Social Inequality in the Mimbres Region of the U.S. Southwest, ca. 200-1130 C.E.

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved July 2016 by the
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ARIZONA STATE UNIVERSITY

August 2016

ABSTRACT

This dissertation develops a multidimensional approach to examine the ways in which people in small-scale societies create, perpetuate, justify, and overcome social inequality. Inequality can exist within a number of independent domains, some of which are likely to be subtle and dissimilar from those familiar to Western society. The advantages and disadvantages of inequality can shift between various groups and across social scales. Recent ethnographic work suggest that the most common domain of inequality in small-scale societies may involve status accrued to founding lineages. This hypothesis is examined in relation to four additional domains, each inspired by ethnographic data from indigenous groups of the U.S. Southwest: differential access to productive resources, ritual knowledge and practice, nonlocal objects and styles, and material wealth. Analyses are carried out with data from seven archaeological sites in the Mimbres region of southwestern New Mexico, spanning a period from approximately 250 to 1130 C.E. Results show that inequality was present throughout the Mimbres archaeological sequence but that it shifted over time, across space and social scales, and varied in magnitude in non-directional ways. Results also identify persistent factionalism wherein groups vied for moral authority based on differences in residential antecedence and justified via religious differences. Insight from this research benefits the social sciences by developing a number of methodological approaches, particularly to the archaeological study of primacy and antecedence, by demonstrating the necessity of a nuanced, multi-faceted approach to inequality, and by revealing the complex and plastic nature of inequality.

DEDICATION

Nʉʉmʉ. Nʉkakumaʔ tɨasɨ nʉtokomaʔ.

Nʉpiamaʔ tɨasɨ nʉahpʉmaʔ.

Nʉpatsimaʔ tɨasɨ nʉtamimaʔ.

Nʉnanamimaʔ.

Nʉtuamaʔ tɨasɨ nʉpetamaʔ.

Tɨasɨ Mo'pie Ohaʔékafltɨ, Ta'a'pah, NɨkɨmakĪ WɨnɨRĪ. Sʉmʉ oyetʉ tana nananʉmʉnʉʉ.

Ʉ Kamakʉtʉnʉ. All day. Long town.

ACKNOWLEDGMENTS

Not unlike Dante, in the midst of my life I awoke in a dark wood, where the true way was wholly lost. In the decade since, the straightforward path has been regained, and if nothing else, this dissertation stands as a testament to the patience, dedication, and assistance of those who have helped me reach this milestone. Without the love and support of my Family, mentors, friends, and the Creator, this could not have been. Words cannot express the gratitude I hold for them, my committee members, and other faculty at ASU. Peggy Nelson, Michelle Hegmon, Ben Nelson, Kate Spielmann, and Arleyn Simon have been amazing mentors. I owe them more than I could ever repay and I hope they know what their guidance and friendship have meant to me. I am indebted also to professors Dave Abbott, Keith Kintigh, Betsy Brandt, and Mike Smith, along with Bill Doelle at Archaeology Southwest and Eric Kaldahl at the Amerind Foundation.

I am honored to have made several friends over the past ten years, each instrumental in my success. Aaron Wright, Matt Peeples, Greg Schachner, Karen Gust Schollmeyer, Hoski Schaafsma, and Steph Kulow encouraged me to continue in this career. Jacob Freeman, Garrett Trask, Mike O'Hara, Katy Putsavage, Colleen Strawhacker, Kimberly Smith, Shelby Manney, Melissa Kruse-Peeples, and Mike Hoogendyk offered their assistance and support through the years. I thank Matt Peeples, Aaron Wright, and Keith Kintigh for their patience and assistance with statistics. Randy McGuire, Mike Smith, Keith Kintigh, Glen Rice, Mike Mathiowetz, and Orri Vésteinsson helped with methodological and theoretical suggestions. Betsy Brandt, Mike O'Hara, Matt Peeples, Allen Denoyer, Glen Rice, and David Martinez were very helpful with ethnographic information.

This would not have been possible without the help and support of Mimbres researchers Roger Anyon, Darrell Creel, Pat Gilman, Karen Gust Schollmeyer, Steve LeBlanc, Steve Lekson, Ali Livesay, Paul Minnis, Barbara Moulard, Katy Putsavage, Barb Roth, Harry Shafer, Garrett Trask, and, of course, my committee members. Pat Gilman shared an invaluable amount of material that would otherwise have been unavailable. Margaret Berrier and Myles Miller assisted with relevant data from the Jornada region. I am also indebted to a number of museums and museum professionals for their support and access: Steve LeBlanc and Jessica Desany (Peabody Museum); Christine Szuter, Eric Kaldahl, and John Ware (Amerind Foundation); Mike Jacobs and Patrick Lyons (Arizona State Museum); Jonathan Pringle and Patricia Walker (Museum of Northern Arizona); Bruce Huckell (Maxwell Museum); Ella Rothgangel, Carly Wildenradt, and Rachel Aubuchon (St. Louis Art Museum); Peter Seibert (Millicent Rogers Museum); Erin Bouchard, Laura Muessig, and Brian Zehowski (Weisman Art Museum); Lou Stancari and Tanya Thrasher (National Museum of the American Indian); Barry Landua and David Hurst Thomas (American Museum of Natural History); Emily Moazami, Felicia Pickering, and David Rosenthal (Smithsonian Institution); Nicolette Meister (Logan Museum); Kim Walters, Marilyn Van Winkle, and Keisha Raines (Autry National Center); and Sarah Cucinella-McDaniel and Mary Davis (Denver Art Museum).

Research was funded by ASU’s College of Liberal Arts and Sciences, School of Human Evolution and Social Change, and Graduate College, along with fellowships from the National Science Foundation, National Academy of Sciences, and Josephine de Kármán Institute. I am forever grateful to these fine institutions for their support.

TABLE OF CONTENTS

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

CHAPTER Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX		Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

APPENDIX Page

LIST OF TABLES

Table Page

Table Page

Table Page

Table | Page

Table Page

LIST OF FIGURES [1]

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Figure Page

Figure Page

Figure Page

Figure Page

Figure Page

Figure Page

Figure Page

Figure Page

CHAPTER 1: INTRODUCTION

> “The first man who, having fenced in a piece of land, said "This is mine," and found people naïve enough to believe him, that man was the true founder of civil society. From how many crimes, wars, and murders, from how many horrors and misfortunes might not any one have saved mankind, by pulling up the stakes, or filling up the ditch, and crying to his fellows: Beware of listening to this impostor; you are undone if you once forget that the fruits of the earth belong to us all, and the earth itself to nobody” (Rousseau 1754:27).

> “Widening inequality is corrosive of trust … It creates an economic world in which even the winners are wary. But the losers! In every transaction—in every encounter with a boss or business or bureaucrat—they see the hand of someone out to take advantage of them … They know that something has gone wrong, but they underestimate the harm that inequality does even as they overestimate the cost of taking action. These mistaken beliefs, which have been reinforced by ideological rhetoric, are having a catastrophic effect” (Stiglitz and Bilmes 2012).

For centuries, social scientists, economists, and moral philosophers have been concerned with conditions of inequality and their effects on human relations and social systems. Social inequality comprises not only meaningful differences between individuals and groups, but also an accompanying difficulty in overcoming those differences. As Joseph Stiglitz warns, one of inequality’s most damaging consequences is the attrition of trust (2012). That is, the presence and recognition of inequality within a populace erodes the sense of solidarity that once engendered, and has since defined and sustained that society (see Cozzolino 2011; Kawachi et al. 1997; Uslaner and Brown 2005).

Anthropology (including archaeology) offers insight by drawing on numerous and diverse cultures, and by accessing long spans of time. Thus, the discipline is poised to contribute to the study of inequality in several important ways. Anthropology can address the multi-faceted and multi-dimensional nature of inequality by engaging different forms of inequality simultaneously, exploring the nuances within each form, and examining the ways in which they intersect, all over the course of generations, if not millennia. Contrary to early assumptions, like those of Rousseau (1754) above, the absence of inequality is not a pristine and natural state from which humankind has fallen. Rather – and especially when considered in its multiple dimensions – inequality is omnipresent in human societies (Flanagan 1989). In fact, elements of social inequality have been documented among other primates (e.g., Scanlon et al. 1985), suggesting that it may well be part of what defines us. Seemingly egalitarian societies, such as some foraging groups, maintain their relative egalitarianism through concerted effort and social institutions (McGuire and Netting 1982), including strongly-mandated sharing (Wiessner 1996), ridicule (Turnbull 1968:114), and even homicide (Boehm 1993:230-231). These social mechanisms, then, act not as bulwarks against the encroachment of inequality, but as means to mitigate the inequality already present. Given that every society has had to confront this issue, a broad spectrum of successes and failures is available for anthropological study. By examining the ways in which past and present cultures have experienced and addressed inequality, anthropology is better positioned to aid in counteracting its deleterious effects in today's world.

In ancient, ethnographic, and modern times, societies have differed in their nature, scope, and degree of inequality. Most research on the topic has focused on those cases where inequality is most pronounced and overt, in what are usually classified as complex societies. The goal of this dissertation is to expand this view by considering inequality in societies that are less-obviously complex. Specifically, this research focuses on inequality in small-scale societies and the ways that people in those societies establish, perpetuate, and sometimes contest that inequality. It seeks to understand the dynamics of variable – sometimes competing – interests at a number of scales, and to understand how changes in inequality are implemented and maintained.

As Hegmon (2005) has noted, the U.S. Southwest is particularly well-suited to this endeavor. Indigenous Southwestern societies, both ethnographic and archaeological, are diverse in their forms and degrees of inequality and sociopolitical complexity, yet share certain attributes that allow significant contribution to the discourse (e.g., Brandt 1994; Hegmon 2005; Johnson 1989; Lamphere 2000; McGuire and Saitta 1996; Mills 2000; Ortiz 1969; Rautman 1998; Upham 1992). Recent literature shows that inequality in the Southwest is in many ways different than it is elsewhere, in that it often does not involve surplus production on a consistent basis and, in many societies, there is intolerance of ostentation and hegemony (e.g., Johnson 1989; Levy 1992; Mills 2012:553; Ortiz 1969). My research focuses on the Mimbres region of the Southwest, which is ideal for several reasons. Here, the archaeological record hints at elements of both equality and inequality, suggesting a multi-dimensional and multi-scalar landscape of sociopolitical relations. What is more, Mimbres burials were often placed below the floors of houses, as survivors continued to live above. This practice allows the archaeologist to infer associations between individuals, burial assemblages, households, and larger social units, thus examining the intersection of multiple dimensions and socio-spatial scales.

Guiding Principles

Efforts to understand social inequality have employed a variety of methods and theoretical approaches, each building upon those that came before. Major theoretical advances have been made in recent years, reviving interest in the phenomenon of inequality and providing inroads for continued advancement. The present study builds upon the extant literature, drawing forth and developing six fundamental principles that guide the research presented in subsequent chapters.

I: Inequality may derive from differences in antecedence

Recently, Flannery and Marcus (2012) showed that a wide array of ethnographically-documented, small-scale societies subscribe to a social logic wherein those who can say “we were here first” are entitled to apical status within the community. This status, which I refer to as antecedence, grants moral authority to founding lineages and is frequently leveraged to engender inequality in other domains. As Flannery and Marcus demonstrate, social units are not always in agreement as to which among them has a legitimate claim to antecedence. Thus, there exists a subtle distinction between primacy (empirical differences in the timing of arrival) and antecedence (status derived from actual or perceived primacy). Flannery and Marcus were not the first to acknowledge the importance of antecedence (see, for example, Goldman 1955, 1970), but their application of the concept to inequality in the archaeological record holds immense promise and greatly influences the present work.

II: Inequality can exist in the absence of surplus

Much of the research on inequality focuses explicitly on surplus as a driver, or on cases where surplus was likely possible (Angle 1986; Price 1995; Sahlins 1958). While surplus certainly can be the basis of inequality, it is not the only basis, and a focus on surplus sometimes overshadows other, more subtle realms. As Levy (1992) demonstrated, inequality can also exist as a means to address scarcity, mitigating risk and consequence for the privileged. Working among the Hopi of northeastern Arizona, Levy showed that select groups were able to reduce or counteract the effects of scarcity by controlling the allocation of productive resources, governing the extent of sharing, and, in dire circumstances, ousting low-status groups.

The Mimbres case examined here, with production not dissimilar to the Hopi case, provides an opportunity to consider prehispanic inequality in the absence of surplus production. One component of the research, presented in Chapter 4, considers differences in productive potential, based on household storage capacity. Those differences are fairly small, and there is no evidence to suggest that some segments of Mimbres society were able to produce or control surpluses. Antecedence may have given some households access to the best land, which likely increased their productive capacity. However, the analyses presented in Chapter 4 show variable relationships between antecedence and productive potential.

III: Inequality can be manifest in subtle, non-ostentatious ways

Much of the archaeological research on social inequality focuses on overt domains, similar to those seen and emphasized in today's world: lavish homes (e.g., Samson 1990), sumptuous goods (e.g., Plourde 2009), grand monuments (e.g., Trigger 1990), and coercive hegemony (e.g., Rees 1997). As is the case with surplus, these domains tend to eclipse more subtle realms, along with underlying drivers. In the Southwest, both ethnographic and archaeological research has shown that while ostentatious displays of wealth are discouraged, there are, nevertheless, strong inequalities, often based on secrecy and differential access to ritual knowledge and practice (e.g., Brandt 1980, 1994; Ortiz 1969; Parsons 1939; Ware 2014).

The Mimbres case again offers a valuable opportunity to examine more subtle and non-ostentatious differences that may constitute foundations of social inequality. To the extent that archaeologists have found evidence of inequality in Mimbres deposits, differences have been subtle, suggestive of asymmetric access to ritual rather than wealth, and documented at only a few sites (e.g., Clayton 2006, Creel 2006; Gilman 1990, 2006; Gilman et al. 2014; Shafer 2010). One component of this research, presented in Chapter 5, systematically considers differences in access to ritual based on several lines of evidence, including ceremonial architecture, ritual paraphernalia, and vessels that depict ceremonies. Analyses suggest that access to ritual knowledge and practice may have been the strongest and most persistent basis of inequality within Mimbres society.

IV: Inequality can appear in multiple domains, either simultaneously or in sequence

Archaeological research on social inequality is frequently focused on a single domain, such as wealth (e.g., Shennan 2011), ethnicity (e.g., Gabbert 2004), or political power (e.g., Cobb 1993), and such studies provide important insights into those domains. However, inequality almost always exists in several contemporaneous domains, such as wealth, ethnicity, *and* political power. There is ample ethnographic evidence in the Southwest of such multiplicity. At Zuni, for example, the *Pekwin*, or Sun Chief, watched sunrises and sunsets throughout the year, keeping track of time, setting the ritual calendar, and determining when crops were planted and harvested (Stevenson 1904:108). The *Pekwin* could also climb atop buildings and issue orders to others, commanding them to "till the soil" on behalf of certain ritual officers (Wittfogel and Goldfrank 1943:29). The *Pekwin* was selected exclusively from the *Pichikwe*, or Dogwood Clan, membership in which was kin-based (Kroeber 1917: 159; Parsons 1917:252). At the same time, the irrigation-fed farmlands at Zuni – more reliable and productive – were controlled by select clans (including the *Pichikwe*) and influential households, leaving others to depend entirely on rainfall (see Cushing 1896, 1920). These examples demonstrate simultaneous inequality in at least five separate domains: social mobility, ritual authority, political power, labor, and productive resources, all tied to kinship.

Consideration of multiple, simultaneous domains is a fundamental organizing principle of this research. The chapters that follow are focused on five possible domains of inequality: antecedence (Chapter 3), productive resources (Chapter 4), ritual knowledge and practice (Chapter 5), nonlocal objects, materials, and styles (Chapter 6), and wealth (Chapter 7). Although the analyses are presented separately, emphasis is on the intersection of these domains. Results indicate that inequality in each of the five domains was present throughout much, if not all, of the Mimbres sequence, although its advantages shifted regularly between groups and places. The most persistent inequalities – spatially, temporally, and socially – were those relating to ritual.

V: Inequality can engender multiple, potentially dispersed advantages

Even in cases where researchers acknowledge (explicitly or implicitly) that archaeological inequality existed in multiple domains, such studies are often constrained to societies wherein a single social class either benefited from differences in each recognized domain (e.g. Kirch and O'Day 2003) or were assumed to have (e.g., LeCount 2001:947).

Multiple domains can (but do not necessarily) form the basis of heterarchy (Crumley 1995; Rogers 1995; Spencer 1994). Drawing on this insight, some archaeologists are working to broaden their definition of familiar categories (e.g., "wealth" [Bowles et al., 2010]), reconcile seemingly-contradictory elements of past societies (e.g., Rautman 1998), and understand the ways in which different domains intersect and compare across group boundaries (e.g., Drennan et al. 2010).

As noted above, members of the Zuni *Pichikwe* Clan enjoyed benefits derived from asymmetric access to social mobility, political power, ritual authority, productive resources, and potentially labor. Alone, these observations could lead to a premature conclusion that the *Pichikwe* were a *de facto* elite class, more powerful than other elements of Zuni society. It is important to understand, therefore, that not all advantages in Zuni society were held by *Pichikwe* members. For example, there were 13 ritual fraternities (medicine societies) at Zuni which primarily controlled healing rituals and displays of magic (Kroeber 1917:153, 162). These medicine societies held tremendous moral authority within Zuni society and were intimately connected to aspects of security, communication, and warfare. Each society was led by a *Kómosona* and guarded by a *Kopitlashiwanni* warrior (Parsons 1917:162), both of whom were selected exclusively from the *Showit Anota*, or Deer Clan (Kroeber 1917:163). The *Kopitlashiwanni* were drawn from the *Pitlashiwanni*, or Bow Priesthood, who served "as messengers, as carriers and enforcers of orders from the *ashiwanni* (rain priests)" (Parsons 1923:136 n. 3). The *Pitlashiwanni* were also the only ones who knew certain songs necessary for medicine society ceremonies (Parsons 1923:144 n. 1). Thus, the *Pichikwe* were most influential in political and economic matters, while the *Showit Anota* held sway in the arenas of curing and magic, and the *Pitlashiwanni* were needed for their martial abilities and ritual knowledge. Such cross-cutting and complementary relationships were common among Southwestern groups and served to counterbalance differences in power (Eggan 1950; Parsons 1939; Ware 2014).

In many archaeological settings, it is notoriously difficult to associate evidence of inequality in multiple domains with a particular group or groups. Was one lineage responsible for a settlement's largest home, richest burials, biggest temple, and best-watered fields, or were these advantages spread throughout the community? Because Mimbres ancestors were often buried under house floors, connections between individuals, households, and larger socio-spatial scales can be confidently inferred. As shown in the chapters to follow, different Mimbres groups frequently held advantages in separate domains (e.g., antecedence, exotica) as well as in different elements of the same domain (e.g., ritual space, ritual paraphernalia). Such differences suggests competition between groups, both within and across domains.

VI: Inequality exists and operates at multiple scales

Studies of inequality frequently focus on a particular temporal, spatial, and social scale. For example, Hirth (2009) examined diversification in household-scale craft production in order to advance our understanding of economic inequality in prehispanic Mesoamerica. Prentiss and colleagues (2008) examined inter-household differences at one site in British Columbia, studying the association between settlement expansion and increasing socio-political complexity. Price and Bar-Yosef (2010) combined data from numerous sites across the Levant to address the contemporaneous appearance of inequality and agriculture during the Neolithic Age. Taken together, these and other studies demonstrate that inequality can be present at – and may cross-cut – multiple scales of time, space, and social organization. Returning again to the Zuni example, it is apparent that various forms of inequality were situated within and across various socio-spatial scales, including the individual, household, sodality, clan, and settlement. Consideration of multiple scales is a second key organizing principle of this research. The analyses of the various domains that follow are designed and implemented at a number of social, spatial, and temporal scales. Results indicate that while inequality was ubiquitous throughout the Mimbres archaeological sequence, it was in constant transition, moving from one scale to another.

Organization

The remainder of the dissertation is divided into seven chapters, including a conclusion (Chapter 8). Chapter 2 provides a background for research, including both an overview of general theoretical approaches and a discussion of Hopi ethnography. In combination, the theory and ethnography provide the basis for identifying five domains of inequality. These, then, are analyzed in the five chapters that follow.

Chapter 3 provides background on the greater Mimbres region and the Mimbres cultural tradition. It also presents an overview of the seven Mimbres sites from which analytical data are drawn: Cameron Creek, Galaz, Harris Village, Mattocks, NAN Ranch, Swarts, and Wind Mountain. For each site, I identify households and loci with greater primacy or antecedence than others, based on when houses were built, whether they superimposed previous structures, whether they underwent remodeling, and the extent to which they doubled as cemeteries. This evidence of primacy and antecedence is then integrated with the analyses of other domains, presented in the subsequent chapters.

Chapter 4 is concerned with differential access to productive resources, using differences in architectural storage capacity to infer differences in access to food and, ultimately, productive resources. Chapter 5 focuses on differences in access to ritual knowledge and practice, drawing on the distribution of ritual paraphernalia and other goods in mortuary contexts, and on differences in the form, number, and size of ceremonial structures. Analyses in Chapter 6 are concerned with access to non-local items and styles, including artifacts, materials, and figurative iconography with Mesoamerican and Hohokam origins. The final analysis, detailed in Chapter 7, is concerned with evidence of material wealth in the form of jewelry and pottery. Each of the analyses are multi-dimensional in that they combine a series of synchronic, phase-specific comparisons into diachronic examinations at four socio-spatial scales: individual, household, residential locus, and village.

Contributions

This dissertation draws on and develops the six principles above through a series of analyses that consider multiple domains of inequality at multiple scales. It contributes to the archaeological and broader social science literature in four fundamental ways. First, it builds upon and enhances earlier efforts to investigate social inequality within the Mimbres tradition. Second, it provides a series of novel methodological tools. For example, Chapter 3 develops means for operationalizing the concept of antecedence. Methods for dating storage facilities and comparing storage capacity across time and space are developed in Chapter 4. Chapter 7 presents a procedure for quantifying and comparing burial assemblage wealth, inspired by McGuire’s (1992) grave lot value approach. Together, these and other methods provide innovate ways to undertake a richer and more nuanced approach to inequality, and are sure to be improved upon by future researchers. Finally, the dissertation research demonstrates that within any context, a richer – in fact, more accurate – understanding of inequality depends on the recognition and consideration of multiple domains, scales, social groups, and divergent interests.

Social inequality is an emergent property of evolving conditions and myriad components, each of which can vary independently of one another. The nature, scope, and degree of inequality cannot be characterized for an entire society (or even parts thereof). Rather, this work shows that research must explicitly search out, identify, and analyze nuanced differences at multiple scales, in a number of dimensions and domains, and over the course of substantial change.

CHAPTER 2: SOCIAL INEQUALITY

Understanding social inequality – defined by McGuire (1983:93) as "differential access to material and social resources" – is an important issue across the social sciences (e.g., Berreman and Zaretsky 1981; Grabb 2006; Pock et al. 1996; Stiglitz 2012; Wilkinson and Pickett 2009) and one that archaeology is well-suited to address (Kintigh et al. 2014:4; see also Tilly 2005:15). Archaeology operates at a variety of scales and can draw from diverse cultures. It can also access significant time depth, thus permitting the study of inequality's emergence, development, and persistence in varied contexts and at multiple scales (Brumfiel and Earle 1987; Carneiro 1981; Earle 1987; Flannery and Marcus 2012; Gregg 1991; Hayden and Gargett 1990; Peebles and Kus 1977; S. Plog 1989, 1995).

The value of archaeological methods to the study of social inequality has long been recognized, especially in the context of small-scale societies. Some of the earlier approaches to the study of social inequality have since been discarded entirely, most notably the neo-evolutionary paradigm, which held that human societies evolve from one stage to the next, each more complex than the last (Fried 1967; Sahlins 1958; Service 1962). Within this paradigm, social inequality was seen as an epiphenomenon of societal progression through ranked stages. This approach has since been rejected in anthropology (Feinman and Neitzel 1984; Hegmon 2003; Patterson 2003; Trigger 2003; see also Laufer 1918:90), and contemporary researchers acknowledge that societies follow independent trajectories based on local conditions, historical contingencies, and human decisions (e.g., Pauketat 2007; Yoffee 2005; Yoffee and Sherratt 1993).

Extensive ethnographic work suggests that some kind of social inequality is present in all human societies, regardless of their size or degree of social complexity (e.g., Flanagan 1989; Lee 1988; McGuire 1983; Marlowe 2004; McGuire and Netting 1982; Speth 1990). At minimum, such universal inequality involves differences in sex and gender, age, experience, and aptitude (e.g., Draper 1975; Draper and Hames 2000; Lee 1982). Many studies, including my own, are concerned with non-universal types of inequality (those not derived from differences in sex, gender, age, experience, and aptitude), and for the remainder of this dissertation, I use the term *inequality* in reference to non-universal types. Although some forms of inequality are likely omnipresent in human (and some non-human) societies, some societies clearly have greater inequality than others: more kinds, larger differences, and greater effects.

A key question – in the past and present – is how and why different kinds and degrees of inequality develop. In a recent major overview, Flannery and Marcus (2012:191) suggest inequality is the outcome of concerted efforts to change premises of social logic. Ware (2014:xi, 5) adds that social collectives can strategically channel the energy of ambitious individuals when social norms render individualistic displays (including aggrandizement) unacceptable.

Much of the anthropological research devoted to inequality focuses on its development in conjunction with transformations in social complexity. In that vein, various approaches concentrate on what generated ancient inequality, how it was manipulated once in play, and how it can be identified in the archaeological record. Many studies focus on singular catalysts, drivers, or domains of inequality, including agriculture (e.g., Price 1995), aggrandizement (e.g., Hayden 2011), surplus (e.g., Sahlins

1958), wealth (e.g., Bardhan et al. 2000), and coercion (e.g., Muller 1985). Such studies provide a solid foundation, upon which to build a more holistic and multi-dimensional understanding of the phenomenon.

Researchers now recognize that inequality is more nuanced than previously thought. Increasingly, it is viewed as a multi-dimensional phenomenon; every society experiences different and multiple types of inequality that operate at different scales, affecting both individuals and groups in a variety of ways. For example, Amartya Sen (1995) has argued that because inequality is a central component of human civilization, its mere presence is of minimal importance (see also Hayden 1990). Rather, he encourages social scientists to concentrate on identifying various kinds of inequality and determining which of these affect the capabilities of people. Under the broad heading of "wealth," Bowles and colleagues (2010) emphasize that inequality occurs in a number of realms, often simultaneously (see also Aldenderfer 1993:9-10; Byrd 2005; Johnson 1982; Paynter 1989:383).

The present study combines recent theoretical insight with ethnographic information and archaeological evidence to better understand the emergence and development of social inequality among small-scale, agricultural societies. Because inequality can exist in multiple domains simultaneously (benefitting, disadvantaging, or not affecting various social units), I take a multi-dimensional approach, examining differences in various domains, how they develop in relation to one another, and how this development can affect societies in whole and in part. I pay particular attention to the more subtle domains of inequality that can exist in the absence of surplus, material wealth, ostentation, and coercion.

My analyses are designed to examine the distribution of inequalities across social units. In other words, I am concerned not just with the presence of inequalities, but the degree to which they are either concentrated or spread out across multiple elements of society.

This chapter is divided into three parts. The first is concerned with the general concept of social inequality, how it relates to other social phenomena, and the approaches I take to its study. Second, I explain why the U.S. Southwest offers an ideal archaeological setting in which to examine the subtle nuances of past social inequalities. As an example, I present ethnographic and ethnohistoric data pertaining to Hopi society, showing several ways in which Hopi inequalities emerged, developed, and expanded in a number of domains. Finally, drawing from theoretical and ethnographic data, I identify five domains of inequality for study.

Part I: Approaches to the Study of Social Inequality

Here, I discuss key aspects of inequality, focusing on the ways in which contemporary theoretical approaches can offer new insight. I discuss the ways in which inequality relates to other key concepts such as power and hierarchy. I address domains of inequality, meaning those realms (tangible and otherwise) in which inequality resides. These are the categories of "material and social resources" to which McGuire (1983:93) referred. There are no universally-recognized domains of inequality but, as Flannery and Marcus (2012:xi) recently put it, "out of the hundreds of logical premises that could be used to justify inequality, a handful worked so well that dozens of unrelated societies came up with them."

Although my approach in addressing inequality is relevant to the many studies of power (e.g., Costin and Earle 1989; Hayden 1995; Price and Feinman 2010; Roth and Baustian 2015; Schortman and Urban 2011), power is not something I directly address. Giddens defined power as "the capability of an actor to intervene in ... events so as to alter their course," or an agent's "transformative capacity" (1976:11, 110-118). As a measure of potential, therefore, power itself is invisible in the present, much less the distant past. In contrast, many forms of inequality exist as empirical and quantifiable differences. Not all differences are socially meaningful, but their material presence lends itself well to archaeological study. Thus, while my results are potentially amenable to inferences about power, I avoid such inferences, focusing instead on differences that are indicative of inequality, the domains in which they emerged, the extent to which they developed, and their distribution across multiple dimensions (social, spatial, and temporal).

The intersection of inequality and power is related to several additional concepts, and its study can contribute to the delineation and understanding of social transformation. For example, the societal recognition of asymmetric power amounts to social differentiation, and the legitimization of social differentiation results in social hierarchy. Social stratification occurs when hierarchy is institutionalized and replicated. It is important to note that inequality does not necessarily engender differences in status or power. We cannot assume, *a priori*, that inequality benefits some and harms others. However, inequality can (and frequently does) provide the opportunity for power differentials to develop. Thus, my reference to the advantages of inequality pertain not necessarily to realized potential, but rather the opportunity to capitalize on extant differences.

Domains and Degrees of Difference. While I favor McGuire's (1983:93) succinct definition of inequality as "differential access to material and social resources," I would add (as McGuire indirectly suggests) that not all resources matter in this regard, and that not all degrees of difference are socially significant. The differences that do matter are situationally defined and limited to specific domains. By domains, I mean resource realms with finite limits, opportunity for control, and potential for competition. Air, for example, is an essential resource, yet seemingly inexhaustible and unmanageable, thus eliminating it as a viable arena of inequality. Water, on the other hand, is no less critical, yet often in limited supply, fairly easy to control, and thus its management is a longstanding contributor to inequality (e.g., Truelove 2011).

For a resource to become a legitimate domain of inequality, two or more groups must agree – implicitly or explicitly – that differential access constitutes meaningful asymmetry. In Western society, for example, some people have more money or a better education than others. These are recognized as legitimate domains of inequality. Others might have more bottle caps or better table settings, differences that can, but are unlikely to, constitute or engender social inequality (though they may be material indicators of such inequality). What makes one thing a socially-meaningful domain of inequality and another not? One might think that their Flora Danica dinnerware sets them apart from everyone else, but everyone else does not necessarily agree. Education, however, is socially valued, whether accessible to particular individuals or not. By extension, most people agree that being disadvantaged in the domain of education is detrimental to their quality of life and future prospects, thus making education a socially recognized and legitimated domain of inequality.

Degrees of difference are also important considerations. In capitalist societies, monetary wealth is a clear domain of inequality (Collins 2012). If one person earns a million dollars a year and his neighbor lives in poverty, the discrepancy is clearly significant and constitutes inequality. However, if the annual incomes of two millionaires differ by five dollars, the variance is neither significant nor socially meaningful. Meaningful domains (and degrees) of inequality are neither static nor universal (see Flannery and Marcus 2012; Wiessner and Tumu 1998). Changing conditions – engineered, natural, or stochastic – often prompt changes in which resources intersect with domains of inequality. In the United States, for example, ice is generally accessible, relatively cheap, and does not normally contribute to inequality. In 1996, however, Hurricane Fran cut off electricity to millions of people in North Carolina. Without refrigeration, ice was used to preserve food and medicine – thus engaging the domains of sustenance and public health – but quickly became scarce. Capitalizing on this crisis, profiteers trucked ice into the disaster zone and sold it for far more than what they had paid (Munger 2007). Under the circumstances, access to ice went from trivial to critical overnight. Once electricity was restored, ice returned to having little or no effect on inequality. Thus, access to some resources – ice in this example – can constitute or contribute to legitimate inequality in some circumstances and scales but not others.

Social inequality can occur in multiple domains simultaneously (Aldenderfer 1993:9-10; Bowles et al. 2010; Byrd 2005; Johnson 1982; Paynter 1989:383). For example, inequalities within Aztec society included (but were not limited to) political, military, economic, and religious domains, dominated by the *tlatoani*, *cuachicqueh*, *pochteca*, and *tlamacazqui* classes, respectively (Brumfiel 1998). Division of inequality in this manner can be by design; some societies install systems of checks and balances to protect against abuses of power (Flannery and Marcus 2012:215; Ware 2014). In other cases, inequality in one domain can engender inequality in others (Aldenderfer 1993; Boehm 1993), such as converting surplus food into wealth.

Social inequality is multi-scalar, yet many studies have been limited to a single scale (e.g. Beall et al. 2014; Hallegatte 2015; Peters 2013; Weiß 2005). Research designs are often focused at the societal scale, either considering one society diachronically (e.g., Mitra and Knottnerus 2004), or comparing multiple societies synchronically (e.g., Jackson and Jonsson 2013). Some approaches examine intra-societal groups, but are concerned primarily with major class divisions, such as elites and commoners (e.g., Dow and Reed 2013). Other focal scales include the settlement, lineage, household, and even individual. Because inequality is dynamic, multi-dimensional, and multi-scalar, however, it is likely to affect different intra-societal groups in different ways, at different times, and to varying degrees (Drennan et al. 2010; Hayden 1990; Sen 1995). Studies focused at just one social scale provide a rich view of inequality at that scale, but can obscure important variability. Within a given society, some forms of inequality may increase or decrease over time, but we cannot assume that all did. Members of an elite class may benefit from inequality in many domains, but they are unlikely to be advantaged in every domain. Through a multi-scalar approach, anthropologists can capture a nuanced, holistic, and accurate view of inequality, including an understanding of its many catalysts and consequences (Aldenderfer 1993; McGuire and Saitta 1996; Rautman 1998). In the present study, I work toward such a comprehensive approach, considering a broad range of social scales and how they intersect with multiple, more subtle domains.

Archaeologists are often able to recognize difference. Some houses are bigger than others, some fields have better access to water, and some burials have more grave goods. However, it is notoriously difficult to associate particular strands of evidence with specific intra-societal groups. Were people from one particular group living in the largest houses, growing the most crops, and ultimately buried in the richest graves? Or were these differences – reflecting the advantages of inequality – spread across two or more groups? In a few rare cases, multiple strands of evidence pertaining to inequality are attributable to particular social units, thus allowing the archaeologist to answer these questions. Combined with adequate temporal resolution, researchers can go one step farther, examining the conditions under which new domains were introduced and changes in where their respective advantages resided. Without theoretical insight (based on cross-cultural data), however, such observations would be difficult to interpret. For this reason, I now explore some of the ways in which differences in inequality develop and can be manipulated. A familiarity with these processes is required in order to interpret changes documented in Chapters 4 through 7.

As noted earlier, it is not a foregone conclusion that some people will benefit from inequality or that others will be handicapped. However, inequality can be advantageous to some and unfavorable to others, an asymmetry that may coincide with marked social change (Flannery and Marcus 2012). When inequality benefits some and disadvantages others, beneficiaries can work to maintain or increase extant inequality.

They may also attempt to expand their advantages into other domains. At the same time, disadvantaged groups are unlikely to simply accept an inferior position. What Mills (2004) terms the "establishment and defeat of hierarchy" is an ongoing and dynamic process, and ethnographic data suggest that there are always active efforts to modify the *status quo* (Aldenderfer 1993; Boehm 1993; Kelly 1995:296-297; Lee 1969, 1979; Ware 2014). Such efforts can result in dramatic shifts between fairly egalitarian circumstances and those characterized by distinct inequality (e.g., Leach 1954). Groups disadvantaged or harmed by inequality that hope to mitigate or reverse its effects have several available strategies. The first is to compete within the extant domain that has thus far disadvantaged them. For example, the Bemba tribe of Zambia was composed of 30 matrilineal clans, which had migrated from the Luba region and were hierarchically ranked according to their order of arrival. Bemba clan ranking disadvantaged a significant portion of the population, prompting competition in the domain of antecedence. (Again, I define antecedence as socially-recognized ranking, based on the order in which groups arrived, and stayed, in a given area. The concept, which plays an important role in the present study, is discussed more fully below). Periodically, challengers sought to rewrite Bemba history by altering genealogical details. The strategy worked on occasion, resulting in the advantages of inequality shifting from one clan to another (Godelier 1981; Richards 1940, 1995). A similar strategy was documented among the Manambu of New Guinea, where one man had political ambitions but no legitimate route to authority because he belonged to a sub-clan of low-status. Circumventing the disadvantages of his birth, the man suddenly claimed to have uncovered evidence of three previously-unknown ancestors. Based on his reformulated genealogy, he argued that his sub-clan should actually have been a clan in its own right, and a high-ranking one no less. The plan coincided with significant population growth within the man's sub-clan, resulting in widespread support. Ultimately, the strategy worked and the man's sub-clan was transformed into a large, high-status clan (Harrison 1990).

In the Bemba and Manambu examples, inequality was not reduced or eliminated. Rather, the competitive efforts of challengers succeeded in redirecting the advantages of inequality from one group to another (Harrison 1985; Juillerat and Harrison 1990). Such redirection is not atypical, historically (Flannery and Marcus 2012), and should be archaeologically visible. Less frequently, competition within a domain can reduce inequality. In the U.S. Southwest, for example, Ortiz (1969) described social stratification within Tewa society. Intra-societal groups were ranked according to the order in which they were created, per the Tewa emergence myth. This form of ranking is similar to that of antecedence, but on a cosmological scale. Tewa rankings led to inequality in other domains, such as access to ritual knowledge. While the general premise was accepted widely among the Tewa, the actual order of creation was perpetually disputed. According to Ortiz (1969:83-84),

> "…members of the Summer moiety almost always say the Summer chief and the *Kossa* [warm clowns] were "made" before the Winter chief and the *Kwirana* [cold clowns], respectively. The reverse is, of course, true of Winter informants who relate the myth of origin … [and] … it is possible to predict with remarkable accuracy the moiety membership of a Tewa informant by the way he relates myths."

In contrast to the Bemba example of antecedence, benefits derived from Tewa creation order did not swing unpredictably from one group to another. Rather, the benefits and disadvantages of inequality were mitigated in Tewa society by a moiety system. Each moiety enjoyed the advantages of creation-based inequality during one half of the year (Ortiz 1969:82). Though arguably more subtle, this too could be archaeologically visible. Fowles (2005), for example, has offered archaeological evidence of moiety development at the ancestral Tiwa site of T'aitöna, and a similar study by Bernhart and Ortman (2013) addresses prehispanic moieties in the ancestral Tewa world (see also Ware 2014).

Whereas Bemba ranking was based on order of arrival, and Tewa ranking was based on order of creation, generative inequality among the Tikopia of Polynesia was based on the number of ancestors a clan could recite (Firth 1936, 1959, 1961). In each of the four examples – Bemba, Manambu, Tewa, and Tikopia – moral authority was reckoned by, and recognized because of, differences in connections between ancestors and their living descendants. Bioarchaeological evidence notwithstanding (e.g., DNA), it is difficult to demonstrate inter-generational links between archaeological groups; difficult, but not impossible.

Another option for those disadvantaged by inequality is to contest the legitimacy of whatever domain has become their undoing. This approach often involves the introduction of a new domain, offered as a more legitimate option. Consider, for example, Teslin society in British Columbia. Traditionally, social inequality among the Teslin was based in large part on one's membership in ranked clans. The effects of inequality included differential access to hunting and fishing territories, ceremonial privileges, and status. Some members of high-ranking clans even had slaves who came from low-ranking clans (McClellan 1953). The Teslin were highly mobile and their hereditary system of inequality was, like that of the Tewa (Ortiz 1969), based on cosmological autochthony (McClellan 1953). In the early nineteenth century, the Teslin migrated inland, toward the Yukon headwaters. Some clans, traditionally disadvantaged by the autochthony-based system of inequality, developed a strategy to contest authority. They denied the legitimacy of the traditional basis of inequality and offered instead a new measure: degree of relatedness to Tlingit trade partners on the coast. Low-status Teslin clans claimed descent from the daughters of powerful Tlingit leaders, thereby laying claim to renowned Tlingit crests, songs, rituals, and privileges. Rather than competing within the domain of cosmological autochthony, as the Tewa moieties had done, the Teslin subaltern established an entirely new domain of inequality (McClellan 1953, 1981). Like the other examples, this new primary domain relied on specific relationships between the living and the dead. Material changes that accompanied this transition, such as replacing traditional Teslin crests with Tlingit crests, are likely to be preserved archaeologically, though potentially misinterpreted as trade goods or the presence of a nonlocal enclave.

As exemplified by the Teslin, marginalized groups can introduce new domains of inequality that undermine the status quo. In the U.S. Southwest, for example, the fourteenth century was a time of large-scale migration, multicultural aggregation, and increasing conflict (e.g., Cameron 1995; LeBlanc 1999; Rice and LeBlanc 2001). Adams (1991) has argued that when immigrant parties joined extant communities, the need for social integration led to the development or efflorescence of Katsina ceremonialism (see also Plog and Solometo 1997; Schaafsma and Schaafsma 1974; Ware 2014). This crisis of integration likely involved disparate attitudes toward the importance, and even legitimacy, of antecedence. In contrast to the principle of antecedence, Katsina ceremonialism emphasizes community-wide equality and resource redistribution. What is more, Katsina ceremonialism transforms specific projenitors into generalized ancestors (*Katsinom*), deemphasizing lineages and undermining the principle of antecedence.

Above, I have provided a few examples of how the benefits of inequality can change from one group to another, and how domains of inequality can emerge (and potentially disappear). These examples are all drawn from or heavily informed by ethnographic research. In each example, archaeological signatures are predictable. To better understand such processes archaeologically, researchers are tasked with recognizing the material evidence of unequal social relations. Archaeological research on inequality often focuses on overt material evidence that approximates what we associate with modern inequality: material excess, prestige goods, costly homes, wealthy burials, coercion, and public displays. Hayden (1998:18-19) suggested that much of this is driven by “aggrandizing personalities,” individuals who set themselves apart as ambitious, aggressive, manipulative, enterprising, materialistic, and selfish. They “have, in effect, an inner motor, an inner drive to increase their own standard of living” (Hayden 1998:18-19), especially in comparison to (and often at the expense of) others. Ostentatious displays provide valuable avenues for study, but they do not provide a complete picture. Social inequality can involve far more subtle differences, at times leaving little or no archaeological signature (Landtman 1909; Price and Feinman 1995, 2010). Among the Chambri of Papua New Guinea, for instance, individuals have disparate access to physical security, depending in part on the possession of a totemic name (Errington and Gewertz 1987:367; cf. Weiner 1987). Working in India, Dua (1985) described the effects of unequal access to information because of linguistic barriers. Multi-dimensional approaches that consider both overt and subtle evidence can help to paint a more detailed and comprehensive picture of inequality.

Many researchers have noted that social inequality often coincides with the advent of food surplus and self-aggrandizement (e.g., Ames 1981, 1985; Angle 1986; Friedman and Rowlands 1977; Hayden 1995, 1998; Price 1995; Price and Bar-Yosef 2010, 2011; Price and Brown 1985; Sahlins 1963; Sassaman 2004; Testart et al. 1982; Watanabe 1983; see also Carneiro 1981; Childe 1954; Hayden 2001; Johnson 1982; Kosse 1990). This insight is applicable to many cases of social inequality and has enormous explanatory potential, but it does not apply to every situation. There are places where, and times when, food surplus is unobtainable and ostentation unacceptable, yet inequality is evident. A prime example is within the prehispanic U.S. Southwest (Brandt 1994; Levy 1992; Ware 2014; Whitely 1988, 1998).

Part II: Inequality in the U.S. Southwest

The U.S. Southwest (Figure 2.1) provides an ideal place to study the development of social inequality in archaeological contexts. The region has excellent preservation and benefits from over a century of ethnographic research, ethnohistoric records, and the continued presence of descendant communities and collaborators. This coincides with social and environmental factors that are rare elsewhere. Namely, agricultural surplus is largely unobtainable here, and self-aggrandizement and coercion are generally unacceptable. The coalescence of these qualities provides a rare opportunity, wherein archaeologists can study inequality that developed in the absence of everything once thought to have been requisite.

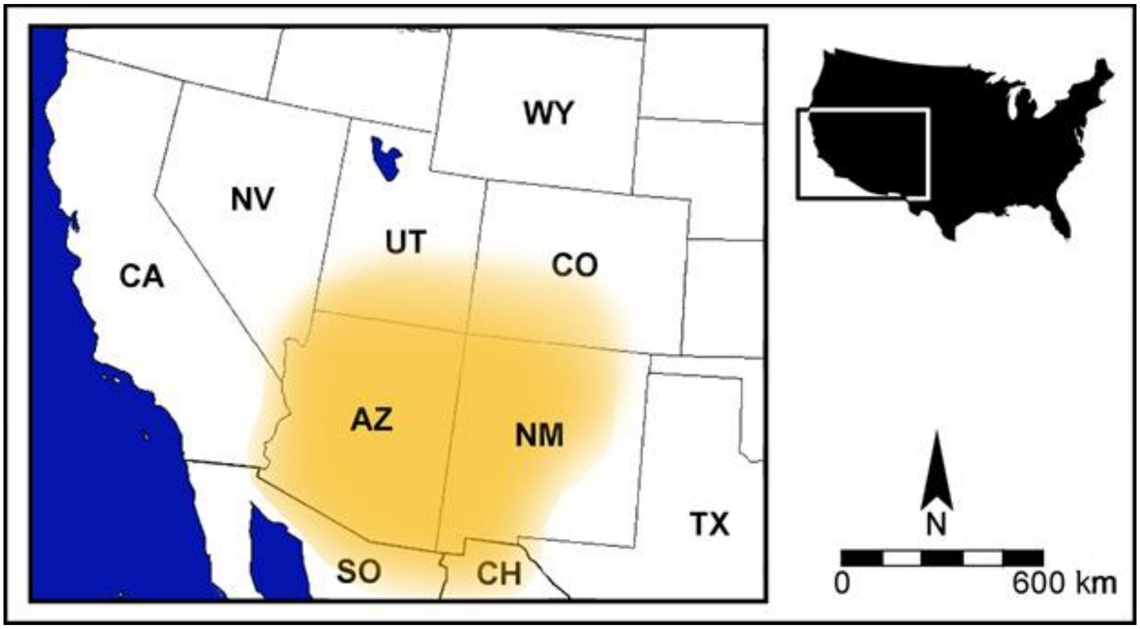

Figure 2.1. The greater U.S. Southwest, highlighted in orange

In studying the Hopi peoples of northeastern Arizona, Levy (1992) came to understand inequality in the absence of food surplus and ostentation. The Hopi are historically and currently a conglomerate society who live atop desert mesas and dry farm in the arroyos and sand dunes below (E. Beaglehole 1937; Courlander 1970, 1982; Eggan 1950; Hough 1915; Titiev 1944; Whiteley 1988, 1998). Levy (1992) showed that Hopi farmers could not produce surplus food, yet exhibited striking inequality nonetheless. He concluded that rather than taking advantage of surpluses, Hopi inequality functioned to lessen the impact of food shortages. In other words, no Hopi farmer could produce enough extra food to manipulate others. Rather, a select few were able to manipulate the social system in order to mitigate risk for themselves, sometimes at the expense of others. I return to the Hopi example below, in more detail.

