), its CI would rise to a 2.5. The maximum CI for any room is 4.0, which indicates either a room in which parts of all 4 walls remain, or 3 walls remain with 2 segments in adjacent rooms in presumed alignment with the missing wall, or 2 walls remain with 4 segments in adjacent rooms in presumed alignment with the missing walls.

E1-2	4	4.1	2.2	9.1	4.0	NE SE SW	B B B
E1-3	4	4.3	2.1	8.9	4.0	NE SW	A B
E1-4	4	4.0	2.6	9.8	4.0	SE	B
E1-5	4	5.6	2.2	12.1	4.0	SE	B
E1-6	2	5.6	2.2	12.5	3.5		
E1-7	4	4.2	2.8	12.1	4.0		
E1-8	3	4.2	2.4	10.0	3.5		
E1-9	4	4.5	2.7	12.1	4.0		
E1-10	3	4.1	2.3	9.2	3.5		
E1-11	2	3.2	2.4	7.7	2.0		
E2-1	1	3.6	2.1	7.4	1.5		
E2-2	1	4.1	2.3	9.3	1.5		
E2-3	1	4.0	2.1	8.1	2.0		
E2-4	1	5.2	2.4	12.3	2.0		
E2-5	1	5.2	2.1	10.8	1.5		
E2-6	3	6.7	2.3	15.6	3.5	SE	B
E2-7	0	6.3	2.0	12.5	2.0		
E2-8	2	5.8	2.1	11.9	3.0		
E2-9	3	5.6	1.8	10.7	3.5		
E3-1	4	5.1	2.2	11.2	4.0	NW SW	A A
E3-2	4	7.7	2.2	16.9	4.0	NE NW	B B
E4-1	3	6.7	2.1	14.0	3.5	SW	B
E4-2	4	5.1	2.3	11.6	4.0	SE SW	B B
E4-3	3	5.6	2.3	12.8	3.0		
E4-4	3	6.3	2.4	15.0	3.5	SW	B
E4-5	1	5.9	2.9	17.1	3.0		
E4-6	4	6.6	2.2	15.1	4.0	SE SW	A B
E4-7	2	6.8	3.7	21.0	3.0		
E4-8	3	6.6	2.3	14.8	4.0	SE SW	B B
E4-9	1	6.5	2.2	14.8	3.0		
E4-10	4	4.8	2.5	11.6	4.0	NW	B
E4-11	3	4.7	2.3	10.9	3.5	SW	B
E5-1	4	5.5	2.7	14.2	4.0		
E5-2	4	5.7	2.0	11.5	4.0	NW	B
E5-3	4	4.8	2.3	10.7	4.0	NE NW SW	B A A
E5-4	3	6.2	2.5	15.2	3.5	NE	B
E5-5	4	3.3	2.2	7.1	4.0	NE NW SE	B A B
E5-6	3	2.3	2.2	4.9	3.5	NE NW	A A
E5-7	3	6.5	2.5	16.0	3.5	NW	B/A

E5-8	3	5.2	2.5	12.8	3.0		
E5-9	2	5.2	2.3	12.1	2.5		
E6-1	3	6.1	2.1	12.9	3.0		
E7[x]	3	3.9	2.8	11.5	3.0		
E8[x]	0	4.4	1.9	8.5	0.0		
E9-1[x]	4	3.9	3.6	11.9	4.0		
E9-2[x]	4	2.5	1.8	4.6	4.0		
E10-1	3	3.1	2.5	7.7	3.5	NW	B
E10-2	4	2.8	2.1	5.8	4.0	SW	B
E-11[x]	3	2.7	2.0	5.3	3.0		
W1-1	4	3.7	1.9	7.5	4.0		
W1-2	2	3.5	2.3	8.5	2.5		
W2-1	2	2.8	2.5	6.8	2.0		
W2-2	2	2.5	2.0	5.1	2.0		
W3-1	3	2.8	2.8	7.6	3.0		
W3-2	0	4.3	2.4	10.3	0.0		
W3-3	0	4.1	2.5	10.2	1.0		
W3-4	1	4.5	2.4	11.0	1.0		
W3-5	0	4.5	2.3	10.4	0.5		
W3-6	2	4.6	2.2	10.2	2.0		
W3-7	2	4.6	2.1	9.7	2.0	NW	B
W3-8	3	4.5	2.3	10.1	3.5		
W3-9	3	4.5	1.8	7.9	3.5	NE	B
W3-10	4	4.7	2.3	11.0	4.0		
W4[x]	1	3.7	2.3	8.7	1.0		
W5-1	2	3.4	2.3	7.6	2.0		
W5-2	4	4.6	1.9	8.5	4.0		
W6-1	3	5.5	2.5	13.4	3.0		
W6-2	1	5.4	2.3	12.4	2.0		
W6-3	2	3.6	2.3	8.4	2.5		
W6-4	3	5.9	2.4	14.3	3.0		
W7-1	3	5.0	2.1	10.1	3.5		
W7-2	4	3.8	2.1	7.7	4.0		
W7-3	1	5.0	2.1	10.6	1.0		
W8	2	3.9	1.5	5.6	2.0		
W9-1	3	4.7	2.3	11.0	3.0		
W9-2	0	4.4	2.1	9.2	1.0		
W9-3	4	4.9	4.4	21.1	4.0		
W10	1	3.1	2.1	6.5	1.0		
W11[x]	1	3.8	2.1	8.0	1.0		
W12-1	4	5.0	2.3	12.3	4.0		
W12-2	4	4.0	2.4	7.9	4.0		
W12-3	4	4.0	2.2	7.3	4.0		
W13-1	4	2.7	2.2	5.7	4.0		
W13-2	4	3.7	3.6	12.1	4.0		
W14-1	0	5.0	1.8	9.2	0.0		
W14-2	0	5.1	1.8	9.0	0.0		
W15	0	3.9	1.9	7.5	0.0		
W16-1	2	4.6	1.8	8.8	2.0		
W16-2	0	4.5	2.0	9.2	0.5		
W16-3	0	4.4	1.9	8.6	0.0		

W17-1	2	4.7	2.2	10.6	2.0		
W17-2	2	4.7	2.2	10.4	2.0		
W17-3	0	4.7	2.3	11.0	0.5		
W17-4	1	4.7	2.5	12.1	1.0		
W17-5	0	4.5	2.2	10.0	0.0		
W17-6	0	4.5	2.5	11.5	0.0		
W18	2	5.3	2.1	11.7	2.0		
W19-1	0	4.7	2.4	11.1	1.0		
W19-2	2	4.6	2.1	9.4	2.0		
W19-3	2	4.4	2.0	8.4	2.0		
W19-4	0	4.3	2.0	8.8	0.5		
W19-5	1	4.3	2.0	8.4	1.5		
W19-6	4	3.5	2.3	7.9	4.0	NE	B
W20-1	1	4.2	1.9	7.8	1.5		
W20-2	3	4.0	2.4	9.3	3.5		
W20-3	2	3.4	1.8	6.9	3.0		
W20-4	4	4.2	2.6	10.1	4.0	NW	A
W20-5	4	4.2	1.8	7.8	4.0	SW	B
W21-1	3	3.3	3.1	9.8	3.5		
W21-2	2	3.9	2.5	9.4	2.0	NW	B
W21-3	4	3.6	2.4	8.7	4.0	SE	B
W21-4	1	4.4	2.5	11.1	2.0		
W21-5	2	4.3	2.6	11.4	2.5	NE	B
W21-6	4	6.4	2.6	17.2	4.0		
W21-7	3	6.0	4.6	26.9	3.5		
W21-8	4	5.0	2.6	12.9	4.0	NW SE	A B
W21-9	3	5.4	3.2	17.7	3.0	SW	B
W21-10	4	4.3	2.6	10.7	4.0	SE	A
W22-1	3	6.4	1.8	11.1	3.5		
W22-2	3	4.7	2.4	11.6	3.5		
W22-3	4	4.7	2.2	10.6	4.0	NW	A
W22-4	4	5.7	2.5	14.1	4.0		
W22-5	3	5.7	2.2	12.5	4.0	NE	B
W22-6	4	5.7	2.0	11.0	4.0	SE	A
W23-1	4	2.6	2.0	4.2	4.0	SE	A
W23-2	4	3.8	2.3	8.1	4.0		
W23-3	4	4.8	4.6	18.2	4.0		
W24	0	3.0	2.0	6.2	0.0		
W25	4	2.2	1.5	2.7	4.0		
W27[x]	0	3.4	2.3	7.9	0.0		
W28[x]	3	4.0	3.2	9.8	3.0		
W29	3	7.4	2.6	19.8	3.0		
W30-1	4	3.5	1.9	7.1	4.0		
W30-2	4	4.5	1.3	6.5	4.0		
W31-1	2	5.3	2.0	10.7	2.0		
W21-2	0	6.1	2.9	17.6	0.0		
W31-3	1	5.3	1.8	9.4	2.0		
W31-4	0	6.1	1.8	10.9	1.5		
W31-5	2	2.9	2.4	7.1	2.5		
W31-6	2	2.4	2.1	5.1	3.0		

W31-7	3	6.1	2.5	15.3	3.0		
W31-8	4	1.7	1.0	1.8	4.0	NE	B
W31-9	2	6.2	2.2	13.8	2.5		
W31-10	3	6.1	2.0	12.7	3.0		
W31-11	1	6.5	1.7	11.1	2.0		
W31-12	2	6.1	1.7	10.3	2.0		
W31-13	3	8.0	2.1	17.0	3.0		
W31-14	2	6.0	2.1	12.4	2.0		
W32-1	1	3.9	2.9	11.3	1.0		
W32-2	0	5.5	2.0	11.4	0.5		
W32-3	0	5.6	2.0	11.4	1.0		
W32-4	2	7.6	2.2	16.8	2.5		
W32-5	0	5.5	2.2	12.2	0.5		
W32-6	4	5.5	2.1	11.7	4.0		
W33-1	2	4.5	2.7	12.2	2.0		
W33-2	1	4.4	2.7	11.8	1.0		
W33-3	0	4.4	2.7	11.9	0.5		
W33-4	0	4.4	2.7	11.7	0.0		
W34	2	4.0	2.1	8.5	2.0		
W35	3	3.4	2.0	7.1	3.0		
W36	0	6.6	2.0	13.2	0.0		
W37	2	4.4	1.6	7.4	2.0		
W38	0	3.4	2.4	8.3	0.0		
W39	0	3.7	1.9	7.0	0.0		
W40	4	5.4	2.2	11.5	4.0		
W41-1	4	6.1	1.9	12.7	4.0		
W41-2	3	4.7	2.3	10.6	3.0	SW	B
W41-3	3	3.6	3.0	10.6	3.0	NW	B
W42	0	4.1	2.2	9.0	0.0		
W43[x]	0	3.8	2.5	9.6	0.0		
W44[x]	0	4.3	2.5	10.9	0.0		
W45	4	1.5	2.3	2.0	4.0		
TOTAL				2020.5			

APPENDIX D: GMAP CERAMIC DATA

Site	Sample Unit	Type	Variety	Jar rim no.	Jar rim weight (g)	Jar body no.	Jar body weight (g)	Bowl rim no.	Bowl rim weight (g)	Bowl body no.	Bowl body weight (g)	Unidentified	Unidentified	Total no.	Total weight
1825	1 (W)	Glaze E		0	0	0	0	1	6.3	0	0	0	0	1	6.3
1825	1 (W)	Glaze F	Kotyiti G/o	0	0	0	0	0	0	0	0	2	6.7	2	6.7
1825	1 (W)	Glaze F	Kotyiti G/pon o	1	0.6	42	67.4	0	0	0	0	1	1.3	44	69.3
1825	1 (W)	Glaze F	Kotyiti G/pon tan	0	0	0	0	0	0	0	0	4	28.4	4	28.4
1825	1 (W)	Glaze F	Kotyiti G/tan	0	0	0	0	0	0	0	0	3	11.3	3	11.3
1825	1 (W)	Glaze F	San Diego G/o	0	0	3	10.4	0	0	0	0	4	8.6	7	19
1825	1 (W)	Glaze F	San Diego G/pon o	2	2.7	3	14.5	0	0	1	2.8	2	2.9	8	22.9
1825	1 (W)	Glaze F	San Diego G/pon tan	0	0	0	0	1	17.1	0	0	0	0	1	17.1
1825	1 (W)	Glaze F	San Diego G/tan	0	0	0	0	0	0	5	22.1	0	0	5	22.1
1825	1 (W)	Jeddito Yellow		1	6.6	0	0	0	0	0	0	0	0	1	6.6
1825	1 (W)	Jemez B/w		0	0	3	10.1	0	0	0	0	0	0	3	10.1
1825	1 (W)	Jemez Plain	Basalt	0	0	53	321.3	1	3.1	32	216	78	264.3	164	804.7
1825	1 (W)	Jemez River	Basalt	0	0	1	4	0	0	0	0	0	0	1	4
1825	1 (W)	Jemez River	Tuff	0	0	0	0	0	0	0	0	4	6.6	4	6.6
1825	1 (W)	Plain Red	Basalt	1	10.1	8	25.5	1	2.9	8	36.5	90	267.8	108	342.8

1825	1 (W)	Plain Red	Tuff	0	0	2	11.8	1	5.5	4	24.2	36	70.5	43	112
1825	1 (W)	Puname Poly		2	7.6	13	31.6	0	0	0	0	7	25	22	64.2
1825	1 (W)	Tewa Poly		0	0	1	10.4	0	0	0	0	4	7.4	5	17.8
1825	1 (W)	Tewa Red		0	0	11	44.1	0	0	0	0	12	18.5	23	62.6
1825	1 (W)	Unident.		0	0	0	0	0	0	0	0	21	76.9	21	76.9
1825	1 (W)	Unident.Glaze		0	0	1	4.3	0	0	3	15.6	2	6.2	6	26.1
1825	2 (E)	Glaze F	San Diego G/o	1	2.2	0	0	0	0	3	9.3	2	4.6	6	16.1
1825	2 (E)	Glaze F	San Diego G/pon o	0	0	0	0	0	0	0	0	1	2.8	1	2.8
1825	2 (E)	Jemez B/w		1	0.9	43	167.6	0	0	2	7.8	5	13.9	51	190.2
1825	2 (E)	Jemez Plain	basalt	0	0	8	46	0	0	14	71.3	41	204.1	63	321.4
1825	2 (E)	Jemez Plain	Tuff	1	5.6	5	22	0	0	1	3.5	16	41.5	23	72.6
1825	2 (E)	Jemez River	basalt	1	1	2	10.9	0	0	0	0	2	5.7	5	17.6
1825	2 (E)	Plain Red	basalt	0	0	2	7.9	0	0	4	15.5	4	20	10	43.4
1825	2 (E)	Plain Red	sand	0	0	1	4.5	0	0	0	0	0	0	1	4.5
1825	2 (E)	Plain Red	Tuff	1	4.9	4	17.4	2	14	5	16.5	16	52.6	28	105.4
1825	2 (E)	Plain Red	Unid.	0	0	0	0	0	0	2	8.7	0	0	2	8.7
1825	2 (E)	Puname Poly		0	0	3	12.5	0	0	0	0	3	14.2	6	26.7
1825	2 (E)	Tewa Poly		0	0	10	35.1	0	0	0	0	0	0	10	35.1
1825	2 (E)	Tewa Red		0	0	12	58.6	0	0	0	0	8	20.8	20	79.4
1825	2 (E)	Unident.		0	0	0	0	0	0	0	0	7	29.9	7	29.9
1825	2 (E)	Unident.Glaze		0	0	1	4.3	0	0	0	0	0	0	1	4.3
1825	3 (S)	Glaze F	Kotyiti G/tan	0	0	0	0	0	0	0	0	2	4.3	2	4.3

1825	3 (S)	Glaze F	San Diego G/tan	0	0	3	10	0	0	2	6.5	1	3.1	6	19.6
1825	3 (S)	Jemez B/w		3	11.7	90	206.6	0	0	0	0	6	12.3	99	230.6
1825	3 (S)	Jemez Plain	basalt	0	0	1	4.6	0	0	9	24.2	23	63.6	33	92.4
1825	3 (S)	Jemez River	basalt	0	0	0	0	0	0	2	4.2	0	0	2	4.2
1825	3 (S)	Jemez River	tuff	0	0	0	0	0	0	1	4.6	0	0	1	4.6
1825	3 (S)	Kapo Black		0	0	23	45.4	0	0	0	0	8	11.1	31	56.5
1825	3 (S)	Plain Red	basalt	0	0	1	6.2	0	0	0	0	5	8.2	6	14.4
1825	3 (S)	Plain Red	sand	0	0	0	0	0	0	7	20.5	17	24	24	44.5
1825	3 (S)	Plain Red	tuff	0	0	9	37.1	0	0	4	12	23	49.7	36	98.8
1825	3 (S)	Unident.		0	0	0	0	0	0	0	0	8	14.3	8	14.3
1825	3 (S)	Unident .Glaze		0	0	0	0	0	0	15	26.5	0	0	15	26.5
2048	8 (SE)	Glaze F	Kotyi ti G/o	0	0	3	9.1	0	0	0	0	0	0	3	9.1
2048	8 (SE)	Glaze F	Kotyi ti G/p on o	0	0	0	0	0	0	2	5	0	0	2	5
2048	8 (SE)	Glaze F	San Diego G/o	0	0	8	28.3	0	0	3	5.6	5	12.7	16	46.6
2048	8 (SE)	Glaze F	San Diego G/p on o	1	7	3	10.2	0	0	4	11.2	0	0	8	28.4
2048	8 (SE)	Jemez Plain	basalt	2	5.9	50	131.6	2	4	47	144.7	25	63.4	126	349.6
2048	8 (SE)	Jemez Plain	Tuff	0	0	8	20	0	0	3	9.2	4	8.2	15	37.4
2048	8 (SE)	Jemez Plain	Unid.	0	0	0	0	0	0	0	0	8	25.1	8	25.1
2048	8 (SE)	Jemez River	Basalt	0	0	33	91.5	0	0	3	6.4	0	0	36	97.9
2048	8 (SE)	Plain Red	Basalt	1	11	49	157.2	1	1.7	17	70.6	33	75.2	101	315.7
2048	8 (SE)	Plain Red	Sand	0	0	0	0	0	0	0	0	2	5.3	2	5.3