Rather than food surplus and ostentation, subtle domains like access to ritual knowledge were used to differentiate people in the Native Southwest. Even before Levy's (1992) work, a number of ethnographic studies discussed inequality in Puebloan contexts (see Dozier 1956, 1970; Eggan 1950; La Farge 1937; Nequatewa 1936; Parsons 1939:562; Sando 1976). Ortiz (1969), for example, was clear that among Tewa-speaking groups, individuals were categorized as either Made People or Dry Food People (see also Curtis 1926; Laski 1959; Parsons 1929; Spinden 1933). Made People were set apart by having ritual knowledge, whereas Dry Food People had little or none. Ortiz also noted that amongst Made People, various sodalities were ranked according to the order in which they were created within the Tewa emergence myth. Brandt (1994) argued that Puebloan societies were socially stratified, with inequality based upon (and perpetuated through) differential access to ritual knowledge (see also Potter and Perry 2000).

No indigenous group in the U.S. Southwest has been studied more by ethnographers than the Hopi. Without doubt, colonization changed Hopi lifeways, yet there is ample evidence to suggest cultural continuity on a scale that makes cautious ethnographic analogy a powerful tool for the archaeologist (Bernardini 2005a, 2005b; Dongoske et al. 1997; Spielmann 2005; Ware 2014:7-15). In working to understand how social inequality developed in the absence of surplus and the discouragement of self-aggrandizement, I have found ethnographic descriptions of Hopi social organization to be particularly useful. A review of Hopi ethnographic descriptions presents several guiding principles that are likely to have been present during the distant past. Foremost is the preeminence of antecedence. As Flannery and Marcus (2012) recently put it, the claim of "we were here first" is an almost universally-accepted legitimizer of inequality, and it is certainly a prime legitimizer of inequality in the U.S. Southwest, recorded not only at Hopi but at Zuni (Bunzel 1932), Acoma (White 1932), Hano (Dozier 1966b), Ohkay Owingeh (Ortiz 1969), and several other Eastern Pueblo communities (Ware 2014).

The emic recognition of differential antecedence has led to inequality in other Hopi domains as well. This occurs in several ways. Those benefiting from antecedence can leverage their advantage in order to add domains. Antecedent Hopi clans, for example, have argued that their own proprietary ceremonies are absolutely necessary, thus expanding their advantage into the domain of ritual knowledge (Titiev 1944:60). Alternately, groups that lack antecedence can engage or introduce new domains. For example, clans that arrived late at Hopi have promoted and dominated the Katsina movement, which undermines the importance of lineage (Parsons 1939:170-172). My examination of literature on Hopi social structure has led me to identify four additional domains of inequality that may have been employed in prehispanic Pueblo societies throughout the Southwest: access to (1) productive resources, (2) ritual knowledge and practice, (3) nonlocal objects and styles, and (4) material wealth.

What is today known as the Hopi Tribe is in fact a collection of groups that coalesced in northeastern Arizona late in prehispanic times (Bernardini 2012; Fewkes 1900; Lyons 2003). This is a semi-arid landscape, particularly susceptible to ecological change, where subsistence is heavily dependent on rainfall. As in most Native Southwestern societies, ostentation and coercion are discouraged at Hopi. Thus, Hopi social histories provide relevant insight into the emergence and development of inequality under conditions that prevent surplus and emphasize an egalitarian ethos, including domains that were likely present during prehispanic times and elsewhere in the Southwest. Five of these are discussed below, beginning with antecedence.

Hopi Antecedence

Hopi emergence and migration accounts have been recorded in several places (e.g., Ferguson and Loma'omvaya 1999; Fewkes 1900; Lyons 2003). The Hopi cosmos consists of vertically-stacked, sequentially-occupied, container-like worlds. The earliest Hopi ancestors originated in the first, primordial world, far below this one. In time, the first world became overcrowded and corrupt. Some people climbed upward, passing through a hole in the sky vault (sipapuni) and emerging into the second world. The process occurred again and again, until the proto-Hopi peoples arrived here, in the fourth world, and were greeted by the god Máasaw. Máasaw sent them in different directions as clans, entrusting them to care for the earth and telling them they would one day reunite at Tuuwanasavi, the center place (Courlander 1971; Ferguson et al. 1993:27; Fewkes 1907:566; Geertz 1984; Goldfrank 1948; Kuwanwisiwma 2002; Kuwanwisiwma and Ferguson 2004; Stephen 1929, 1936; Titiev 1948; Vecsey 1983). For generations, the clans wandered the earth, looking for Tuuwanasavi. They would periodically cross paths and at times travel together in what anthropologists refer to as phratries. Evidence suggests that prior to the formation of phratries, clans were cohesive, often endogamous, communities rather than hereditary units (Bernardini 2005a:27-30; Ferguson and

Loma'omvaya 1999:70; Fewkes 1897, 1900; see also Cutright-Smith 2007:67-68, 92). Eventually, the clans began to arrive at Tuuwanasavi, at the Hopi Mesas. Beginning probably in the thirteenth century, they coalesced there, a process that took place over the course of generations (Bernardini 2002, 2005a, 2005b, 2008, 2012; Colton and Colton 1931; Ferguson and Loma'omvaya 1999; Fewkes 1900; Lowie 1929; Lyons 2003; Michaelis 1981; Nequatewa 1936).

By most accounts, the Bear Clan was the first to arrive at Tuuwanasavi, and with this distinction came a certain status and attendant privileges; Malotki and colleagues (2002:222) have referred to them as the "Hopi elite." Only Bear Clan members could serve as a *kikmongwi* (village chief), and a *kikmongwi* could appoint lesser officials, avoid manual labor, and secure other benefits (Sekaquaptewa 1999; Talayesva 1942:14, 72, 436; Titiev 1944:64-65; Whiteley 1987:700-701). Talayesva's (1942:148-149) description of one individual shows that clan benefits were not limited to the *kikmongwi* alone: "[He] was an influential man *because he was of the Bear Clan* and his uncle was Chief" (emphasis added). This system of inequality was based on the principle of antecedence, which is to say that members of the Bear Clan enjoyed unequal access to status and power because their ancestors were the first to arrive at Tuuwanasavi. The same antecedence-based logic applied to other clans, dictated by their order of arrival (Courlander 1971:38-39, 78-81; Eggan 1950:64, 2007:178; Fewkes 1900:585; Goldfrank 1948:246-247, 252; Nequatewa 1936:Chapter VI; Sekaquaptewa 1999; Talayesva 1942:14, 434-436; Titiev 1944:79, 79 n. 1; Voth 1905:24; Whiteley 1985:368).

As successive clans arrived at Tuuwanasavi, they had to demonstrate their usefulness to the extant community before they were allowed stay (Eggan 1950:64;

Fewkes 1900:585; Voth 1905:24; Whiteley 1985:368). If they arrived during a time of conflict, they might agree to settle along a perimeter and act as advanced guards (Bernardini 2005a; Cameron 2013:226; Dozier 1956:176). If their arrival coincided with drought, the efficacy of their rain-making ceremonies might win their acceptance. If allowed to stay, each arriving clan generally enjoyed lower status than the last, but higher than the next (Courlander 1971:38-39, 78-81; Eggan 1950:64, 2007:178; Fewkes 1900:585; Goldfrank 1948:246-247, 252; Nequatewa 1936:Chapter VI; Sekaquaptewa 1999; Talayesva 1942:14, 434-436; Titiev 1944:79, 79 n. 1; Voth 1905:24; Whiteley 1985:368). Their status, in turn, dictated which political offices they could hold, the persons they could marry, the sodalities they could join, and the land they could farm. Schlegel (1992:389) described Hopi late-comers as "disgruntled secondary lineages" and "lower status clans."

The demographic and conceptual nature of ancestral Hopi clans was dynamic. If a clan was threatened by extinction, its members could be adopted into other clans, taking with them their original clan's history and proprietary rituals (P. Beaglehole 1935:46-47, 50, 52; Bernardini 2005a:27, 37; Fewkes 1900:590-591; Forde 1931:374, Table 3; Glowacka 1998:388; Nagata 1970:233; Titiev 1944; Whiteley 1988:180). In this way, genetic lineages came and went, but clans remained fairly resilient. As groups gathered at Tuuwanasavi and a proto-tribal "Hopi" identity began to develop, clans were re-conceptualized, transforming from migrant communities to exogamous meta-lineages (see Bernardini 2008; Colton 1960; Colton and Colton 1931; Fewkes 1900, 1901; Eggan 1950; Hodge 1912; Michaelis 198; Nequatewa 1936; Ragsdale 1987:387; Titiev 1944, 1967). In this sense, Hopi clans are consistent with Lévi-Strauss' concept of *sociétés á maison* or "house-based societies" (1982, 1987).

Working among the Kwakwaka'wakw of coastal British Columbia, Lévi-Strauss found that inheritance was determined less by strict genealogy than by affiliation with particular greathouses. According to Lévi-Strauss (1982:174), the Kwakwaka'wakw "house" was "a corporate body holding an estate made up of both material and immaterial wealth which perpetuates itself through the transmission of its name, its goods, and its titles down a real or imaginary line." As Beck (2007:5) wrote, "houses are dynamic structures with governing principles that are subject to manipulation through time." This flexibility, says Mills (2015:254), "allows social formulations that are based on both descent and affinity." Furthermore, in Lévi-Strauss' model, individuals could become attached to such houses through service, allegiance, or other integrative approaches. Thus, in both concept and practice, houses are social chains that stretch across generations; fictive kin groups that expand the concept and scope of lineages, as needed, to ensure the transmission of inequalities (and advantages therein) through time. Hereafter, I italicize *house* to distinguish the term (*á la* Lévi-Strauss) from common use of the word.

As *houses*, Hopi clans were able to transfer holdings – productive resources, ritual knowledge, and social position – across generations, using a flexible reckoning of descent. This flexibility would greatly enhance the odds of social continuity in a volatile and precarious landscape. The concept of lineage was expanded, as needed, to achieve persistence, retain the extant advantages of inequality, and work toward securing additional benefits. This is not to say, however, that claims of antecedence went unchallenged. Next, I briefly discuss three ethnographic observations that suggest competition within the domain.

Each Hopi clan is considered to be either part of the Motisinom ("First People") or Núutungqwsinom ("The Later Clans") (see Anyon 1999:47-48; Bernardini 2005a, 2012; Dongoske et al. 1997:603; Ferguson and Schachner 2003:63; Ferguson and Lomaomvaya 1999:69). Assignment is based on both the clan's arrival order and where they lived prior to their arrival. Given the parenthesized translations, one might assume that the Motisinom comprise high-ranking clans that arrived first at the Hopi Mesas. This, however, is not the case. The Motisinom instead includes relatively low-status clans that arrived late at Tuuwanasavi. This apparently-contradictory ranking has to do with ancestral emergence and travel. That is, the latest *sipapuni*, connecting the third and fourth worlds, is located near the confluence of the Colorado and Little Colorado Rivers. The Motisinom clans never strayed far from the *sipapuni* after their emergence. Although they did not arrive first at Tuuwanasavi proper, they had been living on the Colorado Plateau longer than anyone else (see Kuwanwisiwma 2004). For this reason, they call themselves the First People and claim antecedence. The Núutungqwsinom have dismissed the argument, countering that while others may have been living nearby, it is they, the Núutungqwsinom, who settled at Tuuwanasavi first.

Courlander (1971:38-39) described another example of Hopi competition within the domain of antecedence. According to his narrative, the Fire Clan was the first group to climb into the fourth world from the third. During their migration, the Fire Clan subdivided; half went to the northern Rio Grande and half went to Tuuwanasavi. Upon arrival, the latter half asked the Bear Clan for permission to settle, but also argued that they should take a leadership position because of their primacy in the fourth world. The Bear Clan acknowledged that the new arrivals had been in the fourth world longest, but countered that they did not have antecedence at Tuuwanasavi and were thus not entitled to any socio-political or moral authority.

At the end of the nineteenth century, Fewkes (1900) gathered eight traditional accounts of the order in which phratries (and their constituent clans) arrived at Hopi. Seven of the eight accounts were in total agreement as to which phratries arrived first and second. The eighth account, received from a man named Wikyatiwa, differed. According to Wikyatiwa, the Snake Clan came to Tuuwanasavi before the Bear Clan and thus claimed greater antecedence. Fewkes noted that Wikyatiwa was himself a member of the Snake Clan. Such disagreements over matters of antecedence may reflect internal socio-political maneuvering to rewrite historical narratives, such as those documented elsewhere by Flannery and Marcus (2012). If Wikyatiwa's phratry was able to convince enough Hopis that they arrived at Tuuwanasavi first, they could potentially usurp power from the Bear Clan's phratry.

In each of the three examples – Motisinom/Núutungqwsinom, Fire Clan/Bear Clan, and Snake Clan phratry/Bear Clan phratry – all involved parties had accepted antecedence as a legitimate pathway to inequality. They agreed that antecedence engendered moral authority, and disagreed only on issues of spatial scale and temporal fact. The question was not just a matter of "Who got there first?", but of where, precisely, "there" was. A fourth example involves the Katsina movement, which does not recognize antecedence. Rather than emphasizing (or even acknowledging) relationships between individuals and particular ancestors, Katsina ceremonialism transforms the dead into generalized ancestors who are related to everyone equally. Within this framework, no one can justify inequality through reference to clan membership because clan membership is based on genealogical descent (i.e., relationships between particular ancestors and particular descendants).

Hopi Productive Resources

Hopi inequality includes differential access to food, and this access is directly related to antecedence. When the Bear Clan first arrived at Tuuwanasavi, they laid claim to the best farmlands, springs, and resource gathering areas (Qoyawayma 1964:41; Talayesva 1942:68).[2] As other immigrants arrived, they could choose only from productive resources not yet claimed. Thus, following each episode of immigration, the best available lands became increasingly poor. Over time, migrant clans were left with less-productive fields, less-reliable springs, and less-desirable resource gathering areas. Some received no land at all and were forced to share-crop or specialize in non-agricultural production and exchange (see Forde 1931:Table 1). Figures 2.2 and 2.3 provide examples of Hopi farmland distribution in the early twentieth century, and the vast majority of Hopi clans (n > 200) are not even represented. In good years, the first-comer, high-status clans at Hopi were in a position to produce and save more food. In bad years, they were less likely to suffer, but there would be more social pressure to share with those less fortunate. If things got so bad that the high-status clans were starving,

[2] Titiev (1944:61) noted that at the Hopi village of Oraibi, "the leader of the Bear clan is the Village chief and the theoretical owner of all the village lands, and all the other clans hold land only on condition of good behavior and the proper observation of ceremonies."

they could be sure that their low-status, resource-poor neighbors would be in no position to help. Thus, food storage emerges as the most logical strategy for earlier groups to mitigate the risk and effects of food shortage. Later groups, with less-reliable access to productive resources, are less likely to produce and store extra food. They are more likely to rely on the generosity of others (or the willingness of others to exchange food for goods or services), and thus remain invested in the traditional (i.e., pre-agricultural) principle of food redistribution (see Forde 1931; Hegmon 1996; Levy 1992).

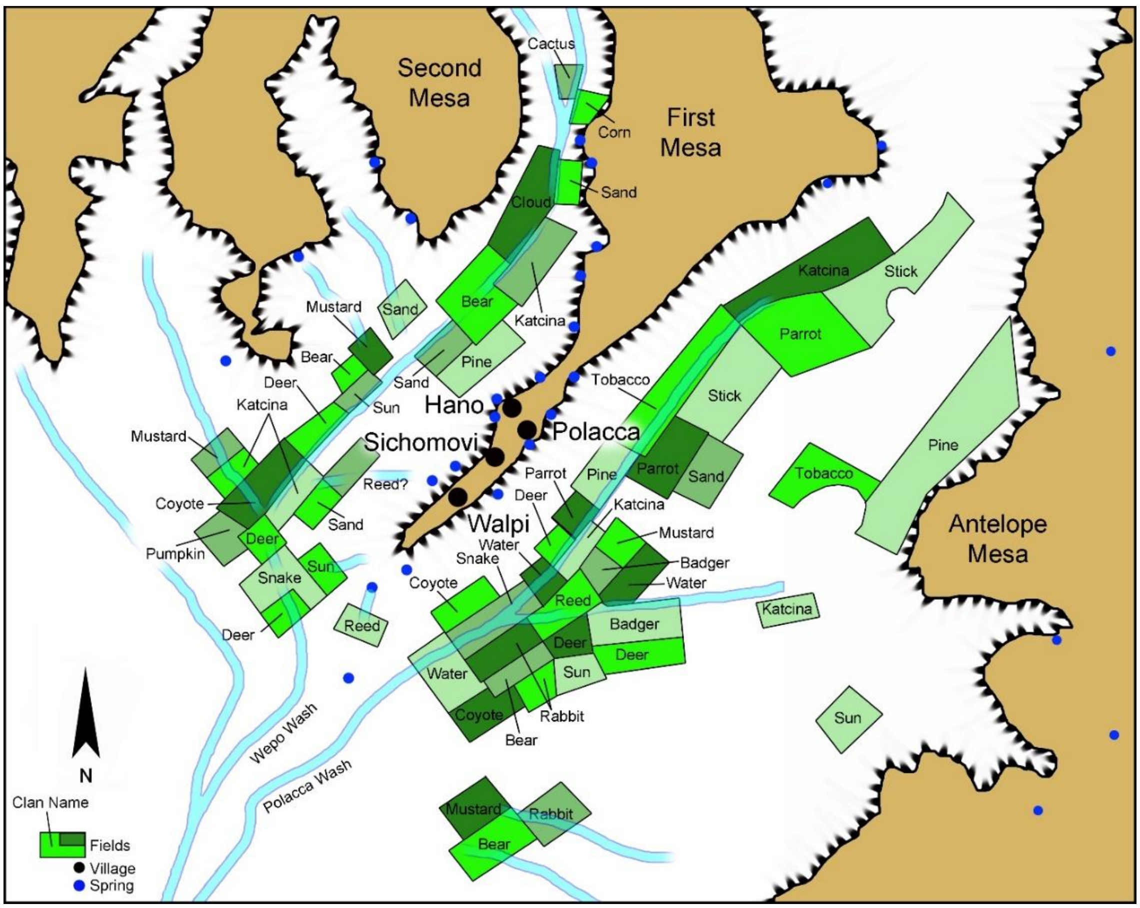

Figure 2.2. Farmland allocation below First and Second Mesa (after Forde 1931:Map 3). Shades of green emphasize boundaries but are not otherwise representational.

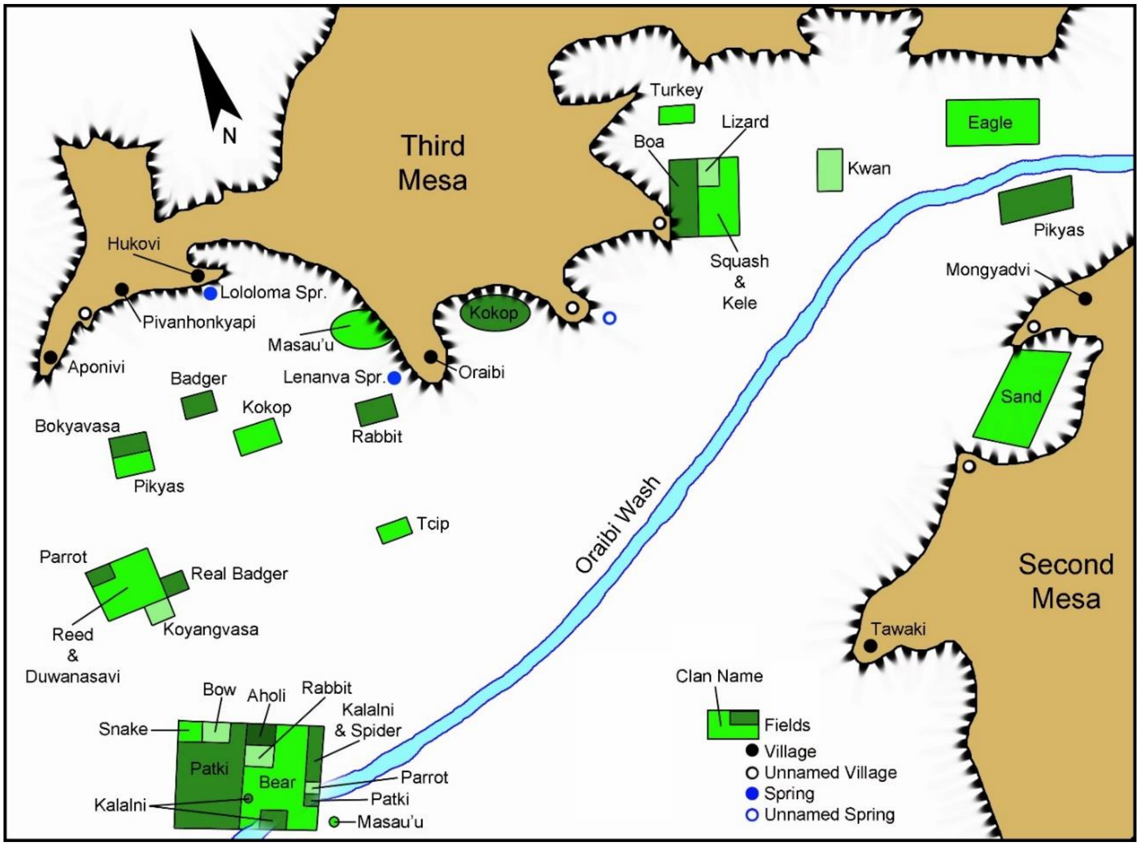

Figure 2.3. Farmland allocation below Third Mesa (after Titiev 1944:Figure 5). Shades of green emphasize boundaries but are not otherwise representational.

Differences in access to resources can be counteracted through food redistribution, which is one of the Katsina movement's core principles. During and between Katsina ceremonies, food is gathered from throughout the community and then shared, often with those who would otherwise go without (Eggan 1950; Levy 1992; McGuire 2011:29; Washburn 1980). Prior to the Hopi *Niman* ceremony, for example, excess food is collected by Katsina dancers, who present it during the ceremony to families in need. The food is not consumed at the ceremony, however, but rather taken home for later use (Potter 2000:476; see also Brandt 1994). By no coincidence, Katsina ceremonialism is dominated by men from the low-status Motisinom clans (Bernardini 2005a:177), leading Parsons (1939:112 n. *) to report that the "kachina dance cult is everywhere that of the “poor man” or commoner.” Stephen (1936:371) noted that the Hopi Katsina Father repeats, “I am poor, I am poor,” and that the Keres term *sishti* can mean either “any common person without ceremonial … affiliation” (Parsons 1939:112 n. *, after White 1935:167) or someone with in-depth knowledge of the Katsinom (White 1932:27)

Although rarely exercised, high-status clans at Hopi had an extreme option available in times of famine: expelling low-ranking clans from the community (Eggan 1966:125; Levy 1992:56; McGuire and Saitta 1996:212; Stanislawski 1973:384). Expulsion freed up productive resources for the higher status clans that remained, and reduced the need for and impact of food redistribution when things were at their worst. In other cases, high-status Hopi clans did not expel others, but either restricted sharing or seized property. For example, Tewa migrants who had been allowed to settle on First Mesa in exchange for martial services (Dozier 1956; Forde 1931:366), were denied the resources they needed in times of stress. The more antecedent Hopi “hoarded the food and gave [the Tewa] what they would have thrown to the dogs” (Dozier 1956:177). Alexander Stephen (in V. Mindeleff 1891:37) reported also that Hopis from Walpi once “stole” farmlands that had been given to the Hopi-Tewa earlier, at the time of their arrival (see also Forde 1931:366-377).

Hopi Ritual Knowledge and Practice

Hierarchy within Puebloan societies, including Hopi, is often linked to differential access to ritual knowledge and practice (e.g., Brandt 1994; Levy 1992; Ortiz 1969).

Differences in this domain are, in turn, frequently tied directly to differences in antecedence (Ware 2014). At Hopi, men born into high-status, Núutungqwsinom clans can join ritual fraternities that are closed to lower-status individuals, and they are also far more likely to have ritual specialists as fathers or uncles (La Farge 1937:7; Talayesva 1942:62, 72, 296). These advantages provide more opportunities for ritual advancement, leadership, and specialization, along with the accompanying social prestige. As Richard Brandt (1954:23-24) stated, “members of the [Hopi] upper classes have prestige in the sense that the lower classes look up to them as ‘blue bloods’ associated with tribal leadership.” Most discussions of Hopi ritual inequality occur at the scale of clans, but ritual power within powerful clans was not distributed evenly. It was held by members of core lineages within the clan (Sheridan et al. 2015:25-27; Ware 2014; Whitely 1987:87, 700).

The relative importance of ritual knowledge at Hopi can be traced back to the migration of constituent clans. As ancestral clans arrived at Tuuwanasavi, they had to receive permission to remain. In some cases, arriving clans demonstrated their value through the perceived effects of proprietary ceremonies. Many ancestral Hopi clans owned at least one ceremony, some of which brought rain or snow. Others cured sickness or deterred evil. If an arriving group’s ceremony was both needed and effective, they might secure acceptance (Courlander 1971:39; Fowler 1977:8; Titiev 1944:61; Vecsey 1983:73, 1988:38). Because ceremonies and their effects had such value, it was imperative that they remain hidden from non-clan members, yet passed down from one generation to the next (Brandt 1980, 1994; Ware 2014). At the societal scale, some Hopi ceremonies were valued more than others (Parsons 1939:555, 565) and the gradation generally paralleled that of antecedence. If founding clans use ceremonial value as a currency for community membership, their own ceremonies must be valued above all others (for similar examples from other parts of the world, see Arima and Dewhirst 1990; Drucker 1951; Firth 1967; Goldman 1970; Nabokov and Easton 1989). This premise both reinforces antecedence and provides for its moral justification (La Farge 1937:5; Levy 1992; Whiteley 1998:87; Ware 2014). In this way, founding (Núutungqwsinom) clans need not directly invoke antecedence as a claim to status. Rather, they have successfully marketed their own, proprietary ceremonies as essential to the fourth world's very survival (La Farge 1937:5). Given the indispensable nature of Núutungqwsinom ceremonies, their practitioners naturally become invaluable. Such a class of Hopi men are known as *pavansinom* ("important [or] ruling people"), contrasted with *sukavungsinom* ("common [or] ordinary people)." As Whiteley (1998:87) describes:

> "*Pavansinom* are primarily those members of the core segments of matrilineages who hold principal offices in the ritual order … Power accrues to them through the control of specific ritual knowledge required to perform the ceremony effectively. Nonmembers of apical segments and members of clans which own no ceremonies, important offices, or highly valued ritual knowledge generally lack control over significant supernatural power and are thus *sukavungsinom*."

Thus, while *pavansinom* and Núutungqwsinom are not synonymous or coterminous, their constituencies and impacts overlap considerably (see Levy 1992; Whiteley 1998). The *pavansinom-sukavungsinom* distinction recognized by Whiteley (1998) is not the only recorded convention. Richard Brandt (1954:23-24) distinguished between *mongsinom* ("people who have the title or dignity of chiefs") and *sukaavungs sinom* ("common people"). Nagata (1970:44) contrasted *pavansinom* (members of clans with ceremonies, members of the Mòmtsit society, and witches) with *shikabunsinom* ("ordinary people"). Unlike the others, Geertz and Lomatuway'ma (1987:143) recognized three classes: *kiikyam* (ceremonial elites), *pavansinom* ("the strong people" or "people with powers that may be, but not necessarily are, beneficial to the tribe"), and *söqavungwsinom* ("people without status"). Some of the differences are clearly matters of spelling and translation, but others are qualitative and serve as evidence of our imperfect understanding of Hopi social distinctions based on differences in ritual knowledge and practice (Bernardini 2005a). What remains clear is that possession of ritual knowledge and inclusion in ritual societies is of paramount importance. Material evidence of ritual knowledge and participation at Hopi are seen in ceremonial architecture, ritual paraphernalia, and religious imagery.

Hopi Ceremonial Architecture. Traditional Hopi ceremonies are bounded architecturally, allowing practitioners to control the dissemination of knowledge. Many ceremonies are held in *kivas*, which are subterranean or semi-subterranean rooms within or adjacent to pueblo roomblocks. Kivas are metaphoric worlds (Broadbent 1982; Hieb 1994, 2015; Parsons 1939:310; Swentzell 1990:27; see also Ortman 2008). There are hatches in the roof and holes in the floor (sipapus), each of which represent entrances into earlier worlds and those to come (Smith 1952:6). Kivas were owned by clans or sodalities (see Schlegel 1992:387; Titiev 1944:245), often built and maintained by a particular household or lineage (Titiev 1944:208). Hopi kivas vary in size, such that some can accommodate more participants than others (Adler and Wilshusen 1990; Gann 2003; Hawley 1950; Whiteley 1988; see also Munson 2011:82; Stone 2012). This variability is evident both within and across villages (e.g., Nabokov and Easton 1989), suggesting unequal access to ritual space at a minimum of two scales.

Because of the value placed on Hopi ceremonies and the effort expended to keep proprietary knowledge secure, kiva construction and placement emphasized secrecy. To even approach one, a person had to walk among, around, past, and at times over multiple households, reducing the likelihood of trespass or eavesdropping (Scully 1972:335). Many kivas included ventilator shafts, features almost never found in domestic contexts. These "would have provided oxygen to keep the hearth burning, even if the building's door was closed to maintain ritual secrecy" (Flannery and Marcus 2012:149). Warriors were sometimes stationed at kiva entrances, making sure no outsiders got close enough to hear ritual secrets (Dorsey and Voth 1903:19; Titiev 1944:143).

Hopi Ritual Paraphernalia. During historic times, Hopi ritual specialists were often buried with ceremonial paraphernalia (Fewkes 1896:578), and this practice almost certainly extends back into prehispanic times. For example, McGregor (1943) excavated an extraordinarily well-provisioned burial at Ridge Ruin, in northern Arizona. Edmond Nequatewa and other Hopi consultants were invited to the site by McGregor and shown a portion of the burial assemblage. Based on the items they were shown, the elders could both identify the ritual role of the buried man and predict other items of paraphernalia that were present but which had not yet been displayed (McGregor 1943:295-296).

Hopi Religious Imagery. Iconography also plays an important role in Hopi ritual. As with other forms of ritual knowledge, iconography and its meanings are frequently kept secret. In some cases, physical access to ritual symbolism was restricted, such as with kiva murals (Smith 1952; Smith et al. 2006; see also Crotty 1992; Dutton 1963;

Schaafsma 1965; P. Vivian 2007). Their relegation to enclosed, underground spaces suggests culturally-limited access to the images and the ritual information they contained. In other cases, ritual Hopi iconography may be seen by the uninitiated, but a lack of adequate knowledge prevents proper interpretation. Testifying during a U.S. Bureau of Indian Affairs (Bureau of Indian Affairs 1955:171, 173) hearing, a Hopi man named Tuwaletstiwa stated:

> "David [Monongya] showed you a bow and he explained to you the symbols on that bow. I am of the Bow clan. Being of the Bow clan I have been instructed what to do and what these symbols mean, and I would like at this time to pass on to you this information … it seems that the wrong person was trying to explain the significance of the various colors to you."

Hopi Exotica

Nonlocal materials, objects, styles, and iconography also contribute to traditional Hopi religious life and are often associated with pilgrimages to faraway places. Hough (1915:26), for instance, described Hopi journeys to distant Havasupai communities to obtain red and green stones used to make ritual pigments. Among many Southwestern groups, men took periodic journeys to gather salt from distant places (see Bastian and Mitchell 2004:185; Fox 1994; Underhill 1936, 1979). At Hopi, salt pilgrimages were central to male coming-of-age ceremonies. Boys set out from Tuuwanasavi, following ancestral trails in search of salt. Most went northwest, to a source near the *sipapuni* (Ferguson et al. 2009). Others visited Zuni Salt Lake, near Quemado, New Mexico (Bunzel 1935:420-429; Ferguson et al. 2009). If successful, they returned as men, with salt standing testament to their courage and initiation (Colton and Colton 1931; Eiseman 1959; Titiev 1937). Hopi ritual practitioners also obtained exotica originating in Mesoamerica. One example involves macaws and other parrots, which are not native to the U.S. Southwest and were imported from points south (see Watson et al. 2015 for summary and recent advancements). The importance of parrots at Hopi is exemplified by the presence of the Parrot Clan and Parrot Katsina (Nequatewa 1936; Titiev 1944), which are associated closely with agricultural concerns (Loftin 1991:22). Parrots were kept in captivity at Hopi (Parsons 1939:29), where they and their feathers were closely related to the Corn Maidens and the Sun (Tyler 1979:21). Velarde (1931:129, 139) reported that macaw feathers were traded in to Hopi from Sobaipuri peoples to the south. Macaws appear prominently in kiva murals at Awatovi (Smith 1952) as well as on early Hopi pottery like Sikyatki Polychrome (Hays-Gilpin 2006, 2013), suggesting prehispanic importance as well.

Material Wealth at Hopi

The concept of material wealth is nearly ubiquitous among studies of inequality, yet evidence among the Hopi is all but absent. Within most indigenous Southwestern cultures, the amassing of wealth is strongly discouraged through teachings, gossip, ostracism, and witchcraft accusations (e.g., Adair and Vogt 1949:551; A. Geertz 2011; Simmons 1980:74, 82). This is particularly true within Hopi society, where ritual dramas and stories warn against hoarding and the accrual of wealth (e.g., D. Eggan 1949:183; Silko 1996b:267; Stephen 1936:456; see also Gaseoma 1999). Such de-emphasis suggests negative experiences in the past, at the societal level. In fact, several stories discuss individuals – oftentimes ritual specialists – who used their gifts to attract wealth and, in doing so, endangered themselves and others. Subsequently, great efforts were made to discourage this from happening again. However, excavations in the Southwest – some at sites that may have been occupied by ancestral Hopi groups – have encountered marked differences in the kinds and amounts of material culture, potentially consistent with wealth inequality in the distant past (e.g., Gilman 1990; Mitchell 1994; Plog and Heitman 2010).

Part II Conclusions

Ethnographic research among the Hopi has allowed me to identify five domains of inequality, which are recapped here:

1. *Antecedence*. The underlying base of Hopi inequality is antecedence. Clans are ranked according to the order in which they arrived. People born into antecedent clans have greater social mobility and more political and religious opportunities. The domain of antecedence is widely accepted, but competition within the domain is common. Within clans, some individuals and lineages are more powerful than others.
2. *Ritual Knowledge and Practice*. Ritual is a key source of Hopi inequality. All life on earth depends on the proper performance of specific Hopi ceremonies. These ceremonies are owned or controlled by the most

antecedent clans. The knowledge and paraphernalia required to properly perform these ceremonies are kept secret and known only to a select few individuals within the core lineages of these clans. The moral authority required to legitimize and perpetuate antecedence-based inequality is derived from this asymmetric access to ritual knowledge and participation.

3. *Nonlocal Objects, Materials, Styles, and Iconography*. The procurement and distribution of exotic materials, items, and styles can involve differences that indicate inequality. They were brought to the Hopi Mesas from far away, but they were not evenly distributed across communities. Rather, they were controlled by certain clans, sodalities, lineages, and individuals.
4. *Productive Resources*. Hopi antecedence is positively correlated with the amount and quality of productive resources. High-status clans have access to more and better farmland, water, and resource collection areas. They are less likely to suffer during droughts and more likely to prosper otherwise. They have social mechanisms to restrict sharing, seize property, and oust newcomers if necessary.
5. *Material Wealth*. There is little evidence of material wealth discrepancy within Hopi ethnography, and no indication of a relationship between wealth and antecedence. There are, however, many stories of people in the past who brought shame and hardship on themselves and others after seeking or amassing wealth. In most cases, those who became corrupt with wealth were ritual specialists.

Part III: Domains of Inequality

The five domains derived from an examination of Hopi ethnography form the basis of analyses in the prehispanic Mimbres region of southwestern New Mexico. The material evidence associated with each domain is identified below.

Antecedence

Within Hopi society, the primary justifier of inequality is antecedence. According to Flannery and Marcus (2012), antecedence is one of the most fundamental domains of inequality. More often than not, antecedence transitions from being an historical observation to a heritable legacy. In this fashion, a founding lineage can bequeath its antecedence to its progeny rather than see it shift elsewhere. This is a profitable strategy, but not infallible; any number of situations could threaten the continuity of bloodlines. A derivative option, recognized first by Lévi-Strauss (1982), involves the concept of *house* societies, which was described earlier, in Part II, and which is proving useful in understanding the ancient Southwest (e.g., Heitman 2007; Heitman and Plog 2006; Mills 2008, 2015; Plog and Heitman 2010; Wills 2005).

In the absence of written records or traditional knowledge, the prospect of assessing antecedence in the archaeological record is potentially daunting. Few projects have accepted the challenge, which involves two key elements. The first is determining the order in which various social units arrived in a given place (primacy), essentially distinguishing between founders and later arrivals. This is an empirical question that can be answered with adequate data. The second, and clearly more difficult, task is to examine antecedence itself, essentially working to determine whether differences in primacy were of social importance. This is not directly observable in pre-literate, archaeological settings and must be inferred.

I have developed four indices that can be used to assess antecedence. The first, architectural chronology, is designed to establish the order in which social units built houses in a given place. Depending on available data, including temporal resolution, this approach can be applied at a number of socio-spatial scales. However, its applicability is most promising at the intra-site scales of household and locus. The three remaining indices – remodeling, superpositioning, and intramural burial – speak both to arrival order and antecedence.

By *remodeling*, I mean the structural reconfiguration of extant architecture. Archaeological evidence of remodeling includes the presence of multiple floors (Lowell 1986; see also Cameron 1999:103) – as opposed to simple replasterings – and changes to walls that would have affected a structure's roof (see Cameron 1999:103-104; Lowell 1986). As Ferguson observed, "the design, occupation, and remodeling of architecture provides one of the means by which society is continually recreated" (1996:22). If and when social conditions require the substantial reconfiguration of architectural space, decisions to remodel (as opposed to building anew) suggest efforts to maintain precise continuity between households, past generations, and particular places.

Superpositioning involves the placement of a new structure directly atop earlier architecture that had been abandoned or deconstructed. As with remodeling, superpositioning often serves to maintain a physical link between living generations and specific locations that were occupied during the past. The architectural maintenance of such connections is especially germane in societies that value antecedence. Much of the literature that addresses this phenomenon makes reference to "social memory" (see Gillespie 2001, 2002; Hodder and Pels 2010; Joyce 2001; Kujit 2001; Kujit et al. 2011; Mills and Walker 2008; Roth and Baustian 2015; Van Dyke and Alcock 2003; Wilson 2010). Working with archaeological data at a Mimbres site in the U.S. Southwest, Roth and Baustian recently noted that the maintenance of social memory, in part through architectural continuity, "can serve as a stabilizing factor within a community by creating shared meanings via a mutual understanding of the past" (2015:454). Specifically, they argued that "some kin groups … [used] … social memory to legitimize certain aspects of their household, most likely land tenure and resource access" (2015:454).

The accumulation of intramural burials can also contribute to an understanding of antecedence. In societies where the dead are buried indoors (and assuming comparable death rates across populations), lineages that arrived earliest should accumulate more burials per household than later arrivals. More importantly, the strategic placement of burials reflects efforts by social groups to establish, demonstrate, or allege antecedence. Some of the most recent work in this vein is again related to social memory, focusing on links between burial placement and connection to place (e.g.,Blomster 2011; Chesson 2001; Hodder and Pels 2010; Joyce 2001; Kujit 2001; Kujit et al. 2011; McAnany 1995, 2002; Roth and Baustian 2015). In a cross-cultural study of mortuary practices, Brown explained that the "existence of a spatial base in the control of critical resources means that power will be symbolised through exclusive access to specific burial locations" (1981:28-29; see also Buikstra and Charles 1999).

In Chapter 3, I introduce the seven sites from which my study data derive. The discussion of each site includes available evidence of settlement history and antecedence. Architectural chronology, when determinable, assists in identifying the earliest portions of villages (i.e., founding loci). Evidence of remodeling, superpositioning, and intramural interment are then used to make inferences regarding the social importance of primacy and efforts made to establish, allege, demonstrate, and memorialize antecedent status. Because settlements develop over time, each has earlier and later components. Cross-culturally, social units associated with the earliest components frequently enjoy the benefits of antecedence. Thus, in the Mimbres case, I expect to find strong association between primacy and antecedence. In Chapters 4 through 7, evidence of inequality in other domains is compared to evidence of primacy and antecedence, as established in Chapter 3. In this manner, I compare the socio-spatial distribution of inequality to that of settlement histories, allowing me to determine the degree of correlation between Mimbres antecedence and other evidence of inequality.

Access to Productive Resources

Differential access to productive resources is one of the most common domains of inequality, frequently manifest through the manipulation of excess food. As used here, the term productive resources refers to all resource bases from which food (both wild and domesticated) and finite materials can be gathered or cultivated. These include water, farmland and crops, hunting territories and game, resource patches and edible wild plants, ritual materials, and medicinal ingredients.

As is the case at Hopi, unequal access to productive resources is often tied to antecedence; first-comers generally lay claim to the best productive resources when they settle an area (Flannery and Marcus 2012). As each successive group joins the community, they claim the best productive resources that are available at that time, leaving progressively poorer resources for the next group to arrive. Thus, antecedence and productive resource quality are often correlated. Because of this advantage, earlier arrivals are more likely to produce excess food and less likely to experience shortfalls. Late-comers, in contrast, are less likely to have access to productive resources and more likely to find themselves at the mercy of their more successful, more antecedent neighbors (Flannery and Marcus 2012).

Archaeologically, the identification of productive resource inequality often relies on the quantification of storage space. Within this approach, researchers assume that social groups did not build storage facilities much larger than needed. Thus, significant differences in storage capacity suggest differences in expected yields. All else being equal, those with more storage are inferred to have had greater access to productive resources. Christakis (1999, 2008), for example, used differences in the size of Minoan storage containers and facilities to infer unequal agricultural potential across Cretan households. In Chapter 4, I compare storage capacities at seven Mimbres villages, three socio-spatial scales, and a number of temporal periods and resolutions. Sample sizes and resolutions vary, but differences with a low probability of resulting from chance are interpreted as evidence of productive resource inequality. Based on cross-cultural, ethnographic studies (e.g., Flannery and Marcus 2012; Levy 1992), I expect the advantages of productive resource inequality to correspond with primacy-based antecedence.

Access to Ritual Knowledge and Practice

Among most pre-industrial societies, the proper performance of ritual is imperative (Gluckman 1965; Malinowski 1979; Radcliffe-Brown 1945; Turner 1995). Phenomena that in Western society are taken for granted or attributed to "natural causes" are often explained as the direct result of ceremonial obligations, either fulfilled or disregarded (Bulbulia 2004; Flannery and Marcus 2012:55-57; Iaccarino 2003; Legare et al. 2012; Legare and Souza 2012; Mazzocchi 2006). People can be severely disadvantaged if their access to religious participation is curbed (e.g., Brown 1999; Faro 2008:71; Michaels 1985). Of course, the presence and importance of ritual duties is not limited to the Southwest, but rather is a recurring, cross-cultural theme. For example, traditional religious architecture in Japan includes lineage graves, thought of as houses for the dead (Kawano 2010). The initial burial is only the beginning of a complicated, 33-year process needed to transform the decedent into a venerated ancestor. Every three to six years, another required ceremony is performed. If the ritual cycle is not maintained, the ancestor's status – and, by extension, that of their descendants – diminishes rapidly. In some cases, neglected burials are disinterred and added to mass graves for *muenbotoke* (homeless spirits). Thus, any conditions that interfere with the memorial cycle (e.g., financial, travel, political) can bring disgrace to the living and everlasting anonymity upon the dead (Kawano 2015:58-59).

Beyond ceremonial obligations, people can also benefit from unequal access to ritual knowledge, as held in and conveyed through ceremonies, songs, and paraphernalia. Consider, for example, Comanche ceremonialism in the late nineteenth century. By 1875, the Comanche bands of the Great Plains were largely relegated to reservations. Quanah Parker, who had long suffered among his people because he was biologically half White, suddenly found himself in a position of authority for the same reason. Thrust into the novel position of tribal Chief, Quanah leveraged his newfound political status to promote a new religious system based on sacramental peyote. As the introducer of peyote to Comanche reservation life, Quanah largely controlled the development of the Peyote Way throughout the Southern Plains, which included new songs, facilities, ceremonies, and styles of apparatus. Wholly unfamiliar with the new tradition, others were unable to participate in (and thus benefit from) peyote ceremonies without the approval and assistance of Quanah, thus placing him in a unique and powerful position as sole intermediary (Gwynne 2010; Hagan 2012; Neeley 1995; Stewart 1974, 1987).

Some forms of ritual knowledge and practice are more archaeologically visible than others, including the possession of, or access to, special paraphernalia, iconography, and architecture. Ritual ceremonies can require specific items of paraphernalia that are restricted from general possession (DeMarrais et al. 1996; Helms 2014; Kopytoff 1986; Spielmann 2002, 2008). Some are owned by individuals, while others are owned or held in trust by sodalities, lineages, or entire communities. Following Weiner (1992), Barbara Mills (2004) has identified some such items as *inalienable possessions*, which are generally passed down through the ages, rarely entering the archaeological record. This is not to say, however, that such items (inalienable or otherwise) are never deposited. In the Zhouyuan region of China, for example, lineage ancestor halls and temples relied on bronze vessels and bells for ceremonies during the Western Zhou period. Although one could argue that these were inalienable possessions, they were removed and buried for safekeeping during the Quanrong invasion of 771 B.C.E; (Shelach-Lavi 2015). The intent was to eventually recover the items, but circumstance prevented this, and the caches have only recently been discovered.

Cross-culturally, historic and ethnographic sources have described specialized ritual roles held by a limited number of individuals. Such persons often possessed ritual paraphernalia or symbols of ritual authority that were forbidden to others. When a religious leader died, the paraphernalia used were often passed down to a younger generation. At times, however, sanctified objects were buried with the departed ritualist. Excavations at St. Bees Priory, in Cumbria, for instance, encountered a grave containing a lead chalice and paten, allowing researchers to infer that the man was a priest (Chapman 1995). This occurs in the Puebloan Southwest also; certain objects can be handled only by select ritual specialists (e.g., Cushing 1883; Ortiz 1969; Parsons 1939; Talayesva 1942; Wittfogel and Goldfrank 1943; see also Glowacka 1998) and, on rare occasions, will be buried with them (e.g., Parsons 1939:70, 163; Sage 1858:337; White 1962; Wright 1979; see also Gann 1926:256).

Ritual iconography contains and conveys information of both general and specific natures (Robb 1998; Sinding-Larsen 1984). Some such information is accessible to a wide audience, while other aspects are hidden so as to restrict access. Among the aboriginal residents of southeastern Australia, for example, pictographs of Baiame, the Creator, are found in rockshelters where male rituals are performed. Women are forbidden to approach or visit such sites, thus preventing their physical access to the imagery (Valeriano 2014:14). Ritual information can also be hidden in plain sight through the process of encoding. Within the Roman Empire, for example, early Christians adopted the *ichthys* icon to symbolize their faith. Non-Christians encountered the symbol frequently but were unaware of its religious significance or underlying meanings (Jensen 2010:258-261). Thus, in order for secretive information to be conveyed through iconography, the successful recipient must have both physical access and the knowledge necessary to accurately translate (Boyer 1993; Eliade 1952; Spielmann et al. 2006).