2048	8 (SE)	Plain Red	Tuff	1	2.7	38	96.7	0	0	12	36.9	17	29.5	68	165.8
2048	8 (SE)	Plain Red	Unid.	1	2.7	1	5.4	0	0	0	0	0	0	2	8.1
2048	8 (SE)	Puname Poly		0	0	8	28	1	1.8	4	17.5	0	0	33	47.3
2048	8 (SE)	Tewa B/w		0	0	0	0	0	0	1	2	0	0	1	2
2048	8 (SE)	Unident.		0	0	0	0	0	0	0	0	10	33.5	10	33.5
2048	8 (SE)	Unident .Glaze		0	0	2	2.3	0	0	0	0	0	0	2	2.3
2048	9 (SW)	Glaze F	Kotyiti G/o	0	0	0	0	0	0	0	0	2	6.8	2	6.8
2048	9 (SW)	Glaze F	San Diego G/o	0	0	4	24.5	0	0	7	21.5	1	1.3	12	47.3
2048	9 (SW)	Glaze F	San Diego G/pon o	2	6.6	27	82.4	3	26.6	6	21.5	6	16.2	44	153.3
2048	9 (SW)	Glaze F	San Diego G/tan	0	0	8	19.2	1	1.9	4	7.8	2	3.5	15	32.4
2048	9 (SW)	Glaze F	San Diego G/w	0	0	1	1.7	0	0	0	0	1	0.8	2	2.5
2048	9 (SW)	Jemez Plain	basalt	10	42.1	98	390.9	2	5.8	50	206	47	110.5	207	755.3
2048	9 (SW)	Jemez Plain	sand	0	0	0	0	0	0	9	23.6	0	0	9	23.6
2048	9 (SW)	Jemez Plain	tuff	1	2.1	10	31.8	3	14.4	3	9.9	13	33.2	30	91.4
2048	9 (SW)	Jemez Plain	Unid.	0	0	3	6.6	0	0	0	0	3	4.2	6	10.8
2048	9 (SW)	Jemez River	basalt	0	0	0	0	1	4.9	0	0	1	1.8	2	6.7
2048	9 (SW)	Jemez River	tuff	0	0	2	7.6	0	0	2	6.2	1	1.7	5	15.5
2048	9 (SW)	Plain Red	basalt	6	19	88	339.1	4	26.8	71	315.4	56	133.3	225	833.6
2048	9 (SW)	Plain Red	tuff	1	2.2	5	11	2	13.5	6	11.8	6	11.8	20	50.3
2048	9 (SW)	Puname Poly		1	1.7	12	33.2	2	6.3	4	11.4	2	9.5	21	62.1
2048	9 (SW)	Tewa B/w		0	0	0	0	0	0	1	2.4	0	0	1	2.4
2048	9 (SW)	Unident.		0	0	0	0	0	0	0	0	17	54.6	17	54.6

96	4 (N)	Glaze C	Espinoso	0	0	0	0	1	7	0	0	0	0	1	7
96	4 (N)	Glaze E	Puaray	0	0	0	0	1	7	0	0	0	0	1	7
96	4 (N)	Glaze F	Kotyiti G/g	0	0	0	0	0	0	1	1.6	0	0	1	1.6
96	4 (N)	Glaze F	Kotyiti G/o	0	0	0	0	0	0	2	4.1	2	9.2	4	11.3
96	4 (N)	Glaze F	Kotyiti G/pon o	0	0	0	0	0	0	1	2.5	0	0	1	2.5
96	4 (N)	Glaze F	Kotyiti G/pon tan	1	4.6	0	0	0	0	1	13.6	0	0	1	13.6
96	4 (N)	Glaze F	Kotyiti G/tan	0	0	0	0	0	0	1	2.8	0	0	1	2.8
96	4 (N)	Glaze F	San Diego G/g	0	0	0	0	0	0	1	9.6	3	11.6	4	21.2
96	4 (N)	Glaze F	San Diego G/o	1	1.1	0	0	1	5.4	7	28.1	3	5.9	12	40.5
96	4 (N)	Glaze F	San Diego G/pon o	1	4.6	5	17.8	1	6.4	9	37.5	1	2.7	17	69
96	4 (N)	Glaze F	San Diego G/pon tan	0	0	2	9.7	2	41.4	4	12.7	2	4.2	10	68
96	4 (N)	Glaze F	San Diego G/tan	0	0	0	0	2	14.5	1	1.8	2	6.7	5	23
96	4 (N)	Jemez B/w		0	0	2	3.6	2	3.6	2	3.5	2	9.5	8	20.2
96	4 (N)	Jemez Plain	basalt	5	18.4	28	203.4	0	0	51	239.5	61	255.7	145	717
96	4 (N)	Jemez Plain	sand	1	3.6	3	10.5	0	0	1	2.9	1	5.2	6	22.2
96	4 (N)	Jemez Plain	Tuff	1	3.3	7	23.8	0	0	12	53.8	12	39.7	32	120.6
96	4 (N)	Jemez Plain	Unid.	1	1.3	0	0	0	0	0	0	4	17.2	5	18.5
96	4 (N)	Jemez River	basalt	0	0	0	0	0	0	4	12.3	1	2.2	5	14.5

96	4 (N)	Jemez River	Tuff	0	0	1	5	0	0	0	0	2	5.9	3	10.9
96	4 (N)	Kapo Black		0	0	1	7.2	0	0	0	0	0	0	1	7.2
96	4 (N)	Kapo Grey		1	1.8	0	0	1	3	1	2.6	0	0	3	7.4
96	4 (N)	Micaceous		0	0	0	0	0	0	4	12.7	1	9.1	5	21.8
96	4 (N)	Plain Red	basalt	3	20.6	7	49.1	3	9	7	39.8	29	119.7	48	238.2
96	4 (N)	Plain Red	Tuff	2	13.3	1	2.9	1	4.8	1	7.4	9	34.5	14	62.9
96	4 (N)	Puname Poly		0	0	2	8.4	0	0	5	29.9	8	29	15	67.3
96	4 (N)	Tewa Poly		2	8.1	7	20.5	0	0	2	7.1	1	2.2	12	37.9
96	4 (N)	Tewa Red		0	0	8	27.9	0	0	0	0	1	1.4	9	29.3
96	4 (N)	Unident.		0	0	0	0	0	0	0	0	17	43.7	17	43.7
96	4 (N)	Unident .Glaze		0	0	0	0	0	0	2	4.4	1	3.2	3	7.6
96	5 (W)	Ashiwi Poly		0	0	1	5.4	0	0	0	0	0	0	1	5.4
96	5 (W)	Glaze B		0	0	0	0	1	14.9	0	0	0	0	1	14.9
96	5 (W)	Glaze F	Kotyiti G/o	0	0	1	7.8	0	0	0	0	0	0	1	7.8
96	5 (W)	Glaze F	Kotyiti G/pon o	0	0	0	0	2	8.3	3	8.9	1	1.9	6	19.1
96	5 (W)	Glaze F	Kotyiti G/pon tan	0	0	2	7.5	0	0	2	9.8	2	7.2	6	24.5
96	5 (W)	Glaze F	Kotyiti G/tan	0	0	0	0	0	0	1	1.8	1	2.2	2	4
96	5 (W)	Glaze F	San Diego G/o	0	0	0	0	1	16.3	2	8.5	3	12.1	6	36.9
96	5 (W)	Glaze F	San Diego G/pon o	2	25.7	3	12.3	2	30.7	7	25.1	4	11.9	18	105.7
96	5 (W)	Glaze F	San Diego G/pon tan	0	0	6	22.4	0	0	2	5.3	4	15.4	12	43.1

96	5 (W)	Glaze F	San Diego G/tan	0	0	4	12.1	0	0	6	35.2	4	12.4	14	59.7
96	5 (W)	Jemez B/w		0	0	4	48.2	0	0	2	3.8	0	0	6	52
96	5 (W)	Jemez Plain	basalt	5	62.5	28	49.6	0	0	49	268.7	144	469.2	226	850
96	5 (W)	Jemez Plain	sand	0	0	0	0	0	0	0	0	4	12	4	12
96	5 (W)	Jemez Plain	Tuff	0	0	8	39	1	5.1	13	78.3	14	42.6	36	159.3
96	5 (W)	Jemez River	basalt	0	0	0	0	4	57.9	5	13	1	7	10	77.9
96	5 (W)	Jemez River	tuff	0	0	0	0	1	2.2	1	2.9	5	9.9	7	15
96	5 (W)	Plain Red	basalt	1	3.7	21	110.5	3	21	25	135.7	42	137.8	92	408.7
96	5 (W)	Plain Red	tuff	1	8.1	4	10.8	3	14.8	5	15.4	11	28.6	24	77.7
96	5 (W)	Puname Poly		0	0	2	4.2	0	0	9	39.1	3	10	14	53.3
96	5 (W)	Santa Fe B/w		0	0	0	0	0	0	0	0	2	5	2	5
96	5 (W)	Tewa Poly		0	0	7	21.3	1	7.5	0	0	0	0	8	28.8
96	5 (W)	Tewa Red		0	0	13	53.6	0	0	0	0	5	12.4	18	66
96	5 (W)	Unident.		0	0	0	0	0	0	0	0	34	129.4	34	129.4
96	6 (E)	Glaze E		0	0	0	0	1	11.6	0	0	0	0	1	11.6
96	6 (E)	Glaze F	Kotyiti G/g	0	0	0	0	0	0	1	2.6	0	0	1	2.6
96	6 (E)	Glaze F	Kotyiti G/o	0	0	0	0	0	0	3	14.1	2	4.2	5	18.3
96	6 (E)	Glaze F	Kotyiti G/pon tan	0	0	0	0	0	0	1	2.4	1	0.9	2	3.3
96	6 (E)	Glaze F	Kotyiti G/tan	0	0	0	0	0	0	0	0	1	2.9	1	2.9
96	6 (E)	Glaze F	San Diego G/g	1	1.5	0	0	0	0	0	0	0	0	1	1.5
96	6 (E)	Glaze F	San Diego G/o	1	2.7	3	12.4	0	0	6	34	2	3.8	12	52.9