Differences in physical access to ceremonial space have been noted archaeologically as a potential basis for social inequality. Gaffney and colleagues (1995), for instance, discussed ritual mounds on the Island of Hvar, off the coast of Croatia. During the Bronze and Early Iron ages, everyone in the community could see these important landmarks, but it would appear that only some people were allowed to actually approach and visit them, suggesting unequal access to ritual participation. This is not unlike circumstances in the Hohokam late Classic period (ca. 1300-1450 CE), when large villages included walled platform mound complexes built to facilitate public ritual performances. A room atop Cline Terrace (in the Tonto Basin) had a doorway overlooking a plaza, and an exterior covered with white gypsum, which would have caused it to shine brilliantly in the sun (Jacobs 1997). Access to this structure was restricted, suggesting that a very limited number of people were able to address the crowd from this glittering wall (see also Bayman 1994; Cushing 1892; Fish et al. 1992; Gregory 1987; Lindauer and Blitz 1997; Rice 1987; Wilcox 1987).

The selective placement of ceremonial facilities can engender inequality in a number of ways, including prestige generated by the construction and maintenance of ceremonial structures. Records from eighteenth century Iceland, for instance, show that farms with associated churches frequently had the most livestock and highest taxes, suggesting higher status and greater wealth (Arneborg 2003; Guldager 2002; McGovern 1980; Vésteinsson 1998). The physical placement of ritual structures can also facilitate or hinder access, thus controlling participation. Examining the built environment among Near Eastern Neolithic communities, Byrd (1994) recognized architectural trends that placed increasing restrictions on physical access to ritual structures. Van Gijseghem and Vaughn (2008) described similar practices at Paracas and Nasca settlements, using architectural evidence of restricted access to infer socio-political change. In other cases, a combination of social prohibitions and physical restrictions work together to restrict ritual access. Walter (2001) discussed such a case in a Nepalese Chetri village. Here, homes include a *kulko kothā,* or small room where ancestral deities live. These rooms are built into a corner of the home, atop a low earthen platform. Access to both the platform and the *kulko kothā* is carefully guarded. Only senior male members of the lineage, once ritually purified, can step upon the platform or enter the *kulko kothā*. Violation of these proscriptions can offend ancestors and trigger their wrath.

The size of ceremonial structures can also affect ritual access (Spigel 2012; Villaroman 2014). Kivas were a common form of ceremonial architecture within prehispanic and ethnographic Puebloan communities (Ellis 1952; Hawley 1950; Lekson

1988b; Lipe and Hegmon 1989; McLellan 1969). Especially large varieties are often referred to as *great kivas*, and evidence suggests that some were large enough to accommodate their village's entire population (e.g., Glowacki 2015:68; Morris 1996:28; Reid 1997:161; Shafer 2006:18). Thus, great kivas are generally considered to have been integrative at the site scale. In contrast, smaller kivas are usually thought of as having served the ceremonial needs of smaller groups, such as lineages or sodalities (e.g., Ware 2002:85).

Thus, control over ritual knowledge and practice can be inferred from the distribution of ritual paraphernalia, iconography, and ceremonial structures, including structure size, location, construction, and access. In Chapter 5, I use these variables to identify and compare evidence of access to ritual knowledge and practice at seven Mimbres sites, four socio-spatial scales, and a number of temporal periods.

The first part of my analysis focuses on paraphernalia and iconography, using materials in burial contexts. This context allows for cross-sample standardization, given that burials provide the only spatial scale of excavation that has been consistent across various sites and projects. Just as importantly, limiting these analyses to burial assemblages allows for the potential association of differences to the level of individual. These analyses examine the distribution of restricted ritual paraphernalia and pottery painted with ceremonial scenes.

The second part of the analysis examines architectural evidence of ritual inequality. I consider the style, diversity, frequency, placement, and size of formal ritual spaces. Throughout these analyses, I relate differences in ritual access to evidence of primacy and antecedence, as determined in Chapter 3. In many (perhaps most) small-scale societies, disparate access to ritual is either engendered and/or exploited in order to justify inequalities based on antecedence. Thus, in the Mimbres case, I expect to find that evidence of elevated ritual access accompanies evidence of antecedence.

Access to Nonlocal Objects, Materials, Styles, and Iconography

In societies of all sizes, it is common for people to place high value on objects originating from great distances. Earlier, I noted several examples of such valuation at Hopi, including salt, macaw feathers, and colorful stones. There are several explanations for the coveting of nonlocal materials and objects, but in the context of small-scale societies, three stand out. Elite persons, lineages, or other groups may establish and maintain relations with distant counterparts by and for the purpose of exchanging rare goods (Brumfiel and Earle 1987; Earle 1987:294-297; Frankenstein and Rowlands 1978; Goldstein 2000; Renfrew and Shennan 1982). Junker (1993), for example, used archaeological and ethnohistoric data from the Philippines to document a prestige goods economy that lasted from the tenth to sixteenth century. According to her model, political elites in the Philippines garnered increasing control over the importation of foreign goods coming from mainland Asia. In Australia, Warner (1937) described the *mari-kutatra,* a system of long-distance, indigenous exchange, showing that the value placed on items – and the prestige bestowed upon their procurers – was directly related to the distance the items had traveled (see also Brown 1960, 1972; Brookfield and Brown 1963; Flannery and Marcus 2012:553; Knauft 1993). Among the Angami Naga of India, aspiring leaders could gain renown through a process that involved hosting a series of large feasts, culminating in a *chisü* (“stone-pulling”) event. Under the would-be leader’s direction, dozens of men quarried and transported a giant stone back to the village, where it served as a home for certain spirits, and as a testament to the man’s achievements. The most critical aspect of these monoliths was not their size, shape, texture, or color, but rather the distance from which they came (Hutton 1921). Flannery and Marcus (2012:554) have suggested that even in societies where ostentation is discouraged, those benefiting from inequality tend to have more nonlocal trade goods.

As demonstrated by Mary Helms (1992, 1998, 2014), exotic goods can also serve as *bona fides* for those who have traveled long-distances for the purpose of gaining knowledge or power. Distant lands are often considered mysterious, dangerous, and full of innate power. Those willing to brave the wilderness, leaving family and home to sojourn into the great unknown are likewise imbued with power and worthy of prestige. As Helms (1998) suggests, journeys are often more important than the destinations reached or objects obtained. In the Southwest, this is manifest through pilgrimages of procurement, often coinciding with coming-of-age ceremonies (e.g., Bastian and Mitchell 2004:185; Bunzel 1935:420-429; Colton and Colton 1931; Eiseman 1959; Ferguson et al. 2009; Fox 1994; Titiev 1937; Underhill 1936, 1979). Items brought back from such tests of character frequently possess power themselves. In the Gulf of Papua, Elema men formerly undertook seafaring voyages to obtain rare and exotic goods. Voyaging boats had to be captained by men with adequate magic and courage; men who could impersonate and transform into the ancestral heroes of old (Williams 1932; see also Errington and Gewertz 1986:105-106; Helms 1988:46-47.)

For the better part of a century, archaeologists have debated the degree – and even existence (Brew 1940) – of connectivity between the prehispanic U.S. Southwest and pre-Columbian Mesoamerica (e.g., Haury 1945; Jennings et al. 1956; Johnson 1958; Mathien and McGuire 1986; McGuire 1980; B. Nelson 1995; Riley 2005; Schroeder 1965, 1966; Searcy 2010; Weigand and Weigand 2001; Wilcox 1986a, 1986b; Wilcox et al. 2008). Much of the analytical attention invested in addressing the issue has focused on the Hohokam and Casas Grandes regions, both of which contain ample evidence of interaction, influence, and connectivity (e.g., Bradley 1993; Di Peso et al. 1974; Gladwin et al. 1937; Haury 1976; Mathiowetz 2011; R. Nelson 1981; Wasley and Johnson 1965; Wilcox 1991a). This evidence includes nonlocal materials (e.g., marine shell), artifacts (e.g., copper bells), artifact styles (e.g., stone palettes), architecture (e.g., ballcourts), and iconography (e.g., crested serpents). In Chapter 6, I examine the presence and diversity of nonlocal items in Mimbres burials, specifically, Mesoamerican and Hohokam objects, materials, styles, and iconography, which I refer to collectively as *exotica.* I do not assume that Mesoamerican and Hohokam exotica evidence direct access to nonlocal sources. However, I do interpret their limited presence and uneven distribution as indicative of inequality. Some exotica may have been valued because of their novelty and exclusivity, and some may have been mnemonic or emblematic. Ethnographically, exotica are sometimes introduced by lower-status groups, using controlled distribution to offset extant inequalities (e.g., Lepowsky 2004; Nash 1996). Based on such studies, the introduction of exotica to Mimbres communities is expected to be preferentially associated with non-antecedent groups, wherein the control over and/or exchange of nonlocal objects could have been used to compensate for agricultural marginality.

Access to Material Wealth

As noted earlier, there is little ethnographic evidence of material wealth in Hopi society, much less wealth asymmetry. On the contrary, Puebloan societies, Hopi included, systemically despise wealth and other forms of ostentation, going to great lengths to prevent its appearance (e.g., Parsons 1939:31, 63). Traditional Puebloans idealize material modesty and conformity, and indigenous histories and cosmological stories routinely discuss catastrophes borne of avarice, accumulation, and contestation. Such traditional knowledge suggests prehispanic experiences with material wealth, experiences so negative as to demand consistent, proactive countermeasures (e.g., Jackson 1879; Silko 1996a:167; Todd 2008). Thus, the presence of, and differences in, wealth may be more pronounced in archaeological contexts than in ethnographic and ethnohistoric records.

Material wealth is a domain of frequent focus among studies of inequality in small scale societies (e.g., Angle 1986; Bowles et al. 2010; Drucker 1939; Marger 2002) and one which Marx (1973:103-105) considered to be a culturally universal concept. I define wealth as a measure of material excess in one of three forms: socially recognized currency (e.g., dollars), non-utilitarian items with arbitrarily-assigned value (e.g., Fabergé eggs), or utilitarian items in numbers beyond what is needed or useable (e.g., Imelda Marcos' shoe collection). Familiar archaeological examples of extreme wealth include treasures of gold, jewels, and other sumptuary goods (e.g., Carter 1972; Schliemann 1880), but in small-scale societies, wealth can come in a number of other forms. Among the Dafla people of Bhutan and Arunachal Pradesh, for example, wealth is measured in cattle and signified by the display of cow horns in the longhouse (McInternet 2010:29). Among the Aztec, cacao beans were recognized as forms of currency (Millon 1955). Wealth can be displayed in many ways, including recognizable differences in amount, extent, quality, or type. Common arenas for the display of wealth include architecture, adornment, food, clothing, and mortuary treatment.

Archaeologists have long recognized the value of mortuary assemblages in assessing, among other things, the presence and degree of disparate wealth and attendant status (Binford 1971; Braun 1979; Brown 1971; Saxe 1970; Wason 2004). Ultimately, grave goods may indicate as much or more about survivors as they do about the dead (e.g., Hodder 1980, 1982; Pearson 1982; Shanks and Tilley 1982). Thus, inferring an individual's power from graves goods is problematic, whereas determining inequality at multiple scales is relatively straightforward. The challenge lies in identifying archaeological signatures of wealth and determining what differences constitute or contribute to inequality.

In Chapter 7, I look for evidence of material wealth in Mimbres society and examine whether access to wealth was distributed symmetrically. Here again, I use only data from mortuary assemblages, allowing for standardization at various scales and across different projects. These data come from seven sites and are compared at four scales and across numerous periods of time. I rely on two indices of wealth as encountered in burials: pottery vessels and jewelry. Most Mimbres burials, especially those that postdate 1000 C.E., include at least one clay pot. Such vessels – usually bowls – were often placed over the decedent's face, and a small "kill hole" was ground through the bottom. The chipped away material is frequently encountered in the grave, suggesting that this “killing” process took place at the time of the burial (Gilman 1990:458). The frequency and consistency of such evidence suggests that the presence of a bowl in one’s grave may have been a necessary component of the Mimbres life cycle. However, some graves have no pottery, or merely a sherd. Others have multiple vessels, and a few have large collections. Because one bowl seems to have been adequate for the vast majority of Mimbres funerals, the presence of additional vessels is treated here as an indication of wealth.

In contrast to the ubiquity of pottery, jewelry was exceedingly rare in Mimbres burials. When jewelry is encountered, it generally consists of a single bracelet or pendant. Some burials, however, were provisioned with scores of bracelets, thousands of beads, or large numbers of other jewelry types. Although the rarity of jewelry, its asymmetric distribution, and its seemingly non-utilitarian nature are indicative of differences in wealth, I expect such evidence to be rare overall, given the results of prior investigations (e.g., Anyon and LeBlanc 1984:173-186; Gilman 1990, 2006; Ham 1989).

Discussion

Social inequality is dynamic and multi-dimensional. Several active domains of inequality may offer individuals and groups the opportunity to garner advantage and mitigate disadvantage. Individuals and groups may compete within or across these domains, or the domains might be controlled by a limited number of individuals or groups. Past studies have contributed immensely to our understanding of inequality in each of several domains. With such a solid foundation, a more nuanced view of inequality can emerge from consideration of multiple domains and scales as they occur in a single case study. Advances in the study of archaeological inequality can benefit from examining the Mimbres case, where surplus food production was improbable and self-aggrandizement likely discouraged. What is more, in the Mimbres case study, evidence in multiple domains can be assigned to specific intra-societal groups to help better understand how ancient peoples navigated and shaped their lives.

In the chapters that follow, I examine evidence of inequality in five domains and across the scales of individual, household, household cluster (i.e., residential locus), and settlement. Data come from seven large Mimbres sites in southwestern New Mexico. My analyses cover over nine centuries of cultural and occupational continuity. Changes in material culture – both striking and subtle – allow for the recognition of changing inequality through time, and for the study of how these changes correspond with larger social transformations. Mimbres households were occupied over the course of generations, and the dead were buried under floors while survivors continued to live above. This makes it possible to associate evidence of inequality, in multiple domains, with specific groups, at various scales. Thus, with some degree of precision, I can monitor the material traces of specific social groups through time, paying particular attention to how they experienced and manipulated various forms of inequality. These data are visible against the larger backdrop of societal transformation.

CHAPTER 3: THE MIMBRES TRADITION AND A METHOD FOR THE COMPARISON OF ANTECEDENCE

In this chapter, I introduce the seven Mimbres sites that provide data for this dissertation: Cameron Creek, Galaz, Harris Village, Mattocks, NAN Ranch, Swarts, and Wind Mountain. The chapter is divided into three general parts. First, I introduce the Mimbres region and Mimbres cultural tradition, focusing temporally between the third and twelfth centuries C.E. I then offer a methodology for inferring differences in archaeological antecedence. Finally, I introduce the seven sites themselves. Background information is provided for each site, including histories of research, temporal components, and spatial clustering. For each village, I also include a discussion of site development and intrasite antecedence.

Part I: The Mimbres Region and Mimbres Cultural Tradition

The Mimbres River valley, in southwestern New Mexico, lies at the cultural and geographic center of the greater Mimbres region, which stretches west into Arizona’s San Simon and San Bernardino valleys, and east to the Rio Grande. To the north, it grades into the Mogollon Highlands, and it extends to the south into northeastern Sonora and northwestern Chihuahua. The greater Mimbres region can be divided into at least four primary divisions: the Mimbres Valley, the Upper Gila, the Eastern Mimbres, and New Mexico’s Bootheel area (see Figure 3.1). Data used in the present study are limited to sites in the Mimbres Valley and Upper Gila River.

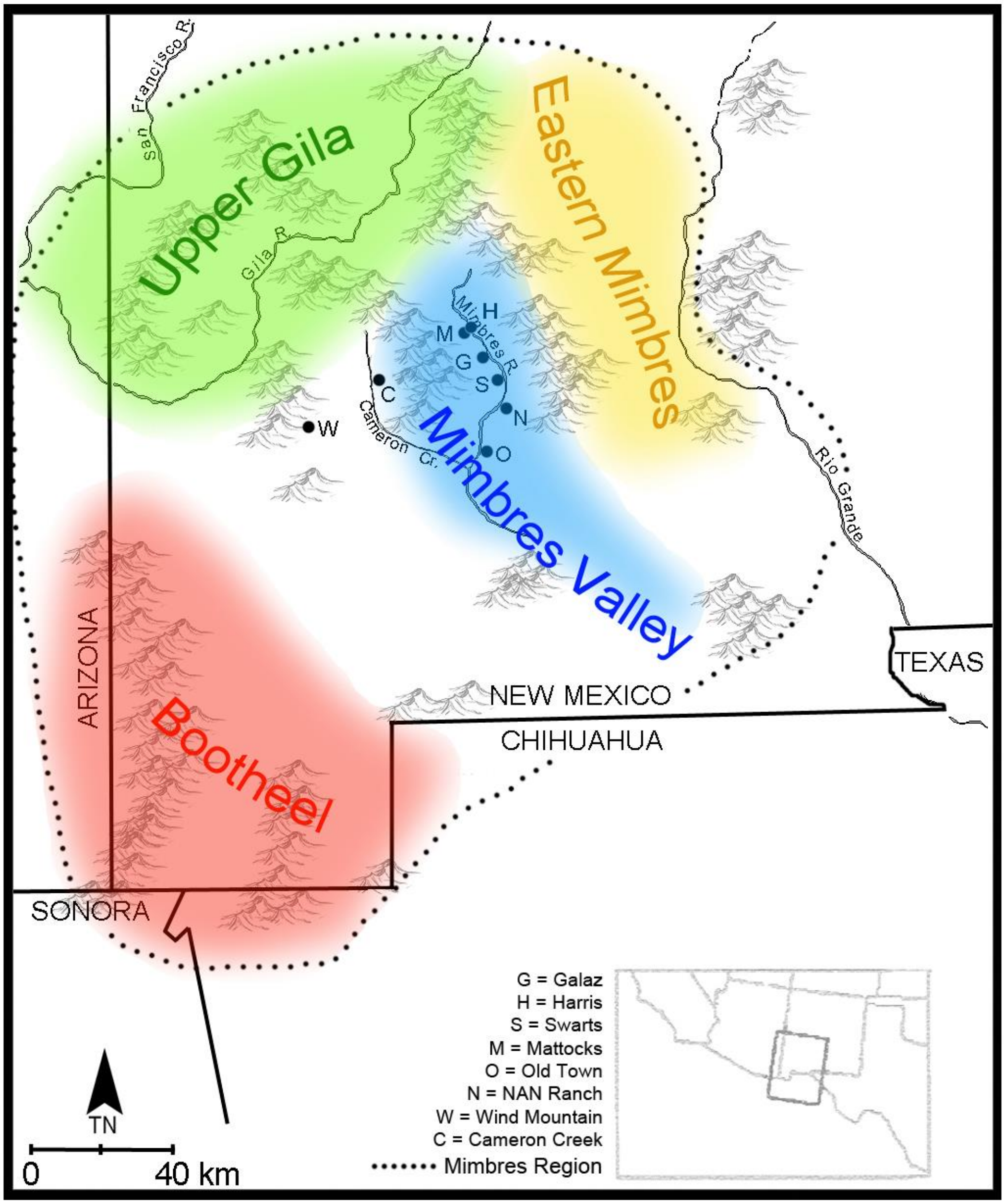

Figure 3.1. Map of study area, showing greater Mimbres region, primary sub-regions, and analyzed sites.

Cultural Change

Evidence of Paleoindian and Archaic foragers has been found in the Mimbres area (e.g., Blake and Narod 1977; Fitting 1970, 1973; Fitting and Price 1968; Hemphill 1983; Rose 1970; Turnbow et al. 2000), but the Mimbres tradition became increasingly distinct from the larger Mogollon cultural pattern beginning in the third century C.E. Based on changes in material culture, technology, and settlement patterns, archaeologists have subdivided the Mimbres horizon into three temporal periods and a number of constituent phases. The nomenclature and specific dates vary among scholars and over time. Figure 3.2 provides a sampling of these, along with the dates used in the present study (which are nearly identical to those of Anyon and LeBlanc [1980]). Figure 3.3 illustrates the temporal ranges of local pottery types used to date contexts.

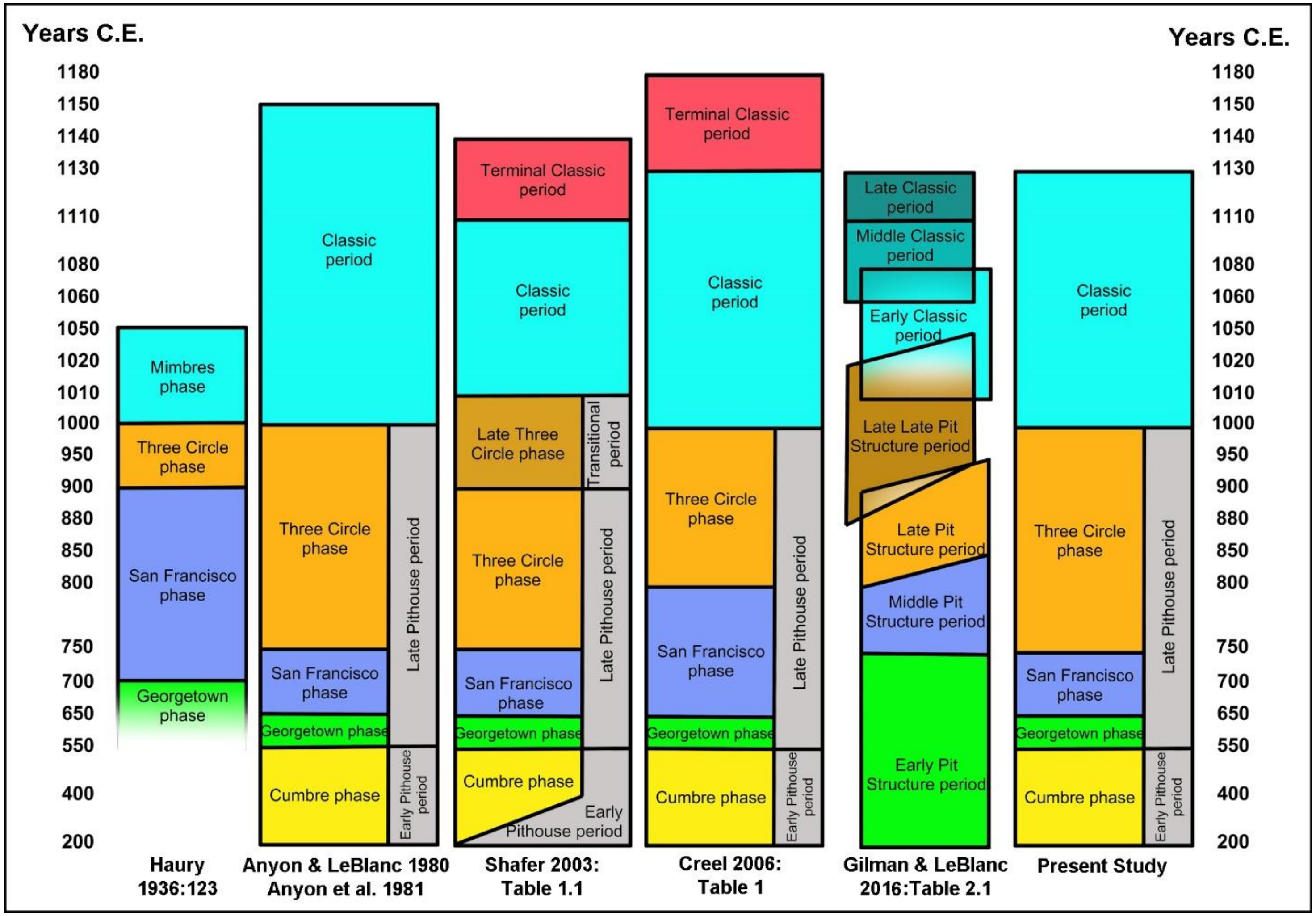

Figure 3.2. Temporal periods, phases, and dates used in the present study (far right), along with a sample of other temporal systematics.

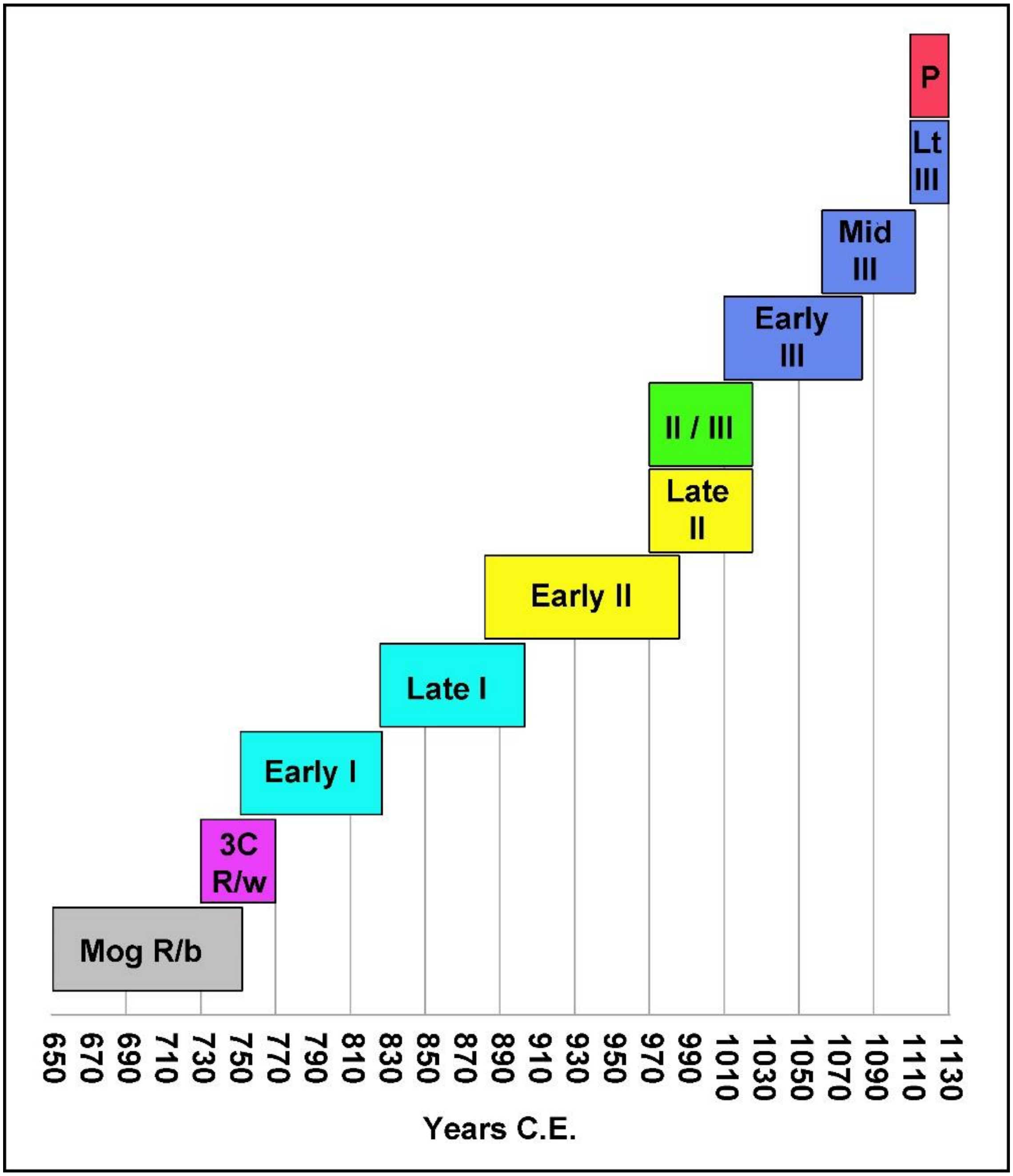

Figure 3.3. Ceramic production ranges for Mimbres painted pottery (Dates after Shafer and Brewington 1995; Mog R/b = Mogollon Red-on-brown; 3C R/w = Three Circle Red-on-white; I = Style I Mimbres Black-on-white; II = Style II Mimbres Black-on-white; II/III = Style II/III Mimbres Black-on-white; III = Style III Mimbres Black-on-white; Mid = Middle; Lt = Late; P = Mimbres Polychrome)

Early Pithouse Period (ca. 200-550 C.E.). The Mimbres sequence arguably began around 200 C.E. This marks the beginning of the Early Pithouse period, which lasted until about 550 C.E (Anyon et al. 1981:213-214) and comprises a single phase (Cumbre, 200-550 C.E.). During this time, people living in the Mimbres region relied heavily on hunting and gathering but had likely incorporated maize into their diet. For part of the year, they lived in small pithouse settlements that probably consisted of a few related households. These small clusters were often placed atop high knolls, near streams (LeBlanc 1986:300, 1999; LeBlanc and Whalen 1980; see also Diehl and LeBlanc 2001:21; Lekson 1992). Pithouses were oval or circular, often with ladders leading through holes in the roof. People made plainware and redware pottery, but nothing decorated. The dead were generally buried outdoors and were seldom accompanied by grave goods. Large ceremonial structures – great kivas – were round or sub-circular, with sizes ranging from around 24 to 64 m^2 (Fitting 1973; Hogg 1977; LeBlanc 1977). Some, but perhaps not all, were entered through covered, tunnel-like ramps.

Late Pithouse Period (ca. 550-1000 C.E.). The Late Pithouse period began around 550 C.E. and lasted until about 1000 C.E. The period has been divided into several phases. I predominantly use three of these – Georgetown, San Francisco, and Three Circle – but acknowledge evidence of a possible fourth, alternately referred to as the Mangas or Transitional phase/period (Danson 1957; Fitting 1972; Gladwin and Gladwin 1934; Lekson 1978, 1988a; Sedig 2015; Shafer 2003; Wheat 1955; contra Anyon et al. 1981:217-219; Gilman 1980; Graybill 1973:114).

The Georgetown phase lasted from 550 to 650 C.E. During this, or the subsequent San Francisco phase, small villages began to form on the first terrace above streams. These were not occupied year-round, but sedentism does seem to have increased, along with reliance on agriculture (Gilman and LeBlanc 2016:51; Minnis 1985; see also Anyon et al. 1981). Pithouses were sub-circular, but entry was now made exclusively through lateral ramps rather than roof hatches. Burials were predominantly extramural. Pottery remained unpainted, but some vessels – San Francisco Red – were dimpled and slipped red. Mortuary ritual changed little, if at all. Great kivas remained round or oval, became more uniform in size (32-44 m^2), and were entered exclusively through lateral ramps. They were more common, perhaps indicating an increasing need for integration across lineages in the context of burgeoning communities (see Anyon and LeBlanc 1980).

The San Francisco phase began around 650 C.E. and ended a century later (Anyon et al. 1981:216-217). Sedentism and agricultural reliance continued to increase, as did the size of villages (Diehl and Minnis 2001:51; Minnis 1985). Pithouses and great kivas became fairly rectangular, yet retained rounded corners. The size of ceremonial structures became more variable (28-71 m^2) and ramp entrances continued. Most people were still buried outdoors, but some were placed under the floors of pithouses. For the first time, decorated pottery was produced. The local type, Mogollon Red-on-brown (ca. 650-750 C.E.; Shafer and Brewington 1995:Table 1 [although see Gilman 2010]), was un-slipped and stylistically similar to contemporary pottery from the Hohokam region to the west (Brody 2004:81-86; Hegmon and Nelson 2007; LeBlanc 1983:77, 117; Wheat 1955:199-201; Woosley and McIntyre 1996:209). Unlike Hohokam pottery, Mogollon Red-on-brown was made with the coil-and-scrape method used elsewhere in the Mogollon and Puebloan areas. This suggests that Mimbres potters were replicating Hohokam color schemes and patterns with little or no direct incorporation into the Hohokam tradition (Woosley and McIntyre 1996:209). Toward the end of the San Francisco phase, potters added white slip to vessels, turning Mogollon Red-on-brown into Three Circle Red-on-white (ca. 730-770 C.E.; Shafer and Brewington 1995:Table 1). This change marks a clear divergence from Hohokam styles and signals the florescence of a unique, spatially-restricted horizon.

The Three Circle phase, lasting from 750 to 1000 C.E. (Anyon et al. 1981:217), was a time of monumental change in the Mimbres region. Pithouses remained rectangular, but had sharper corners. By or during this phase, farmers adopted irrigation agriculture (Creel and Anyon 2003:69, 84-88; Herrington 1979:201-202; LeBlanc 1983:154; Shafer 1999:99) and were staying in their villages throughout the year. Immigration and aggregation led to substantial village growth (Blake et al. 1986; LeBlanc 1989:182; Peeples and Schollmeyer 2007; Schollmeyer and Peeples 2016). Three Circle Red-on-white was still made, but potters learned to manipulate oxygen levels during firing, allowing them to produce the earliest Mimbres Black-on-white pottery, known as Boldface (Haury 1936) or Style I (Scott 1983; ca. 750-900 C.E. [Shafer and Brewington 1995:Table 1]). Mesoamerican iconography, in the form of stylized crested serpents, was introduced, probably through Hohokam intermediaries (Phillips et al. 2006; Russell 2010). Black-on-white decoration became more refined, in the form of "Transitional" (LaBlanc 1976:20) or Style II pottery (Scott 1983; see Shafer and Taylor 1986:58, n. 28 regarding early observations by Richard Ellison). Red-on-white wares continued to be produced (Livesay 2014), but are generally classified as oxidized samples of Mimbres Black-on-white.

The Three Circle phase is best known for a series of remarkable changes to ritual and ceremonial programs (Creel and Anyon 2003; Shafer 2003). Research has linked these changes to sedentism, irrigation agriculture, and issues of land tenure (Creel and

Anyon 2003; Roth and Baustian 2015; Shafer 2003, 2006). The placement of burials under pithouse floors became more common, possibly marking membership in founding lineages (Roth and Baustian 2015; Shafer 2003:50). In some cases, “kill holes” were ground in the bottom of bowls, and the bowls were then placed over the faces of buried individuals, perhaps functioning as masks (Shafer 2003:Chapter 11) or metaphors for the sky vault and *sipapuni* (Moulard 1984).[3] Great kivas were built in most or all villages but were ritually burned in the mid- to late tenth century (Creel and Anyon 2003). A number of Mesoamerican artifact classes were obtained and replicated, including stone palettes, censers, and marine shell jewelry. The introduction of such items is generally attributed to what Henry Wallace (2014) calls a “Hohokam revitalization movement” to the west (e.g., Anyon and LeBlanc 1984: 269, 281, 286; Garcia de Quevado 2004; LeBlanc 1983:77-78; Wheat 1955:201; Woosley and McIntyre 1994). The question of whether these items and styles came directly from Mesoamerica or by way of Hohokam intermediaries remains largely unexplored, although there is evidence of people from the Mimbres area traveling to the west coast of Mexico (see Jett and Moyle 1986). What seems clear is that Mimbres religious institutions were not merely eastern versions of the Hohokam model. No Hohokam-style ballcourts (see Wilcox and Sternberg 1983) have been found at Mimbres sites, and inhumation remained the predominant form of Mimbres burial, unlike the normative Hohokam practice of cremation.

Undoubtedly, the pace and scale of Mimbres transformation changed toward the end of the tenth century (Shafer 2003:40-54). The great kivas of the Three Circle phase

[3] *Sipapuni* is the Hopi term for a portal leading between vertically stacked worlds. The general concept is ubiquitous among Puebloan groups of the Southwest. Places of emergence into this world are often conceptualized as holes in the ground or bodies of water such as lakes and springs.

were burned to the ground (Creel and Anyon 2003), nonlocal pottery exchange all but stopped (Gilman et al. 1994; Hegmon et al. 1998), and there is every indication that Mimbres society was becoming strikingly insular and "inwardly focused" (Nelson 1999:43; see also Creel and Anyon 2003:86-88) at a time when interaction elsewhere in the Southwest was at an all-time high. Pithouses were becoming shallower, rooftop entries were reintroduced, and masonry walls were being incorporated into some structures. In some cases, homes were becoming more pueblo-like than pithouse-like, foreshadowing the architectural changes to come. Some researchers have suggested that these changes warrant their own phase designation, particularly in the Upper Gila area. This, the "Mangas phase," was first proposed by Gladwin and Gladwin (1934) as the local manifestation of the Pueblo II period and has been used by a number of archaeologists (e.g., Danson 1957; Di Peso [Woosley and McIntyre 1996], Fitting 1972, 1982; Lekson 1978, 1988a, 1990; McKenna and Bradfield 1989; Wheat 1955). The observations leading to the Mangas designation are not in question, but some archaeologists remain unconvinced that the evidence is consistent enough to demand regional distinction (Anyon 1980:203; Anyon and LeBlanc 1984:187-192; Anyon et al. 1981:218; Blake et al. 1986; Gilman 1980:268; Graybill 1973:114; LeBlanc 1983:87, 1986:302-303; Minnis 1985; Nelson et al. 1978). Some have suggested that such a distinction may be more applicable in the Upper Gila area (e.g., Dycus 1997; Sedig 2015; Woosley and McIntyre 1996). Sedig (2015:242) suggested that "the transition [from pithouses to pueblos] was more gradual in the upper Gila, and more rapid in the Mimbres River valley," but added that researchers in the latter area may have overlooked evidence, writing that it "seems likely that at many Mimbres sites, especially those with large

Classic period occupations like Galaz, Transitional phase architecture was destroyed or modified as more and more roomblocks were built." Most recently, Gilman and LeBlanc (2016:24) note that because "transitional structures were not present at all sites in the Mimbres Valley, there may not have been a Mangas phase in the valley so much as there were Mangas-like structures at some sites." As of late, some researchers have avoided the Mangas label, while acknowledging something between the Three Circle phase and Classic period. Shafer (1995, 2003) included a Transitional period (900-1010 C.E.), Sedig (2015) referred to the Transitional phase (900-1000 C.E.), and Gilman and LeBlanc (2016) refer to the Late Late Pit Structure period (880/950-1020/1050 C.E.). The arguments put forth by those involved are based almost exclusively on sites where they themselves have excavated; empirical differences suggest that the transition from Three Circle phase to Classic period was hardly uniform across the entire region. For the analyses presented in Chapters 4 through 7, I have tried to reflect temporal nuances detected by the excavators of particular sites. At times, this includes reference to Mangas or Transitional phases.

Site maps of Late Pithouse period villages give the impression that residential structures were often divided into distinct clusters at various levels of temporal resolution (see Anyon and LeBlanc 1984:92-93; Bradfield 1931:19; Bussey 1975; Cosgrove and Cosgrove 1932:8; Haury 1936; Lucas 1996; Shafer 2000; Woosley and McIntyre 1996). Within the communities that make up small-scale societies, people tend to live near others with whom they identify, more so than near those they consider somehow different (cf. Tobler 1970). For this reason, pithouse clusters may correspond with social distinctions, such as lineage, corporate, or house affiliation. While I do not assume, *a* *priori*, that spatial proximity corresponds with social identity or social distance, I do include the residential cluster as an analytical scale in the chapters to follow.

Classic Period (ca. 1000-1130 C.E.). The sweeping changes of the Three Circle phase culminated around 1000 C.E., which marks the beginning of the Mimbres Classic period. People moved out of their individual pithouses and built above-ground, multi-room pueblos. Most were on low river terraces, one story tall, and built of unshaped cobbles and adobe mortar. Classic period villages generally had two or more roomblocks, which were contiguous structures, not unlike modern apartment buildings. During the Classic period, I use roomblocks (to include immediately-adjacent structures) to examine differences at the scale of residential clusters or loci.

Post-Classic Period. The Mimbres Classic period ended around 1130 C.E. (Gomolak and Ford 1976; LeBlanc 1976, 1977) and my analyses do not extend beyond that time. Mimbres society again underwent remarkable transformation, which included large-scale emigration (Anyon et al. 1981; LeBlanc 1989; Shafer 1990), remnant populations at large sites (Anyon and LeBlanc 1984; Creel 1999a, 2006a; Hegmon et al. 1999:154-155; Lekson 1988a), and socio-demographic reorganization within the region (Hegmon et al. 1999; Hegmon et al. 1998; B. Nelson and Anyon 1996; M. Nelson 1993, 1999; M. Nelson and Hegmon 2001; M. Nelson and Schachner 2002).

Part II: Antecedence

In this section, I develop a methodology to identify and assess evidence relating to antecedence, which I define as the social recognition of, and status derived from, the order in which groups arrived at a given place. Antecedence grants moral authority to groups that founded a community or have otherwise been there the longest. Flannery and Marcus (2012) have demonstrated that among small-scale, ethnographically-described societies, antecedence constitutes a nearly-universal principle from which most other forms of social inequality emerge.

Antecedence is a social principle wherein first-comers and their descendants are recognized as having certain privileges and moral authority over others. Thus, analyses in the present chapter focus first on determining which architectural units, at various scales, had chronological primacy, and second on whether the associated social units marked their primacy in ways that might have been socially meaningful, thus contributing to and asserting their antecedence. Cross-culturally, indicators of antecedence (discussed in more detail in Chapter 2) include residential continuity, landscape modification, and strategic placement of the dead. If a structure or locale with primacy was used, remodeled, rebuilt, replaced, or otherwise marked symbolically, I interpret this as evidence of antecedence. I stress here the difference between primacy and antecedence. Primacy is an empirical fact, whereas antecedence is the moral authority derived from primacy (or claims thereof). Because antecedence often engenders inequality, social units frequently claim primacy, whether they rightfully have it or not. Over the course of generations, the facts of primacy can be questioned, contested, forgotten, and reimagined. My analyses use a series of four indices to compare and, to some extent, quantify these issues.

The Architectural Chronology Index identifies the relative age of structures within a given architectural scale, and ranks architecture according to its age. For example,

Figure 3.4 shows a hypothetical pithouse village with two loci. Locus A has architecture spanning the entire Late Pithouse period, whereas Locus B has only San Francisco phase and Three Circle phase components. Thus, pithouses 1, 2, and 3 (dating to the Georgetown phase) have greater primacy within Locus A (and the site in general), and Locus A has greater primacy than Locus B.

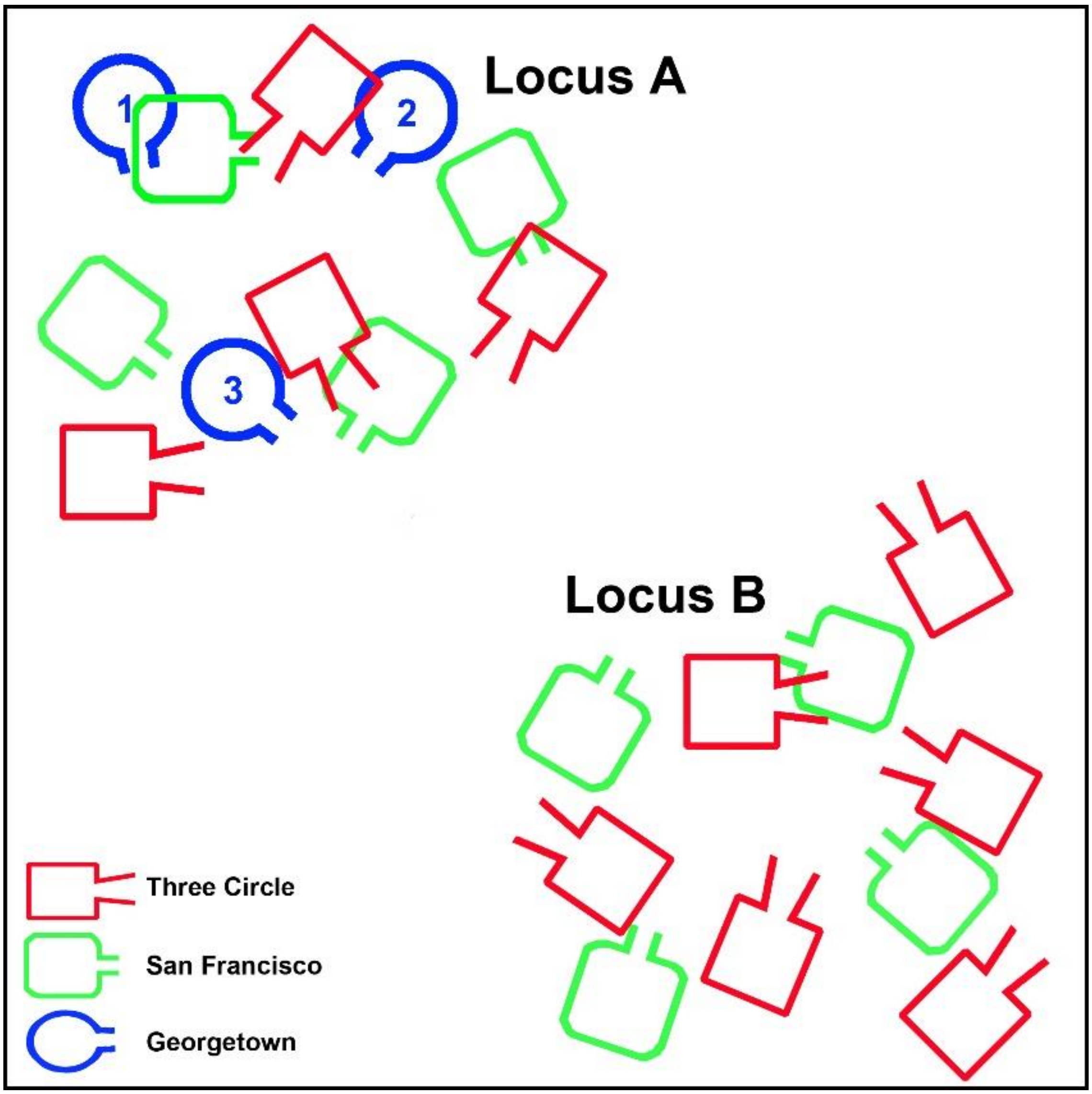

Figure 3.4. Exemplar map showing locus scale differences in architectural chronology

The *Architectural Remodeling Index* provides a method for comparing the extent of architectural remodeling, which is interpreted as a means of establishing and asserting antecedence. Three kinds of remodeling are identified in this study: the installation of new floors, the reconfiguration of walls, and the addition or removal of doorways. Simple floor replasterings are not included. Unfortunately, the extent to which various authors recognized and documented evidence of remodeling varies considerably. My analyses of remodeling are based on the inferences of original excavators along with my own examination of reported data.

When evidence of remodeling is present, it is often difficult to distinguish between separate remodeling events. For example, it would be difficult to determine whether a room's east wall was moved outward at the same time that a door in the west wall was filled. For this reason, remodeling is treated as a binary attribute; structures were either remodeled or they were not. In Figure 3.5, for example, Pithouse 1 has remodeling and Pithouse 2 does not, a difference that suggests the people in Pithouse 2 were establishing or asserting antecedence. In comparing larger areas, such as loci and sites, relative frequencies of remodeling can be determined by comparing the number of structures that were and were not remodeled. In Figure 3.5, Locus C has seven domestic structures with remodeling and two without. In comparison, Locus D has one with remodeling and five without. These frequencies are entered into a contingency table and their difference assessed using a two-tailed Fisher's exact test (see Table 3.1), which is described more fully in Chapter 4. Results in this example suggest there is a low probability that the inter-locus difference in relative frequency (77.8 percent vs. 16.7 percent) is attributable to chance ($p = 0.04$). Based on this result, one could infer that

Locus C had significantly more remodeling than Locus D, marking the former as potentially having greater antecedence.