96	6 (E)	Glaze F	San Diego G/p on g	0	0	0	0	0	0	2	11.7	1	2.1	3	13.8
96	6 (E)	Glaze F	San Diego G/p on o	4	21	0	0	3	30	14	64.1	14	43.2	35	158.3
96	6 (E)	Glaze F	San Diego G/p on tan	0	0	0	0	0	0	3	7.5	1	1.3	4	8.8
96	6 (E)	Glaze F	San Diego G/tan	0	0	0	0	0	0	1	1.2	0	0	1	1.2
96	6 (E)	Jemez B/w		0	0	3	11.1	0	0	1	2.5	0	0	4	13.6
96	6 (E)	Jemez Plain	basalt	5	35.9	25	107.1	1	4.1	56	253.2	48	162.9	135	563.2
96	6 (E)	Jemez Plain	sand	0	0	0	0	0	0	0	0	4	10.1	4	10.1
96	6 (E)	Jemez Plain	tuff	0	0	16	69.1	0	0	11	80.5	13	36.2	40	185.8
96	6 (E)	Jemez Plain	Unid.	0	0	0	0	0	0	0	0	1	2.9	1	2.9
96	6 (E)	Jemez River	basalt	0	0	0	0	0	0	4	13.3	3	12.1	7	25.4
96	6 (E)	Micaceous		0	0	0	0	0	0	0	0	1	4.7	1	4.7
96	6 (E)	Plain Red	basalt	1	2.4	13	64.5	5	38.5	15	82.9	42	142	76	330.3
96	6 (E)	Plain Red	tuff	0	0	0	0	4	22.8	4	45.1	15	49.9	23	117.8
96	6 (E)	Plain Red	Unid.	1	5.6	0	0	0	0	0	0	0	0	1	5.6
96	6 (E)	Puname Poly		0	0	2	6.7	0	0	1	4.9	5	16.8	8	28.4
96	6 (E)	Rio Grande Blind Corr.		0	0	0	0	0	0	0	0	1	3.1	1	3.1
96	6 (E)	Tewa Poly		0	0	5	21	1	5.2	1	6.6	1	2.9	8	35.7
96	6 (E)	Tewa Red		2	11.9	12	38.7	0	0	0	0	3	5.3	17	55.9
96	6 (E)	Unident.		0	0	0	0	0	0	0	0	17	56.7	17	56.7
96 (S)	7 (S)	Jemez B/w		4	4.5	15	52.7	22	58.2	160	505.1	75	174.8	276	795.3

96 (S)	7 (S)	Jemez Plain		4	9.7	4	15.7	0	0	19	91	176	491.4	203	607.8
96 (S)	7 (S)	Jemez River	tuff	0	0	0	0	0	0	0	0	1	1.7	1	1.7
96 (S)	7 (S)	Rio Grande Blind Corr.		5	23.8	4	19	0	0	9	84.3	79	261.4	97	388.5
96 (S)	7 (S)	Rio Grande Corr.		2	6.8	2	8.9	0	0	0	0	13	27.1	17	42.8
96 (S)	7 (S)	Santa Fe B/w		0	0	0	0	0	0	1	3.5	0	0	1	3.5
96 (S)	7 (S)	Tewa Poly		0	0	1	7.3	1	8.8	3	9	0	0	5	25.1
96 (S)	7 (S)	Tewa Red		0	0	0	0	0	0	0	0	2	4.3	2	4.3
96 (S)	7 (S)	Unident.		0	0	0	0	0	0	0	0	11	36.7	11	36.7
96 (S)	7 (S)	Unident.Glaze		0	0	0	0	0	0	0	0	1	2.2	1	2.2
96 (S)	7 (S)	Wiyo B/w		0	0	0	0	0	0	1	3.7	0	0	1	3.7

APPENDIX E: PETROGRAPHIC ANALYSIS

David V. Hill

Introduction

Fifty-five thin-sections of Rio Grande Glazeware ceramics were submitted for petrographic analysis by Matt Liebmann of the University of Pennsylvania. The ceramic were recollected from three sites whose occupation dates to the time of the Pueblo Revolt. The sites include LA 96 (Patokwa), LA 1825 (Astialakwa), and LA 2048 (Cerro Colorado). The petrographic study was oriented towards the identification of potential source for the production of the glazewares.

Methodology

The fifty-five ceramic samples were analyzed by David Hill using a Nikon Optiphot-2 petrographic microscope. Analysis was conducted by examining the thin-sections and generating a brief description for each of the samples. The sizes of the inclusions present in the paste are presented in terms of the Wentworth Scale, a standard method of characterizing particle sizes in sedimentology and the range of actual measurements. The particle sizes were derived from measuring a series of, when present, at least ten grains using a graduated reticle built into one of the microscopes optics. The percentages of inclusions observed in the samples were estimated using comparative charts. Given the diversity of the inclusions that are present in archaeological fired clay materials, the comparative method for assessing the amount and size of materials

observed in fired materials has been found as useful for archaeological petrography as point counting.

Petrographic Analysis

LA 96-1 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains sparse medium silt (0.0156 mm) sized sub-angular to rounded isolated mineral grains that are too small to identify through optical means. These inclusions likely represent natural inclusions in the source of the ceramic clay.

Two types of inclusions are present in the ceramic paste; isolated mineral grains and fragments of volcanic tuff. The isolated mineral grains account for about 3% of the ceramic paste. The isolated mineral grains range in size from fine sand (0.125mm) to very coarse sand (1.0mm)and sub-angular to sub-rounded in shape. The mineral grains are composed of quartz and untwinned alkali feldspar, classifiable as sanidine. Quartz is the predominate mineral present with untwinned feldspar present in a trace amount.

Fragments of volcanic tuff account for about 10% of the ceramic paste. The tuff fragments range in size between one and two millimeters in size. The tuff is a light gray color and in general has a glassy appearance. The pumice varies in texture from vesicular masses to fragments showing compaction of the vesicles and flaw banding. Axiolitic texture was observed in a trace amount of the tuff grains. The pumice is porphyritic in texture with quartz as the major porphyritic mineral. Two tuff fragments contain untwinned alkali feldspar, classifiable as sanidine, indicative of a rhyolitic composition.

A single zircon is present in another fragment of tuff. The tuff grains are likely an added temper in the ceramic paste.

LA 96-2 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains roughly equal portions of isolated mineral grains and fragments of volcanic tuff, together making up about 15% of the ceramic paste. The mineral grains and pumice fragments range in size between medium silt (0.0125mm) to medium sand (0.5mm). The mineral grains and tuff fragments are angular in shape. Quartz is the predominate isolated mineral with untwinned alkali feldspar accounting for less than 1% of the isolated mineral grains. a single grain of microcline is also present in the ceramic paste. The tuff is characterized by vesicles with an axiolitic texture with interstial hydrated brown glass.

Based in the similarity in terms of size and the presence of weathered tuff fragments, it is likely that the inclusions present in this sherd represent inclusions that were naturally present in the clay used in producing the complete vessel.

LA 96-3 [Historic Red]

The paste of this sherd is medium brown in color with a dark brown core. The paste contains roughly equal portions of isolated mineral grains and fragments of volcanic tuff, together making up about 15% of the ceramic paste. The mineral grains range in size between medium silt (0.0125mm) to medium sand (0.5mm). The tuff fragments range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The mineral grains and tuff fragments are angular in shape. Quartz is the predominate

isolated mineral with untwinned alkali feldspar accounting for less than 1% of the isolated mineral grains. The tuff is characterized by vesicles with an axiolitic texture with interstial hydrated brown glass. One tuff grains contains porphyritic untwinned alkali feldspar.

Because of the similarity in size and the presence of weathered tuff fragments, it is likely that the inclusions present in this sherd represent inclusions that were naturally present in the clay used in producing the complete vessel. The paste of this sherd likely comes from the same source as LA 96-2.