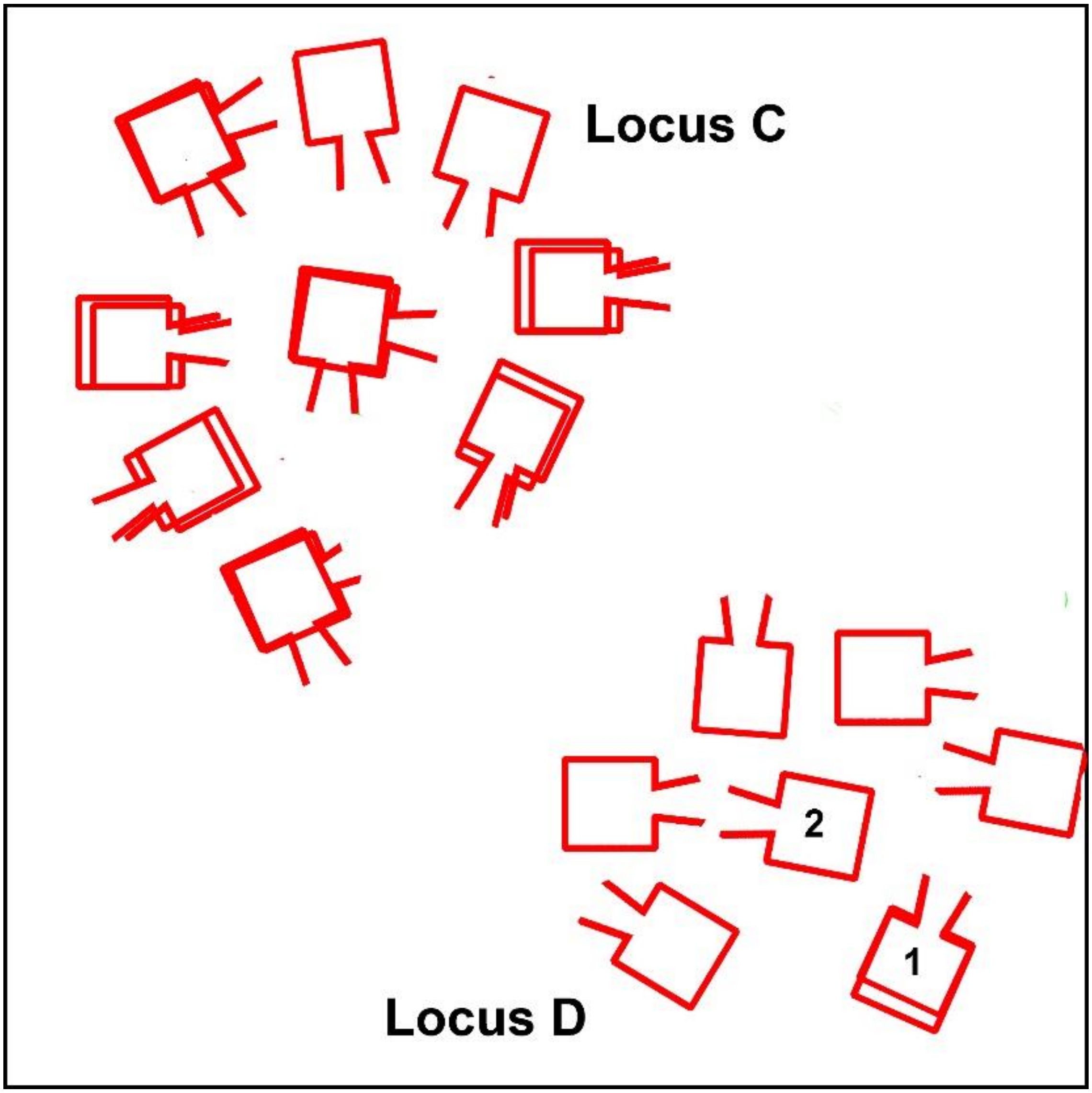

Figure 3.5. Exemplar map showing locus scale differences in structural remodeling

Table 3.1. Two-by-two contingency table, comparing frequencies of pithouses in Figure 3.5 that were and were not remodeled

	Pithouses with Remodeling	Pithouses without Remodeling	**Total**
Locus C	7	2	**9**
Locus D	1	5	**6**
Total	**8**	**7**	**15**

The Architectural Superpositioning Index compares the extent to which new structures were placed atop previously-occupied structures, a practice that is also interpreted as an effort to establish or assert antecedence. Structures are considered to have been superimposed, rather than remodeled, if one of four criteria are met:

1. The involved structures belong to different architectural classes (e.g., an above-ground room over a pit structure)
2. The involved structures were both domestic and were of the same architectural class, but were separated by at least one temporal phase (e.g., a Three Circle phase pithouse over a Georgetown phase pithouse)
3. One of the involved structures was domestic in nature and the other was ceremonial, regardless of dating (e.g., a pithouse built above an abandoned great kiva). Note that this does not include the remodeling of a domestic pithouse into a Classic period kiva.
4. The involved structures are both domestic and date to the same phase or an adjacent phase, but less than 80 percent of their combined floor areas overlap. Other evidence notwithstanding,

structures with 81 to 100 percent overlap are interpreted as an instance of remodeling rather than superpositioning. Pithouse ramps are not included in this calculation.

The degree of architectural superpositioning is quantified in two ways. Superpositioning is first treated as a binary attribute; structures are either affected by superimposition or they are not. In comparing larger areas, like loci and sites, relative frequencies of superpositioning can be determined by comparing the numbers of structures that were and were not impacted by superpositioning. In Figure 3.6, for example, there are 12 pithouses in Locus E that are affected by superpositioning (Pithouses 1 through 12), and two that are not. Locus F, in comparison, has two with and eight without. These frequencies can be entered into a contingency table and their relative difference assessed using a two-tailed Fisher's exact test. Results suggest there is a low probability of the difference in relative frequency (85.7 percent vs. 20 percent) being the result of chance ($p < 0.01$). Given this outcome, one could infer that Locus E had significantly more superpositioning than Locus F, marking the former as potentially having, establishing, or asserting greater antecedence.

The second means of comparing differences in the Architectural Superpositioning Index involves the direct comparison of *maximum vertical occupations*, which is a continuous attribute. Returning to Figure 3.6, the palimpsest of pithouses labeled 1, 2, and 3 involves three vertically-stacked occupations, whereas all other instances of superpositioning involve only two (including the pithouses labeled 10, 11, and 12). Thus, the Pithouse 1/Pithouse 2/Pithouse 3 palimpsest has the most vertical occupations at the household scale, and Locus E has the most at the locus scale. This supports the earlier inference that Locus E had the greatest degree of antecedence, within this index.

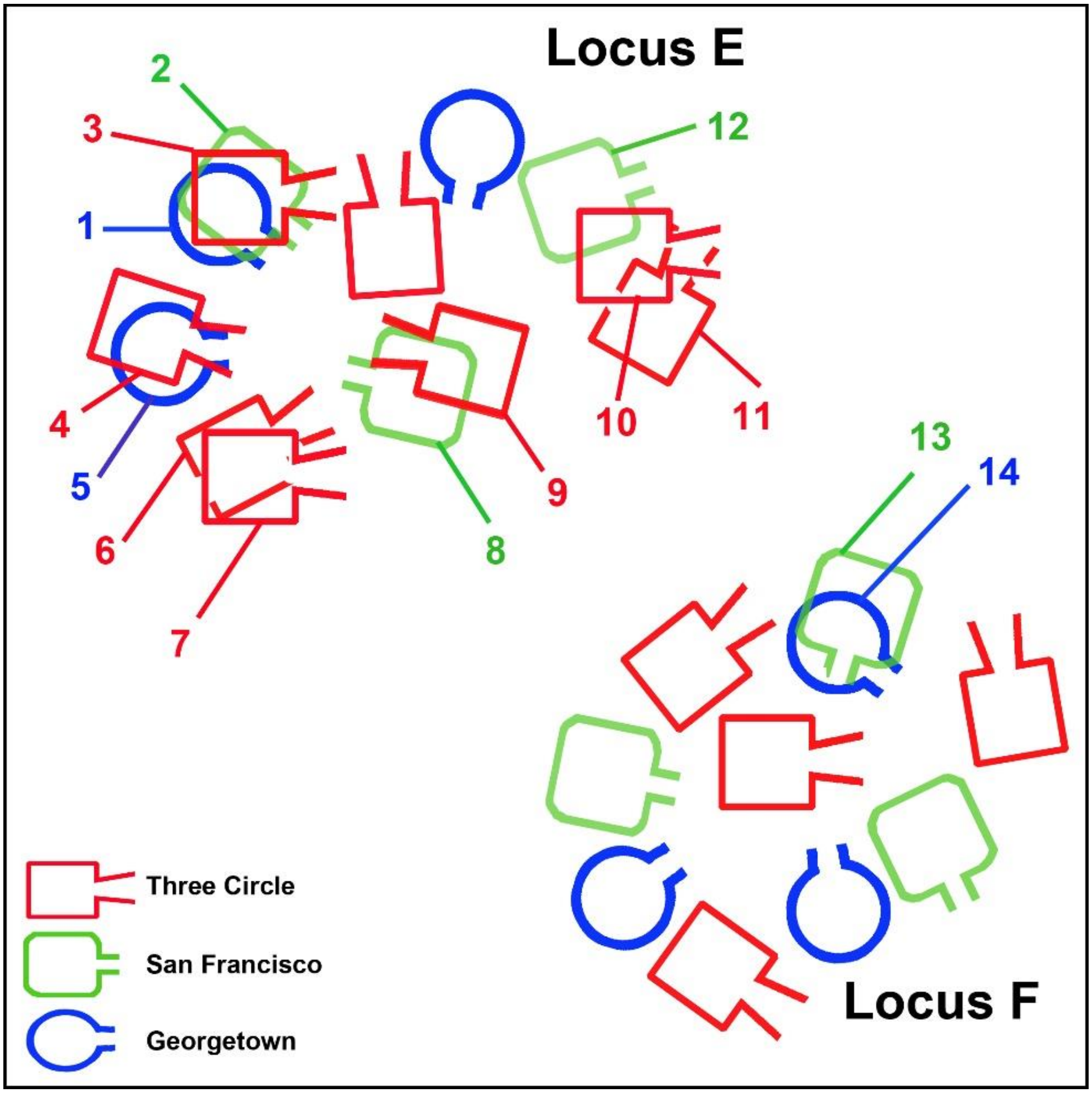

Figure 3.6. Exemplar map showing locus scale differences in structural superpositioning

The *Intramural Burial Index* compares the extent to which burials were placed in households, which is also interpreted as evidence of antecedence. The extent of intramural burials is quantified in two ways. In the first, the practice is treated as a binary attribute; a household either did or did not include burials. In Figure 3.7, for example, some rooms have no burials, while others do. When comparing larger areas, such as loci and sites, relative frequencies can be determined by contrasting the number of domestic structures that do and do not include burials. In Figure 3.7, for example, the North Roomblock has seven rooms with burials and three without. The South Roomblock, in comparison, has five with and two without. These frequencies can be entered into a contingency table and their difference assessed using a two-tailed Fisher's exact test. Results suggest there is a high probability that the difference in relative frequency (70 percent vs. 71.4 percent) is attributable to chance ($p = 1.00$). Thus, in this case, differences would not be interpreted as evidence of the asymmetric establishment of antecedence.

The second method involves a pairwise, non-parametric comparison of burial frequency distributions. Table 3.2 lists the burial distributions for the two roomblocks shown in Figure 3.7. When a two-tailed Mann-Whitney test is applied to these distributions, the result suggests that the difference between distributions has a high probability of resulting from chance ($U = 29.5$; $p = 0.62$). The outcomes of both methods suggest that neither roomblock was asserting antecedence through intramural burial more than the other. These findings support an inference of antecedence at the household, but not locus scale.

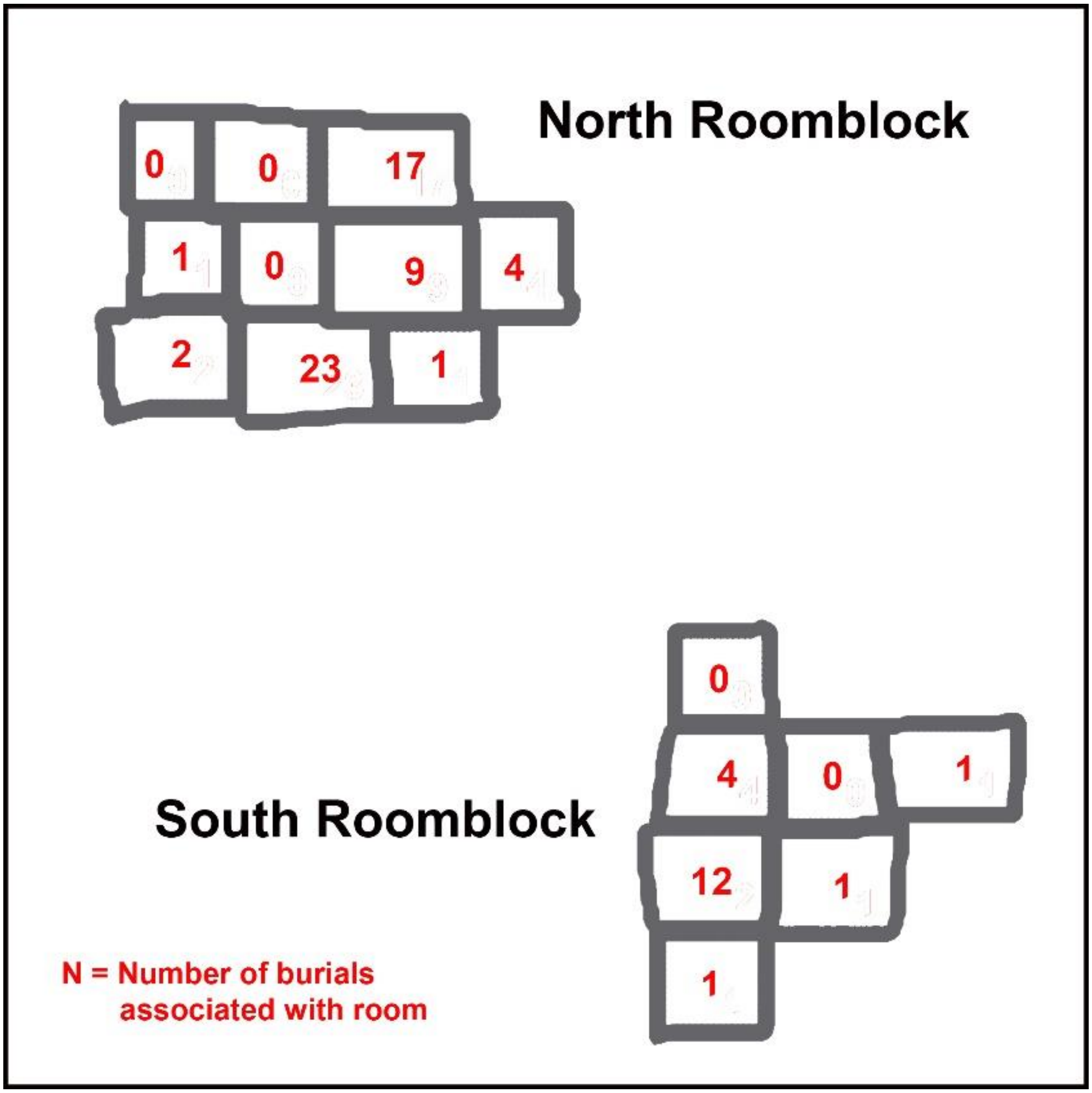

Figure 3.7. Exemplar map showing locus scale differences in burial distribution

Table 3.2. Burial distributions at roomblocks shown in Figure 3.7.

Roomblock	Room [A]	Distribution	N Burials
North	N1	First	0
	N2		0
	N3		17
	N4		1
	N5		0
	N6		9
	N7		4
	N8		2
	N9		23
	N10		1
South	S1	Second	0
	S2		4
	S3		0
	S4		1
	S5		12
	S6		1
	S7		1

[A] Rooms not labeled in Figure 3.7

Part III: Study Sites

In this section, I describe the seven sites that are analyzed in Chapters 4 through 7 (see Table 3.3). For each site, I also examine evidence of both primacy and antecedence, drawing on the four indices described above, at the scales of household and locus (residential cluster). For the most part, loci and sites have some structures that are earlier than others, some with more renovation than others, some built on top of others, or some with more associated burials than others.

Table 3.3. Sites considered in the analyses

Site	Site Number	Primary Reference(s)	Number of [A] Rooms	Burials
Cameron Creek	LA190	Bradfield (1931)	176	248
Galaz	LA635	Anyon and LeBlanc (1984)	182	927
Harris	LA1867	Haury (1936); Roth (2012)	56	70
Mattocks	LA676	Gilman and LeBlanc (2016)	141	318
NAN Ranch	LA15049	Shafer (2003)	111	285
Swarts	LA15002	Cosgrove and Cosgrove (1932)	196	1,169
Wind Mountain	LA127260	Woosley and McIntyre (1996)	99	128

[A] Reflects number of rooms and burials from which adequate data are available for one or more of the analyses performed.

Cameron Creek

The village of Cameron Creek (LA190) sits on a ridge above and just east of a stream that bears the same name. The creek runs to the southeast for about 30 km before emptying into the Mimbres River. Wesley Bradfield (1931), with the School of American Research, excavated at Cameron Creek from 1923 to 1925, and from 1927 to 1928. During the final field season, Bradfield was joined by researchers from the University of Minnesota. All told, the site underwent 22 weeks of professional excavation. Collections and notes are housed at the Museum of New Mexico, and basic data are contained in Table 3.4.

Table 3.4. Cameron Creek burials and architecture

Period	Number of Structures	Loci	Burials	Loci Names
Classic period	93	4	199	North, East, West, South
Three Circle or Classic	0	2-4	1	n/a
Three Circle phase	9	2	27	North, South
Pre-Classic era [A]	54	2	18	North, South
Undated	0	1-4	3	n/a
Entire occupation	156	--	248	--

[A] Finest temporal resolution possible; does not include data reflected elsewhere in this table

Although Cameron Creek is a multicomponent site, the dating of deposits is generally broad. Some burials and structures can be dated to the Three Circle phase, while others can be divided only into two primary temporal categories: pre-Classic (ca. 200-1000 C.E.) and Classic (ca. 1000-1130 C.E.).

Pre-Classic Era. There remains some ambiguity concerning Cameron Creek's architecture, especially during the pre-Classic era. Bradfield's (1931) map shows two great kivas, 58 pithouses, and a small structure probably used for storage (2.51 m^2). Fifteen of these are not labeled, and two others have the same label. Thirteen additional pithouses are mentioned in Bradfield's text. Some of these likely correspond with the unlabeled structures on the map, but Bradfield's numbering system does not allow for matching. Ten of the mapped pit structures, including one of the great kivas, are datable to the Three Circle phase, while the 51 others are datable only to the pre-Classic era. The site's pit structures fall into two fairly distinct clusters, which I refer to as the North and South loci (see Figure 3.8). The North Locus contains at least 27 pithouses and a large great kiva that sits at the southwestern edge of the cluster. The South locus has at least 31 pithouses, the aforementioned small structure, and a smaller great kiva. Forty-five burials have been dated to the pre-Classic era, 27 of these to the Three Circle phase in particular.

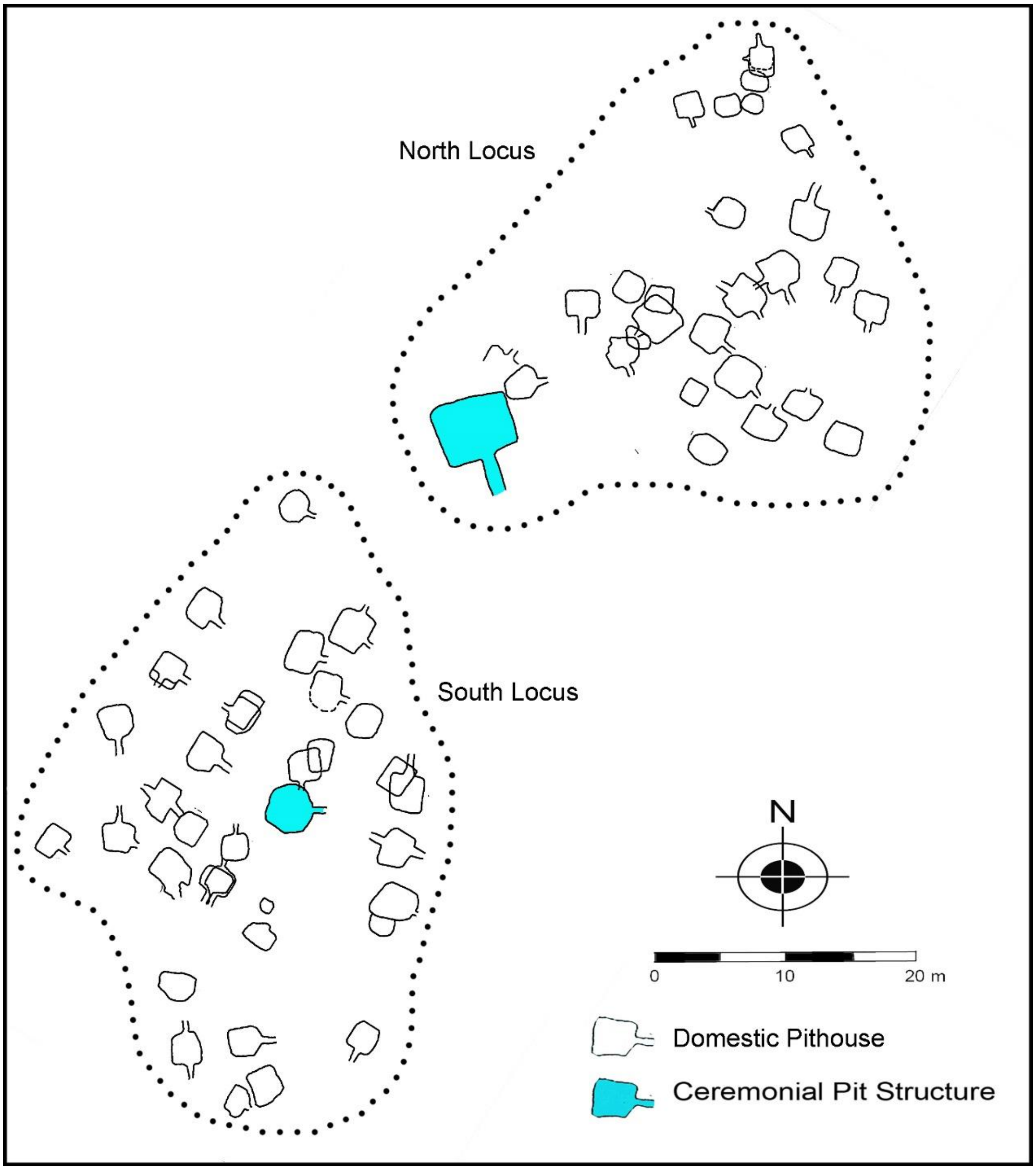

Figure 3.8. Pre-Classic architecture at Cameron Creek (after Bradfield 1931).

Classic Period. Bradfield (1931) documented 93 Classic period rooms at Cameron Creek. These are divided among four roomblocks: North (n = 25), East (n = 22), West (n = 7), and South (n = 36) (see Figure 3.9). Two Classic period rooms are isolated from any particular roomblock, and one is not labeled on Bradfield's map. The North and East roomblocks correspond roughly with the earlier North Locus, while the

West and South roomblocks overlie the earlier South Locus. Bradfield excavated 199 Classic period burials.

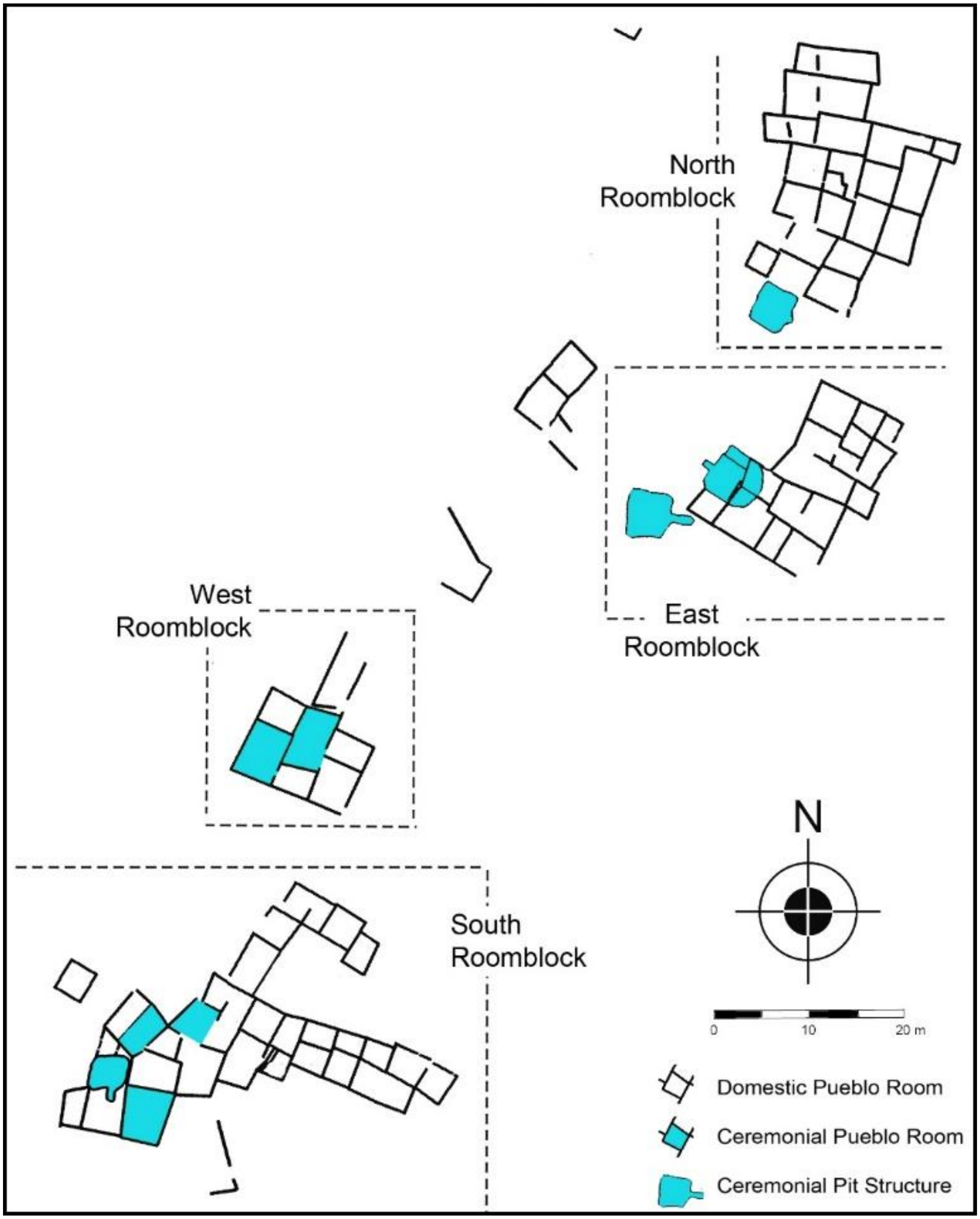

Figure 3.9. Classic period architecture at Cameron Creek (after Bradfield 1931).

Architectural Chronology Index. Of the 61 analyzed pit structures at Cameron Creek, nine are dated to the Three Circle phase and the remainder can be classified only as pre-Classic. Thus, the order in which pit structures were built cannot be determined. Neither locus, in turn, can be identified has having greater primacy than the other.

Architectural Remodeling Index. Eleven of the mapped, pre-Classic pithouses at Cameron Creek show clear evidence of remodeling, whereas 47 do not (see Figure 3.10). Eight of the remodeled pithouses are in the South Locus and three are in the North. A statistical comparison of remodeling frequencies indicates that the difference has a high probability of resulting from chance ($p = 0.19$, two-tailed Fisher's exact test). During the Classic period, evidence of remodeling was encountered in just two rooms, only one of which was domestic. Both were located in the West Roomblock. Remodeling frequencies for each roomblock were compared in pairwise fashion, and all differences have a high probability of resulting from chance ($p \geq 0.16$; two-tailed Fisher's exact tests). Thus, within this index, there is some indication of asymmetric antecedence at the household scale, throughout the occupation, but not at the scale of locus.

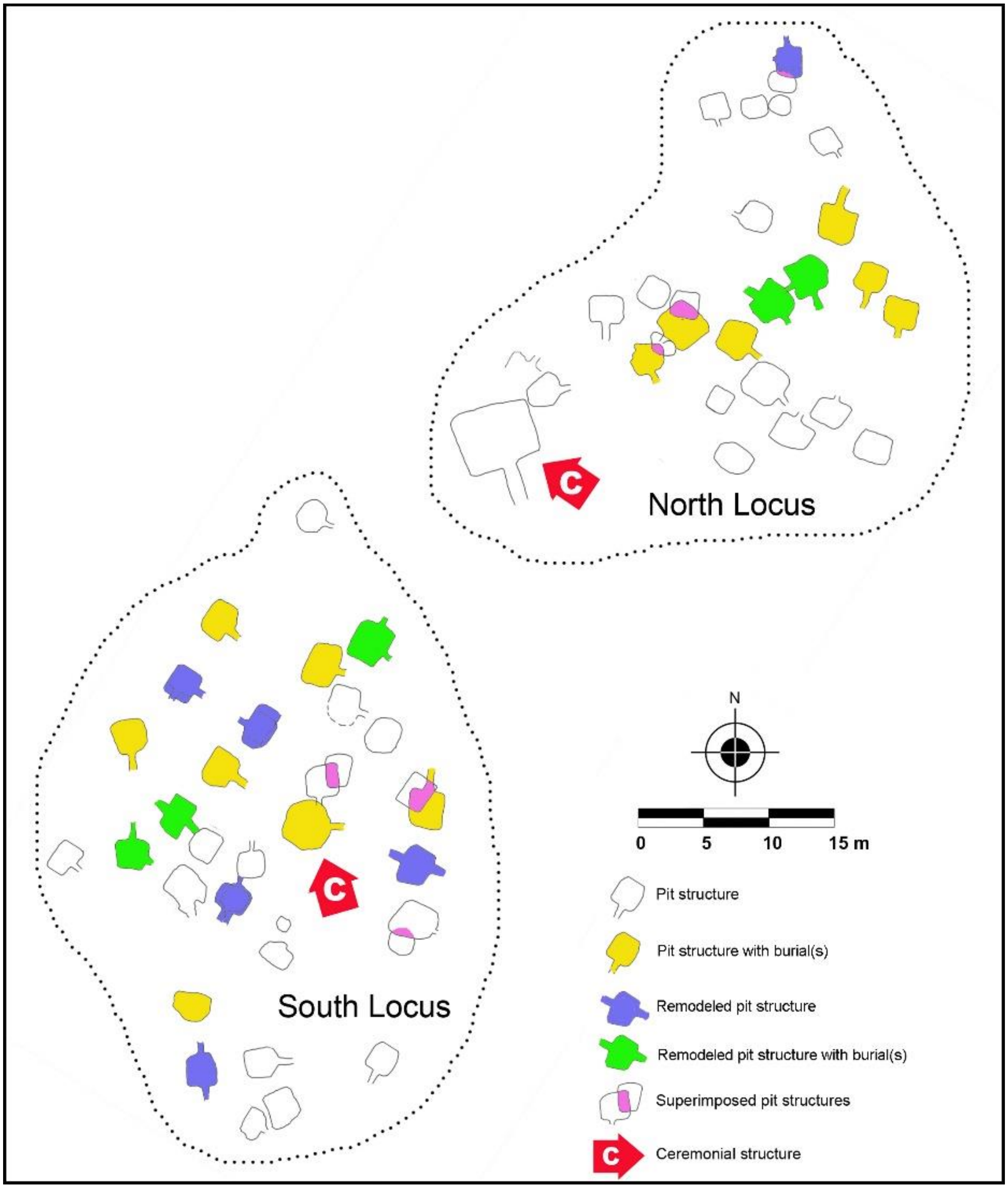

Figure 3.10. The pre-Classic establishment of antecedence at Cameron Creek.

Architectural Superpositioning Index. Twelve of Cameron Creek's 58 mapped, domestic pithouses were affected by superpositioning. These were divided evenly between the North Locus and South Locus. Relative frequencies of superpositioning are compared for each locus, but the difference is negligible, with a high probability of resulting from chance (p = 1.00). Nearly all instances of Classic period superpositioning involve Classic rooms above pre-Classic pit structures (see Figure 3.11). Superpositioning frequencies for each of the four roomblocks are compared using a series of two-tailed Fisher's exact tests (see Table 3.5). Results suggest that differences in relative frequency, at the locus scale, have a high probability of resulting from chance. Thus, throughout the site's occupation, antecedence was manifest through superpositioning at the household scale, but not that of locus.

Table 3.5. Assessing differences in the relative frequency of structural superpositioning at Cameron Creek as of the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests).

		Roomblock			
		North	**East**	**West**	**South**
Roomblock	**North**				
	East	p = 0.24			
	West	p = 0.09	p = 0.41		
	South	p = 0.42	p = 0.78	p = 0.24	

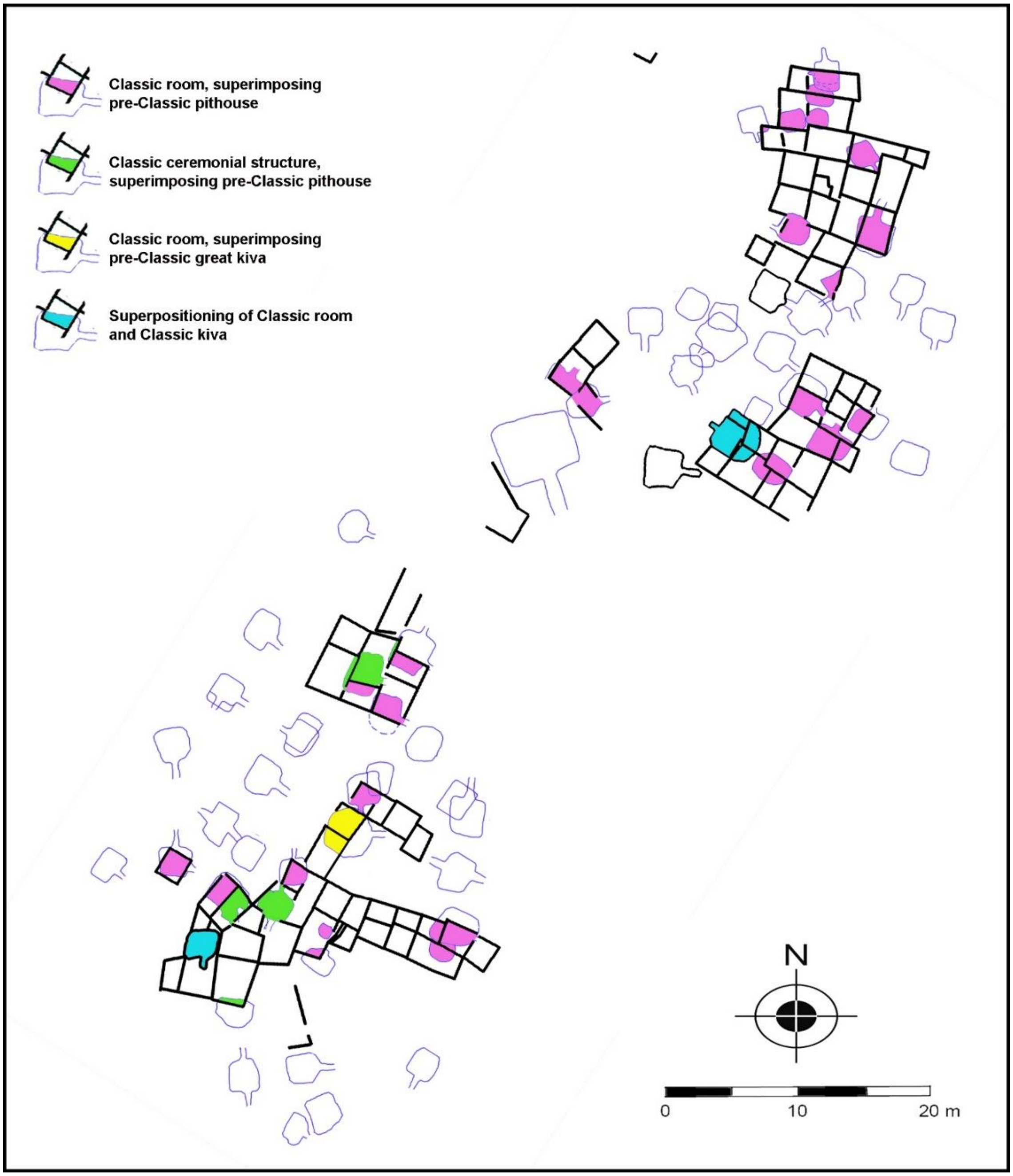

Figure 3.11. Diachronic superpositioning at Cameron Creek.

Interestingly, rooms with burials almost never overlapped at Cameron Creek. In Figure 3.12, pre-Classic pithouses with burials are represented by red dots and Classic period rooms with burials are shown as blue squares. Although Classic period rooms were often placed atop earlier pithouses (see Figure 3.11), pithouses with burials were almost never superimposed by Classic period rooms. As a result, there was very little accumulation of burials across the pithouse-to-pueblo transition. If people at Cameron Creek were using intramural burial as a means to assert antecedence, it would appear that the proverbial slate was wiped clean at around 1000 C.E. During the subsequent Classic period, burials were put in new places and accumulation began anew.

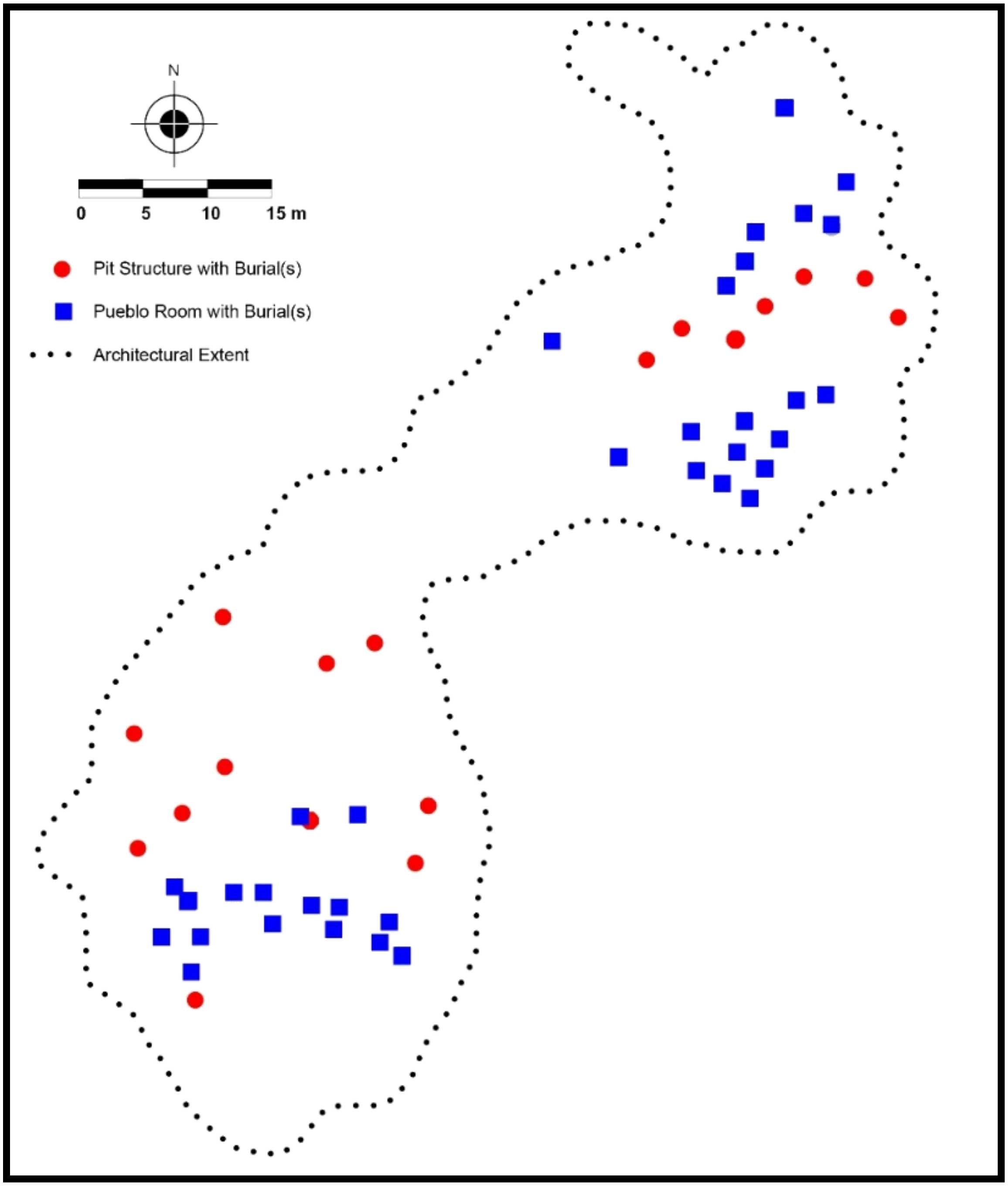

Figure 3.12. Stylized map of Cameron Creek, showing locations of earlier pithouses with burials (red dots) and later rooms (blue squares) with burials.

Intramural Burial Index. During the pre-Classic era, the practice of intramural burial was no more prevalent in one locus than in the other (see Figure 3.13, left). Nine out of 27 pithouses in the North Locus had associated burials, for a relative frequency of

33.3 percent. In the South Locus, 13 out of 31 pithouses had burials, for a relative frequency of 41.9 percent. To assess these differences, frequencies of pithouses that did and did not include burials are entered into a contingency table and subjected to a two-tailed Fisher's exact test. Results indicate that there is a high probability of the difference resulting from chance ($p = 0.59$). Locus-scale burial distributions were also compared, using a two-tailed Mann-Whitney test. The distributional differences were likewise found to have a low probability of being culturally meaningful ($U = 876.5$, $p = 0.97$). Thus, the establishment and assertion of antecedence by means of intramural burial appears to have been manifest at the household scale prior to 1000 C.E., but not at the locus scale.

Evidence suggests that during the Classic period, the scale at which burials were used to assert antecedence may have expanded to include the locus as well as the household (see Figure 3.13, right). For each of Cameron Creek's Classic period roomblocks, the relative frequencies of rooms with burials are compared using a series of two-tailed Fisher's exact tests (see Table 3.6). No burials were encountered in the West Roomblock, and the resultant relative frequency is significantly lower than those of the East and South roomblocks ($p = 0.05$ and 0.04, respectively). No other meaningful differences in relative frequency were noted. Burial distributions for the four roomblocks are also compared, using two-tailed Mann-Whitney tests to assess differences (see Table 3.7). This too showed that the difference between the East and West roomblocks has a relatively low probability of resulting from chance ($p = 0.07$).

Table 3.6. Assessing differences in the relative frequency of domestic rooms at Cameron Creek that doubled as cemeteries during the Classic period (locus scale). (Probability values obtained using two-tailed Fisher's exact tests. Yellow cells indicate low probability of difference resulting from chance.)

		Roomblock			
		East	**North**	**South**	**West**
Roomblock	**East**				
	North	p = 0.13			
	South	p = 0.40	p = 0.41		
	West	p = 0.05	p = 0.30	p = 0.04	

Table 3.7. Assessing differences in locus scale burial distributions at Cameron Creek during the Classic period. (Probability values obtained using two-tailed Mann-Whitney tests. Yellow cells indicate low probability of difference resulting from chance.)

		Roomblock			
		East	North	South	West
Roomblock	East				
	North	U = 302; p = 0.15			
	South	U = 370.5; p = 0.35	U = 343.5; p = 0.51		
	West	U = 22.5; p = 0.07	U = 42.5; p = 0.33	U = 47.5; p = 0.16	

Several additional observations deserve mention. Although burials in ceremonial structures are excluded from the index, it is interesting to note that 10 burials were encountered in the South Locus' modest great kiva, while none were found in the North Locus' large great kiva. In fact, the concentration of burials in the southern great kiva is over twice the size of any other pre-Classic concentration. Thus, it is possible that people living in the South Locus asserted antecedence in a more communal venue, whereas those in the North Locus did not.

Also, pithouses with burials in the South Locus are dispersed throughout the cluster, with no apparent pattern or concentration. In contrast, North Locus pithouses that include burials are tightly concentrated (see Figure 3.10) in a semi-circular arc, with their entrances facing a common, cleared area. Northern remodeling is also spatially concentrated (not so in the south), with half of the locus' remodeled pithouses in the semi-circular arc and the others nearby. This formation is not unlike the courtyard groups recognized by Cosgrove and Cosgrove (1932) at Swarts Ruin and by Di Peso (1956) and others in the Hohokam region (e.g., Doyel 1987; Gregory 1991; Henderson 1987; Howard 2000; Mabry 1998; Wilcox 1991b; Wilcox et al. 1981). More recently, similar clusters have been documented at the Mimbres sites of Old Town (Creel 2006a:130-133; Lucas 1996) and NAN Ranch (Shafer 2003:27).

The crescent-shaped array of pithouses in the North Locus – hereafter referred to as the site's courtyard group – could represent an earlier, perhaps founding group, although at least two of the structures in the arrangement date to the Three Circle phase. The most parsimonious explanation is that this arrangement of pithouses – distinguished by its semi-circular formation, exclusive clearing, and concentrations of both burials and remodeling – represents a distinct social group, nested within the North Locus. This group appears to have been more invested in the establishment and assertion of antecedence than any other locus or sector. I note also that although Classic period rooms were frequently built atop abandoned pithouses, this courtyard group was never superimposed. If the courtyard group does represent a founding party, the refusal to later build above it might suggest that people living at Cameron Creek were, after 1000 C.E., intentionally distancing themselves from earlier claims of antecedence and the inequality it may have engendered or, alternatively, respecting earlier claims and avoiding their appropriation.

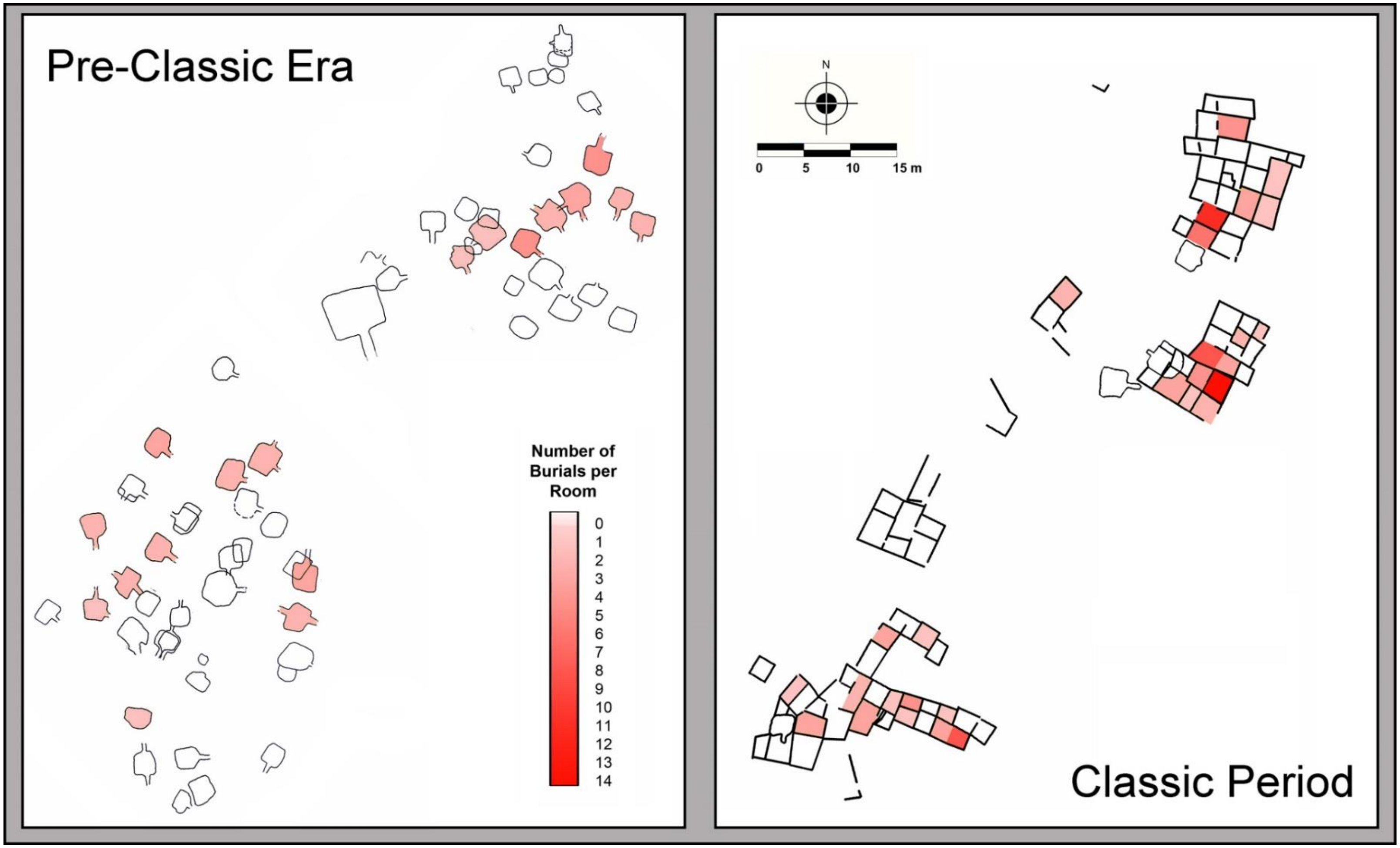

Figure 3.13. Burial densities during the pre-Classic era (left) and Classic period (right) at Cameron Creek. Burials in ceremonial architecture are not reflected here (architecture after Bradfield 1931).

In sum, several lines of evidence suggest that the principle of antecedence was recognized at Cameron Creek, both prior to and during the Classic period. This evidence is consistently manifest at the household scale. Although I am unable to positively identify a founding locus at Cameron Creek, pithouses with burials and those with remodeling are most concentrated near the center of the North Locus, in a clearly-defined array resembling a courtyard group. Whether this small cluster of pithouses represents the site's founding locus or not, it seems clear that this place was tied to evidence of antecedence more than any other part of the site, at least until 1000 C.E. After the pithouse-to-pueblo transition, pueblo rooms were frequently built atop pithouses, but this never occurred within the courtyard group. Elsewhere on the site, when Classic rooms did superimpose earlier pithouses, they were almost never used as cemeteries if the underlying structures contained burials. Together, these observations suggest a shift in which groups held antecedence and how it was asserted, but not in the scale at which it operated.

NAN Ranch

NAN Ranch Ruin (LA2465) is located on the historic NAN Ranch, near Dwyer, New Mexico. The property is owned by the Hinton family, longstanding supporters of Mimbres research and preservation. The site sits slightly northeast of the Mimbres River, on a low terrace. It was visited by Adolph Bandelier (1892) around 1883, Clement Webster (1912) in 1889 and 1892, and Jesse Walter Fewkes (1914, 1916, 1923, 1924) during the early twentieth century. Harriet and C.B. Cosgrove (1932) were the first professionals to excavate at NAN Ranch – in 1926 and 1927 – although looting was well underway by that time. The Cosgroves excavated nine rooms and 53 burials. An avocationalist from Alamogordo, Virginia Wunder, did a small amount of digging at the site in the mid-twentieth century (Shafer 2003:16-18). At the request of the Hinton family, an archaeological field school from Texas A&M University began excavations at NAN Ranch in 1978, led by Harry Shafer (Dockall 1990, 1991; Gottshall et al. 2002; Ham 1989; Holliday 1996; Lyle 1996; Marek 1990; Meinardus 1988; Parks-Barrett 2001; Patrick 1988, 1995; Petrovich 2001; Shafer 1986, 1990a-d, 1991a-d, 1992, 2003, 2006; Shafer and Brewington 1995; Shafer and Drollinger 1998; Shafer and Judkins 1996; Shafer et al. 1989; Shafer et al. 1979; Shaffer 1991). Collections from these excavations, including all field notes, are currently housed in the Western New Mexico University Museum. Basic site information is contained in Table 3.8.

Deposits at NAN Ranch date to the Late Pithouse and Classic periods. The specific temporal categories used by Shafer (2003) are included in Figure 3.2. For analytical purposes, I retain his "Transitional" phase, but otherwise adhere to my standardized categories (cf. Anyon et al. 1981). NAN Ranch's earliest identified architecture is a single Georgetown phase pithouse in the far southeastern corner of the site (see Figure 3.14), potentially marking the settlement of a founding lineage. Five San Francisco phase pithouses were later built nearby, and seem to constitute a single locus. The site grew considerably during the Three Circle phase, and distinct pithouse clusters first appeared. I refer to these as the East, South, and Southeast loci. They form a triangle, roughly centered on the site's two great kivas. Shafer dated 18 structures to the Transitional period. These fit fairly well within the loci defined for the Three Circle phase. The two largest Transitional structures (51 and 91) are beyond the bounds of the three loci and may represent additional ceremonial facilities. Structure 51, in fact, partially overlies Structure 52, a Three Circle phase great kiva.

Table 3.8. NAN Ranch burials and architecture

	Number of			
Temporal Parameter	**Structures**	**Loci**	**Burials**	**Loci Names**
Classic period	66	4	189	West, East, South, Southeast
Three Circle phase or Classic period	0	3-4	12	East, South, Southeast, West?
Transitional phase	21	3	24	East, South, Southeast
Three Circle phase	20	3	20	East, South, Southeast
San Francisco or Three Circle phase	1	1-3	2	Southeast, East?, South?
San Francisco phase	2	1	0	Southeast
Georgetown phase	1	1	0	Southeast
Late Pithouse period	0	3	1	East, South, Southeast
Undated	0	1-4	37	Southeast, East?, South?, West?
Entire occupation	111	--	285	--

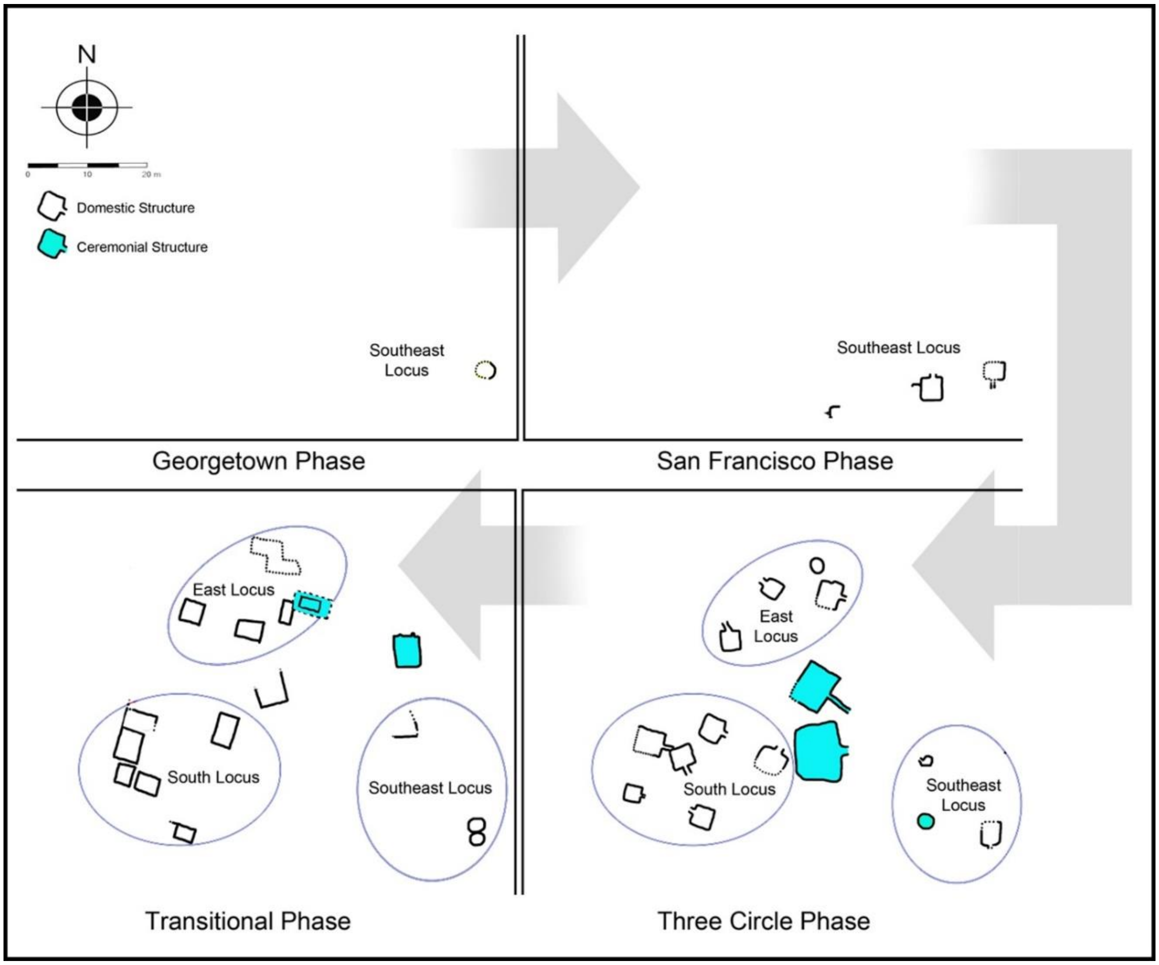

Figure 3.14. Pre-Classic components at NAN Ranch (after Shafer 2003:Figure 3.2)

During the Classic period, pueblo roomblocks were built above the Southeast, East, and South loci, and these are referred to as the Southeast, East, and South roomblocks, respectively. The consistency in residential clustering suggests continuity in social grouping. In other words, the separation of pithouses into clusters may reflect social boundaries which, in turn, survived the pithouse-to-pueblo transition and were replicated in the form of distinct roomblocks. In addition to the East, South, and Southeast roomblocks, a West Roomblock was added in the site’s far northwestern corner (see Figure 3.15).

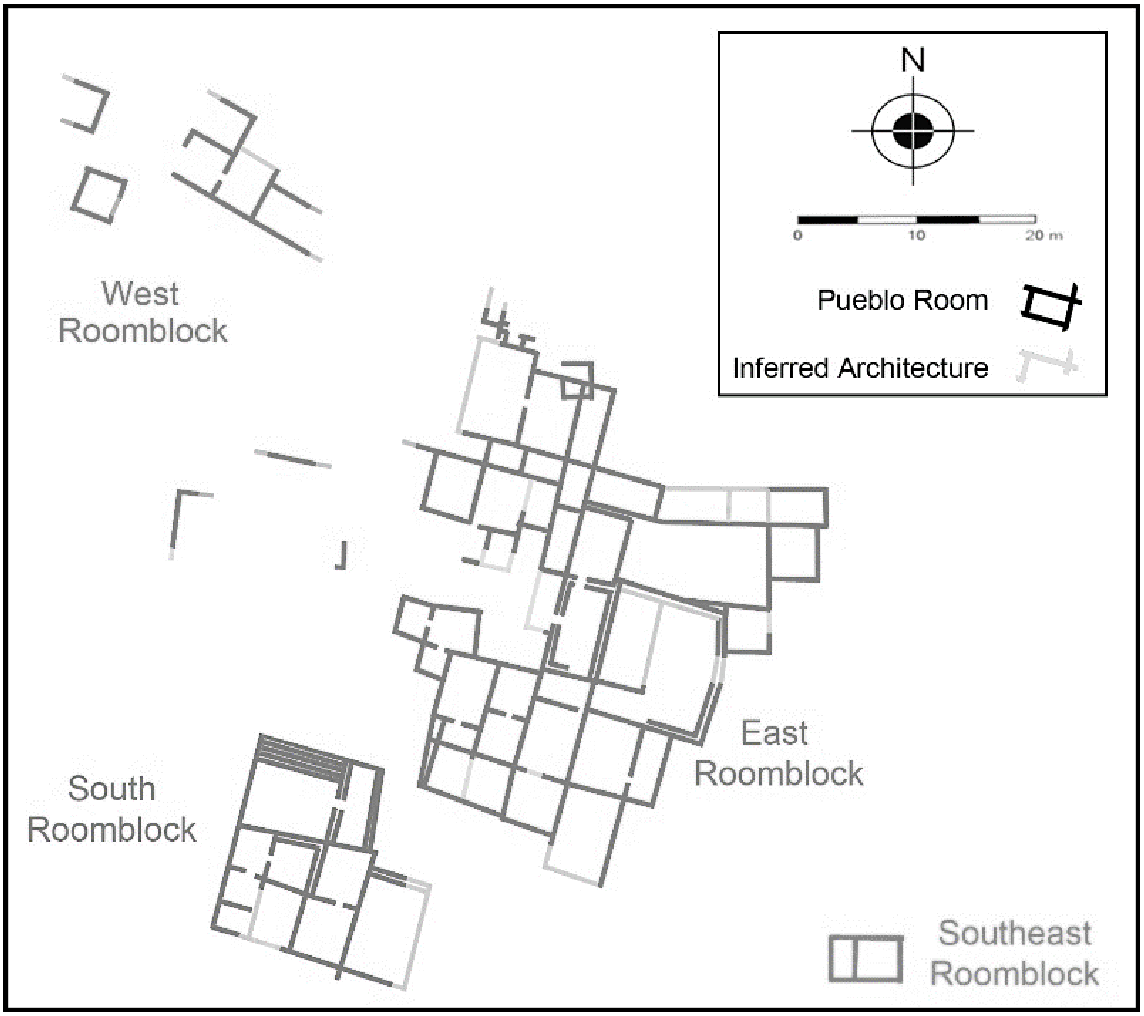

Figure 3.15. Classic period architecture at NAN Ranch (after Shafer 2003:Figure P.2)

Architectural Chronology Index. Architectural chronology is unambiguous at NAN Ranch. The site's earliest structure, dating to the Georgetown phase, is located in the southeastern corner of the site. This is also the only locus occupied during each phase of the Late Pithouse period and into the Classic period, thereby constituting the site's longest-running example of residential continuity. This continuity was displayed in the Late Pithouse period by way of repeatedly constructing one residence atop another, over the course of several generations. The site's earliest structure, Pithouse 105 (Georgetown phase) was directly superimposed by Pithouse 100 (San Francisco phase), then by Pithouse 95 (Three Circle phase), and finally by Pithouses 97 and 99 (Transitional period). People were going to great lengths, over the span of centuries, to demonstrate and reify a connection between themselves and a particular place. This continuity ended abruptly just prior to the Classic period, and no new structures were built above the site's earliest pithouse.

Architectural Remodeling Index. Evidence of remodeling is sparse, prior to the Classic period. It may have been used sparingly by a few households, but there is no evidence to suggest that it was used to assert antecedence at the locus scale. Remodeling frequencies were tabulated for each locus, beginning in the Three Circle phase, when distinct loci first developed (see Tables 3.9 and 3.10). Differences between relative frequencies are minor, with a high probability of resulting from chance (p = 1.00).

Table 3.9. Assessing differences in the relative frequency of structural remodeling at NAN Ranch, during the Three Circle phase (locus scale). (Probability values obtained from two-tailed Fisher's exact tests)

		Locus		
		Southeast	**East**	**South**
	Southeast			
Locus	**East**	p = 1.00		
	South	p = 1.00	p = 1.00	

Table 3.10. Assessing differences in the relative frequency of structural remodeling at NAN Ranch, during the Transitional phase (locus scale). (Probability values obtained from two-tailed Fisher's exact tests)

		Locus		
		Southeast	**East**	**South**
	Southeast			
Locus	**East**	p = 1.00		
	South	p = 1.00	p = 1.00	

During the Classic period, differences in remodeling became more marked, and also shifted in scale (see Table 3.11). These differences, after 1000 C.E., were manifest at the locus scale instead of, or in addition, to that of the household. In particular, the South Roomblock's relative frequency of remodeling was nearly three times that of the East Roomblock, a difference which has a low probability of resulting from chance (p = 0.04).

Table 3.11. Assessing differences in the relative frequency of structural remodeling at NAN Ranch, during the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests. Yellow cell indicates low probability of difference resulting from chance.)

		Locus			
		Southeast	**East**	**South**	**West**
	Southeast				
Locus	**East**	p = 1.00			
	South	p = 0.44	p = 0.04		
	West	p = 1.00	p = 0.57	p = 0.07	

Architectural Superpositioning Index. During each phase and period, some domestic structures were affected by superpositioning and others were not (see Figure 3.16). In some cases, such as that described earlier, superpositioning was clearly an important marker of antecedence that was employed for centuries. Superpositioning frequencies were compared for each locus, beginning with the Three Circle phase, when distinct loci first emerged. Differences in relative frequency were assessed using a series of two-tailed Fisher's exact tests, the results of which are included in Tables 3.12 through 3.14. During the Three Circle phase, the Southeast Locus experienced far more superpositioning than both the East and South loci (p = 0.05 and 0.02, respectively). The same pattern was observed during the Transitional phase (p < 0.01). During the Classic period, the Southeast Roomblock continued to dominate the index, with a relative frequency that was significantly higher than those of the South and West Roomblocks ($p = 0.06$ and 0.01, respectively). Thus, throughout the site's occupation and despite its relatively modest growth after 1000 C.E., people living in the Southeast Roomblock continued to use superpositioning more than others in order to assert their antecedence.

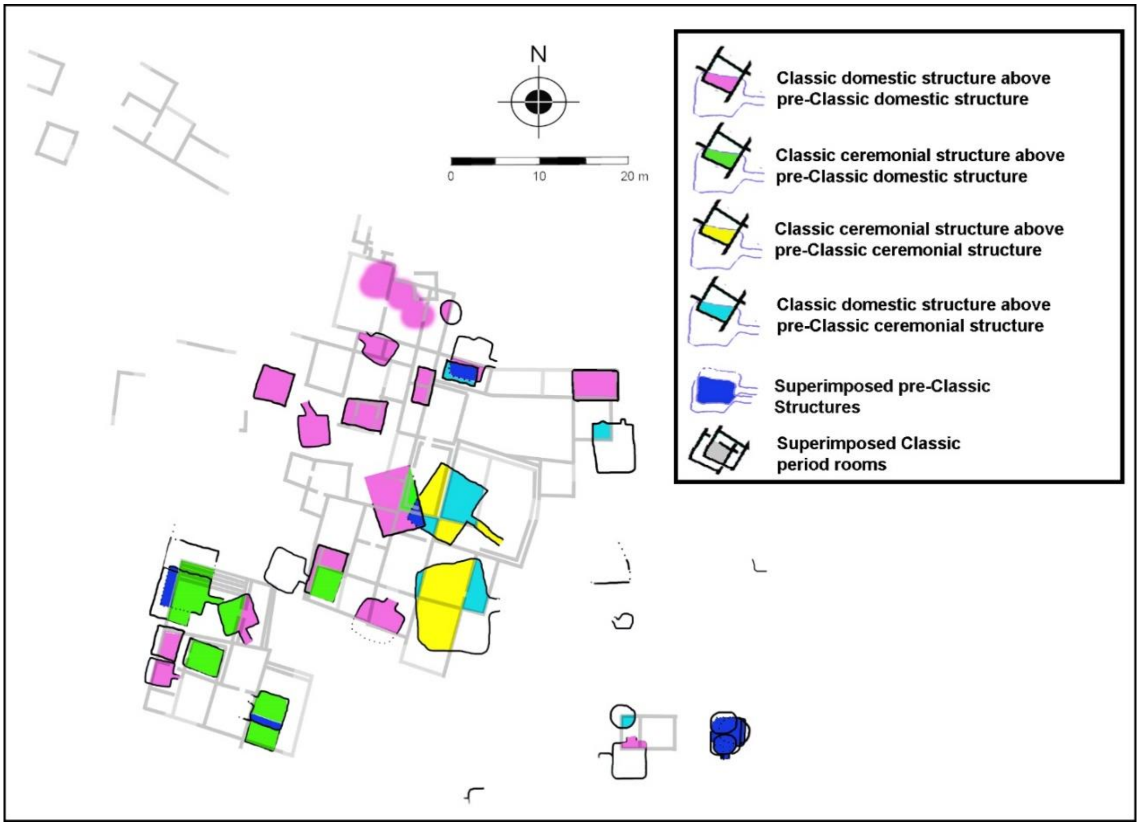

Figure 3.16. Structural superpositioning at NAN Ranch (architecture after Shafer 2003:Figures P.2 and 3.2)

Table 3.12. Assessing differences in the relative frequency of structural superpositioning at NAN Ranch, as of the Three Circle phase (locus scale). (Probability values obtained from two-tailed Fisher's exact tests. Yellow cells indicate differences in relative frequency with a low probability of resulting from chance).

		Locus		
		Southeast	**East**	**South**
	Southeast			
Locus	**East**	p = 0.05		
	South	p = 0.02	p = 1.00	

Table 3.13 Assessing differences in the relative frequency of structural superpositioning at NAN Ranch, as of the Transitional phase (locus scale). (Probability values obtained from two-tailed Fisher's exact tests. Yellow cells indicate differences in relative frequency with a low probability of resulting from chance).

		Locus		
		Southeast	**East**	**South**
	Southeast			
Locus	**East**	p = 0.004		
	South	p = 0.002	p = 1.00	

Table 3.14. Assessing differences in the relative frequency of structural superpositioning at NAN Ranch, as of the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests. Yellow cells indicate differences in relative frequency with a low probability of resulting from chance).

		Locus			
		Southeast	**East**	**South**	**West**
	Southeast				
	East	p = 0.10			
Locus	**South**	p = 0.06	p = 0.42		
	West	p = 0.01	p = 0.07	p = 0.28	

Intramural Burial Index. Throughout the occupation of NAN Ranch, some houses had no burials, while others had some, and a few had many (see Figure 3.17). These differences suggest household scale asymmetry in the establishment and assertion of antecedence. To examine the possibility of such inequality at the locus scale and prior to the Classic period, frequencies of rooms that did and did not include burials are compared, using a series of two-tailed Fisher's exact tests. Low sample sizes prevent comparison prior to the Three Circle phase, and I combine Three Circle phase and Transitional phase burials for the current analysis. In Table 3.15, I assess differences in the relative frequency of rooms with burials during the combined Three Circle and Transitional phases, finding no significant differences. I also compare burial distributions for the same time span (see Table 3.16). This too identifies no substantive differences.

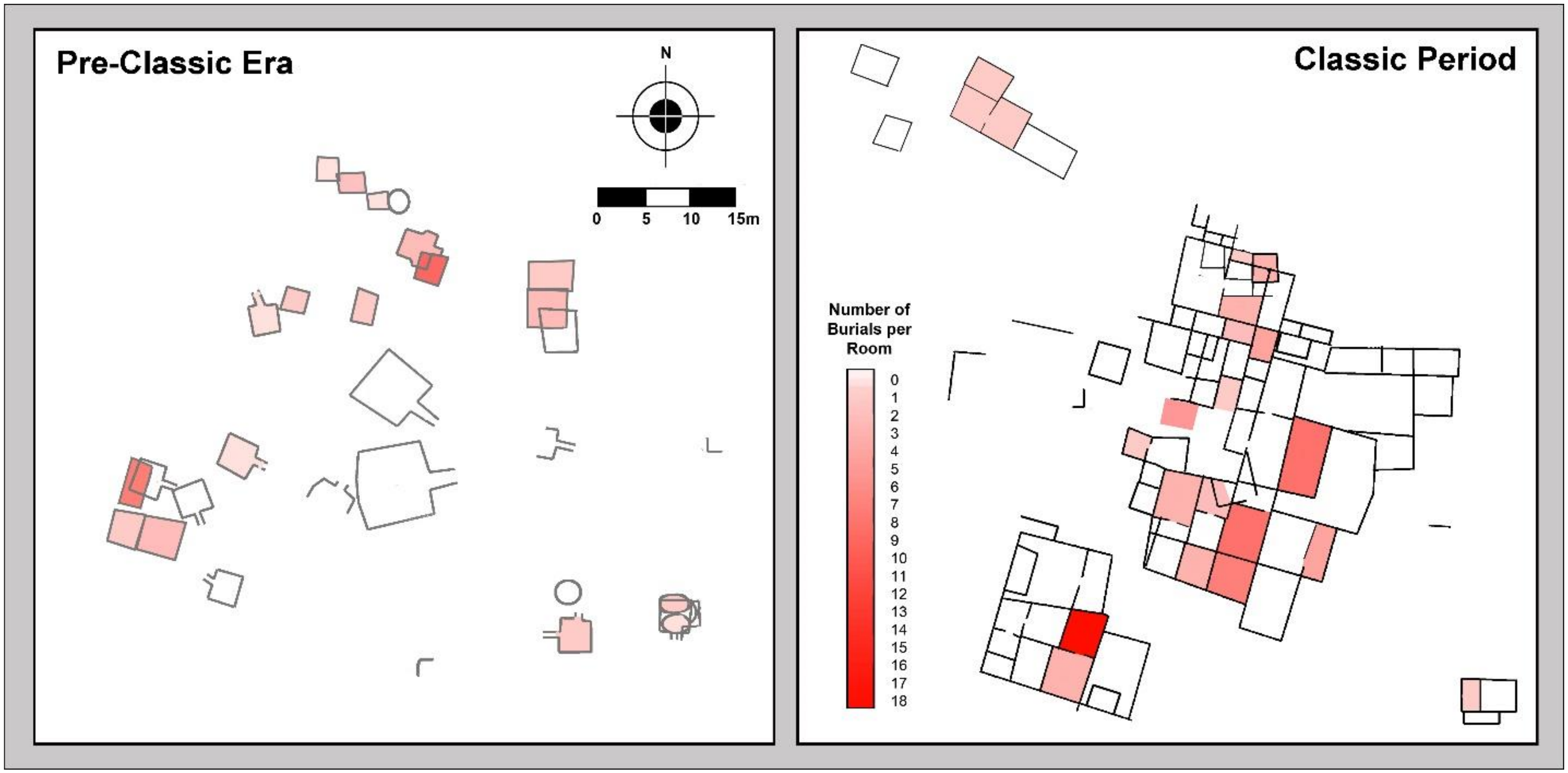

Figure 3.17. Burial density at NAN Ranch prior to (left) and during (right) the Classic period. Burials in ceremonial structures are not reflected (architecture after Shafer 2003:Figures P.2 and 3.2)

Table 3.15. Assessing differences in the relative frequency of domestic rooms at NAN Ranch that doubled as cemeteries during the Three Circle and Transitional phases (locus scale). (Probability values obtained using two-tailed Fisher's exact tests).

		Locus		
		East	**South**	**Southeast**
	East			
Locus	**South**	p = 1.00		
	Southeast	p = 0.25	p = 0.50	

Table 3.16. Assessing differences in burial distributions at NAN Ranch during the Three Circle and Transitional phases (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests).

N Rooms	Locus	East	South	Southeast
21	East			
15	South	U = 105; p = 0.86		
0	Southeast	U = 18; p = 1.00	U = 9; p = 1.00	

The above processes were repeated for NAN Ranch's Classic period component. Differences in the relative frequency of rooms with burials are found to be negligible, with a high probability of resulting from chance (see Table 3.17). A comparison of roomblock burial distributions likewise revealed no meaningful differences (see Table 3.18). Together, data suggest there was no locus-scale establishment or assertion of antecedence, via intramural burial, throughout the occupation of NAN Ranch. However, the practice was apparently manifest at the household scale.

Table 3.17. Assessing differences in the relative frequency of domestic rooms at NAN Ranch that doubled as cemeteries during the Classic period (locus scale). (Probability values obtained using two-tailed Fisher's exact tests)

		Roomblock			
		East	**South**	**Southeast**	**West**
Roomblock	**East**				
	South	p = 1.00			
	Southeast	p = 0.11	p = 0.17		
	West	p = 0.37	p = 0.59	p = 0.46	

Table 3.18. Assessing differences in burial distributions at NAN Ranch during the Classic period (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests)

N Rooms	**Locus**	**East**	**South**	**Southeast**	**West**
72	East				
28	South	U = 134.5; p = 0.44			
0	Southeast	U = 10; p = 1.00	U = 2; p = 1.00		
3	West	U = 60; p = 0.08	U = 12; p = 0.23	U = 3; p = 1.00	

Swarts

Swarts Ruin (LA15002) is located in the middle Mimbres Valley, on the west side of the Mimbres River. Unlike other large Mimbres villages, Swarts was actually constructed in the river's floodplain (Cosgrove and Cosgrove 1932:6). The site's occupation included pre-Classic and Classic period deposits. LeBlanc (2012) estimates a founding date of around 800 C.E., during the Three Circle phase.

From 1924 to 1927, Harriet and C. B. Cosgrove excavated at Swarts Ruin during the summer months, working for the Peabody Museum (Cosgrove and Cosgrove 1932; see also Kidder 1932; LeBlanc 2012; Reynolds 1932). Their work focused on two large, Classic period roomblocks (North and South). They mention "several more houses" to the south of the South Roomblock, but these were not investigated due to the installation of an orchard. By their estimation, the inclusion of the uninvestigated structures would have added another 15 to 23 m to the site's overall length (Cosgrove and Cosgrove 1932:7). It is not clear what the Cosgroves meant by "houses" here, as their use of the term covered a number of architectural styles and scales. Based on a review of their notes, LeBlanc (2012) determined that at least one other roomblock was present on the site but not excavated due to extant damage. He estimates that the architecture shown on the Cosgroves' map (1932:Plate 238) constitutes a little over 80 percent of the actual site. Although the Cosgroves focused on Classic period deposits, they did investigate pithouses as encountered (see Table 3.19).

Table 3.19. Swarts Ruin burials and architecture

	Number of			
Temporal Parameter	**Structures**	**Loci**	**Burials**	**Loci Names**
Classic period	163	2	985	North, South
Three Circle phase or Classic period	4	--	27	--
Three Circle phase	19	n/a [A]	42	n/a
Undated	10	n/a	115	n/a
Entire occupation	196	--	1,169	--

[A] No readily identifiable pithouse clusters were noted

The Cosgroves used relative stratigraphy to assign structures to one of four temporal periods: *Early, Transitional, Middle*, and *Late*. In general, their first two categories correspond with the Three Circle phase, and the last two with the Classic period. Their descriptions of all "Late Period" rooms are consistent with Classic period architecture. Using architectural and stratigraphic data, along with temporally diagnostic ceramics from associated burials, I assign each of the Cosgroves' Early, Transitional, and Middle rooms to either the pre-Classic era in general, the Three Circle phase in particular, or the early Classic period (see Table 3.20). In four cases (all involving partially-exposed walls), rooms could be assigned to neither the pre-Classic nor Classic period occupation.

Table 3.20. Temporal assignment of "Early", "Transitional", and "Middle Period" structures at Swarts

Structure	**Cosgroves' Period**	**Relevant Observations** [M]	**Dating Used Hereafter**
E	Early	AF, RAS, RTE	Early Classic period
J	Early	LRE, RPH	Three Circle phase
K	Early	LRE, RPH	Three Circle phase
M	Early	RPH [J]	Three Circle phase
O	Early	SPC	Three Circle phase
S	Early	SPC	Three Circle phase
Z	Early	AF, CM?	Early Classic period
AB	Early	RPH [J] or [L]	Three Circle phase
AH	Early	RPH [L]	Three Circle phase
AK	Early	SPC, PHW	Three Circle phase
"13A" [A]	Early	SPC	Three Circle phase
"13B" [B]	Early	SAC	Three Circle or early Classic
"13C" [C]	Early	SAC	Three Circle or early Classic
"JE52" [D]	Early	PHW	Pre-Classic era
"JW99" [E]	Early	PHW	Pre-Classic era
U	Transitional	RPH [J]	Three Circle phase
V	Transitional	LRE, RPH	Three Circle phase
AD	Transitional	LRE, RPH	Three Circle phase
AE	Transitional	RPH [J]	Three Circle phase
AF	Transitional	LRE, RPH	Three Circle phase
AG	Transitional	CRC	Early Classic period
C	Middle	AF, CRC, OCP, RTE	Early Classic period
D	Middle	AF, CRC, OCP, RTE	Early Classic period
F	Middle	AF, CRC	Early Classic period
G	Middle	AF, CRC	Early Classic period
H	Middle	CRC, MCP, RTE	Early Classic period
P	Middle	AF, CRC	Early Classic period
R	Middle	AF, CM, RTE	Early Classic period
T	Middle	AF, CM, CRC, OCP, RTE	Early Classic period
W	Middle	AF, CM	Early Classic period
X	Middle	AF, CM	Early Classic period
Y	Middle	CM, RTE	Early Classic period
2A	Middle	AF, CM, CRC	Early Classic period
"13A" [G]	Middle	SPC	Three Circle phase
"17A" [G]	Middle	CM, CRC	Early Classic period
"18A" [G]	Middle	AF	Early Classic period
"38A" [G]	Middle	CM	Three Circle or Classic
"63A" [G]	Middle	CM, PWC	Early Classic period
"64A" [G]	Middle	CM, MCP, PWC	Early Classic period
"81A" [G]	Middle	AF	Early Classic period
"87A" [G]	Middle	AF?, CM	Early Classic period
"88A" [G]	Middle	CM	Three Circle or Classic
"92A" [G]	Middle	CM, CRC?, PWC	Early Classic period

Structure	Cosgroves' Period	Relevant Observations [M]	Dating Used Hereafter
"93A" [G]	Middle	CM, CRC?	Early Classic period
"JE2" [H]	Middle	CM, PWC	Early Classic period

[A] Structural corner (plaster-over-soil), encountered under Plaza 13, described by Cosgrove and Cosgrove (1932:8) but not labeled.

[B] Structural corner (adobe), encountered under Plaza 13, described by Cosgrove and Cosgrove (1932:8) but not labeled.

[C] Two joined structural corners (adobe), encountered under Plaza 13, described by Cosgrove and Cosgrove (1932:8) but not labeled.

[D] Wall exposed just east of Room 52, described by Cosgrove and Cosgrove (1932:8) but not labeled.

[E] One or two walls exposed just west of Room 99, described by Cosgrove and Cosgrove (1932:8) but not labeled.

[G] Cosgrove and Cosgrove (1932) frequently referred to unlabeled structures, including this one, as being "under" or "below" surface rooms. To reduce confusion, I have labeled these by attaching an "A" to the label assigned by the Cosgroves to the overlying surface structure. Thus, the structure under Room 13 is referred to as Structure 13A.

[H] Rubble wall encountered just east of Room 2, described by Cosgrove and Cosgrove (1932:8) but not labeled.

[I] Rubble wall encountered just east of Room T, described by Cosgrove and Cosgrove (1932:8) but not labeled

[J] Cosgrove and Cosgrove (1932) described this structure as being subterranean, square or rectangular in shape, having plastered dirt walls, and roof ingress. Roof hatches aside, these characteristics are consistent with Three Circle phase pithouses, which typically used lateral ramp entries (Anyon et al. 1981). Rooftop entries, on (semi)subterranean structures, are largely limited to Georgetown phase pithouses (e.g., Woosley and McIntyre 1996) and Classic period kivas (Anyon and LeBlanc 1980). There are no recorded features that suggest this structure may have been a kiva. All things considered, I have assigned the structure to the Three Circle phase for analytical purposes.

[K] NDA = no diagnostic artifacts in burial; NBs = no burials in direct association with structure

[L] Cosgrove and Cosgrove (1932) describe this and other structures as being subterranean, having plastered dirt walls, being square or rectangular in shape, and having lateral doorways. Lateral doorways (without ramps or stairs) are inconsistent with subterranean placement. The structures' shapes are characteristic of Three Circle phase pithouses, which generally have lateral ramp entrances. It stands to reason that this structure had a ramp entrance that was destroyed or otherwise not encountered by the Cosgroves.

[M] AF = aligned foundations (later, Classic period walls directly overlay some or all of the walls in question); CM = cobble masonry walls; CRC = contiguous room construction (room in question is connected to at least one other structure); LRE = lateral ramp entry; MCP = majority Classic pottery (of associated burials with diagnostic pottery, most dates to the Classic period); OCP = only Classic pottery (all diagnostic pottery from associated burials dates to the Classic period); PHW = pithouse walls (walls consisted of plastered B-horizon); PWC = parallel wall construction (cobble wall[s] running parallel to later Classic period walls); RAS = rectangular adobe structure; RPH = rectangular pithouse (with walls of plastered B-horizon); RTE = rooftop entry; SAC = square adobe corners; SPC = square pithouse corners (with walls of plastered B-horizon); Note: there were no rooms in this table with more pre-Classic pottery than Classic pottery.

As LeBlanc (2012) noted, extant data suggest that Swarts was established during the Three Circle phase. Figure 3.18 shows 12 pithouses and two great kivas that either date to the Three Circle phase or are treated as such for analytical purposes. There are no obvious spatial distinctions (i.e., loci), but Cosgrove and Cosgrove (1932:8) did note that pithouses were more spatially concentrated in the south. In particular, they suggested that the tight cluster of pithouses L, J, M, and O might represent a distinct social group (see Figure 3.18).

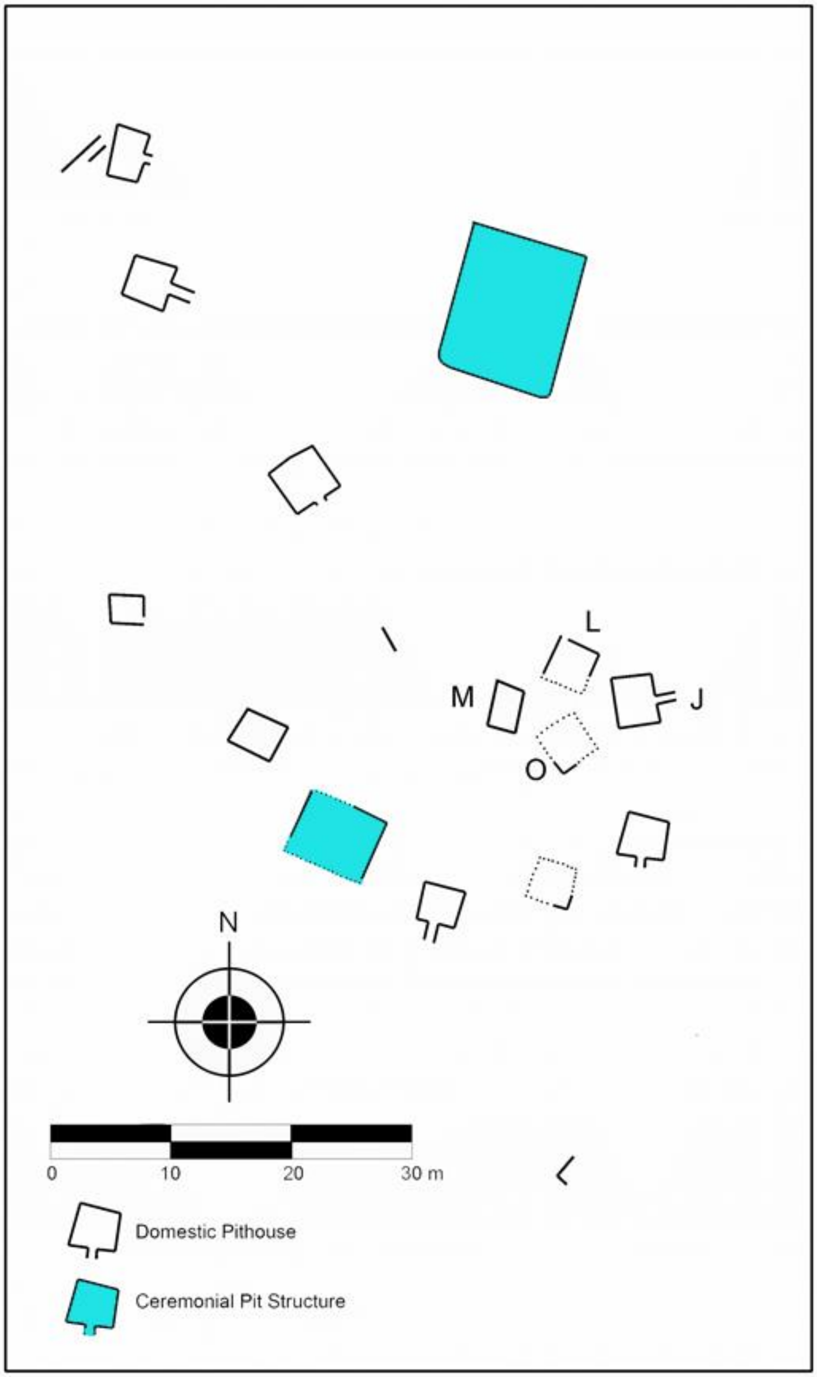

Figure 3.18. Pre-Classic architecture at Swarts Ruin. (After Cosgrove and Cosgrove 1932:Plate 238)

Figure 3.19 shows Classic period rooms that predate the site's latest occupation. These include lower, Classic period floors identified by Cosgrove and Cosgrove (1932:Plate 258, pendant dots), and rooms that I believe date to the early Classic period (see Table 3.20). The placement of these structures suggests that distinct loci developed early in the Classic period. Both roomblocks grew over time, but remained spatially distinct (see Figure 3.20).

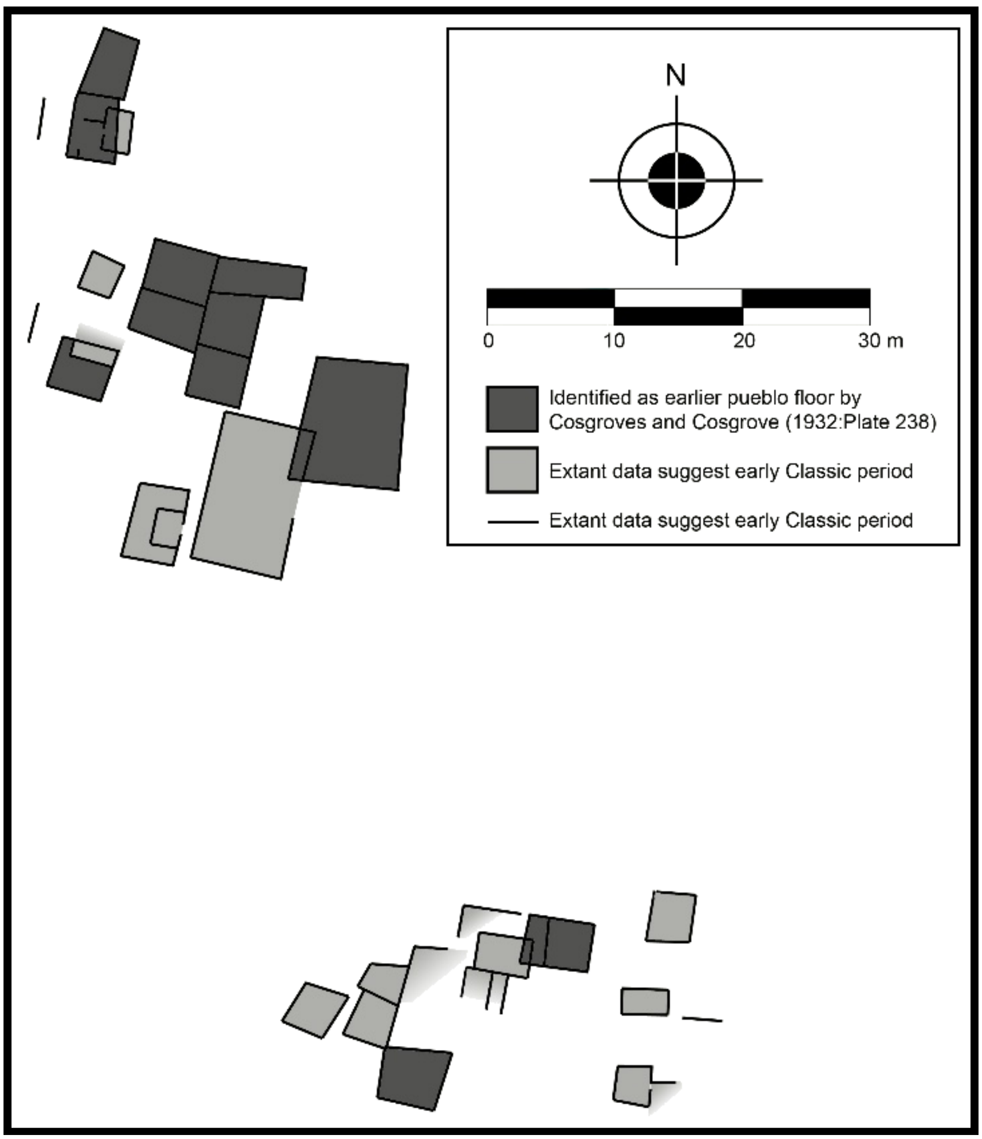

Figure 3.19. Early Classic period architecture at Swarts (architecture after Cosgrove and Cosgrove 1932:Plate 238)

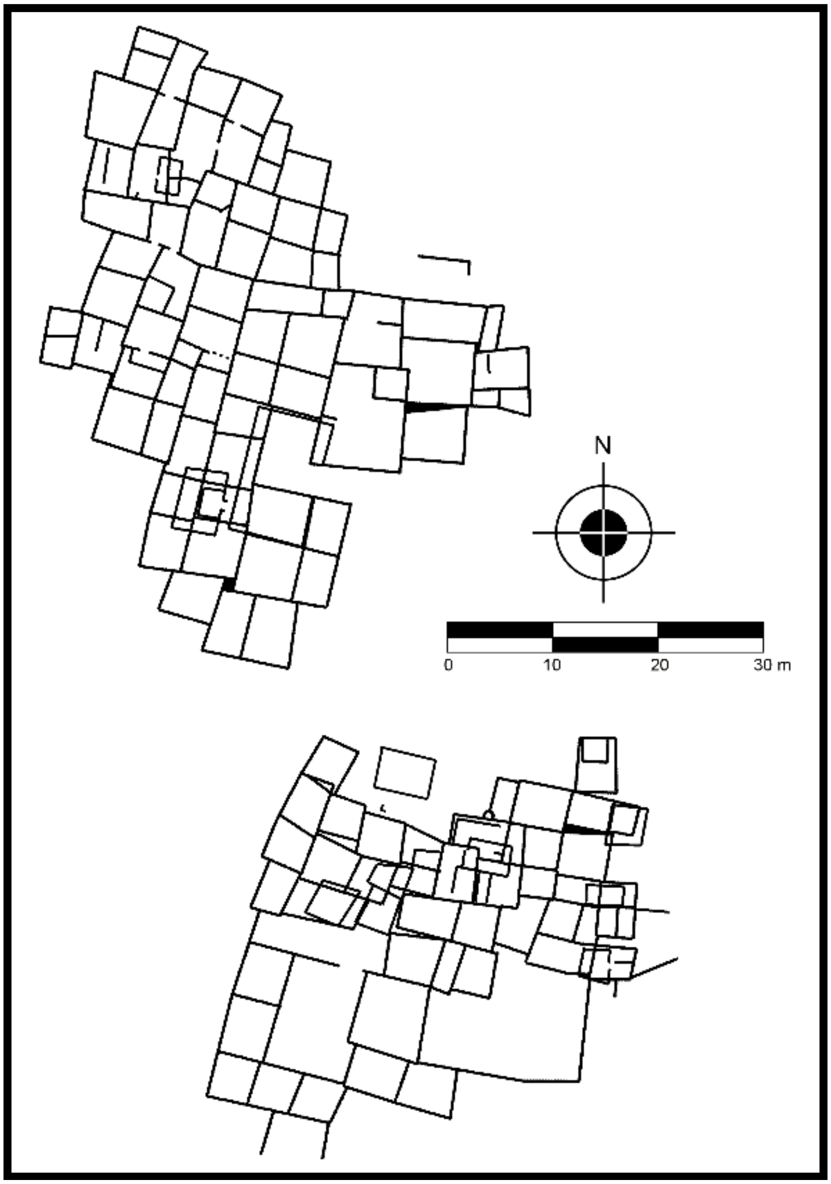

Figure 3.20. Ultimate extent of Classic period architecture at Swarts (after Cosgrove and Cosgrove 1932:Plate 238)

Architectural Chronology Index. There is little evidence with which to rank Swarts' pithouses according to age, making architectural chronology an unreliable index. Evidence suggests that the site was founded during the Three Circle phase (LeBlanc

2012), and all pre-Classic structures for which adequate data are available date to this phase. Ultimately, no founding locus is identified.