LA 96-4 [Historic Red]

The paste of this sherd is medium brown in color with a dark brown core. The paste contains roughly equal portions of isolated mineral grains and fragments of volcanic tuff, together making up about 10% of the ceramic paste. The mineral grains range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The tuff fragments range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The mineral grains and tuff fragments are angular in shape. Quartz is the predominate isolated mineral with untwinned alkali feldspar accounting for less than 1% of the isolated mineral grains. The is characterized by vesicles with an axiolitic texture with interstial hydrated brown glass. Two of the tuff grains contain porphyritic sanidine.

Because of the similarity in size and the presence of weathered tuff fragments, it is likely that the inclusions present in this sherd represent inclusions that were naturally present in the clay used in producing the complete vessel.

LA 96-5 [Historic Red]

The paste of this sherd is medium brown in color with a dark brown core. The paste contains roughly equal portions of isolated mineral grains and fragments of volcanic tuff, together making up about 20% of the ceramic paste. The mineral grains range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The tuff fragments range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The mineral grains and tuff fragments are angular in shape. Quartz is the predominate isolated mineral with untwined alkali feldspar accounting for less than 1% of the isolated mineral grains. A single lath of plagioclase is also present in the paste of the sherd. The plagioclase lath is 0.125 mm in size.

The pumice is characterized by vesicles with an axiolitic texture with interstial hydrated brown glass. Quartz is present in a trace amount of the pumice fragments. One of the pumice fragments contains laths of plagioclase.

Because of the similarity in size and the presence of weathered pumice fragments, it is likely that the inclusions present in this sherd represent inclusions that were naturally present in the clay used in producing the complete vessel.

LA 96-6 [Historic Red]

The paste of this sherd is medium brown in color with a dark brown core. The paste contains isolated mineral grains and fragments of volcanic tuff which together making up about 10% of the ceramic paste. The mineral grains make up about 3% of the ceramic paste. The tuff fragments make up 8% of the ceramic paste. The mineral grains range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The tuff

fragments range in size between medium silt (0.0125mm) to very coarse sand (1.0mm). The mineral grains and tuff fragments are angular in shape. Quartz is the predominate isolated mineral with untwined alkali feldspar, classifiable as sanidine, accounting for less than 1% of the isolated mineral grains. The tuff is characterized by vesicles with an axiolitic texture with interstial hydrated brown glass. In less than one percent of the tuff fragments, quartz is present as the porphyritic mineral. Untwined alkali feldspar, sanidine, is present as the porphyritic mineral in one of the tuff grains.

LA 96-7 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and fragments of glassy pumice. The isolated mineral grains account for less that one percent of the inclusions present in the paste of this sherd. The minerals present consist primarily of angular fragments of untwined alkali feldspar. Four fragments of brown biotite are present in the paste of the shred as well. The inclusions of untwined alkali feldspar and biotite range from coarse silt to very fine sand (0.0312 to 0.0625mm).

Pumice fragments account for about 20% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

It is likely that the inclusions present in this sherd represent materials that were naturally present in the clay used in producing the complete vessel.

LA 96-8 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of glassy pumice. The isolated mineral grains account for less that one percent of the inclusions present in the paste of this sherd. The minerals present consist primarily of angular fragments of untwined alkali feldspar. Fragments of brown biotite accounted for less than one percent of the mineral agrains present in the ceramic paste. The inclusions of untwined alkali feldspar and biotite range from coarse silt to very fine sand (0.0312 to 0.0625mm).

Pumice fragments account for about 20% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

A fragment of basalt was also present in the ceramic paste. The basalt consists of laths of andesine plagioclase enclosing augite.

It is likely that the inclusions present in this sherd represent materials that were naturally present in the clay used in producing the complete vessel.

LA-96-9 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of glassy pumice. The isolated mineral grains account for less that one percent of the inclusions present in the paste of this sherd. The minerals present consist primarily of angular fragments of untwined alkali feldspar. Four fragments of brown biotite are present in the paste of the shred as well. The inclusions of untwined alkali feldspar and biotite range from coarse silt to very fine sand (0.0312 to 0.0625mm).

Pumice fragments account for about 20% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The Pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

It is likely that the inclusions present in this sherd represent materials that were naturally present in the clay used in producing the complete vessel.

LA-96-10 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of glassy pumice. The isolated mineral grains account for less that one percent of the inclusions present in the paste of this sherd. The minerals present consist primarily of angular fragments of quartz and untwined alkali feldspar present in roughly equal amounts. Sparse fragments of brown biotite are present in the paste of the sherd. The inclusions of untwined alkali feldspar and biotite range from coarse silt to very fine sand (0.0312 to 0.0625mm).

Pumice fragments account for about 20% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The Pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

It is likely that the inclusions present in this sherd represent materials that were naturally present in the clay used in producing the complete vessel.

LA 2048-11 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of glassy pumice. The

isolated mineral grains account for less that one percent of the inclusions present in the paste of this sherd. The minerals present consist primarily of angular fragments of quartz and untwined alkali feldspar present in roughly equal amounts. Sparse fragments of brown biotite are present in the paste of the sherd. The inclusions of untwined alkali feldspar and biotite range from coarse silt to very fine sand (0.0312 to 0.0625mm).

Pumice fragments account for about 25% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

It is likely that the inclusions present in this sherd represent materials that were naturally present in the clay used in producing the complete vessel.

LA 2048-12 [Historic Red]

The paste of this sherd is a dark reddish brown with a brown core. The paste contains two types of inclusions; isolated mineral grains and fragments of volcanic pumice. The isolated mineral grains are present in a trace amount and are composed of equal amounts of quartz, untwinned alkali feldspar, brown biotite, and plagioclase. One of the plagioclase laths contains interstial glass. The isolated mineral grains range in size from coarse silt to medium sand size (0.0625 to 0.25mm).

The pumice fragments range in size from fine sand to granules (0.125 to 3mm) and account for 10% of the ceramic paste. The pumice is glassy in appearance with the pumice fragments ranging in texture from vesicular to welded and flow-banded. Two of the tuff grains contain porphyritic untwined alkali feldspar, sanidine. One tuff grain

contained embayed plagioclase. Another tuff grain contained grains of sanidine porphyritically.

A single fragment of basalt is also present in the paste of this sherd. The basalt is composed of andesine plagioclase and contains intergranular brown glass and augite. The basalt grain is 0.25mm in size.

LA 2048-13 [Historic Red]

The paste of this sherd is a dark reddish brown with a brown core. The paste contains two types of inclusions; isolated mineral grains and fragments of pumice. The isolated mineral grains are present in a trace amount and are composed of equal amounts of quartz, untwinned alkali feldspar, brown biotite, and plagioclase. Two of the plagioclase laths contains interstial glass. The isolated mineral grains range in size from coarse silt to very coarse sand size (0.0625 to 1.0 mm). One fragment of plagioclase is 3mm in length. The plagioclase is embayed with the vesicles filled with light brown glass. A single lath of pyroxene is also present in the ceramic paste.

The pumice fragments range in size from fine sand to granules (0.125 to 3mm) and account for about 10% of the ceramic paste. The pumice is glassy in appearance and variable in texture ranging from vesicular to welded and flow-banded. Two of the pumice grains contain porphyritic untwined alkali feldspar, sanidine.

Two very coarse sand sized (0.5mm) rounded soil *papulae* were also present in the paste of this sherd.

LA 2048-14 [Jemez River Black-on-red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of glassy pumice. The isolated mineral grains account for less that one percent of the inclusions present in the paste of this sherd. The minerals present consist primarily of angular fragments of untwined alkali feldspar. Four fragments of brown biotite are present in the paste of the shred as well. The inclusions of untwined alkali feldspar and biotite range from coarse silt to very fine sand (0.0312 to 0.0625mm).

Six laths of plagioclase were present, two as isolated grains and the third contained within a pumice fragment. The four potassium feldspar grains were complexly embayed containing glass.

Pumice fragments account for about 20% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

It is likely that the inclusions present in this sherd represent materials that were naturally present in the clay used in producing the complete vessel.

LA 2048-15 [Historic Red]

The paste of this sherd is a dark reddish brown with a brown core. The paste contains two types of inclusions; isolated mineral grains and fragments of eutaxitic textured tuff. The isolated mineral grains are present in a trace amount and are composed of quartz, untwinned alkali feldspar, brown biotite, and plagioclase, with the quartz slightly predominate. The isolated mineral grains account for about 3% of the ceramic

paste. The isolated mineral grains range in size from coarse silt to very coarse sand size (0.0625 to 1.0 mm).

The tuff fragments range in size from fine sand to granules (0.125 to 3mm) and account for 15% of the ceramic paste. The tuff is welded and slightly weathered in appearance and variable in texture ranging from vesicular to welded and flow-banded.

LA 2048-16 [Glaze F]

The paste of this sherd is a medium brown color. Three types of inclusions were present in the paste of this sherd, crushed potsherds, isolated mineral grains and fragments of volcanic rock. The isolated mineral grains are composed of untwinned alkali feldspar and plagioclase. The isolated mineral grains make up less than 1% of the ceramic paste and range in size from coarse silt to very fine sand (0.0312 to 0.0625mm).