Architectural Remodeling Index. Clear evidence of remodeling is absent at Swarts during the Three Circle phase, but is evident after 1000 C.E. Remodeling frequencies were calculated for the North and South roomblocks and compared. The difference in relative frequencies – 22.9 percent vs. 4.9 percent – was assessed using a two-tailed Fisher's exact test, indicating a low probability of resulting from chance ($p = 0.01$). Thus, I infer that those living in the North Roomblock established and asserted antecedence by way of remodeling more than those living in the South Roomblock.

Architectural Superpositioning Index. As was the case with the Architectural Remodeling Index, no evidence of superpositioning is evident during the Three Circle phase. In contrast, superpositioning was fairly common after 1000 C.E. Differences in the relative frequency of superpositioning are compared across the North (36.6 percent) and South roomblocks (42.6 percent). The results of a two-tailed Fisher's exact test indicate that the difference in relative frequencies has a high probability of resulting from chance ($p = 0.58$). It is interesting to note, however, that while superpositioning in the North Roomblock included both room-over-pithouse and room-over-room examples, most of the superpositioning in the South Roomblock was of the latter variety (see Figure 3.21). This difference may suggest that people living in the North Roomblock were more concerned than their southern counterparts with maintaining a connection to pre-Classic generations.

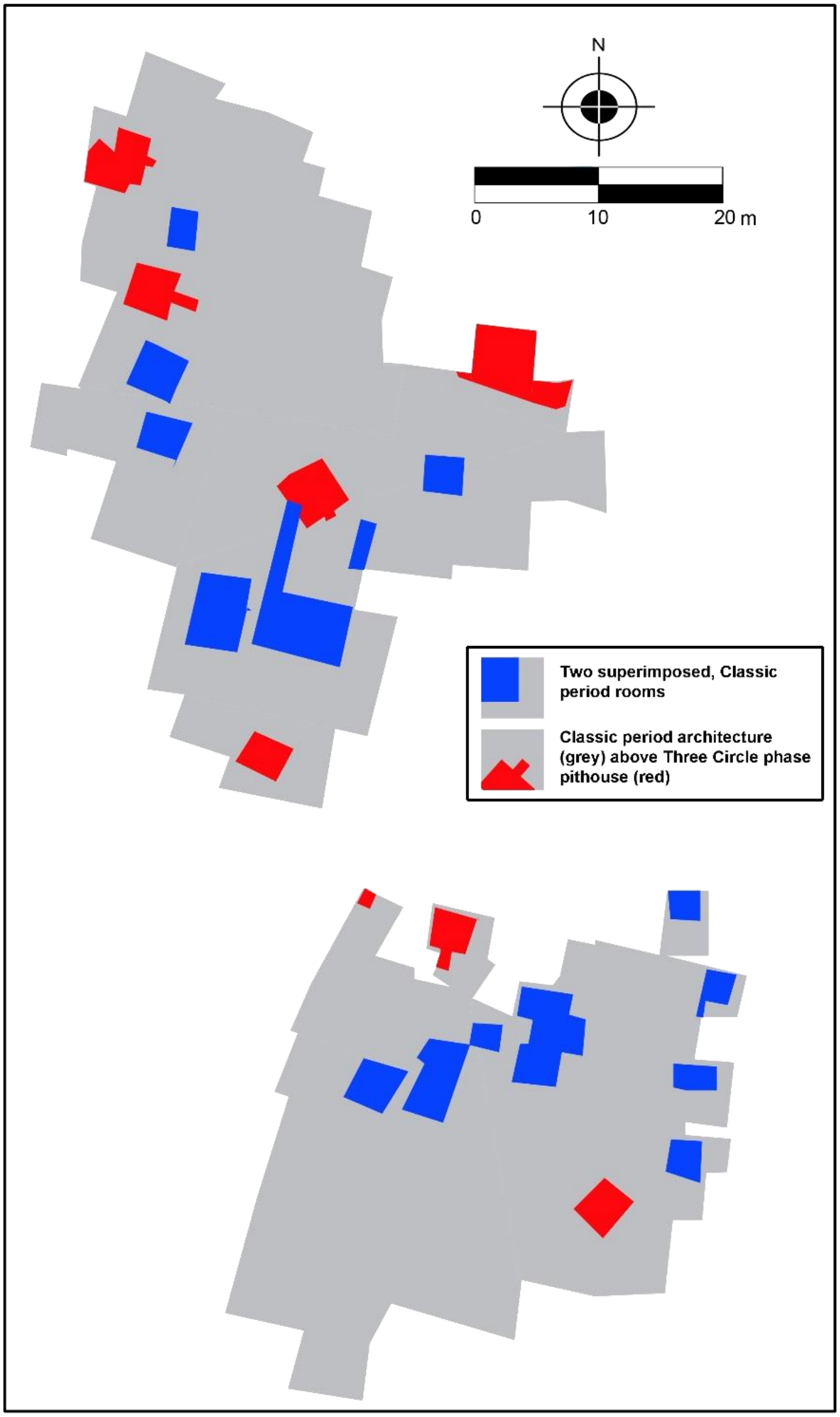

Figure 3.21. Spatial distribution and temporal span of superpositioning at Swarts Ruin

Intramural Burial Index. Five of Swarts' Three Circle phase pithouses included intramural burials, whereas all others apparently did not. This suggests, at minimum, household scale differences in the establishment and assertion of antecedence through intramural interment. Because no pre-Classic loci have been identified at Swarts, inter-locus comparisons cannot be made. As shown in Figure 3.22, some of the pithouses with burials are potentially clustered. Thus, the use of intramural burials to assert antecedence may also have occurred at a supra-household scale, the spatial parameters of which are otherwise not discernable.

Intramural burials became far more common at Swarts during the Classic period (see Figure 3.22). The relative frequencies of rooms with burials are calculated for the North (68.6 percent) and South (75.8 percent) roomblocks. To assess the difference in relative frequency, I apply a two-tailed Fisher's exact test. The results indicate that there is a high probability of the difference resulting from chance ($p = 0.37$). Burial distributions were also compared, using a two-tailed Mann-Whitney test. These results likewise suggest that differences are unlikely to be meaningful in a cultural sense ($U = 3,116.5$; $p = 0.30$). Thus, I infer that during the Classic period, intramural burials were used to establish or assert antecedence at the household, but not locus, scale.

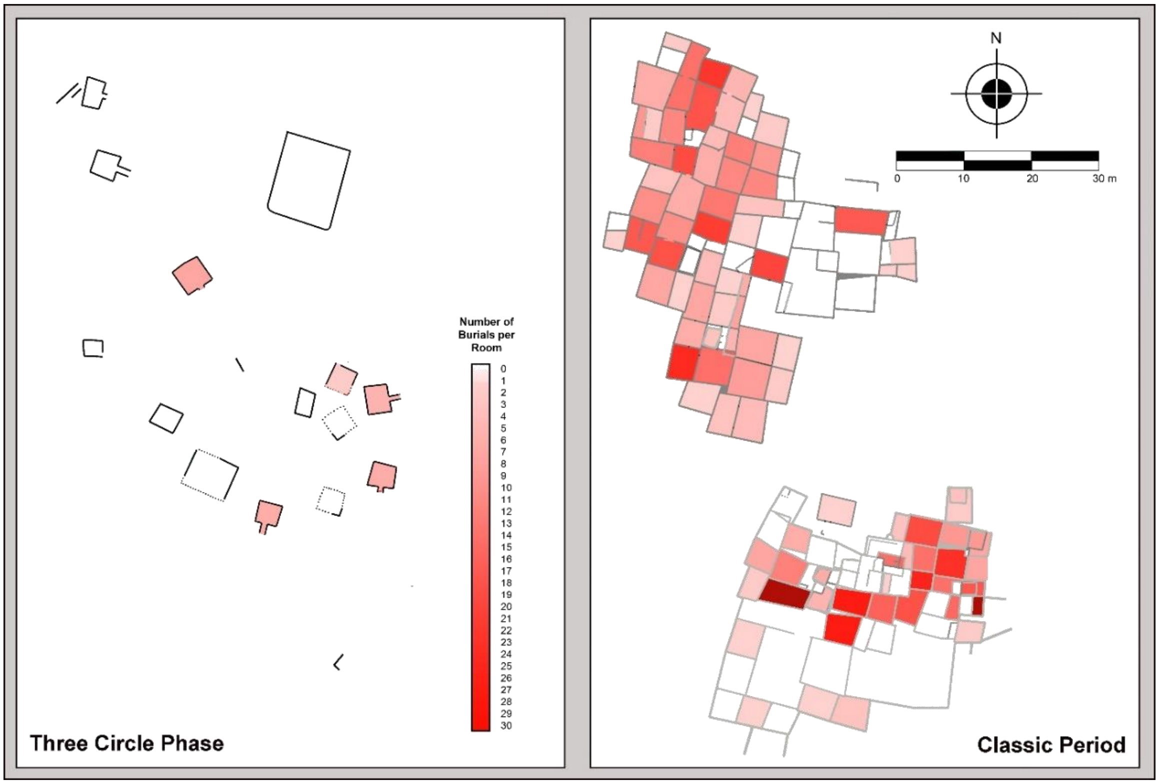

Figure 3.22. Burial density at Swarts during the Three Circle phase (left) and Classic period (right). Burials in ceremonial architecture are not reflected here.

Galaz

The Galaz site (LA635) was built on a low terrace above and just west of the Mimbres River. The village was located in the middle Mimbres Valley, south of Mattocks and north of Swarts. Excavation suggests that the site was founded during the Georgetown phase and lasted into the post-Classic era (Anyon and LeBlanc 1984:1). Creel (2006a:1) has suggested that Galaz, along with Old Town, were "preeminent communities" in the Mimbres Valley because each was located near an "unusually large area of arable and hydrologically favorable floodplain."

The first professional excavations at Galaz, in 1927, were led by W. E. Felts and Bruce Bryan of the Southwest Museum (Bryan 1927a, 1927b, 1931a, 1931b, 1931c, 1961, 1962, 1971; Cosgrove and Felts 1927; Gladwin and Gladwin 1934). From 1929 to 1931, Albert Jenks worked at Galaz for the University of Minnesota (1928a, 1928b, 1929a, 1929b, 1929c, 1930a, 1930b, 1930c, 1931, 1932a, 1932b). Before and after these investigations, Galaz was severely damaged by looting. In the middle 1970s, the landowners leased the site to Frank Turley, who began systematically bulldozing architecture to locate painted pottery. By 1975, the Classic period pueblo had been completely destroyed (Anyon and LeBlanc 1984:1-2, 18). To salvage remaining data before the entire site was bulldozed, the Mimbres Foundation excavated at Galaz for two seasons, beginning in 1975. Their fieldwork was limited to pre-Classic deposits along the site's periphery that had not yet been destroyed. This work was recorded by Roger Anyon and Steven LeBlanc (1984), who included all available data from the Southwest Museum and University of Minnesota excavations.

For the present study, I gather data on 182 structures and 927 burials at Galaz (see Table 3.21). These range in date from the Georgetown phase through (and in some cases, potentially beyond) the Classic period. Based on proximity and ramp orientation, 49 pre-Classic pit structures were assigned to one of six loci: Northwest, Northeast, East, Southwest, Southeast, and South (see Figure 3.23). The 133 Classic period enclosures were likewise divided into five loci which roughly correspond with their pre-Classic counterparts: Northwest, Northeast, East, Southwest, and Southeast (see Figure 3.24). All spatial divisions at Galaz are highly tentative; the site was impacted severely by looting before the Mimbres Foundation began their documentary process, and earlier maps do not provide a complete picture of the site. When examined without acknowledging the site's destruction, later maps can give the impression of distinct roomblocks. Spaces separating rooms on these maps, however, are often the result of mechanized destruction and are thus misleading as indices of past social grouping. Nevertheless, the tentative loci I employ do correspond, in some cases, with what others have interpreted as roomblocks.

Table 3.21. Galaz burials and architecture

	Number of			
Temporal Parameter	**Structures**	**Loci** [A]	**Burials**	**Loci**
Classic or post-Classic period [B]	0	1-5	44	E, NW?, NE?, SE?, SW?
Classic period	133 [C]	5	576	NW, NE, E, SE, SW
Three Circle phase or Classic period [B]	0	5-6	37	NW, NE, E, SE, SW, S?
Three Circle phase or later	0	1-6	3	NE, NW?, E?, S?, SE?, SW?
Late Pithouse period [B]	29	6	26	NW, NE, E, SE, SW, S
Three Circle phase	17	6	75	NW, NE, E, SE, SW, S
San Francisco phase	0	1 ?	1	NW ?
Georgetown or San Francisco phase [B]	1	1	4	NW
Georgetown phase	2	1	0	NW
Undated	0	6	161	NW, NE, E, SE, SW, S
Entire occupation	182	--	927	--

[A] Loci based on spatial proximity
[B] Finest temporal resolution; data are not reflected elsewhere in this table
[C] The occupation of 14 Classic period structures continued beyond 1130 C.E.

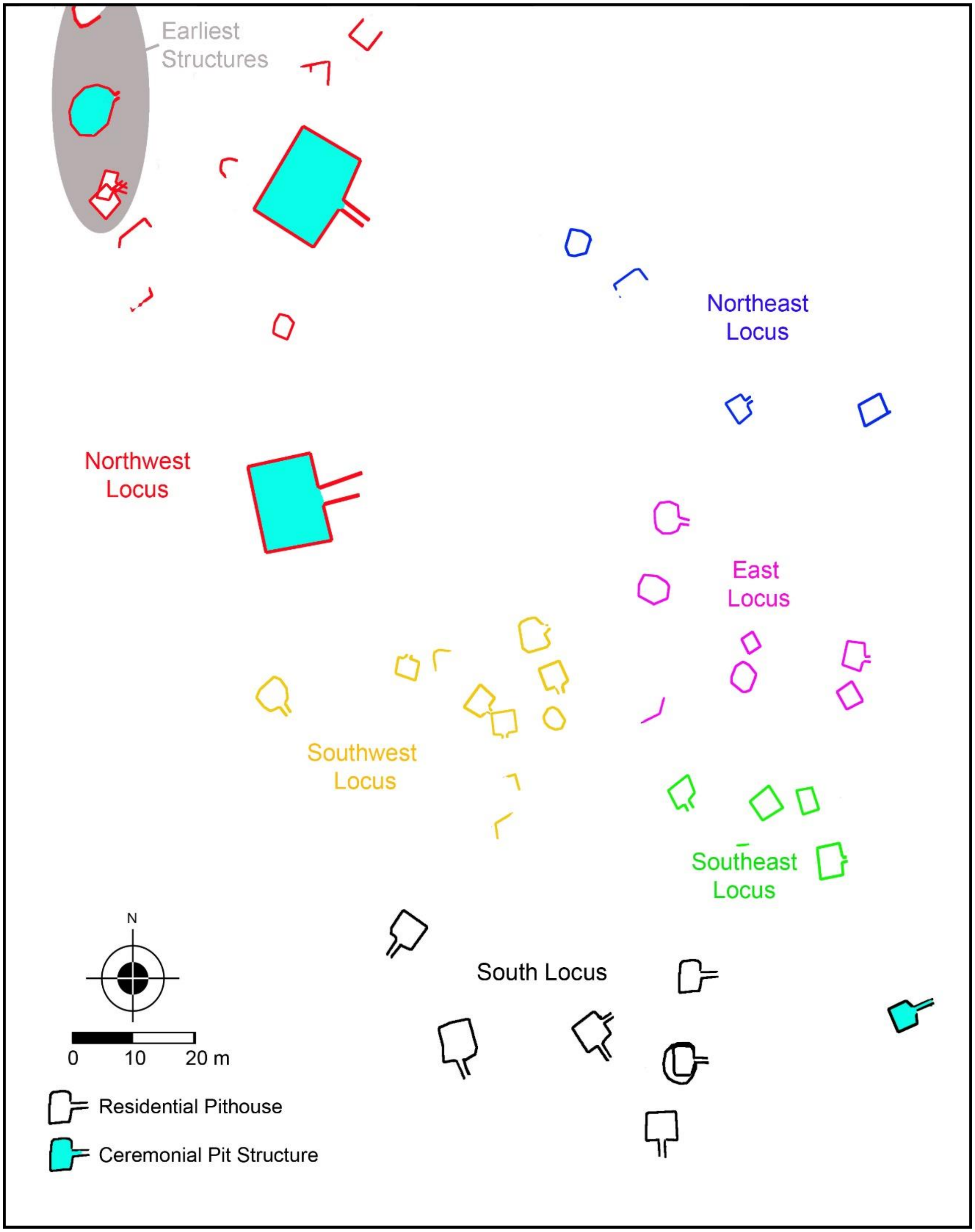

Figure 3.23. Pre-Classic architecture at Galaz (after maps in Anyon and LeBlanc 1984)

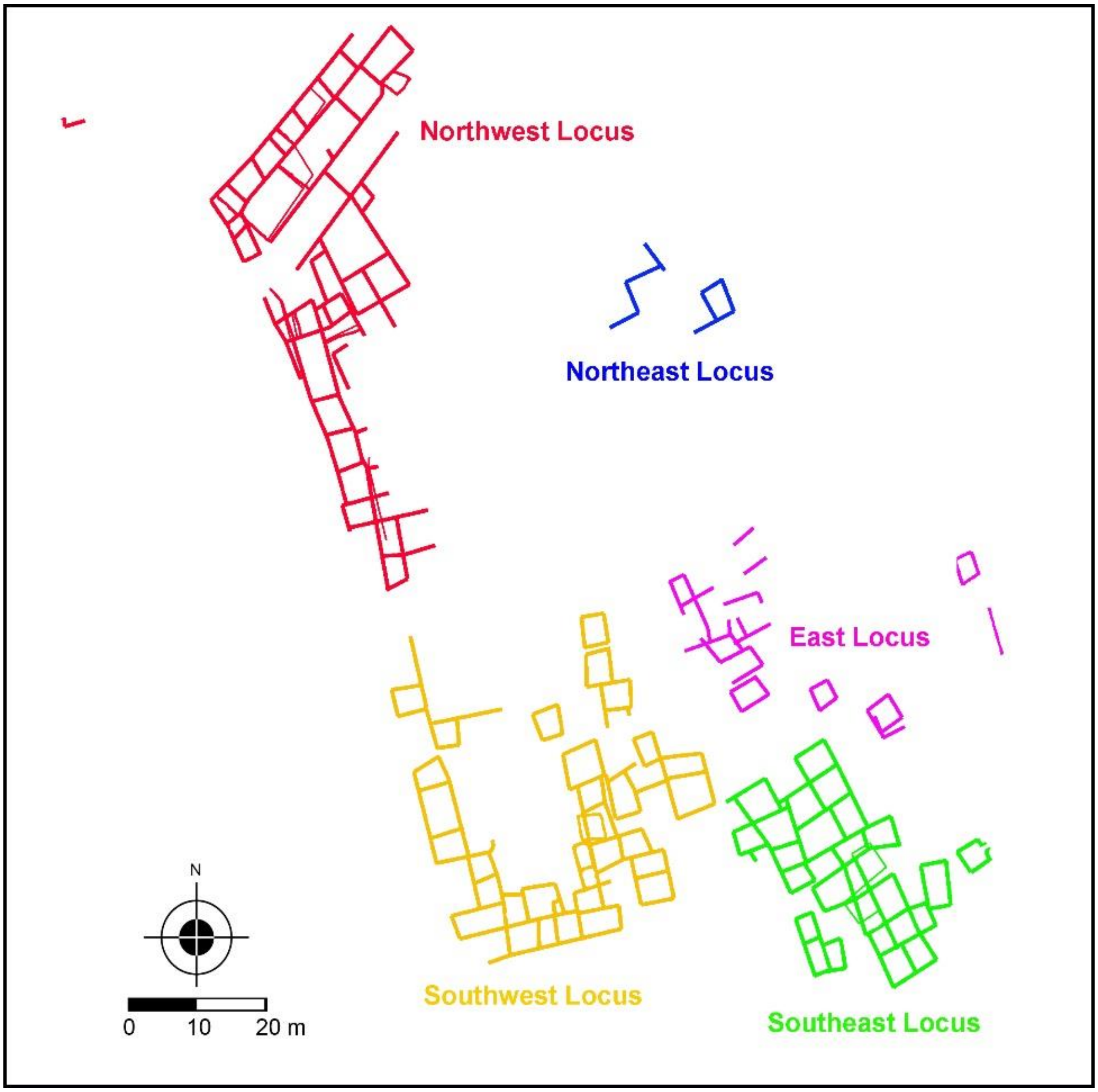

Figure 3.24. Classic period architecture at Galaz (after maps in Anyon and LeBlanc 1984)

Architectural Chronology Index. The two earliest pit structures at Galaz date to the Georgetown phase, and both are found in the Northwest Locus. A third pithouse, in the same locus, dates either to the late Georgetown or early San Francisco phase. These data strongly suggest that the site's founding locus was situated in what would ultimately become the northwest corner of the village.

Architectural Remodeling Index. Prior to the Classic period, evidence of architectural remodeling at Galaz is limited to a single pithouse in the South Locus. Remodeling was more prevalent during the Classic period. Relative frequencies of structural remodeling are calculated for each Classic period locus, and differences are compared with two-tailed Fisher's exact tests. Results indicate there is little chance of differences being culturally meaningful (see Table 3.22).

Table 3.22. Assessing differences in the relative frequency of structural remodeling at Galaz during the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests).

		Locus				
		East	**Northeast**	**Northwest**	**Southeast**	**Southwest**
Locus	**East**					
	Northeast	p = 1.00				
	Northwest	p = 1.00	p = 0.56			
	Southeast	p = 0.68	p = 1.00	p = 0.35		
	Southwest	p = 1.00	p = 0.55	p = 1.00	p = 0.34	

Architectural Superpositioning Index. Only two clear instances of superpositioning are evident at Galaz, prior to 1000 C.E. One occurs in the founding (Northwest) locus and one is in the South Locus, at the opposite end of the site (see Figure 3.23). Relative frequencies of superpositioning are calculated and compared for each pre-Classic locus (see Table 3.23). Differences in relative frequency are not statistically compelling, suggesting that the two instances of superpositioning may constitute the establishment and assertion of antecedence at the household scale, but not necessarily at that of the locus. Superpositioning was more common during the Classic period (see Figure 3.25). Relative frequencies of superpositioning are again calculated and compared for each residential locus. The only difference in relative frequency that has a low probability of resulting from chance involves the Northeast Locus (75 percent superpositioning) and the Southwest Locus (21 percent superpositioning) ($p = 0.05$; see Table 3.24). That being said, only one complete room and four partial rooms were excavated in the Northeast Locus. Thus, I am hesitant to conclude that the Northeast Locus had greater antecedence within regard to superpositioning. Data pertaining to maximum vertical occupation are also inconclusive. Ultimately, inter-household differences in superpositioning suggest that the practice was used to assert antecedence at the household scale, but not at that of locus.

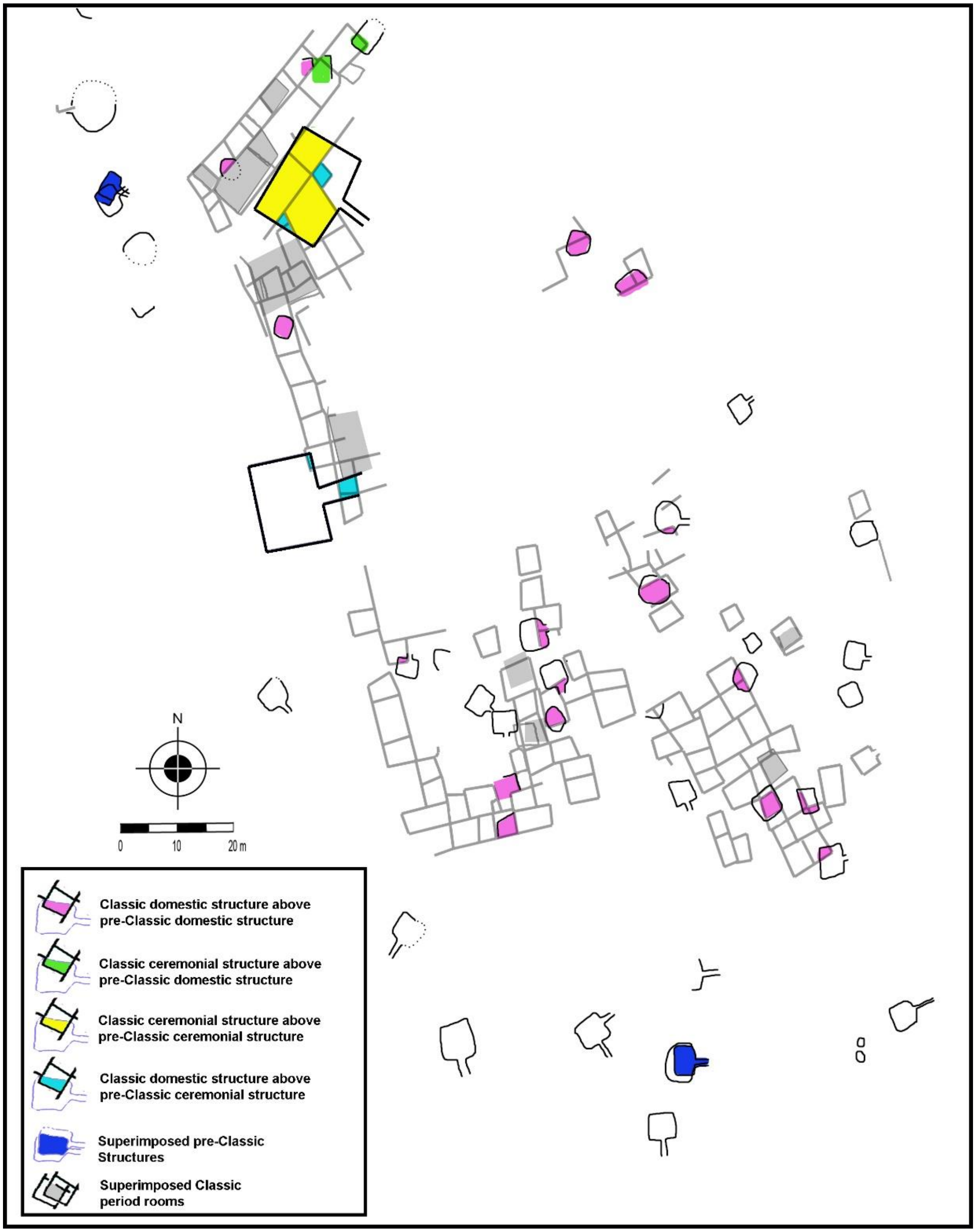

Figure 3.25. Superpositioning at Galaz (architecture after maps in Anyon and LeBlanc 1984)

Table 3.23. Assessing differences in the relative frequency of structural superpositioning at Galaz during the pre-Classic era (locus scale). (Probability values obtained from two-tailed Fisher's exact tests)

		Locus					
		East	Northeast	Northwest	South	Southeast	Southwest
Locus	East						
	Northeast	p = 1.00					
	Northwest	p = 1.00	p = 1.00				
	South	p = 0.42	p = 1.00	p = 0.51			
	Southeast	p = 1.00	p = 1.00	p = 1.00	p = 0.45		
	Southwest	p = 1.00	p = 1.00	p = 1.00	p = 0.33	p = 1.00	

Table 3.24. Assessing differences in the relative frequency of structural superpositioning at Galaz, as of the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests. Yellow cell indicates low probability that difference is attributable to chance).

		Locus				
		East	Northeast	Northwest	Southeast	Southwest
Locus	East					
	Northeast	p = 0.25				
	Northwest	p = 1.00	p = 0.14			
	Southeast	p = 0.73	p = 0.29	p = 0.77		
	Southwest	p = 0.70	p = 0.05	p = 0.39	p = 0.22	

Intramural Burial Index. During the Late Pithouse period, intramural burials were found in association with some pithouses but not others, suggesting that some households used intramural burials to establish and assert antecedence (see Figure 3.26). For each locus and across the broad pre-Classic era, the relative frequency of rooms with burials was calculated and compared using a series of two-tailed Fisher's exact tests (see Table 3.25). In all but two comparisons, differences were found to have a high probability of resulting from chance. Both exceptions involved the site's founding (Northwest) locus, which had relatively fewer rooms with burials than did the East and Southeast loci (p = 0.06 and 0.01, respectively). Burial distributions were also compared, using a series of two-tailed Mann-Whitney tests (see Table 3.26). Only one difference was found to have a low probability of resulting from chance; the Southeast Locus had more intramural burials than the founding (Northwest) locus, relative to the number of excavated rooms ($p = 0.05$). In sum, none of the loci (as defined in Figure 3.23) stand out as having relatively more intramural burials or more households with intramural burials than all or most others. However, and not unlike the circumstances at Cameron Creek, intramural burials were heavily concentrated within a small cluster of pithouses subsumed by a larger, etically-defined locus. Specifically, Pithouses 26, 27, and 29, in the South Locus, contain about 40 percent of the site's intramural burials ($n = 29$, of 74). Just as interesting is the fact that the founding locus, at the opposite end of the site, was consistently less invested in the establishment and assertion of antecedence through the intramural installation of graves.

It is also interesting to note that among pre-Classic loci, frequencies of rooms with burials fall into three clear categories, which can be characterized as low, medium, and high (see Figure 3.27). Each category includes two loci, and the two loci per category are spatially adjacent. If differences in burial practice correspond with differences in social grouping, then this pattern may further assist in refining our understanding of spatial distinctions at Galaz prior to its destruction.

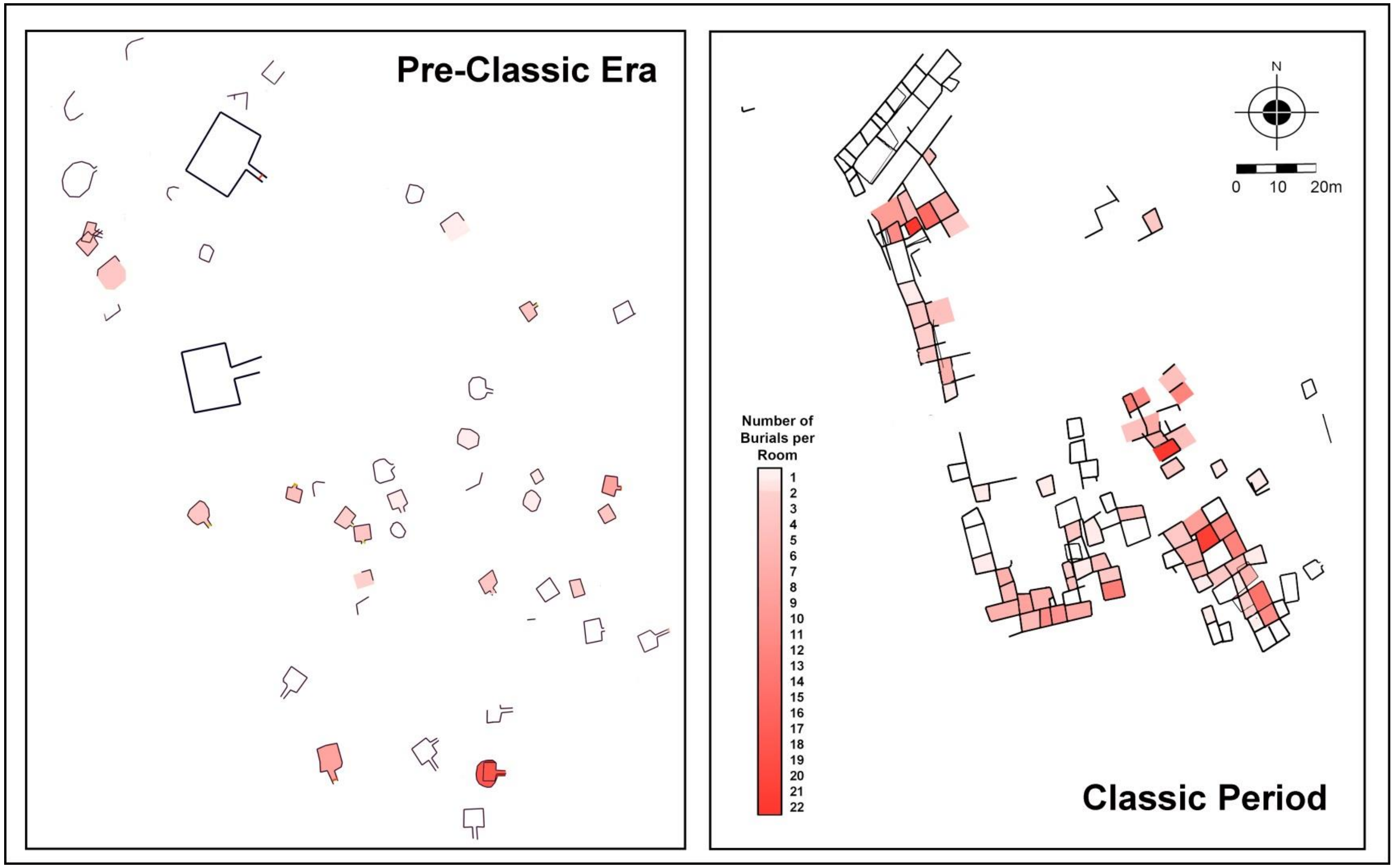

Figure 3.26. Burial density during the Late Pithouse (left) and Classic (right) periods at Galaz. (Architecture after maps in Anyon and LeBlanc 1984).

Table 3.25. Assessing differences in the relative frequency of domestic rooms at Galaz that doubled as cemeteries during the pre-Classic era (locus scale). (Probability values obtained using two-tailed Fisher's exact tests. Yellow cells indicate differences with a low probability of resulting from chance).

		Locus					
		East	**Northeast**	**Northwest**	**South**	**Southeast**	**Southwest**
Locus	**East**						
	Northeast	p = 1.00					
	Northwest	p = 0.06	p = 0.53				
	South	p = 0.52	p = 1.00	p = 0.59			
	Southeast	p = 1.00	p = 0.33	p = 0.01	p = 0.18		
	Southwest	p = 0.34	p = 1.00	p = 0.39	p = 1.00	p = 0.23	

Table 3.26. Assessing differences in burial distributions at Galaz during the pre-Classic era (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests. Yellow cell indicates differences with a low probability of resulting from chance).

N Burials	**Locus**	**East**	**Northeast**	**Northwest**	**South**	**Southeast**	**Southwest**
10	East						
2	Northeast	U = 7.5 p = 1.00					
8	Northwest	U = 58.5 p = 0.18	U = 21 p = 1.00				
29	South	U = 21 p = 0.62	U = 5 p = 1.00	U = 44 p = 0.16			
10	Southeast	U = 31 p = 0.17	U = 2 p = 1.00	U = 57 p = 0.05	U = 18 p = 0.65		
15	Southwest	U = 36.5 p = 0.92	U = 12 p = 1.00	U = 78 p = 0.25	U = 33 p = 0.36	U = 36 p = 0.55	

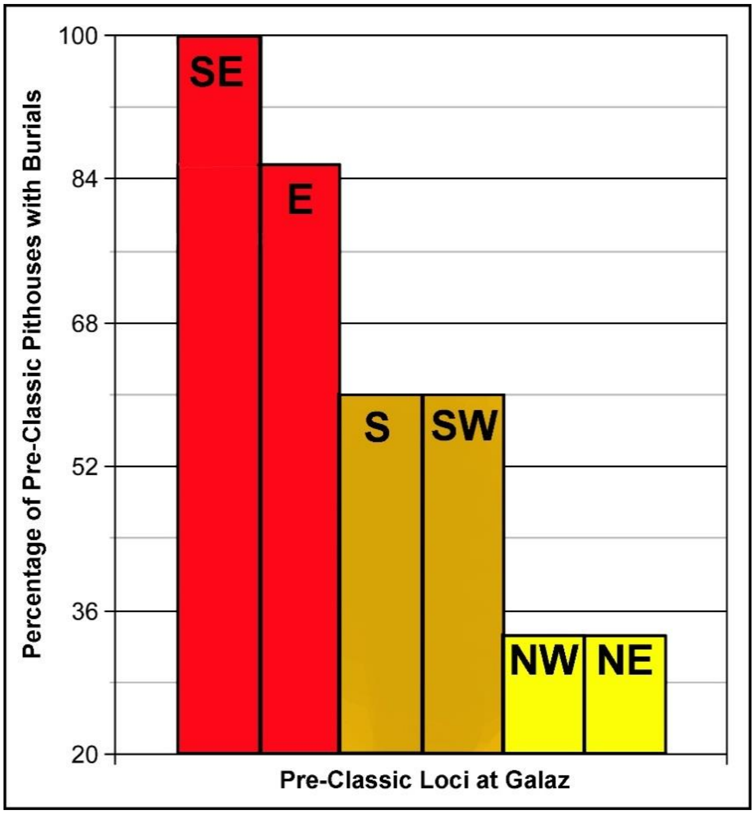

Figure 3.27. Proportions of pre-Classic households with burials, per locus, at Galaz

The relative frequencies of Classic period rooms with burials are also examined, as are Classic period burial distributions. Differences in the relative frequency of rooms with burials are assessed using Fisher's exact tests (see Table 3.27). Following the pithouse-to-pueblo transition, the East Locus emerged as having a higher relative frequency of rooms with burials than some other loci. In particular, the East Locus' relative frequency (93.3 percent) is higher than those of the Northwest, Southeast, and Southwest loci, differences with a low probability of resulting from chance ($p < 0.01$, $p = 0.06$ and 0.07, respectively). Locus-scale burial distributions are also compared, using a series of two-tailed Mann-Whitney tests (see Table 3.28). The East Locus again stands out, having relatively more burials per room than the Northwest and Southwest loci ($p < 0.01$, $p = 0.04$, respectively).

Table 3.27. Assessing differences in the relative frequency of domestic rooms at Galaz that doubled as cemeteries during the Classic period (locus scale). (Probability values obtained using two-tailed Fisher's exact tests. Yellow cells indicate differences with a low probability of resulting from chance).

		Locus				
		East	**Northeast**	**Northwest**	**Southeast**	**Southwest**
	East					
	Northeast	p = 0.10				
Locus	**Northwest**	p = 0.002	p = 1.00			
	Southeast	p = 0.06	p = 0.62	p = 0.20		
	Southwest	p = 0.07	p = 0.62	p = 0.14	p = 1.00	

Table 3.28. Assessing differences in burial distributions at Galaz during the Classic period (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests. Yellow cells indicate differences with a low probability of resulting from chance).

N Burials	**Locus**	**East**	**Northeast**	**Northwest**	**Southeast**	**Southwest**
86	East					
5	Northeast	U = 9.5 p = 1.00				
84	Northwest	U = 392.5 p = 0.003	U = 66 p = 1.00			
115	Southeast	U = 272 p = 0.12	U = 41.5 p = 1.00	U = 585.5 p = 0.12		
87	Southwest	U = 322 p = 0.04	U = 45.5 p = 1.00	U = 632 p = 0.17	U = 464.5 p = 0.65	

Overall, the interpretation of antecedence at Galaz is less than straightforward, due, no doubt, to the impact of looting damage on our ability to accurately identify prehispanic loci. As is the case at Cameron Creek, evidence of antecedence was highly concentrated in a pithouse cluster subsumed within the bounds of a larger locus. Pithouses 26, 27, and 29 represent half of the site's pre-Classic superpositioning, all of its pre-Classic remodeling, and about 40 percent of its intramural burials. Based on these findings, the South Locus is treated analytically as the village's antecedent locus prior to 1000 C.E. During the Classic period, the South Locus was no longer inhabited and the only evidence of disparate antecedence exists within the Intramural Burial Index, wherein the East Locus is preeminent.

Mattocks Ruin

The site of Mattocks Ruin (LA676) sits on a low terrace, above and just west of the Mimbres River, near the town of Mimbres, New Mexico and just downstream from Harris Village. The earliest professional excavation at the site occurred from 1929 to 1931, led by Paul Nesbitt of the Logan Museum at Beloit College (Nesbitt 1931). The Beloit team excavated at least 61 structures and 206 burials (Gilman and LeBlanc 2016:30). Objects excavated by Nesbitt are curated at the Logan Museum. Although looting had taken place at Mattocks by the time Nesbitt arrived, and continued after he left, the site has been consistently better preserved than many large Mimbres pueblos (Gilman and LeBlanc 2016:31-32, 34; Nesbitt 1931:15). This is due, in no small part, to the efforts of the Mimbres Foundation. Beginning in 1974, Mimbres Foundation archaeologists worked at Mattocks with the permission of the land-owning McAnally family. Ultimately, the Mimbres Foundation bought the site from the McAnallys. Excavation took place from 1974 to 1977 and again in 1979 (Anyon and LeBlanc n.d.; Gilman and LeBlanc 2016; see Table 3.29). The property is now owned by the Imogene F. Wilson Education Foundation, which manages Mattocks as the Mimbres Culture

Heritage Site. An archaeological easement is held by Archaeology Southwest, a non-profit, preservation-oriented research institute.

Table 3.29. Mattocks burials and architecture

	Number of			
Time	**Structures**	**Loci**	**Burials**	**Loci**
Classic period	136	7	229	100s, 200s, 300s, 400s, N, NW, SE
Three Circle or Classic	0	?	9	?
Three Circle phase	1	?	7	?
Late Pithouse period [A]	2	?	5	?
Georgetown phase	1	?	1	?
Undated	1	1-7	67	?
Entire occupation	141	8	318	100s, 200s, 300s, 400s, N, NW, S, SE

[A] Finest temporal resolution available; does not include data reflected elsewhere in the table

Only four pre-Classic structures have been identified at Mattocks (Figure 3.28), leading many to think of the site solely as a Classic period village. One of the four pre-Classic structures, however, is a great kiva, far larger than those at Galaz or Old Town (see Chapter 5). This suggests that Mattocks may have had a larger pre-Classic component than has been previously recognized, or that it served as a ceremonial hub for dispersed communities prior to 1000 C.E.

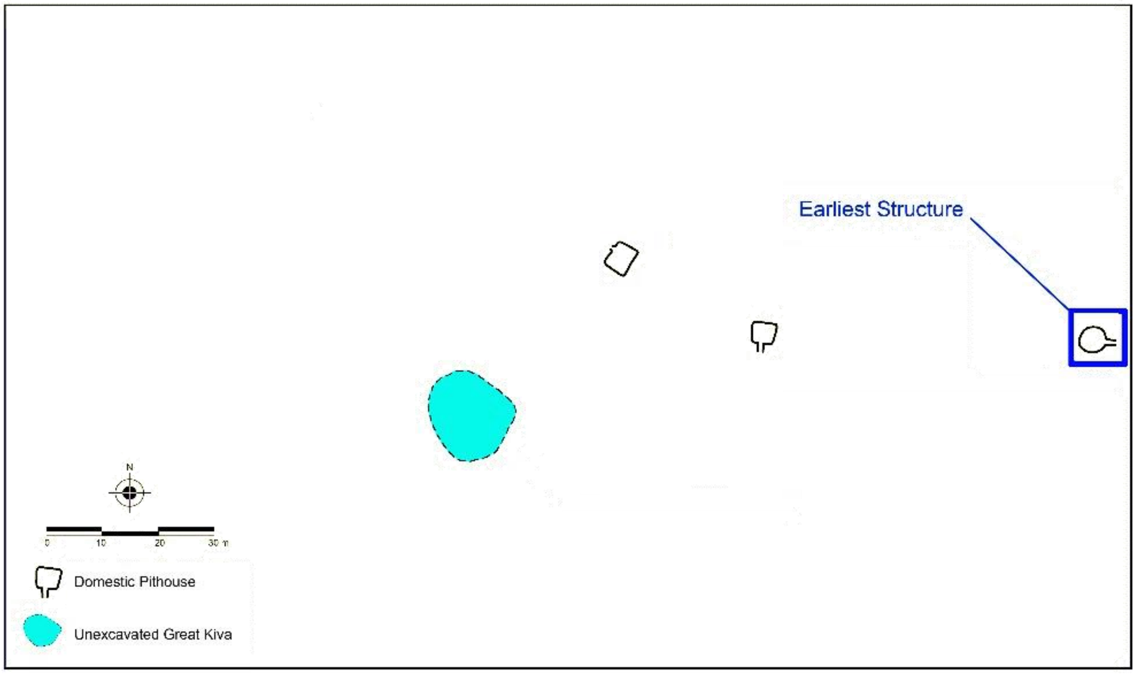

Figure 3.28. Pre-Classic architecture at Mattocks (after Gilman and LeBlanc 2016:Figure 1.4 and additional maps shared by Patricia Gilman). The earliest structure dates to the Georgetown phase and the great kiva dates to the Three Circle phase. The two remaining pithouses are dated only as pre-Classic. The great kiva's shape here is representative of the current depression rather than the structure's original shape.