Two types of volcanic rock are present in the ceramic paste; welded tuff and basalt. The volcanic rock fragments range from coarse silt to very coarse sand size (0.0625 to 1.0 mm). The fragments welded tuff account for about 5% of the inclusions present in the ceramic paste. The tuff is medium brown the brownish gray color and aphanitic or porphyritic in texture. Untwinned alkali feldspar and plagioclase are the porphyritic minerals and range in size from fine sand to very coarse sized sand (0.125 to 1.0 mm).

Two 1.0mm sized fragments of basalt are also present in the ceramic paste. One of the basalt grains has a ophitic texture with the plagioclase laths partially enclosed by augite. The other basalt grain is composed of fine laths of andesine plagioclase and contains intergranular augite or dark brown glass.

The fragments of volcanic scoria that range in color from medium brown to very dark grayish brown. The scoria fragments contain slightly more isolated mineral grains than the ceramic paste to which they were added. The scoria fragments range in size from fine sand to very coarse sized sand (0.125 to 1.0 mm) and account for about 5% of the ceramic paste.

LA 2048-17 [Historic Red]

The paste of this sherd is a medium brown color. The paste contains isolated mineral grains, fragments of welded tuff and glassy volcanic scoria. The isolated mineral grains make up less than 1% of the ceramic paste and range in size from coarse silt to very fine sand (0.0312 to 0.0625mm).

The tuff is medium brown the brownish gray color and aphanitic or porphyritic in texture and accounts for about 5% of the ceramic paste. The tuff particles range in size from fine sand to very coarse sized sand (0.125 to 1.0 mm). Untwinned alkali feldspar and plagioclase are contained porphyritically in the tuff.

The fragments of volcanic scoria range in color from medium brown to very dark grayish brown. The scoria fragments contain slightly more isolated mineral grains than the ceramic paste to which they were added. The scoria fragments range in size from fine sand to very coarse sized sand (0.125 to 1.0 mm) and account for about 5% of the ceramic paste.

LA 2048-18 [Historic Red]

The paste of this sherd is an even reddish brown color. The ceramic paste contains fragments of a glassy welded tuff. Also present in equal amounts were fragments of an intergranular basalt. and basalt and the minerals weathered from those minerals. The volcanic rock fragments and the minerals derived from them account for about 20% of the ceramic paste. The tuff displays a distinct eutaxite texture. Quartz and untwinned alkali feldspar are present as porphyritic minerals and as isolated mineral grains. The mineral grains and rock fragments range in size from fine sand to very coarse sand (0.124-1mm.).

The basalt is characterized by laths of plagioclase enclosing augite and brown glass in a ophilitic texture.

The similarity in composition and the continuous size grading of the rock fragments and isolated mineral grains represent natural inclusions found in the clay used to produce the original vessel.

LA 2048-19 [Historic Red]

The paste of Sample LA 2048-19 closely resembles the paste of the previous specimen. The paste is a reddish brown color and contains about 20% fragments of basalt and rhyolitic tuff and the minerals grains weathered from these two types of volcanic rock.

LA 96-20 [Historic Red]

The paste of the sherd is a medium yellowish brown color. The paste contains sediments derived from a plutonic source. The paste contains isolated mineral grains

composed of quartz and untwinned alkali feldspar in roughly equal proportions. About 15% of the mineral inclusions are laths of plagioclase. The sand grains range in size from coarse silt to very coarse sand (0.0312 to 1.0mm). The ubiquity of the grains in the ceramic paste decreases with increasing particle size. The sands make up about 20% of the ceramic paste. One of the very coarse sized quartz grains is polycrystalline and displays undulose extinction. A trace amount of the the quartz grains in the ceramic paste display undulose extinction indicative of a plutonic or metamorphic origin.

Sparse coarse sized multi-mineral fragments are present in the ceramic paste. Mineral combinations of quartz and plagioclase and quartz and untwinned alkali feldspar indicate a plutonic source for the sediments.

LA 1825-21 [Jemez Black-on-white]

The paste of this sherd is medium gray in color. The ceramic paste contains two types of inclusions; isolated mineral grains and fragments of glassy pumice. The two types of inclusions are present in roughly equal amounts with each comprising about 10% of the ceramic paste. The isolated mineral grains are composed primarily of quartz. Untwinned alkali feldspar, classifiable as sanidine, is also present in a trace amount. A trace amount of brown biotite also also present in the ceramic paste. The inclusions of untwined alkali feldspar and biotite range from very fine sand to very coarse sand (0.0625 to 1.0mm).

The pumice ranges in color from transparent to light gray. The fragments of vesicles and "Y" shaped structures are distinctive. The pumice fragments range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

Rounded opaque soil *papulae* or pizolites are present in the paste in a trace amount, about 1% of the paste of this sherd. These rounded opaque inclusions range in size from very fine sand to very coarse sand (0.0625 to 1.00mm). Soil *papulae* are weathered inclusions of relict soil deposits (Brewer 1969).

LA 1825-22 [Jemez Black-on-white]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of glassy pumice. The minerals present consist primarily of sub-angular fragments of quartz and untwined alkali feldspar. The untwinned alakali feldspar grains are slightly more common in the paste than the quartz particles. A single grain of augite is also present in the paste of the sherd. The isolated mineral inclusions range from coarse silt to coarse sand (0.0312 to 0.5mm). The isolated mineral grains account for about 5% of the ceramic paste.

Pumice fragments account for about 10% of the ceramic paste. The pumice fragments are a glassy light gray color and display well formed vesicles. The pumice fragments range in size from very fine sand to granule sized (0.0625 to 2.0mm).

LA 1825-23 [Historic Red]

The paste of this sherd is medium brown in color. The paste contains two types of inclusions; isolated mineral grains and sub-rounded fragments of gray tuff. The minerals present consist primarily of sub-angular fragments of quartz and untwined alkali feldspar. A single grain of augite is also present in the paste of the sherd. The isolated mineral

inclusions range from coarse silt to very coarse sand (0.0312 to 1.0mm). The isolated mineral grains account for about 5% of the ceramic paste.

Tuff fragments account for about 5% of the ceramic paste. The tuff fragments are light gray or brownish gray color and display eutaxitic texture. The tuff fragments range in size from very fine sand to granule sized (0.0625 to 2.0mm).

LA 1825-24 [Kotyiti Glaze]

The paste of this sherd is black in color and opaque. The ceramic paste contains fragments of andesite porphyry and isolated mineral grains derived from weathered andesite. The andesite is characterized by an dark brownish gray aphanitic or microcrystalline groundmass that contained plagioclase and hornblende as porphyritic minerals. The fragments of andesite and the mineral grains derived from them make up about 25% of the ceramic paste. The fragments of andesite and mineral grains range in size from coarse silt to very coarse sand (0.0312 to 1.0mm).

Also present in the paste of the sherd is a single sub-rounded poly-crystalline grain composed of quartz and untwinned alkali feldspar. The quartz displays undulose extinction, indicative of a plutonic or metamorphic source.

LA 1825-25 [Glaze F]

The paste of this sherd is a dark reddish brown with a brown core. The paste contains two types of inclusions; isolated mineral grains and fragments of pumice. The isolated mineral grains are present in a trace amount and are composed of equal amounts of quartz, untwinned alkali feldspar, brown biotite, and plagioclase. Two of the

plagioclase laths contain interstial glass. The isolated mineral grains range in size from coarse silt to very coarse sand size (0.0625 to 1.0 mm). One fragment of plagioclase is 3mm in length. The plagioclase is embayed with the vesicles filled with light brown glass.

The pumice fragments range in size from fine sand to granules (0.125 to 3mm) and account for about 15% of the ceramic paste. The pumice is glassy in appearance and variable in texture ranging from vesicular to welded and flow-banded. Two of the pumice grains contain porphyritic untwined alkali feldspar, sanidine.

LA 1825-26 [Kotyiti Glaze]

The paste of this sherd is dark brown in color. The paste contains fragments of an immature arkosic micaceous sandstone. The sandstone is supported by silica cement. Fragments of the cement can be observed in the paste of ths sherd along with grains of quartz, untwined alkali feldspar, and plagioclase. About 10% of the untwinned alkali feldspar grains displayed alteration to sericite or were weathered to the point of obscuring the optical characteristics of the grain. Micas, including brown and green biotite and muscovite are also present in the ceramic paste in the fragments of the sandstone. The fragments of sandstone and mineral grains range from very coarse silt to granules(0.0625 to 3.0mm). The fragments of sandstone and the mineral grains derived from them account for about 30%.

LA 1825-27 [Glaze F]

The paste of this sherd is a medium brown color. Three types of inclusions were present in the paste of this sherd, isolated mineral grains and fragments of volcanic rock. The isolated mineral grains are composed of untwinned alkali feldspar and plagioclase. The isolated mineral grains make up less than 1% of the ceramic paste and range in size from coarse silt to very fine sand (0.0312 to 0.0625mm).

Two types of volcanic rock are present in the ceramic paste; welded tuff and basalt. The volcanic rock fragments range from coarse silt to very coarse sand size (0.0625 to 1.0 mm). The fragments welded tuff account for about 5% of the inclusions present in the ceramic paste. The tuff is medium brown the brownish gray color and eutaxitc in texture. Quartz and untwinned alkali feldspar are the porphyritic minerals and range in size from fine sand to very coarse sized sand (0.125 to 1.0 mm).

Three fragments of basalt 1.0mm sized are also present in the ceramic paste. Two of the basalt grains has a ophitic texture with the plagioclase laths partially enclosed by augite. The other basalt grain is composed of fine laths of andesine plagioclase and contains intergranular augite or dark brown glass.

LA 1825-28 [Historic Red]

The paste of this sherd is dark brown in color. The paste contains about 15% fragments of basalt with a distinctive ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 1825-29 [Jemez River Red-on-red]

The paste of this sherd is virtually identical to the paste of the previous sample. The paste of the sherd is dark brown in appearance. The paste contains about 15% fragments of basalt with an ophitic texture. The ophitic basalt fragments range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 1825-30 [Historic Red]

The paste and inclusions are quite similar to that of the two previous samples. A few differences are apparent. The paste of the current specimen is black and opaque. The ophitic basalt accounts for about 30% of the ceramic paste. The basalt fragments range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 1825-31 [Historic Red]

The paste of this sherd is dark brown in color. The paste contains about 15% fragments of basalt with a distinctive ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 1825-32 [Historic Red]

The paste of this sherd is virtually identical to the paste of samples LA 1825-28, 29,30 and 31. The paste of the sherd is dark brown in appearance. The paste contains

about 15% fragments of basalt with an ophitic texture. The ophitic basalt fragments range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 2048-33 [Historic Red]

The paste of this sherd is very dark reddish brown with a dark brown core. The paste contains a mix of glassy and ophitic basalt. The two types of volcanic rock, and the mineral grains weathered from them, range in size from very coarse silt to granules (0.0625 to 2.0mm). The glassy basalt is slightly more prevalent in the ceramic paste than the ophitic basalt. The glassy basalt accounts of about 15% of the ceramic paste with the ophitic basalt accounting for 8%. The porphyritic andesite is characterized by a groundmass composed of light brown glass and microcrystalline laths of plagioclase. Plagioclase is also the predominate porphyritic mineral. Untwinned alkali feldspar, hornblende, cubic magnetite and titanite are present in trace amounts among the fragments of glassy basalt.

The ophitic basalt is texturally similar to the basalt observed in the previous three samples. Laths of plagioclase are enclosed by augite. Rarely, hematite is present between the plagioclase laths.

LA 2048-34 [San Diego Glaze]

The paste of this shed is black in color and opaque in texture. The ceramic paste contains fragments of andesite porphyry and volcanic tuff. The andesite is more common accounting for about 15% of the ceramic paste. The tuff makes up only about 5% of the ceramic paste. The fragments of andesite and tuff and the mineral grains derived from

both rock types range in size from very coarse silt to granules (0.0625 to 2.mm). The andesite is characterized by a groundmass composed of dark brown glass and microcrystalline plagioclase. Plagioclase is also the porphyritic mineral. Augite, titanite and untwinned alkali feldspar are present in a trace amount in a few of the fragments of andesite.

The volcanic tuff ranges in color from a light gray to a medium brownish gray. The tuff contains vesicles that display axiolitic texture. Sanidine and volcanic quartz are present in a trace amount of the tuff fragments.

LA 2048-35 [Historic Red]

The paste of this sherd is a medium brown color. The paste contains sediments derived from volcanic sources of variable texture and composition. Volcanic tuff, basalt, and pumice and isolated minerals derived from these volcanic rocks are present in the ceramic paste. The fragments of volcanic rock and their associated mineral grains range in size from very coarse silt to granules (0.0625 to 2.mm). The most common type of inclusion is basalt accounting for about 15% of the ceramic paste. The basalt is variable in texture with about 5% of the basalt fragments characterized by a ophitic texture. The other basalt fragments are very fine grained and composed of laths of andesine plagioclase and magnetite often displaying trachyitic texture.

The tuff grains account for about 3% of the ceramic paste. The gray brown volcanic tuff is welded and displays axiolitic texture. A trace amount of the tuff grains contain volcanic quartz or untwined alkali feldspar.

The fragments of pumice account for an additional 3% of the ceramic paste. The pumice is glassy in appearance and contains abundant vesicles.

LA 2048-36 [Historic Red]

The paste of this sherd is a dark brown color. The paste contains about 20% fragments of basaltic andesite porphyry and isolated mineral grains likely to have been derived from the andesite. The andesite is characterized by a groundmass composed of brown glass and microcrystalline laths of plagioclase. Plagioclase is the porphyritic mineral in the andesite. A trace number of andesite fragments also contain augite. The fragments of andesite porphyry and its associated mineral grains range in size from very coarse silt to very coarse sand (0.0625 to 1.mm).

LA 2048-37 [Historic Red]

The paste of this sherd is dark brown in color. The paste contains about 15% fragments of basalt with an ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 2048-38 [Historic Red]

The paste of this sherd is black and opaque. The paste contains sediments derived from volcanic sources of variable texture and composition. Basaltic andesite, and pumice and isolated minerals derived from these volcanic rocks are present in the ceramic paste.

The most common type of inclusion is basaltic andesite accounting for about 15% of the ceramic paste. The basalt is variable in texture with about two-thirds of the basalt fragments characterized by fine laths of plagioclase in a groundmass of dark brown glass and magnetite. Plagioclase is contained porphyritically within most of the basalt grains. A trace amount of the basalt grains contain augite. The other basalt fragments have a distinct ophitic texture with augite containing laths of plagioclase.

The fragments of tuff account for an additional 3% of the ceramic paste. The pumice is light gray in appearance and contains a trace amount of untwinned alkali feldspar.

The volcanic rock fragments and isolated mineral grains derived from the rock fragments account for about 25% of the ceramic paste. The fragments of volcanic rock and their associated mineral grains, plagioclase, untwinned alakli feldspar and quartz range in size from very coarse silt to very coarse sand (0.0625 to 1.mm).

LA 2048-39 [San Diego Glaze]

The paste of this sherd is black in color. The paste contains about 15% fragments of ophitic basalt. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments and the isolated laths of plagioclase and augite range in size from coarse silt to granules (0.0625 to 2.0mm).

LA 2048-40 [San Diego Glaze]

The paste of this sherd is black in color. The paste contains about 10% fragments of ophitic basalt. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments and the isolated laths of plagioclase and augite range in size from coarse silt to very coarse sand (0.0625 to 1.0mm).

LA 1825-41 [Historic Red]

The paste of this sherd is medium brown. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains a mixed volcanic assemblage composed of tuff, pumice and basalt. Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of volcanic rock and the mineral grains derived from them account for about 10% of the ceramic paste and range in size from very fine to very coarse sand (0.0625 to 1.0mm).

The volcanic rock is composed primarily of light gray volcanic tuff, The tuff fragments have a distinct eutaxitic texture. One tuff grain contains a lath of untwinned alkali feldspar porphyritically.

Basalt in the form of plagioclase aggregates of plagioclase laths, frequently with augite adhering to one of the crystal faces. The basalt fragments resembled the basalt observed in sample LA 2048-40, however the basalt fragments are smaller and more weathered that those in the sample from LA 2048-40.

LA 1825-42 [Kotyiti Glaze]

The paste of this sherd is medium brown. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of tuff. Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of volcanic rock and the mineral grains derived from them account for about 10% of the ceramic paste and range in size from very fine to very coarse sand (0.0625 to 1.0mm).

The volcanic rock is composed primarily of light gray volcanic tuff, The tuff fragments have a distinct eutaxitic texture.

LA 1825-43 [Kotyiti Glaze]

The paste of this sherd is medium brown. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of welded eutaxitic textured tuff. The tuff fragments have a distinct eutaxitic texture. One of the tuff fragments contains a rounded grain of volcanic quartz.

Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of volcanic rock and the mineral grains derived from them account for about 10% of the ceramic paste and range in size from very fine sand to very coarse sand (0.0625 to 1.0mm).

LA 1825-44 [Jemez River Black-on-red]

The paste of this sherd is medium brown. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of glassy pumice. The pumice is composed of aggregate masses of glassy vesicles. The fragments account for about

10% of the ceramic paste and range in size from very fine to very coarse sand (0.0625 to 1.0mm).

Sparse mineral grains are present in the paste. The minerals present consists of untwined alkali feldspar and quartz. One of the untwined feldspar grains has a sieve-like texture consisting of glass and alkali feldspar.

LA 1825-45 [Kotyiti Glaze]

The paste of this sherd is medium brown. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of tuff. Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of the tuff account for about 15% of the ceramic paste and range in size from very fine to very coarse sand (0.0625 to 1.0mm). The volcanic rock is composed primarily of light gray volcanic tuff, The tuff fragments have a distinct eutaxitic texture. One of the tuff fragments contained a rounded grain of volcanic quartz. Six grains contained untwinned alkali feldspar. Quartz and untwinned alkali feldspar grains account for about 5% of the ceramic paste and are of the same size as the tuff fragments.