The majority of architecture at Mattocks dates to the Classic period, when the village grew to include at least eight roomblocks (see Figure 3.29). The largest of these are the 100s, 200s, and 300s roomblocks. The smaller 400s Roomblock is in the southeast corner of the site, and a partially-excavated roomblock in the northeast corner is traditionally referred to as "Nesbitt's Southeast Group" (sic). A small roomblock sits just to the northeast of (and has traditionally been included with) the 200s Roomblock. For analytical purposes, I separate the two roomblocks and refer to the former as the "North Roomblock". Similarly, a large, unexcavated mound sits just south of the 300s Roomblock. I refer to this as the "South Roomblock" and note that no utilized data came from there. Another small roomblock, which has experienced little excavation, sits west of the 300s Roomblock, at the far northwestern edge of the site. I refer to this as the "Northwest Roomblock."

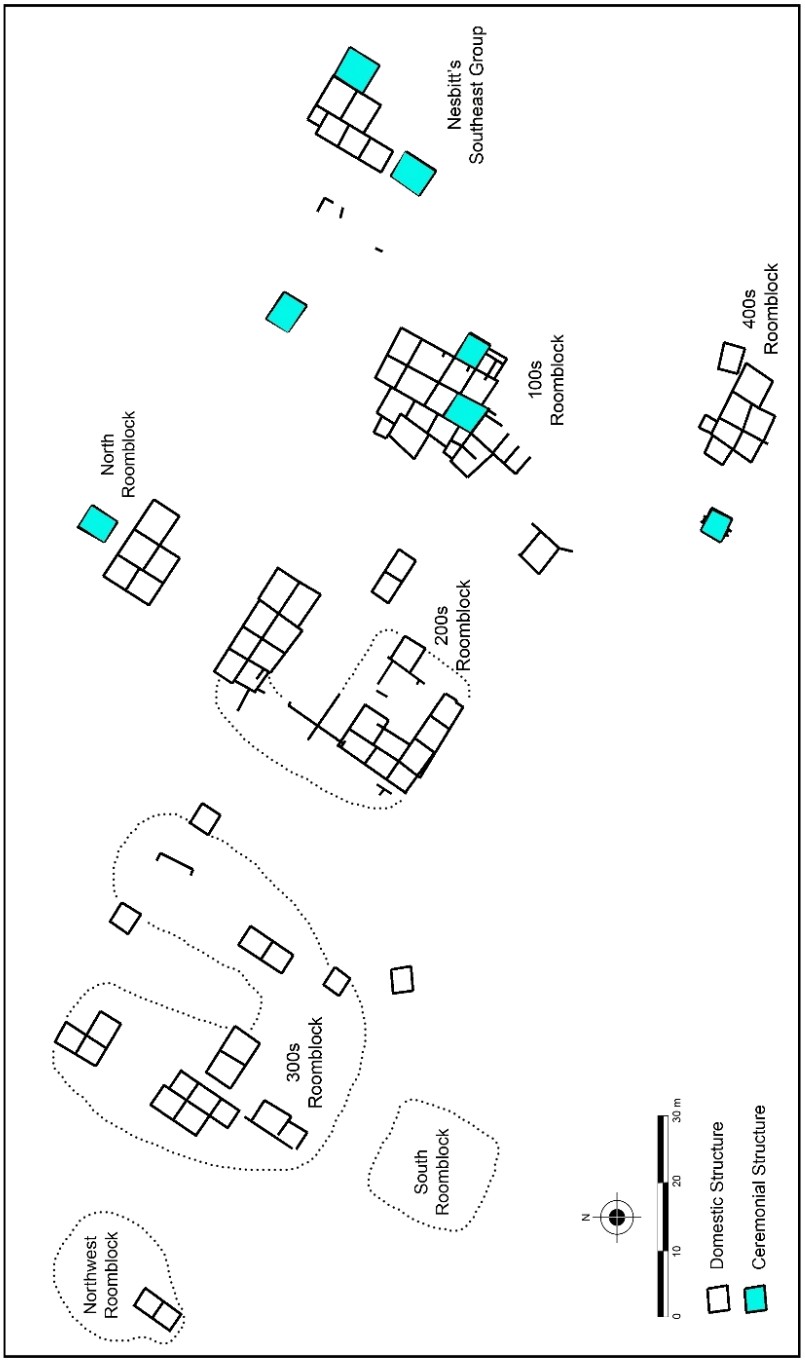

Figure 3.29. Classic period architecture at Mattocks (after Gilman and LeBlanc 2016:Figure 1.4 and additional maps shared by Patricia Gilman).

Architectural Chronology Index. The earliest identified structure at Mattocks is Unit 80b, located at the far eastern edge of the village, potentially identifying this area as the site's founding locus. Gilman and LeBlanc (2016:63) date the pithouse to the "Early Pit Structure" period, which encompasses the Cumbre, Georgetown, and San Francisco phases. The structure's shape is consistent with Georgetown phase pithouses, but the structure may have been occupied into the Three Circle phase (Gilman and LeBlanc 2016:63). During the Classic period, a small roomblock was constructed here, though not directly atop Unit 80b. Following Nesbitt (1931), this roomblock is traditionally referred to as the Southeast Group (sic).

Architectural Remodeling Index. There is no evidence of remodeling at Mattocks prior to 1000 C.E. Relative frequencies of Classic period remodeling were calculated and compared for each roomblock (see Table 3.30). Differences are minimal, with a high probability of resulting from chance. These findings suggest that during the Classic period, remodeling was used to establish and assert antecedence at the household, but not locus, scale.

Table 3.30. Assessing differences in the relative frequency structural remodeling at Mattocks during the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests).

		Roomblock						
		100s	**200s**	**300s**	**400s**	**N**	**NW**	**SE**
	100s							
	200s	p = 1.00						
	300s	p = 0.51	p = 0.53					
Roomblock	**400s**	p = 0.59	p = 0.57	p = 0.17				
	North	p = 1.00	p = 1.00	p = 1.00	p = 1.00			
	Northwest	p = 1.00	p = 1.00	p = 1.00	p = 1.00	p = 1.00		
	Southeast	p = 1.00	p = 1.00	p = 1.00	p = 0.49	p = 1.00	p = 1.00	

Architectural Superpositioning Index. Given the paucity of pre-Classic architecture at Mattocks, it is not surprising that instances of superpositioning are unknown prior to 1000 C.E. Superpositioning did occur during the Classic period, but sparingly. Relative frequencies of superpositioning are calculated and compared for each roomblock (see Table 3.33). Differences are slight, with a high probability of resulting from chance. The placement of domestic pueblo rooms above earlier pithouses suggests that some households were establishing or expressing antecedence through superpositioning. Extant evidence does not support an inference of this approach being implemented at the locus scale, but the paucity of pre-Classic architecture prevents robust assessment.

Table 3.31. Assessing differences in the relative frequency of structural superpositioning at Mattocks, as of the Classic period (locus scale). (Probability values obtained from two-tailed Fisher's exact tests).

		Roomblock						
		100s	**200s**	**300s**	**400s**	**N**	**NW**	**SE**
	100s							
	200s	p = 0.58						
	300s	p = 0.51	p = 1.00					
Roomblock	**400s**	p = 0.54	p = 1.00	p = 1.00				
	North	p = 1.00	p = 1.00	p = 1.00	p = 1.00			
	Northwest	p = 1.00	p = 1.00	p = 1.00	p = 1.00	p = 1.00		
	Southeast	p = 1.00	p = 1.00	p = 1.00	p = 1.00	p = 1.00	p = 1.00	

Intramural Burial Index. Evidence at Mattocks makes clear that some residents of the village used intramural burials to assert antecedence over the course of several generations. As mentioned above, the site's earliest structure is Unit 80b, which dates to the Georgetown phase. Among the few pithouses at Mattocks, the highest burial density occurred here. One of the structure's seven burials cannot be dated beyond its association with the structure, and thus, could date as early as the Georgetown phase. Another is dated to the Three Circle phase based on the presence of only Style II pottery. The five remaining burials in 80b have Style III pottery, dating them to the Classic period. Thus, people continued to place their ancestors in this structure, long after it was abandoned. Despite this clear pattern, it is difficult to infer asymmetric antecedence at the household scale, prior to 1000 C.E. There are only three known pithouses and, intrusive burials aside, each has two to three associated burials. Because no multi-household, pre-Classic loci have been identified, inter-cluster comparisons cannot be made.

During the Classic period, marked differences in burial density occurred (see Figure 3.30). The relative frequencies of rooms with burials are calculated and compared. Differences in relative frequency are assessed using a series of two-tailed Fisher's exact tests. Data and results are provided in Table 3.32 for all excavated roomblocks. No roomblock emerged as having relatively more rooms with burials than all others. However, both the 100s Roomblock and 400s Roomblock had higher frequencies of such rooms than did the 300s Roomblock, and these differences have a low probability of resulting from chance ($p = 0.0580$ and 0.0680, respectively). Locus-scale burial distributions were also compared, using a series of two-tailed Mann-Whitney tests (see Table 3.33). Results suggest that the difference in burials per room between the 400s Roomblock ($\bar{x} = 2.9$) and 300s Roomblock ($\bar{x} = 0.6$) has a low probability of resulting from chance ($p = 0.05$). Thus, there appears to have been locus-scale disparity, during the Classic period, in the degree to which residents asserted antecedence through intramural burial. Namely, the 300s Roomblock had relatively fewer rooms with burials and fewer burials per room, whereas the 400s Roomblock had more.

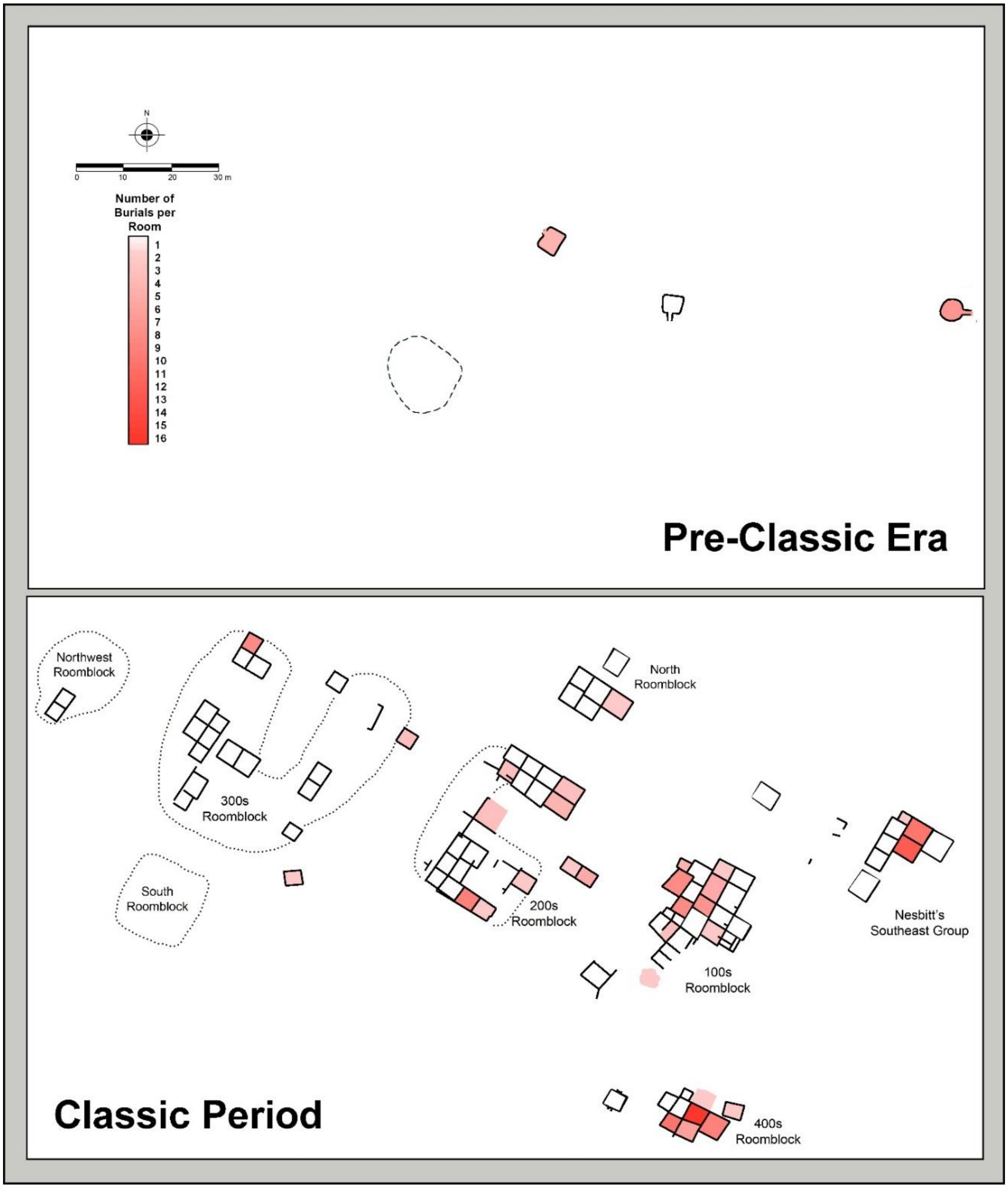

Figure 3.30. Burial density maps for Mattocks during the pre-Classic era (top) and Classic period (bottom) (architecture after Gilman and LeBlanc 2016:Figure 1.4, and additional maps shared by Patricia Gilman)

Table 3.32. Assessing differences in the relative frequency of domestic rooms at Mattocks that doubled as cemeteries during the Classic period (locus scale). (Probability values obtained using two-tailed Fisher's exact tests. Yellow cells indicate differences with a low probability of resulting from chance).

		Roomblock					
		100s	200s	300s	400s	N	SE
	100s						
	200s	p = 0.19					
Roomblock	300s	p = 0.06	p = 0.33				
	400s	p = 1.00	p = 0.33	p = 0.07			
	N	p = 0.13	p = 0.30	p = 1.00	p = 0.11		
	SE	p = 0.50	p = 1.00	p = 0.38	p = 0.70	p = 0.26	

Table 3.33. Assessing differences in burial distributions at Mattocks during the Classic period (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests. Shaded cells indicate differences with a low probability of resulting from chance).

N Burials	Roomblock	100s	200s	300s	400s	North	Southeast
38	100s						
26	200s	U = 517 p = 0.27					
12	300s	U = 183 p = 0.14	U = 283 p = 0.47				
43	400s	U = 230.5 p = 0.34	U = 333.5 p = 0.09	U = 198.5 p = 0.05			
0	North	U = 37.5 p = 0.15	U = 60 p = 0.30	U = 40 p = 0.62	U = 17.5 p = 0.09		
29	Southeast	U = 153.5 p = 0.95	U = 226.5 p = 0.58	U = 137 p = 0.36	U = 77.5 p = 0.56	U = 20 p = 0.32	

Harris Village

Harris Village (LA1867) is a large site in the upper Mimbres Valley, positioned atop a high ridge, east of and overlooking the Mimbres River. The village is rare among large Mimbres sites in that it has no Classic period component; its entire occupation dates to the Late Pithouse period, spanning the Georgetown, San Francisco, and Three Circle phases. The earliest professional excavation at Harris was undertaken by Emil Haury (1936) in 1934; he used data from those excavations to define and describe the Mogollon culture. Haury excavated 31 pithouses, three great kivas, and 48 burials, his efforts concentrated largely along the southern edge of the village. Between 2008 and 2013, Barbara Roth excavated at Harris in conjunction with the University of Nevada at Las Vegas' (UNLV) archaeological field school. Her efforts complement those of Haury by focusing on the northern end of the site (Roth 2012; Roth and Baustian 2015). The UNLV project excavated 20 pithouses, one great kiva, and 20 burials. Data compiled from both the Haury and Roth excavations are contained in Table 3.34.

Table 3.34. Harris Village burials and architecture

	Number of			
Temporal Parameter	**Structures**	**Loci**	**Burials**	**Loci Names**
Late Pithouse period [A]	9	5	47	E, S, N. Central, S. Central, Central
Three Circle phase	31	6	10	W, E, S, NE, N. Central, S. Central
San Francisco or Three Circle [A]	0	3 B	8	S, W, Central or N. Central [B]
San Francisco phase	9	3	3	Central, East, West
Georgetown phase	7	4	2	N. Central, S. Central, West, South
Entire occupation	56	--	70	--

[A] Finest temporal resolution available; does not include data listed elsewhere in the table.
[B] Depending on phase

To describe the growth and development of Harris Village, I define a number of residential loci based on architectural placement, ramp orientation, and open spaces. The names assigned to these loci are based on their general position throughout the course of the site's occupation. For this reason, locus names may seem counterintuitive prior to the Three Circle phase. The spatial extent of loci in each phase is determined primarily by the placement of pithouses in that phase, but also takes into consideration the placement of pithouses in the immediately preceding phase, given that the latter may still have been occupied when the former were constructed.

The earliest known structures at Harris Village date to the Georgetown phase (n = 7) and five of these are divided between two clusters, the North Central Locus and the South Central Locus. These clusters are distinct during the Georgetown phase, but the distinction disappears later in time. The two remaining Georgetown phase pithouses are isolated, in the South and West loci, respectively (see Figure 3.31). Roth and Baustian (2015) identify four pithouse clusters at Harris and argue that these correspond with lineages. Pithouse 40, the sole Georgetown phase structure in the West Locus, is the earliest structure in their "Cluster 2".

It is important to note that not all of the Georgetown phase structures in the North Central and South Central loci were occupied at the same time. The two pithouses in the North Central Locus were superimposed, meaning that this locus had only one occupied structure at any given time during the Georgetown phase (as did the West and South loci). In the South Central Locus, one of two pithouses was built atop a Georgetown-phase great kiva that had been abandoned. Thus, no more than two structures were in place in that locus at any given time during the Georgetown phase.

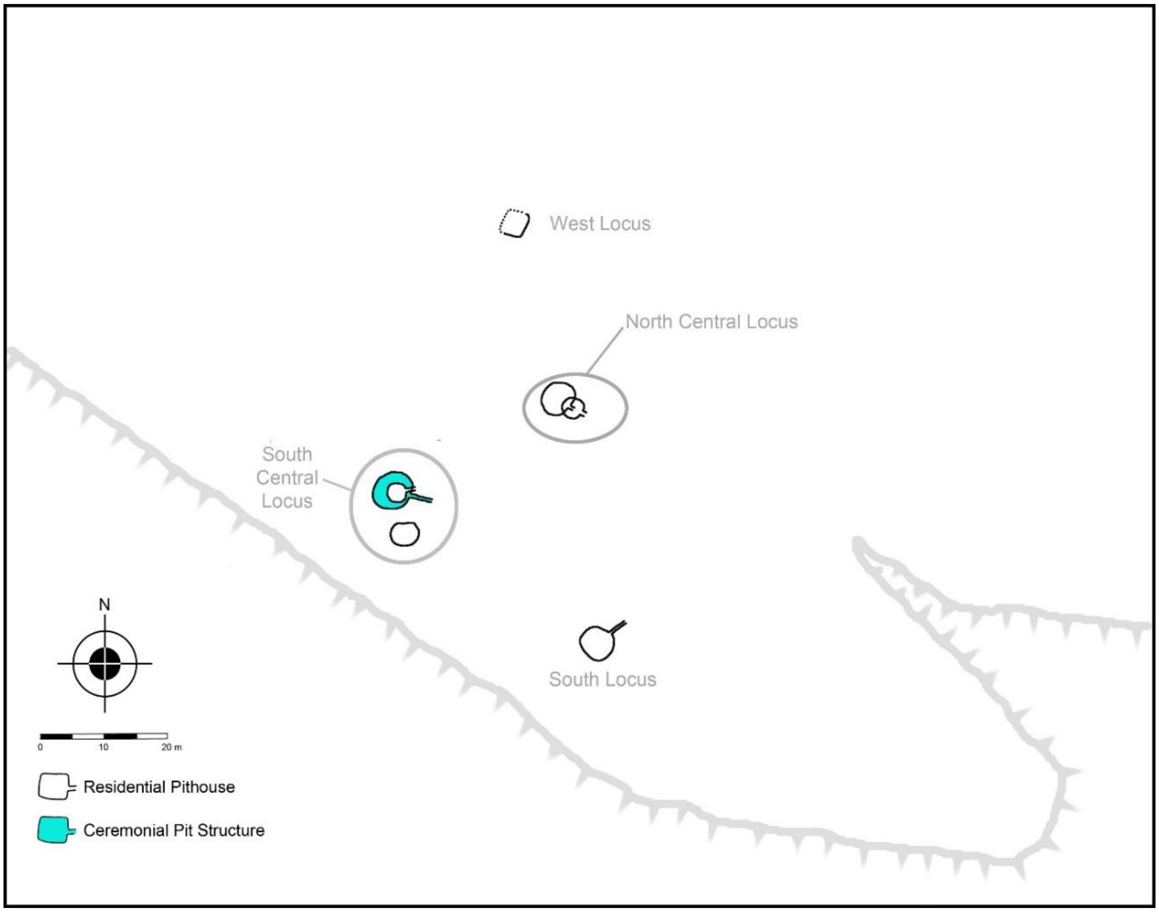

Figure 3.31. Georgetown phase architecture at Harris Village (after Haury 1936, Roth and Baustian 2015:Figure 3)

Eight Harris Village pithouses date to the San Francisco phase. Three sit to the east of the Georgetown phase component, in what I call the East Locus. The five others are to the west of the Georgetown component, making up the West Locus. Three of the West Locus pithouses fall within Roth and Baustian's (2015) "Cluster 3," while a fourth is added to their Cluster 2. A San Francisco phase great kiva sits between the two loci, amidst Georgetown phase houses (see Figure 3.32). At this juncture, I note also that six of Harris' pithouses cannot be dated to a particular phase. These are generally sub-rectangular in shape, suggesting they post-date the Georgetown phase. Thus, they are shown in Figures 3.32 and 3.33 (shaded in grey), so as to give an impression of how they might have fit into the village layout at any point after 650 C.E.

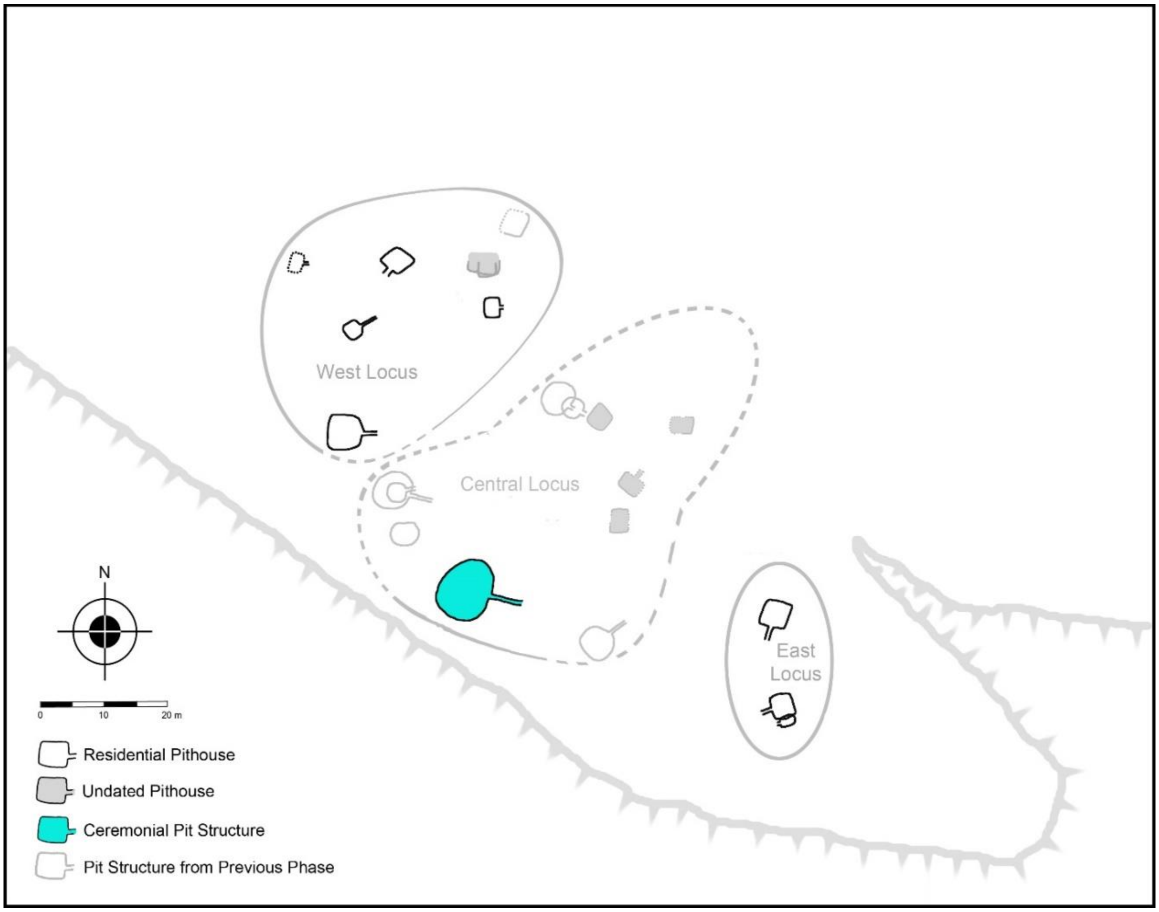

Figure 3.32. San Francisco phase architecture at Harris Village (after Haury 1936, Roth and Baustian 2015:Figure 3)

Harris Village grew substantially during the Three Circle phase, when at least 28 pithouses and two great kivas were added (see Figure 3.33). I divide the site, at this time, into seven loci: West (12 structures), North (1 structure), North Central (1 structure), Northeast (5 structures), South (5 structures), South Central (1 structure), and East (6 structures). The validity of such division rests in large part on which San Francisco phase structures (if any) were used into the Three Circle phase. The addition or subtraction of San Francisco phase structures can change hypothetical boundaries substantially.

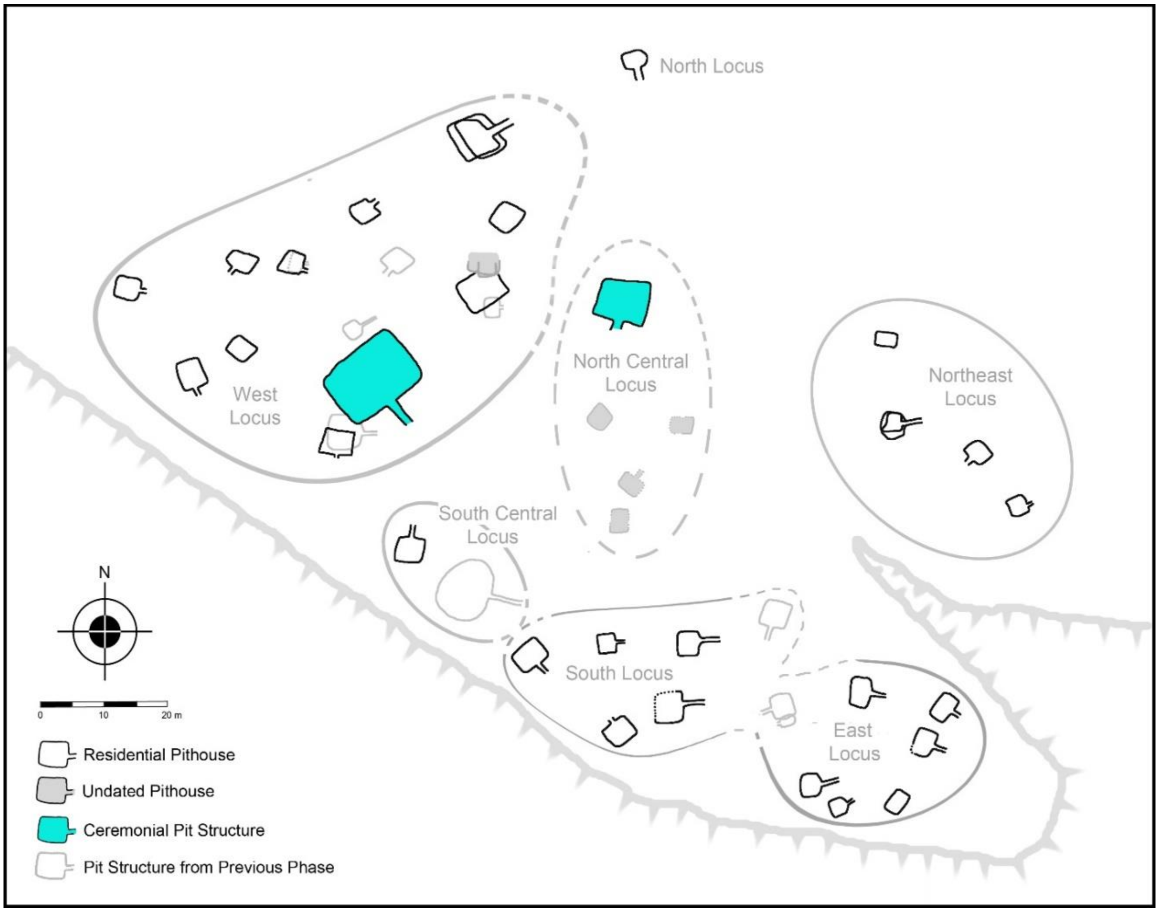

Figure 3.33. Three Circle phase architecture at Harris Village (after Haury 1936, Roth and Baustian 2015:Figure 3).

Architectural Chronology Index. The earliest structures at Harris Village date to the Georgetown phase and comprise six pithouses and one great kiva (see Figure 3.31). These early structures are found in four distinct areas, and extant data do not assist in identifying any of these as a founding locus.

Architectural Remodeling Index. Clear evidence of remodeling at Harris is not evident until the Three Circle phase, when the size of one pithouse in the Northeast Locus was altered. Relative frequencies of remodeling are calculated and compared for each Three Circle phase locus (see Table 3.35). Differences are not statistically compelling, and the one instance of remodeling is interpreted as evidence of antecedence at the household scale.

Table 3.35. Assessing differences in the relative frequency of structural remodeling at Harris Village during the Three Circle phase (locus scale). (Probability values obtained using two-tailed Fisher's exact tests).

		Locus				
		East	**Northeast**	**So. Central**	**South**	**West**
	East					
	Northeast	p = 0.45				
Locus	**So. Central**	p = 1.00	p = 1.00			
	South	p = 1.00	p = 1.00	p = 1.00		
	West	p = 1.00	p = 0.29	p = 1.00	p = 1.00	

Architectural Superpositioning Index. Architectural superpositioning occurred at Harris as early as the Georgetown phase and continued throughout the site's occupation (see Figure 3.34). Relative frequencies of superpositioning are calculated for the two Georgetown phase, multi-household loci: North Central (100 percent) and South Central (50 percent). The difference in relative frequency is assessed with a two-tailed Fisher's exact test, which indicates there is a high probability attribution to chance (p = 1.00). The same procedure is applied to cumulative data during the San Francisco and Three Circle phases (see Tables 3.36 and 3.37). During the San Francisco phase, the West Locus had no superpositioning, as opposed to the Central and East loci. In comparison to the Central Locus, this difference has a low probability of resulting from chance (p = 0.06). During the site's final period of occupation – the Three Circle phase – no differences in the relative frequency of superpositioning are statistically meaningful.

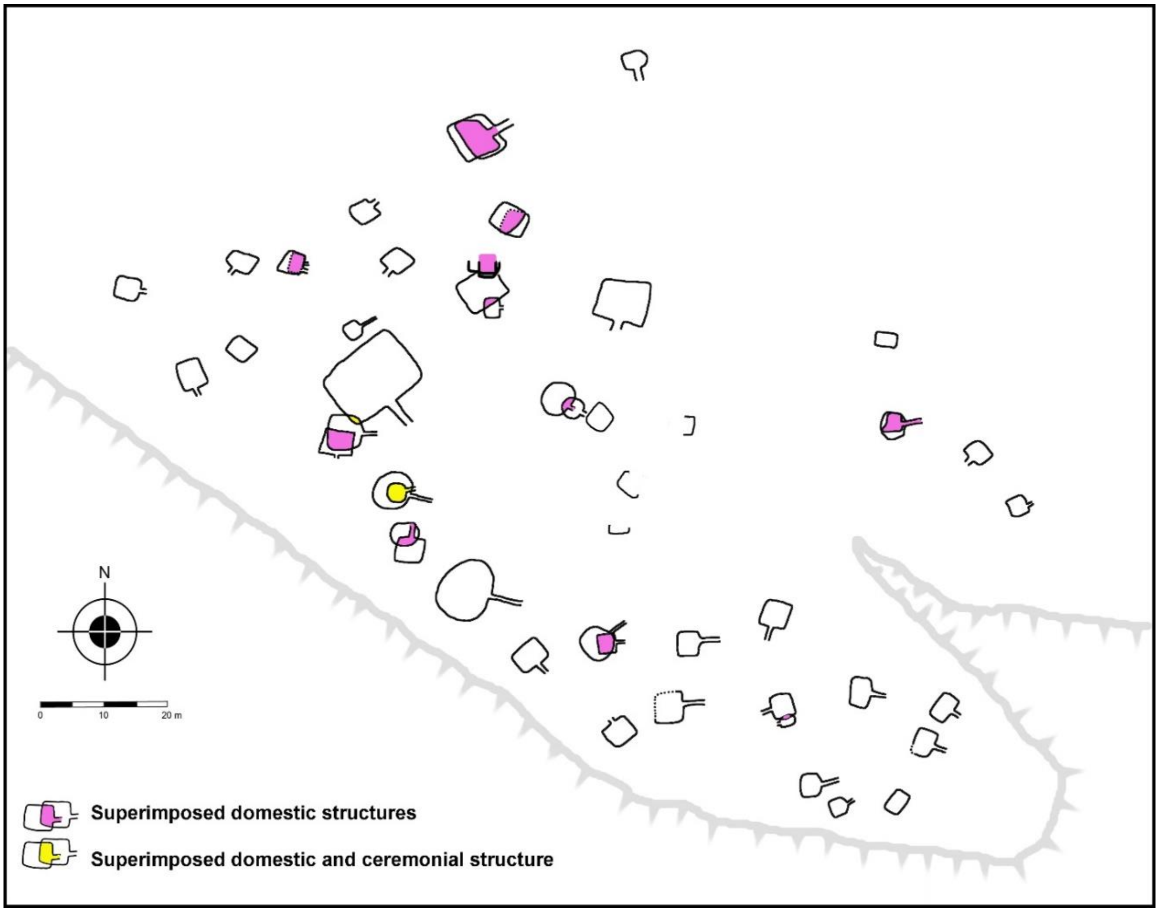

Figure 3.34. Structural superpositioning at Harris Village (after Haury 1936; Roth and Baustian 2015:Figure 3).

Table 3.36. Assessing differences in the relative frequency of structural superpositioning at Harris Village, as of the San Francisco phase (locus scale). (Probability values obtained using two-tailed Fisher's exact tests. Yellow cell indicates differences with a low probability of resulting from chance)

		Locus		
		Central	**East**	**West**
Locus	**Central**			
	East	p = 1.00		
	West	p = 0.06	p = 0.08	

Table 3.37. Assessing differences in the relative frequency of structural superpositioning at Harris Village, as of the Three Circle phase (locus scale). (Probability values obtained using two-tailed Fisher's exact tests)

		Locus						
		North	West	N. Central	S. Central	South	East	Northeast
Locus	North							
	West	p = 0.44						
	N. Central	p = 0.33	p = 0.51					
	S. Central	p = 0.33	p = 0.51	p = 1.00				
	South	p = 1.00	p = 0.37	p = 0.17	p = 0.17			
	East	p = 1.00	p = 0.20	p = 0.13	p = 0.13	p = 1.00		
	Northeast	p = 1.00	p = 0.62	p = 0.43	p = 0.43	p = 1.00	p = 1.00	

Intramural Burial Index. Throughout the occupation of Harris Village, intramural burials were present but never commonplace (see Figure 3.35). Excluding those recovered from ceremonial structures, the site's entire intramural burial population numbers only 23. Two of these could be dated only to the Late Pithouse period, and eight could be dated only to the broad San Francisco-or-Three Circle time frame. The remaining burials were dated solidly to the San Francisco (n = 3) and Three Circle (n = 10) phases. To allow for statistical assessment of inter-locus burial patterns, all 23 are included in a general, pre-Classic category. Relative frequencies of rooms with burials are calculated for each locus and subjected to a series of two-tailed Fisher's exact tests (see Table 3.38). I also assess differences in locus-scale burial distributions using a series of two-tailed Mann-Whitney tests (see Table 3.39). In both cases, all differences have a high probability of resulting from chance. Thus, I infer that some households were using intramural burials more than others to assert antecedence, but that this practice did not extend to the scale of locus.

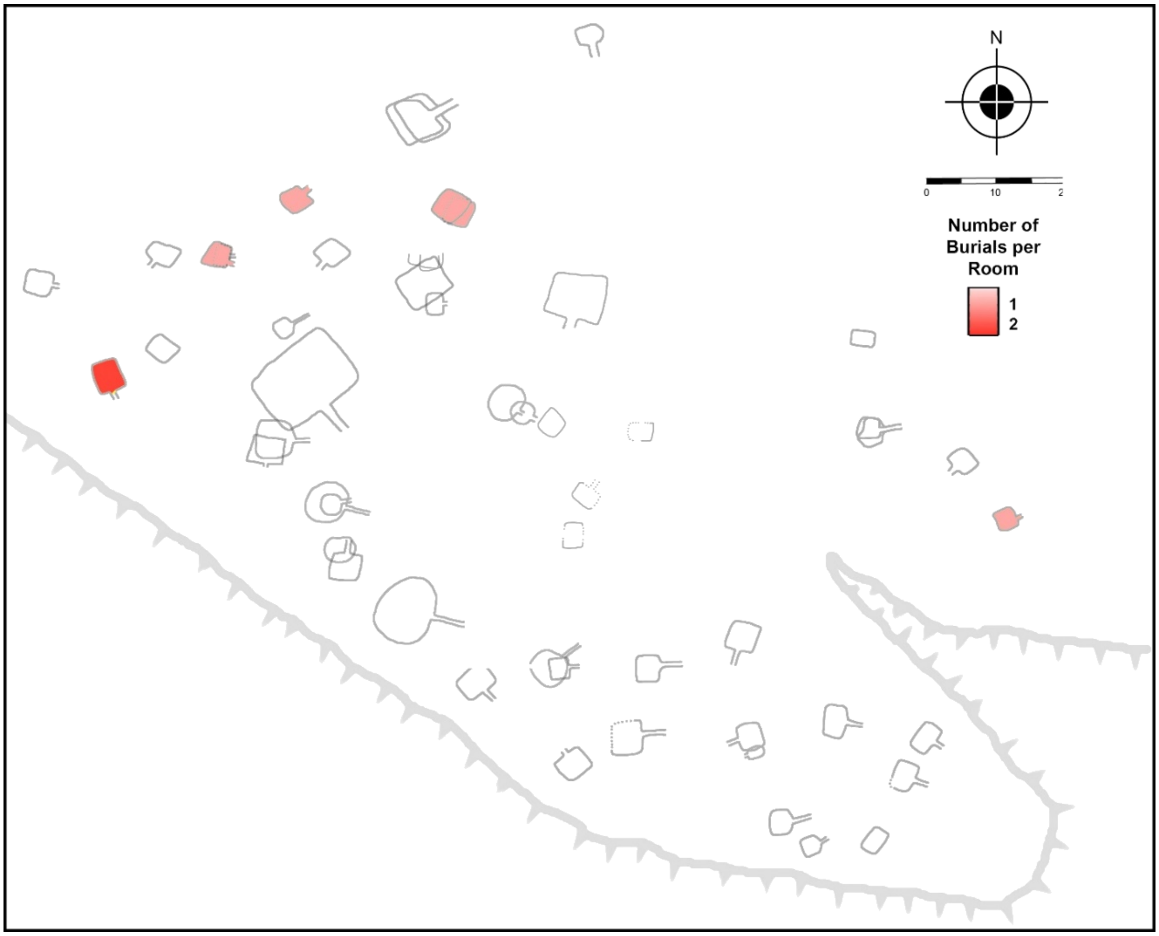

Figure 3.35. Burial density map for Harris Village (after Haury 1936; Roth and Baustian 2015:Figure 3)

Table 3.38. Assessing differences in the relative frequency of domestic rooms at Harris Village that doubled as cemeteries during the pre-Classic era (locus scale). (Probability values obtained using two-tailed Fisher's exact tests)

		Locus [A]			
		Central	**East**	**South**	**West**
Locus	**Central**				
	East	p = 0.64			
	South	p = 1.00	p = 0.61		
	West	p = 1.00	p = 0.46	p = 1.00	

[A] Architectural evidence suggests that over time, locus boundaries shifted somewhat. Because the data in this table came from multiple time periods, I have, in some cases, collapsed two or more phase-specific loci into larger loci for the sake of the present analysis. Specifically, I combine the North Central, South Central, and Central loci into one central locus. Likewise, I combined the East and Northeast loci into a generalized eastern locus.

Table 3.39. Assessing differences in burial distributions at Harris Village during the pre-Classic era (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests)

N Burials	Locus [A]	Central	East	South	West
6	Central				
3	East	U = 72 p = 0.59			
4	South	U = 27 p = 0.95	U = 48.5 p = 0.62		
10	West	U = 92 p = 0.93	U = 119.5 p = 0.36	U = 63 p = 0.98	

[A] Architectural evidence suggests that over time, locus boundaries shifted somewhat. Because the data in this table came from multiple time periods, I have, in some cases, collapsed two or more phase-specific loci into larger loci for the sake of the present analysis. Specifically, I combined the North Central, South Central, and Central loci into one central locus. Likewise, I combined the East and Northeast loci into a generalized eastern locus.

Wind Mountain

The site of Wind Mountain (LA127260) is located on the eastern flank of the Big Burro Mountains, in the southern portion of the Upper Gila area. It is a large, multi-component site, spanning the Early Pithouse, Late Pithouse, and Classic periods. In 1975, Jack and Vera Mills showed the site to Charles Di Peso, who was examining Mesoamerican influence on groups in the U.S. Southwest. The site was owned by Phelps Dodge Corporation and the Pacific Western Land Company, which gave Di Peso and the Amerind Foundation permission to excavate. Di Peso worked at Wind Mountain – his last archaeological project – from 1977 to 1979. He died in 1982, before his analyses were completed (Woosley and McIntyre 1996:xix). Anne Woosley and Allan McIntyre (1996) brought the study to completion and publication. The site has since been destroyed entirely by mining operations. Summary data from the Amerind Foundation's work at Wind Mountain are found in Table 3.40.

Table 3.40. Wind Mountain burials and architecture

Temporal Parameter	Number of Structures	Loci	Burials	Loci Names
Classic period	16	1	6	N
Mangas phase	9	1	2	N
Three Circle phase or Classic period	0	1-3	5	N?, Ctrl ?, N. Ctrl?, S. Ctrl?
Late Pithouse period A	2	?	2	?
Pre-Classic era A	1	?	?	?
Three Circle phase	15	3	12	Central, N, N. Central, S. Central
San Francisco or Three Circle phase	21	4	9	Central, E, , N, Ridout, S. Central
San Francisco phase	15	4-5	22	E, Central, N, Ridout, S
Georgetown or San Francisco phase	1	1-5	0	E?, Ctrl?, N?, Ridout?, S?
Georgetown phase	8	1-3	3	Centra?l, N?, Ridout?
Cumbre-to-San Francisco	0	4-6	10	N, Ctrl, Ridout, S. Ctrl, E? S?
Cumbre phase	11	4	3	N, Central, Ridout, S. Central
Undated	0	5	53	N, Central, N. Central, Ridout, S
Entire occupation	99	--	128	--

[A] Finest temporal resolution available; data are not reflected elsewhere in this table

The site of Wind Mountain has traditionally been divided into two loci – "Wind Mountain" and "Ridout" – separated by a shallow saddle. Woosley and McIntyre (1996:63) suggest that the distinction between loci was based largely on structural placement relative to this saddle, rather than spatial relationships between pit structures. A diachronic examination of site development suggests the possibility of additional spatial distinctions (see Figures 3.36 through 3.42), potentially corresponding with intra-village social groups.

The earliest recognized architecture at Wind Mountain consists of 11 domestic pithouses that date to the Cumbre phase (see Figure 3.36). There are two distinct residential clusters during the Cumbre phase. What I refer to as the North Locus sat at the northern end of the interfluve and included six pithouses, five of which were affected by superpositioning. The Ridout Locus was at the far southern end of the ridge and included three pithouses. Two isolated pithouses were found between the two obvious clusters, in places that would ultimately be included in the site's Central Locus.

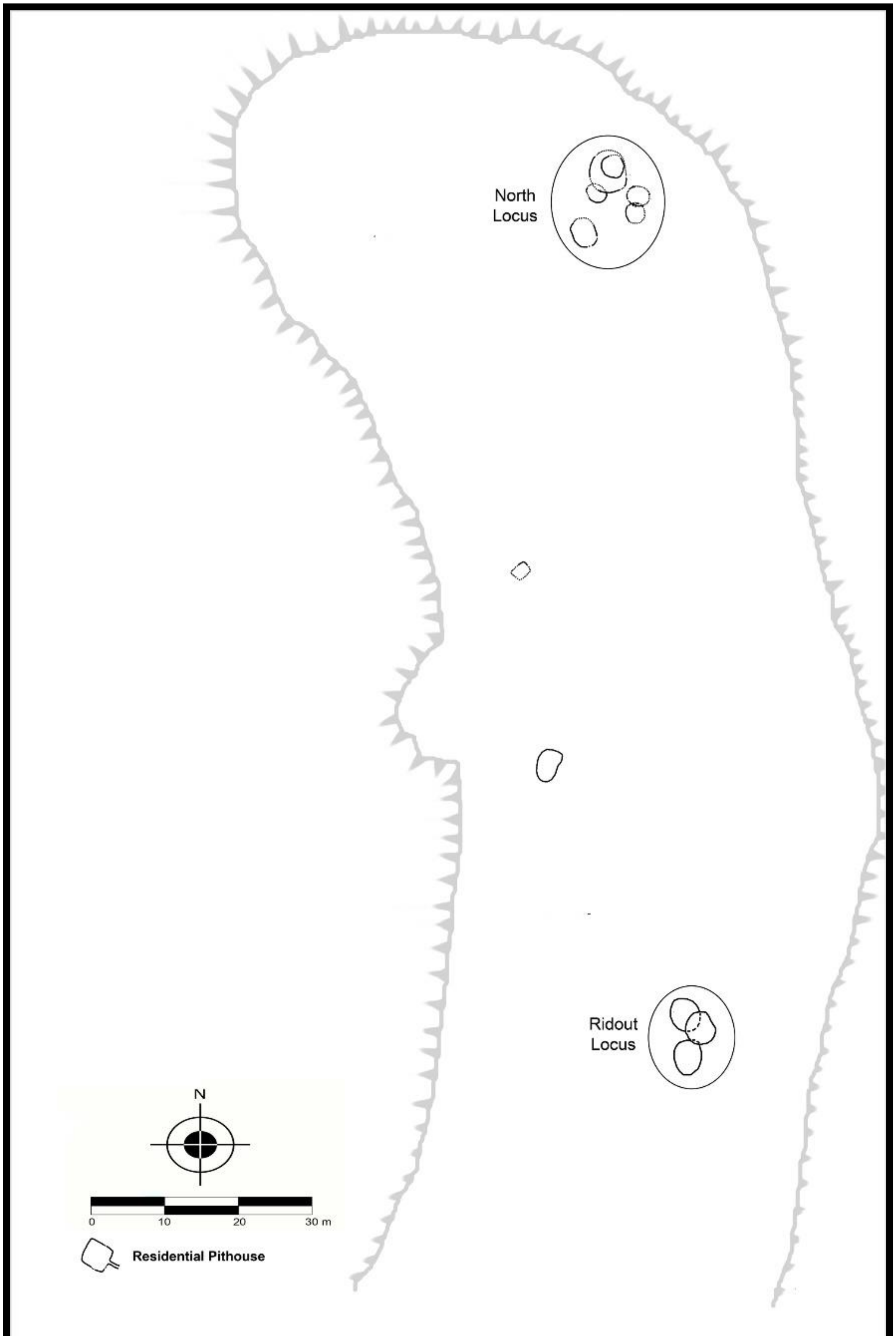

Figure 3.36. Cumbre phase architecture at Wind Mountain (after maps shared by Patricia Gilman)

Eight new pithouses were added to Wind Mountain during the Georgetown phase (see Figure 3.37). Six of these were located in the North Locus, where the pattern of architectural superpositioning continued. No Georgetown phase pithouses were encountered in the Ridout Locus. Construction would eventually resume here, during the San Francisco phase, suggesting that during the Georgetown phase, people in the Ridout Locus continued to occupy their Cumbre phase pithouses. Woosley and McIntyre (1996:43), in fact, acknowledged that some or all of Wind Mountain's 11 Cumbre phase pithouses may have seen continued use into the Georgetown phase. Two additional, isolated pithouses were built south of the North Locus. Their placement falls within the eventual perimeters of the site's Central Locus.