LA 1825-46 [Kotyiti Glaze]

The paste of this sherd is medium brown. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of tuff. Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of the tuff account for about 15% of the ceramic paste that range in size from very fine to very coarse sand (0.0625 to 1.0mm). The volcanic rock is composed primarily of light gray

volcanic tuff, The tuff fragments have a distinct eutaxitic texture. A trace amount of the tuff fragments contains porphyritic untwinned alkali feldspar or less commonly porphyritic quartz. Quartz and untwinned alkali feldspar grains account for about 5% of the ceramic paste and are of the same size as the tuff fragments. A single grain of augite was also present in the paste of this sherd.

LA 96-47 [Historic Red]

The paste of this sherd is a very dark brown color. The paste contains about 25% fragments of andesite porphyry and isolated minerals that originated from the weathering of the andesite. The andesite is characterized by a dark brown glassy to composed of microcrystalline laths of plagioclase. Plagioclase and hornblende are the porphyritic minerals in the andesite. The plagioclase laths in the fragments of andesite and occurring as isolated mineral grains are strongly zoned with a trace amount containing cores of glass. The fragments of andesite porphyry range in size from very fine to very coarse sand (0.0625 to 1.0mm).

LA 96-48 [Historic Red]

The paste of this sherd is black and opaque. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of tuff. Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of the tuff account for about 15% of the ceramic paste that range in size from very fine to very coarse sand (0.0625 to 1.0mm). The volcanic rock is composed primarily of light gray volcanic tuff, The tuff fragments have a distinct eutaxitic texture. A trace amount of the tuff fragments contains porphyritic untwinned alkali feldspar or less commonly

porphyritic quartz. Quartz and untwinned alkali feldspar grains account for about 5% of the ceramic paste and are of the same size as the tuff fragments.

LA 96-49 [Historic Red]

The paste of this sherd is black and opaque. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of tuff. Isolated mineral grains derived from these minerals are also present in the ceramic paste. The fragments of the tuff account for about 10% of the ceramic paste that range in size from very fine to very coarse sand (0.0625 to 1.0mm). The volcanic rock is composed primarily of light gray volcanic tuff, The tuff fragments have a distinct eutaxitic texture. A trace amount of the tuff fragments contains porphyritic untwinned alkali feldspar or less commonly porphyritic quartz. Quartz and untwinned alkali feldspar grains account for about 5% of the ceramic paste and are the same size as the tuff fragments.

LA 96-50 [Historic Red]

The paste of this sherd is dark reddish brown with a black opaque core. The paste has a silty texture and is free of silt-sized mineral grains. The paste contains fragments of glassy pumice. Isolated mineral grains are also present in the ceramic paste. The fragments of pumice account for about 10% of the ceramic paste that range in size from very fine to very coarse sand (0.0625 to 1.0mm). The pumice is light gray and glassy. A trace amount of fragments of pumice contain porphyritic untwinned alkali feldspar or less commonly porphyritic quartz. Quartz and untwinned alkali feldspar grains account for

about trace amount of the ceramic paste and are of the same size as the fragments of pumice.

LA 96-51 [Historic Red]

The paste of this sherd is dark brown in color. The paste contains about 15% fragments of basalt with an ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to very coarse sand 0.0625 to 1.0mm). Isolated laths of plagioclase and augite are also present in the ceramic paste it a distinctive granular appearance.

LA 96-52 [Historic Red]

The paste of this sherd is dark brown in color. The paste contains about 15% fragments of basalt with an ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to very coarse sand 0.0625 to 1.0mm). Isolated laths of plagioclase and augite are also present in the ceramic paste giving it a distinctive granular appearance.

LA 96-53 [Historic Red]

The paste of this sherd is a dark reddish paste and black core. Otherwise, the inclusions present in this sherd strongly resemble those of the two previously described samples. The paste of this sherd is dark brown in color. The paste contains about 15%

fragments of basalt with an ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to very coarse sand 0.0625 to 1.0mm). Isolated laths of plagioclase and augite are also present in the ceramic paste giving it a distinctive granular appearance.

LA 96-54 [Historic Red]

The paste of this sherd is dark brown in color. Otherwise, the inclusions present in this sherd strongly resemble those of the two previously described samples. The paste contains about 15% fragments of basalt with an ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from coarse silt to very coarse sand 0.0625 to 1.0mm). Isolated laths of plagioclase and augite are also present in the ceramic paste giving it a distinctive granular appearance.

LA 96-55 [Historic Red]

The paste of this sherd is a dark reddish paste and black core. Otherwise, the inclusions present in this sherd strongly resemble those of the two previously described samples. The paste of this sherd is dark brown in color. The paste contains about 15% fragments of basalt with an ophitic texture. The laths of andesine plagioclase are enclosed primarily by augite. A trace amount of olivine or dark reddish brown glass are also present containing laths of plagioclase. The ophitic basalt fragments range in size from

coarse silt to very coarse sand 0.0625 to 1.0mm). Isolated laths of plagioclase and augite are also present in the ceramic paste giving it a distinctive granular appearance.

APPENDIX F: UNSHAGI ARCHITECTURAL DATA

(from Reiter 1938, Figure 4)

Room ID * denotes room with 2 stories # denotes room with 3 stories	Approximate Room Length (m)	Approximate Room Width (m)	Estimated Floor Area (m^2)
31-17	3.1	1.5	4.9
31-16	3.2	1.5	5.0
31-29	3.2	2.4	7.9
31-15	3.4	2.9	9.6
31-10	3.8	2.3	8.9
31-30	3.9	2.0	7.9
31-28	3.8	1.6	6.1
31-25	3.9	1.8	7.0
31-18*	2.4	1.8	4.3
31-14*	2.4	1.9	4.5
31-19*	2.8	2.5	7.0
31-13#	2.8	2.5	6.9
31-8*	4.8	2.1	10.4
31-26	3.1	2.0	6.1
31-24*	5.6	2.4	13.5
31-2#	5.8	2.3	13.8
31-1*	6.0	2.1	12.3
31-27	3.1	2.0	5.9
31-23	3.6	2.0	7.1
31-22*	3.4	2.6	8.6
31-11#	3.4	3.0	9.9
31-6*	3.7	1.8	6.6
31-21	3.4	2.0	6.7
31-20*	3.2	2.1	6.6
31-12#	3.7	3.3	11.9
31-7*	3.1	2.0	6.1
23-2#	3.5	3.3	11.4
32-1*	2.9	2.3	6.6
32-4#	3.7	3.3	8.9
32-3*	2.8	2.2	5.9
32-6#	3.2	3.1	9.9
32-5*	3.1	1.8	5.5
32-8*	3.0	2.7	8.2
32-7	2.9	2.3	6.5
32-10*	3.8	3.1	11.8
32-9	3.7	2.3	8.6
29-3	2.9	3.3	9.5
32-12	2.8	2.7	7.5
28-16	3.3	2.8	9.2
29-1*	3.2	3.1	10.0
29-2	3.0	3.7	10.9

29-4	3.3	3.1	10.1
29-5	3.3	2.8	9.2
32-15	2.7	1.9	5.1
32-16	3.8	2.4	9.2
32-13	2.0	1.8	3.6
31-33	3.1	2.4	7.2
31-32*	3.5	3.1	13.2
31-34*	3.3	2.9	9.8
31-35	2.7	2.5	6.9
31-36*	3.6	3.0	10.7
31-37	3.9	2.5	9.6
30-15*	3.8	2.7	10.3
30-16	3.8	2.7	10.4
30-12*	3.5	2.7	9.3
30-14	2.7	2.3	6.2
30-13	3.0	2.6	7.7
30-11*	3.6	2.9	10.3
33-2*	3.2	2.8	8.8
33-4*	2.9	1.7	4.9
33-6*	3.2	2.0	6.4
33-7*	3.2	1.0	3.2
33-9*	3.2	1.8	6.0
30-10	2.1	2.0	4.2
30-8*	3.4	2.2	7.3
33-1#	3.5	2.6	9.1
33-3#	3.0	1.6	4.9
33-5#	3.3	2.1	6.8
33-8#	3.5	2.2	7.6
34-1#	3.1	2.0	6.2
34-4*	3.6	3.3	11.8
34-6*	3.3	3.0	9.9
34-3*	3.2	2.8	9.1
34-5*	2.5	1.8	4.7
34-2*	3.7	2.9	10.5
30-7*	3.1	3.0	9.5
30-9	2.1	2.0	4.2
34-7	4.4	3.1	14.0
30-6	4.2	2.8	11.1
28-1	3.4	2.9	9.8
28-2*	3.1	2.1	6.6
28-3#	3.1	2.6	8.3
28-4	3.3	3.5	11.7
28-8	3.3	1.7	5.7
28-5	2.7	2.5	6.6
28-7*	3.0	1.7	5.1
28-9#	3.3	2.0	6.7
28-11#	3.4	2.9	10.2
28-17*	3.3	2.9	9.7
30-5	3.4	1.8	5.9
28-6	3.2	2.6	8.2
28-10*	3.1	1.6	5.0

28-13*	3.0	1.9	5.6
28-14*	2.9	2.8	7.9
30-3*	3.0	2.6	7.7
30-4	3.2	1.7	5.6
28-12	2.6	1.7	4.5
30-1	3.6	2.3	7.4
30-2	5.5	2.4	12.5

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