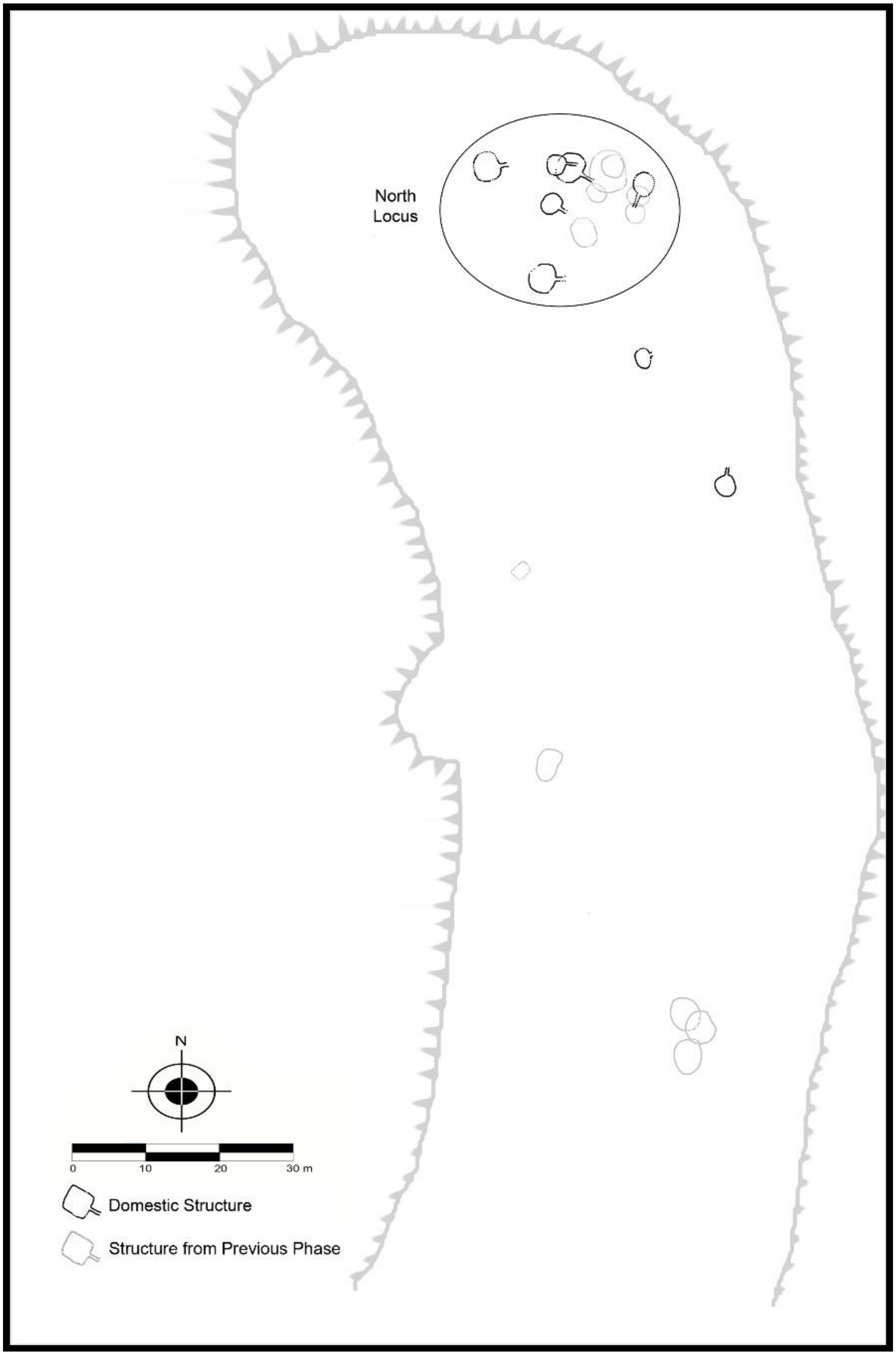

Figure 3.37. Georgetown phase architecture at Wind Mountain (after maps shared by Patricia Gilman)

Architectural evidence suggests that the pace of village growth and social change quickened at Wind Mountain during the San Francisco phase (see Figure 3.38). No structures that solidly date to the San Francisco phase were built in the North Locus, although a great kiva was built a short distance to the west and may have been associated. Of course, some of the Georgetown phase pithouses in the North Locus may have been occupied into the San Francisco phase. A tight cluster of four San Francisco phase structures was built in the center of the interfluve, halfway between the North and Ridout loci, and I refer to this as the Central Locus. Two of the four were great kivas, and two were pithouses. An isolated, San Francisco phase pithouse sits just north of the Central Locus. Two more pithouses were built along the eastern edge of the ridge, southeast of the Central Locus. Given their proximity to one another, and because their ramps face a common open area, I refer to this pair as the East Locus. Seven structures were added to the southern end of the site during the San Francisco phase. Three of these fall within the Ridout Locus, as defined for the Cumbre phase. A great kiva was built to the south of here, surrounded by three pithouses. I refer to this cluster of four structures – distinct from the Ridout cluster – as the South Locus.

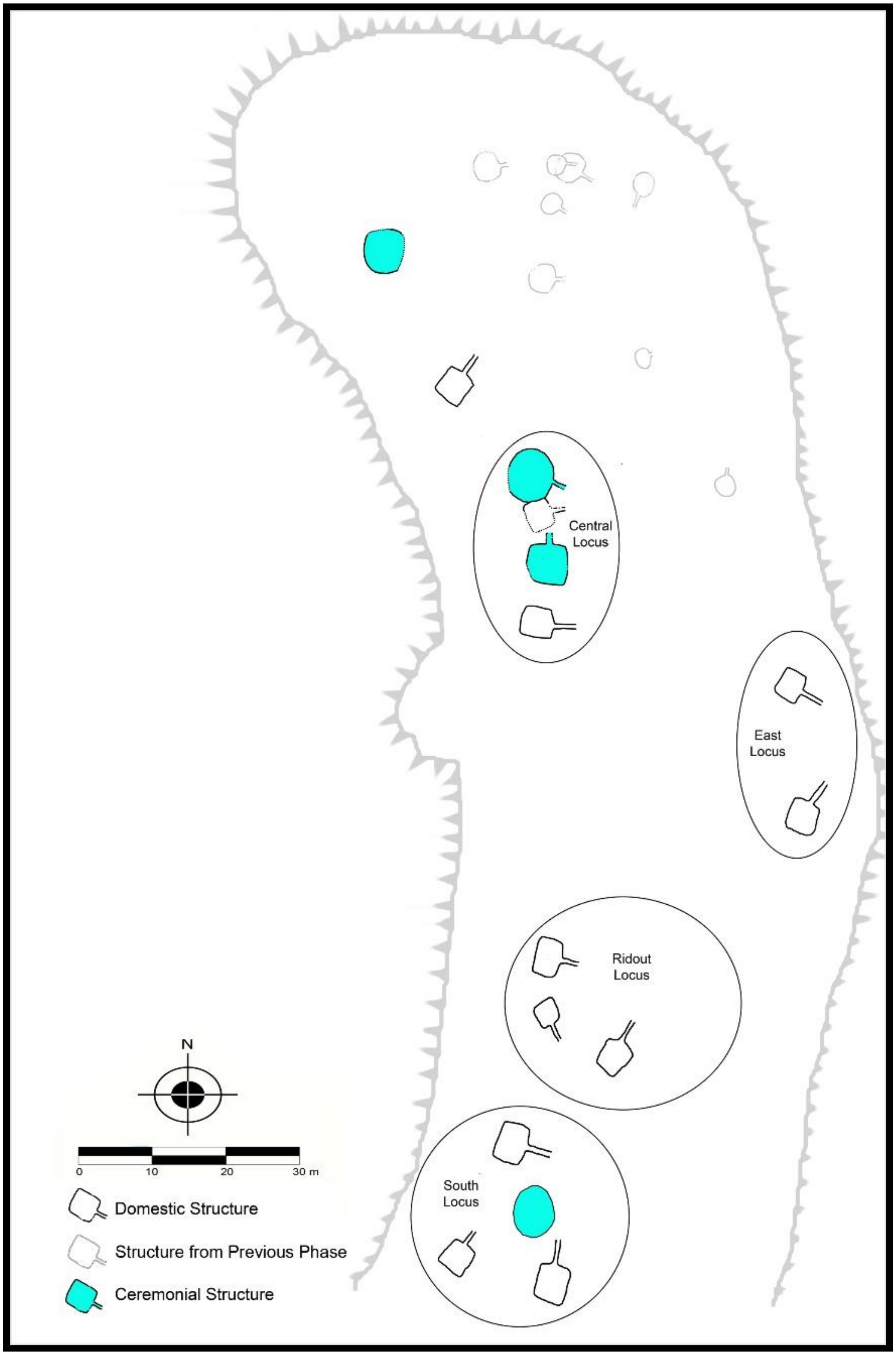

Figure 3.38. Definite San Francisco phase architecture at Wind Mountain (after maps shared by Patricia Gilman)

Twenty-one of Wind Mountain's pithouses could be dated only by the shape of their floorplan, which suggests construction during either the San Francisco or Three Circle phase. Given the size of this sample, I assign them a "San Francisco-Three Circle" label for analytical purposes. Here and in the chapters to follow, I discuss this combined class after San Francisco phase architecture and before Three Circle phase architecture, potentially giving the impression that the deposits constitute a chronological point between the two discrete phases. I stress that this is not necessarily the case; a pithouse in the ambiguous San Francisco-Three Circle category may be contemporaneous with or postdate a solidly-dated San Francisco phase structure. It may predate or be contemporaneous with a solidly-dated Three Circle phase structure. The 21 structures in the San Francisco-Three Circle class were divided between the North Locus (n = 13), Central Locus (n = 6), East Locus (n = 1), and Ridout Locus (n = 1) (see Figure 3.39).

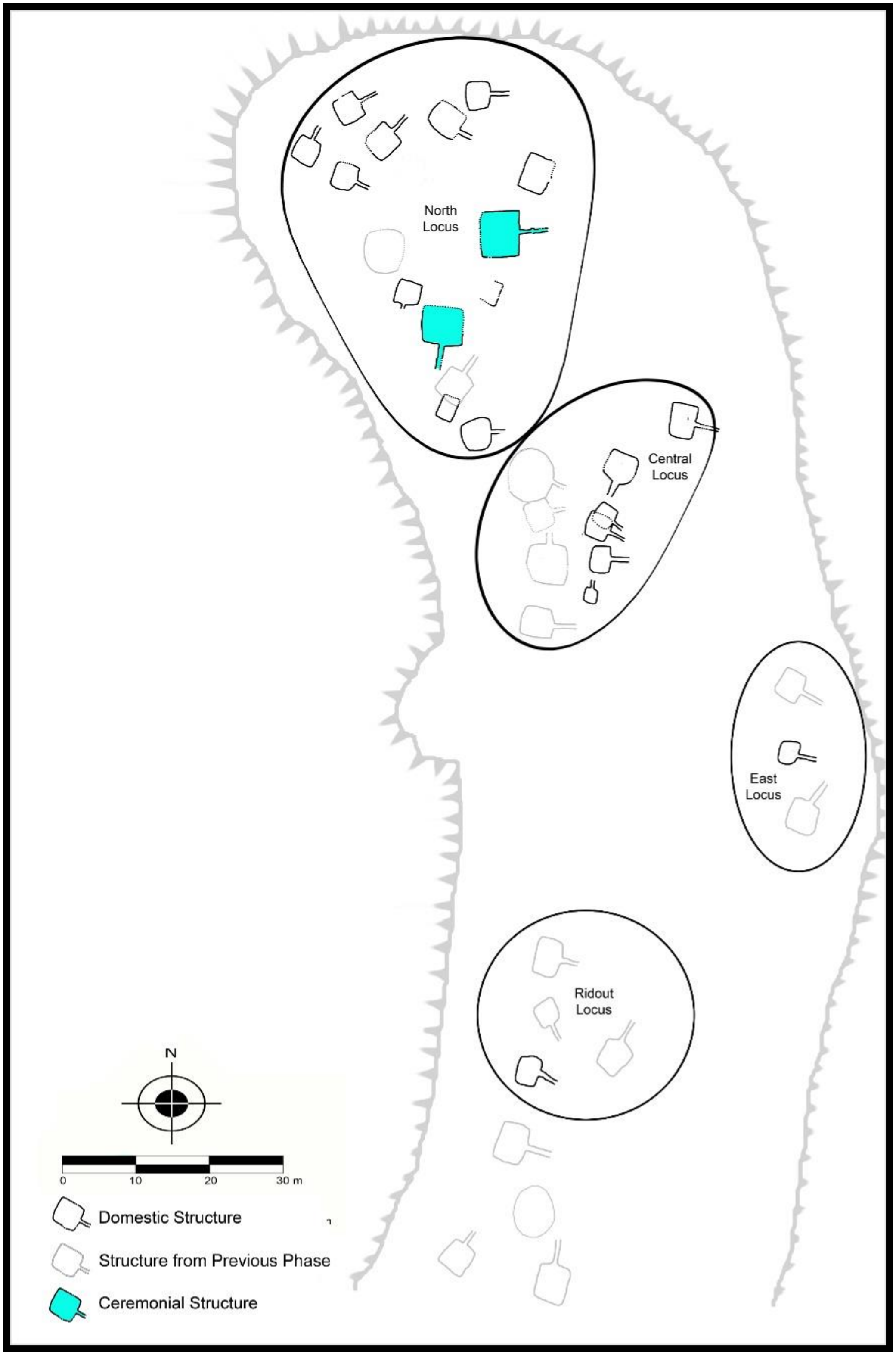

Figure 3.39. Wind Mountain architecture that dates to either the San Francisco or Three Circle phase (after maps shared by Patricia Gilman)

Fifteen pit structures were dated solidly to the Three Circle phase. It seems apparent that by this time, the southern half of the site (i.e., Ridout and South loci) had been depopulated or was in the midst of that process. In the northern half of the site, no residential clusters are self-evident (see Figure 3.40). That said, subtle differences in architectural proximity and ramp orientation suggest at least three potential loci. For analytical purposes, I expand the North Locus to include two great kivas and eight pithouses. This may combine what had been socially-distinct loci in the past, but the placement of ambiguously-dated structures (i.e., the San Francisco-Three Circle class) prevents such inferences. To the south of the North Locus, two Three Circle phase pithouses are immediately adjacent. If some of the nearby San Francisco-Three Circle class structures actually date to the Three Circle phase, then these contribute to a cohesive cluster, which I refer to as the North Central Locus. Due south, and constituting the South Central Locus, are the remaining two pithouses of the Three Circle phase.

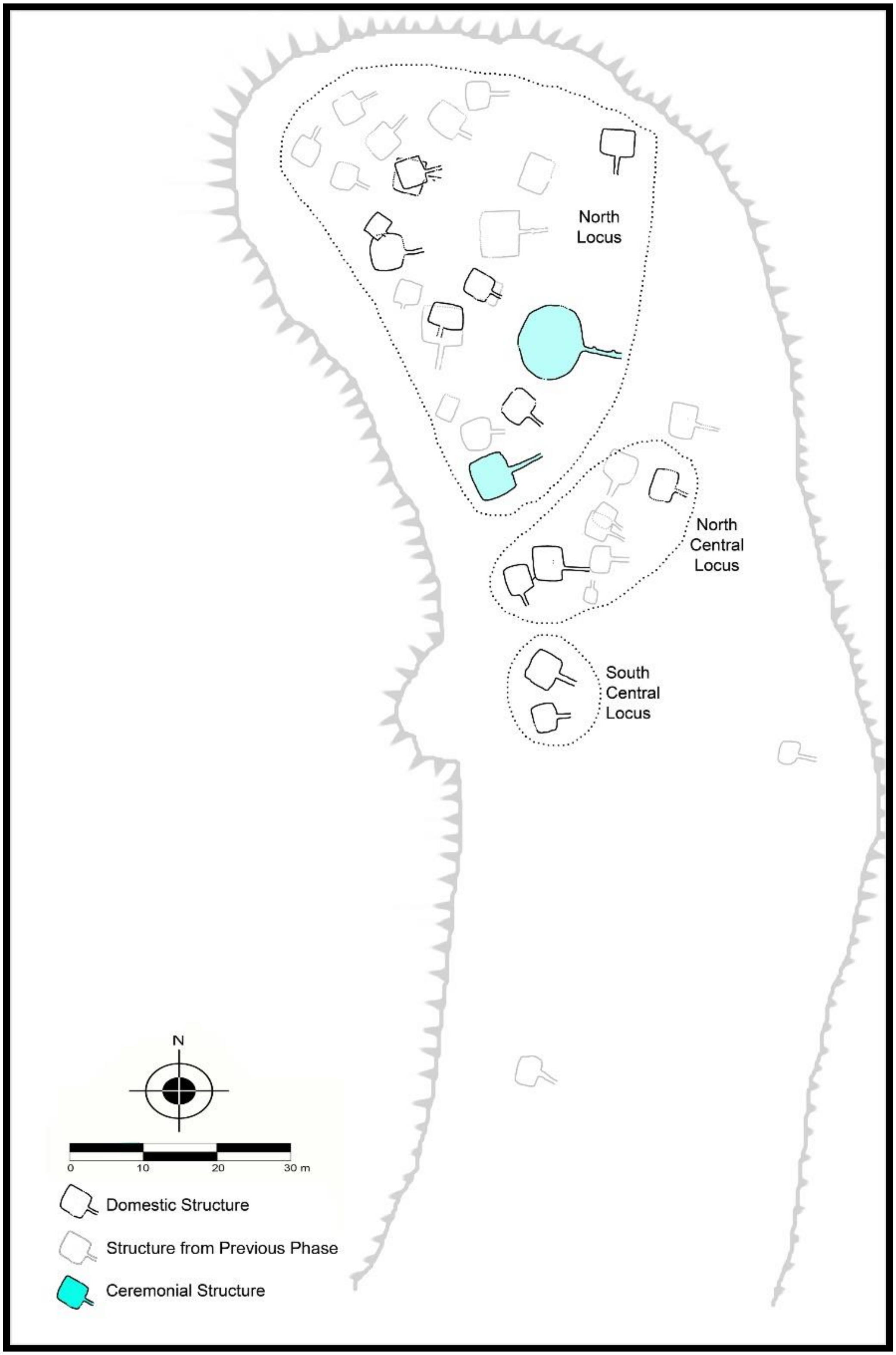

Figure 3.40. Definite Three Circle phase architecture at Wind Mountain (after maps shared by Patricia Gilman)

Wind Mountain's spatial contraction into the site's northern portion continued during the Mangas phase (Figure 3.41). Woosley and McIntyre (1996: Table 3.5, pp. 47, 71) identified nine Mangas phase structures at Wind Mountain, including ramped pithouses and semi-subterranean rooms. If viewed alone, the Mangas phase structures could be grouped into a few vague clusters. When viewed together with Three Circle phase and San Francisco-Three Circle class architecture, however, no clustering is readily apparent. For this reason, no Mangas phase loci were defined for analytical purposes.

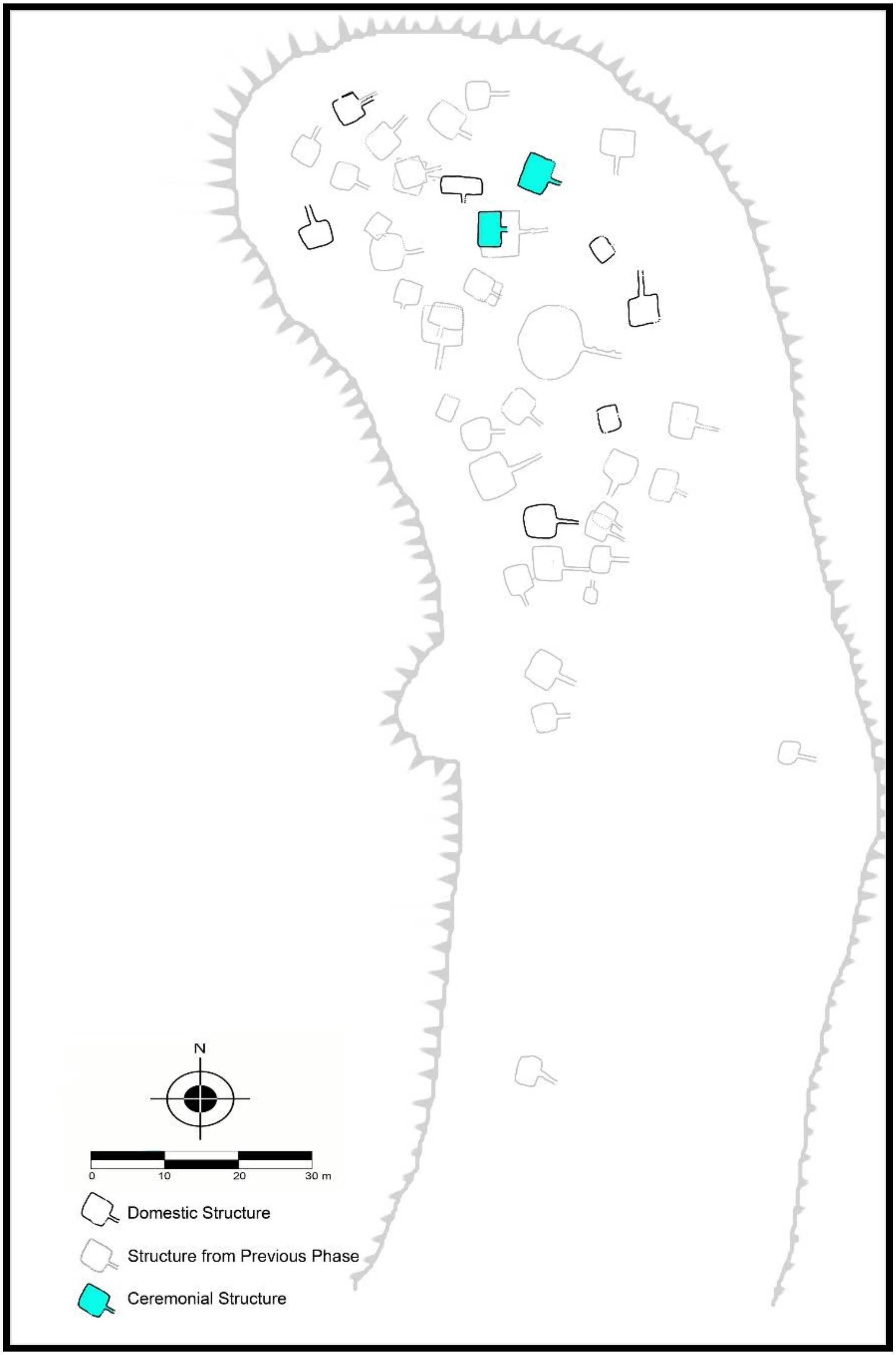

Figure 3.41. Mangas phase architecture at Wind Mountain (after maps shared by Patricia Gilman)

Sixteen Classic period rooms were identified at Wind Mountain (Figure 3.42). Following Di Peso, Woosley and McIntyre (1996:128) divided these into three roomblocks, which they defined as “one or more contiguously joined surface domestic rooms in association with one community structure.” Di Peso’s maps show several wall stubs that suggest a number of additional rooms existed but were not excavated, defined, or labeled. In a number of cases, these rooms may have bridged the short distances between Woosley and McIntyre’s “room units.” Coupled with the close proximity of the proposed roomblocks and the fact that two of them contain only three rooms each, I am hesitant to assume there was more than one roomblock here. Thus, I do not separate the site’s Classic period component into separate loci.

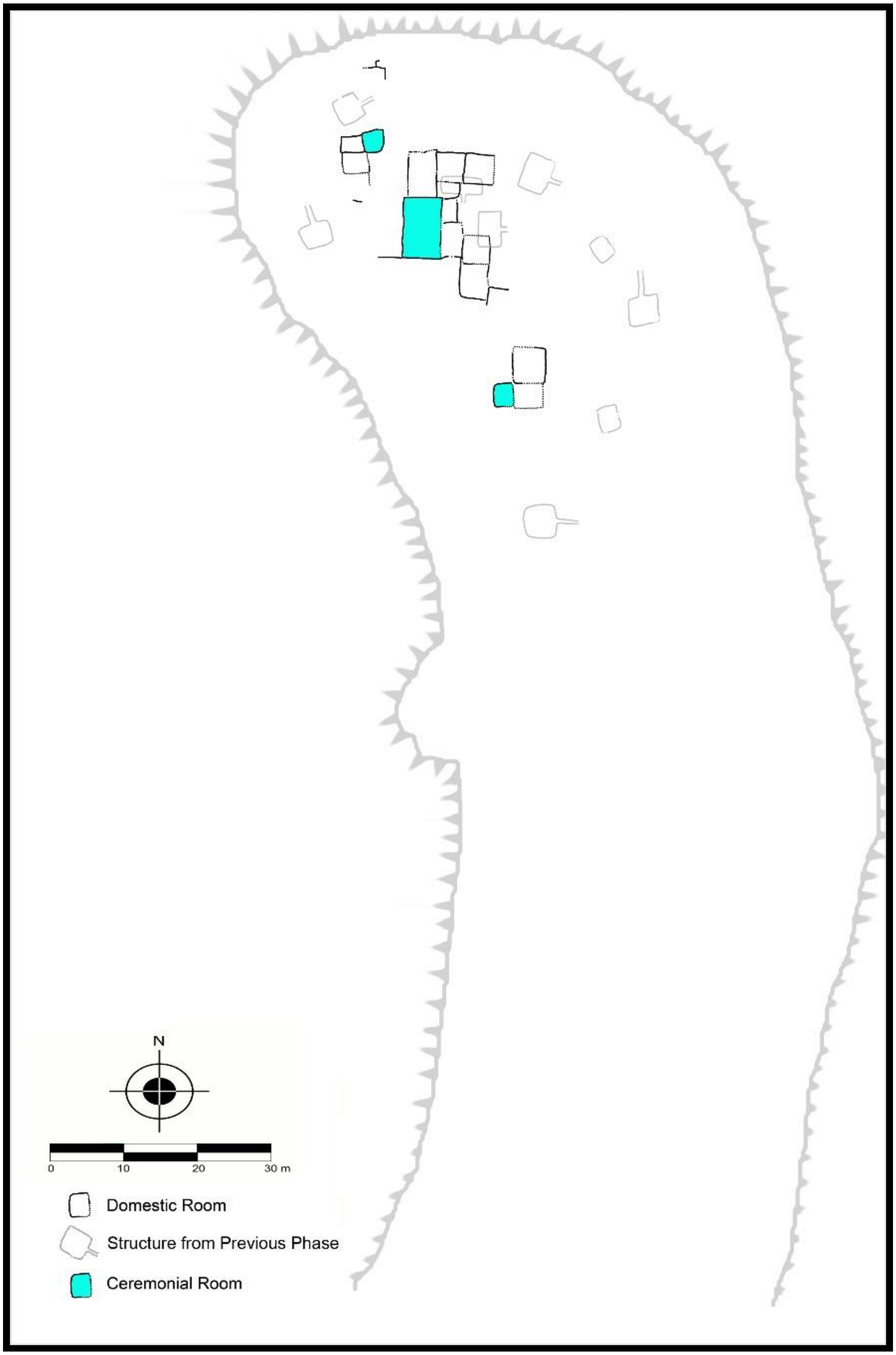

Figure 3.42. Classic period architecture at Wind Mountain (after maps shared by Patricia Gilman)

Architectural Chronology Index. Wind Mountain's earliest pithouses were built during the Cumbre phase. Two of these were isolated and the remainder were concentrated in the North and Ridout loci. Within the two early clusters, the degree of superpositioning (all during the Cumbre phase) suggests there may have been no more than a single house occupied at a time in either locus, during the Early Pithouse period. In any event, extant data fail to identify one Cumbre phase structure (and its place on the landscape) as being the site's earliest.

Architectural Remodeling Index. My examination of architectural data identified only one unambiguous instance of remodeling at Wind Mountain. House P1 began as a domestic pithouse in the site's North Locus, dating to the San Francisco or Three Circle phase. This was later remodeled into House P2, a Mangas phase ceremonial structure. [4] Given the transformation from domestic to ceremonial use, it is difficult to argue that this instance of remodeling represents the establishment or assertion of household-scale antecedence. The nature of the remodeling is more suggestive of antecedence at a supra-household scale, but the sample size does not permit such an inference. Also, by the Mangas phase, there were no other residential loci at Wind Mountain.

Architectural Superpositioning Index. Architectural superpositioning began at Wind Mountain as early as the Cumbre phase, when a series of pithouses in both the North and Ridout loci were sequentially abandoned and replaced by overlying structures (see Figures 3.43 and 3.44). Relative frequencies of superpositioning are calculated and compared for the North (83.3 percent) and Ridout (100.0 percent) loci during the Cumbre phase. The difference in relative frequency is assessed using a two-tailed Fisher's exact

[4] Treated analytically as a kiva

test, which indicates that the difference has a high probability of resulting from chance ($p = 1.00$). Only one locus added houses during the Georgetown phase, which precludes locus-scale comparison. Relative frequencies of superpositioning are calculated and compared during the San Francisco phase, San Francisco-to-Three Circle time frame, and Three Circle phase proper (see Tables 3.41, 3.42, and 3.43). Every difference in relative frequency is found to have a high probability of resulting from chance. These results suggest that superpositioning was used by some households to assert antecedence – for quite some time in some circumstances – but that the practice was not extended to the locus scale.

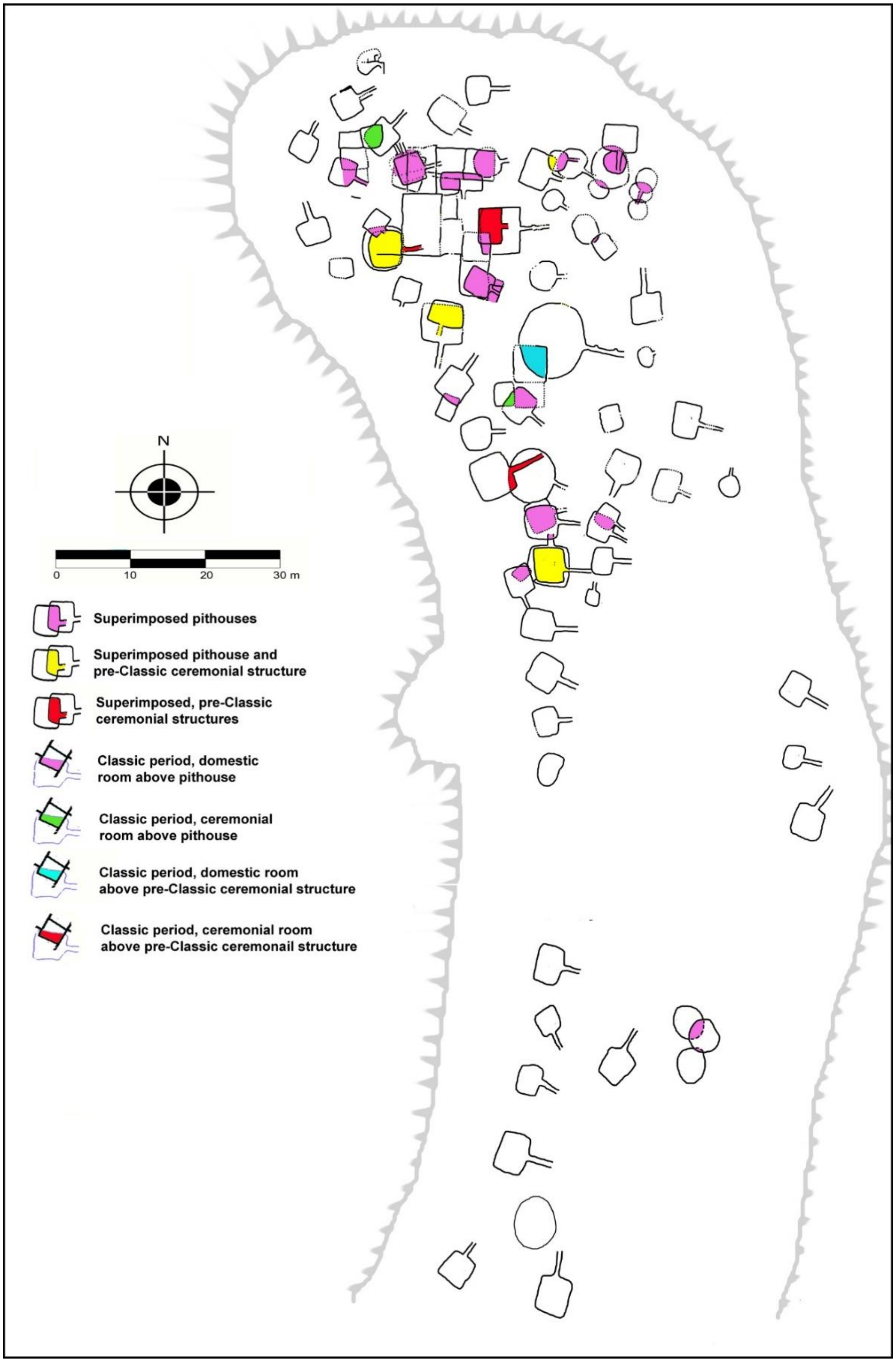

Figure 3.43. Structural superpositioning at Wind Mountain (after maps shared by Patricia Gilman)

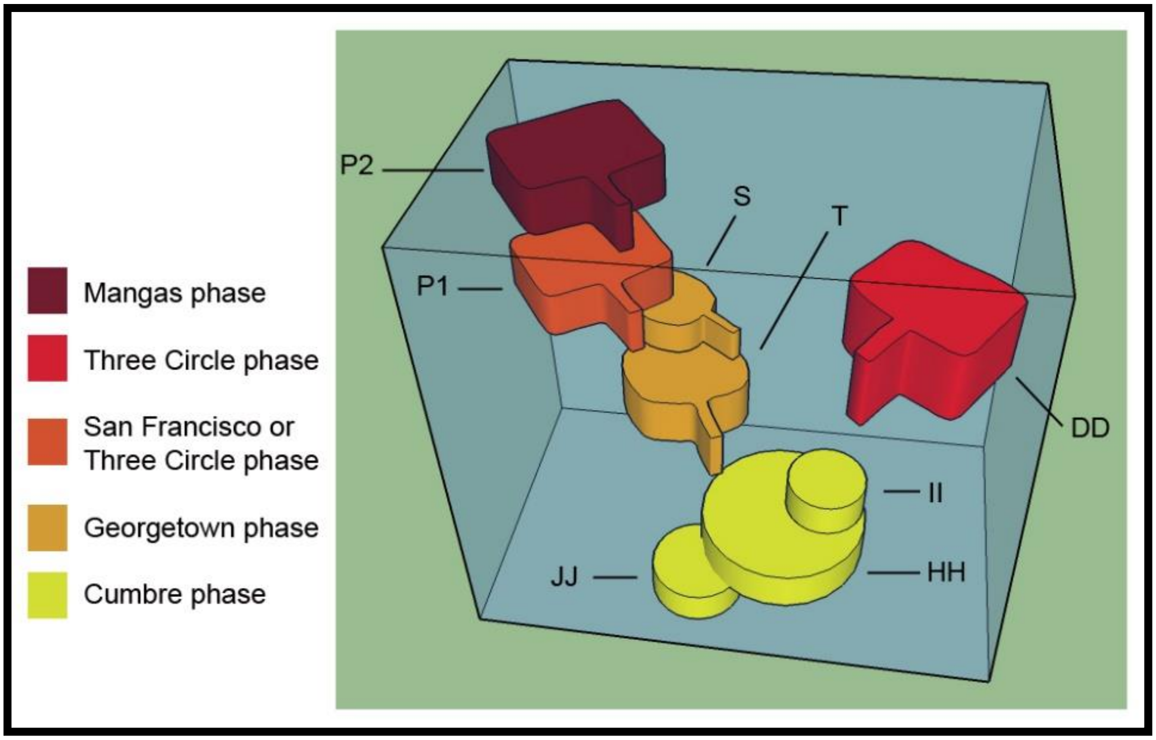

Figure 3.44. Example of long-term superpositioning in Wind Mountain's North Locus.

Table 3.41. Assessing differences in the relative frequency of structural superpositioning at Wind Mountain, as of the San Francisco phase (locus scale). (Probability values obtained from two-tailed Fisher's exact tests.)

		Locus			
		Central	**East**	**Ridout**	**South**
	Central				
Locus	**East**	p = 0.40			
	Ridout	p = 1.00	p = 0.46		
	South	p = 0.40	p = 1.00	p = 1.00	

Table 3.42. Assessing differences in the relative frequency of structural superpositioning at Wind Mountain, as of the combined San Francisco-Three Circle time frame (locus scale). (Probability values obtained from two-tailed Fisher's exact tests.)

		Locus			
		North	**Central**	**East**	**Ridout**
	North				
Locus	**Central**	p = 1.00			
	East	p = 0.53	p = 0.50		
	Ridout	p = 1.00	p = 1.00	p = 0.48	

Table 3.43. Assessing differences in the relative frequency of structural superpositioning at Wind Mountain, as of the Three Circle phase (locus scale). (Probability values obtained from two-tailed Fisher's exact tests.)

		Locus		
		North	**N. Central**	**S. Central**
Locus	**North**			
	N. Central	p = 0.72		
	S. Central	p = 0.09	p = 0.23	

Intramural Burial Index. Houses with burials were not especially rare at Wind Mountain, but the density of intramural burials was consistently low (see Figure 3.45). Wind Mountain's intramural burial population, not unlike that of Harris, was fairly small (n = 27), especially when burials from ceremonial architecture are excluded from consideration. To accommodate for this, I combine all pre-Classic, intramural burials into a single temporal category that comprises three Cumbre, two Georgetown, seven San Francisco, six San Francisco-or-Three Circle, and nine Three Circle phase burials. Relative frequencies of rooms with burials are calculated for each of three generalized loci and compared. Differences in relative frequency are assessed using a series of two-tail Fisher's exact tests, which are detailed in Table 3.44. I also compare locus-scale, intramural burial distributions and assess differences through two-tailed Mann-Whitney tests (see Table 3.45). In all comparisons, differences have a high probability of resulting from chance. Thus, some pre-Classic households at Wind Mountain appear to have used intramural burials to establish and assert antecedence, but the practice did not extend to the scale of locus.

Figure 3.45. Burial densities at Wind Mountain during the pre-Classic era (left) and Classic period (right) (architecture after maps shared by Patricia Gilman)

Table 3.44. Assessing differences in the relative frequency of domestic rooms at Wind Mountain that doubled as cemeteries during the pre-Classic era (locus scale). (Probability values obtained using two-tailed Fisher's exact tests)

		Locus [A]		
		Central	**North**	**South**
Locus	**Central**			
	North	p = 0.21		
	South	p = 0.67	p = 1.00	

[A] Architectural evidence suggests that over time, locus boundaries shifted somewhat. Because the data in this table came from multiple time periods, I collapse, in some cases, two or more phase-specific loci into larger loci for the sake of the present analysis. Specifically, I combine the Central, North Central, and East loci into one central locus. Likewise, I combine the Ridout and South loci into a generalized southern locus.

Table 3.45. Assessing differences in burial distributions at Wind Mountain during the pre-Classic era (locus scale). (Probability values obtained using two-tailed Mann-Whitney tests)

N Burials	**Locus [A]**	**Central**	**North**	**South**
11	Central			
14	North	U = 500; p = 0.30		
2	South	U = 82; p = 0.44	U = 215; p = 0.99	

[A] Architectural evidence suggests that over time, locus boundaries shifted somewhat. Because the data in this table came from multiple time periods, I collapse, in some cases, two or more phase-specific loci into larger loci for the sake of the present analysis. Specifically, I combine the Central, North Central, and East loci into one central locus. Likewise, I combine the Ridout and South loci into a generalized southern locus.

Discussion

In this chapter, I have introduced the seven Mimbres sites that contribute to the analyses that follow. Each is a large and well-documented site with adequate mortuary and architectural data. With the exception of Harris Village, each site has both pre-Classic and Classic period components. Post-Classic deposits have been identified at Galaz, but lie beyond the scope of the present study. I have developed four methodological indices used to identify primacy and antecedence at these sites. The ethnographic literature suggests that antecedence often accompanies residential primacy, and the Architectural Chronology Index seeks to identify the earliest architecture and residential locus at each site. Residential groups can establish and mark their antecedence through choices to remodel rather than move, and the Architectural Remodeling Index compares differences in the extent of remodeling at various scales. Groups can also establish and mark their antecedence by building new structures above those of their ancestors. The Architectural Superpositioning Index identifies instances of structural superpositioning and compares differences in the extent of superpositioning at several scales. Finally, people can establish and assert their antecedence through the burial of ancestors within their homes. Thus, the Intramural Burial Index compares the extent to which people used their homes as cemeteries.

Together, evidence drawn from the above indices suggests that antecedence was acknowledged at all seven sites (see Table 3.46, below). However, the nature of the data and the strength of the evidence vary considerably. Next, I briefly recap evidence of antecedence noted at each site, thus providing a community-specific snapshot of the domain. I then summarize the data within the context of the four indices. I conclude with a number of general observations and patterns.

Evidence by Site

Cameron Creek. The temporal resolution of Cameron Creek's data prevents the identification of a founding locus. Remodeling, superpositioning, and intramural burials are present throughout the site's occupation. Differences in their distribution do not correlate with readily-identifiable loci, but burials and remodeling do cluster in one area – in and around the courtyard group – during the pre-Classic era. This array of pithouses is not spatially distinguished from surrounding households, but is arranged in a way that suggests social distinction and cohesion. Classic period roomblocks were not built above the courtyard group, and Classic period burials were almost never placed in rooms that superimposed pithouses with burials. Together, these data suggest that (A) antecedence was acknowledged at Cameron Creek, (B) some households had greater antecedence than others, (C) this inequality may have extended to a supra-household scale (i.e., the courtyard group) during pre-Classic times but not during the Classic period, and (D) efforts may have been taken by Classic period households to undermine pre-Classic claims to antecedence.

Galaz. Galaz appears to have been founded during the Georgetown phase, and the earliest architecture was found in what would ultimately become the northwestern corner of the site. Over the course of the pre-Classic era, differences in remodeling and superpositioning were present, but demonstrably manifest at only at the household scale. People living in the southeastern third of the site were using intramural burials to establish and assert antecedence more than those living elsewhere on the site. During the Classic period, remodeling and superpositioning continued at the household scale. As was the case at Cameron Creek, Classic period architecture was never placed atop Galaz' earliest structures. The East Locus continued to have the most rooms with burials and the most burials per room, marking this as the most antecedent sector after 1000 C.E. Perhaps not coincidentally, a post-Classic pueblo was eventually built above the East Locus (see Anyon and LeBlanc 1984:Chapter 8).

Harris Village. Harris Village was settled during the Georgetown phase, but no particular structure or part of the site can be identified as the earliest. Evidence of remodeling is unknown prior to the Three Circle phase, and then appeared only in one household. Superpositioning appeared early in the site's history, during the Georgetown phase. Throughout the site's occupation, meaningful differences in remodeling, superpositioning, and intramural burial were notable only at the household scale. Thus, none of the site's loci can be identified as having greater primacy or more antecedence than any other. Harris was depopulated prior to the Classic period.

Mattocks. Mattocks was probably founded early in the Late Pithouse period, and the earliest architecture is located along the site's far eastern edge. Only four pre-Classic structures are known at Mattocks, and only three of these were domestic in nature. No evidence of remodeling or superpositioning is known prior to 1000 C.E., and burials were distributed evenly among the site's few pithouses. During the Classic period, remodeling and superpositioning are evident, with differences manifest at the household scale alone. Like Cameron Creek and Galaz, Mattocks' earliest architecture was never superimposed by Classic period structures. The distribution of Classic period, intramural burials varies considerably, at both household and roomblock scales. Most notably, the 400s roomblock has a significantly higher rate of burials and a higher relative frequency of rooms being used for burials. This roomblock does not correspond spatially with the site's founding locus. Thus, the site's Southeast Locus is identified as having the greatest primacy, and the 400s Roomblock is identified as having the most evidence of antecedence.

NAN Ranch. The earliest architecture at NAN Ranch dates to the Georgetown phase and is located in what would become the southeastern corner of the site. Within this locus, one particular spot was so important that for generations, pithouses were superimposed here, one atop the other. During the Three Circle phase, the village grew to include multiple loci, amongst which the Southeast Locus had the highest rate of superpositioning. This distinction remained with the Southeast Locus for the remainder of NAN Ranch's occupation. During the Classic period, the South Roomblock had the highest rate of remodeling. Throughout the site's history, burials were distributed evenly across loci. As with Cameron Creek, Galaz, and Mattocks, the earliest architecture at NAN Ranch was not superimposed after the pithouse-to-pueblo transition. The village's Southeast Locus is identified as having the greatest primacy and the most consistent evidence of antecedence. After 1000 C.E., evidence of antecedence became more varied and spread beyond the Southeast Locus.

Swarts. Swarts was founded during the Three Circle phase, and extant data do not assist in identifying the site's earliest structure or section. In fact, no discrete loci are discernable at Swarts prior to the Classic period, thus precluding locus-scale comparisons. Intramural burials are present, but only in some pithouses, suggesting household-scale asymmetry in antecedence. Examples of remodeling and superpositioning are unknown prior to 1000 C.E. During the Classic period, differences in all three indices are present, but are generally manifest at the household scale alone. The one exception involves remodeling, which was more prevalent in the North Roomblock. Superpositioning in this locus involved both rooms-over-pithouses and rooms-over-rooms. Most of the superpositioning in the South Roomblock was limited to rooms-over-rooms, perhaps indicating less interest (or opportunity) in maintaining architectural continuity with pre-Classic times. No founding locus is identified at Swarts, but the site's North Roomblock is identified as having the most evidence of antecedence.

Wind Mountain. Wind Mountain was established during the Cumbre phase, at which time several pithouses were spread across the site. None can be identified as earlier than the others and, thus, the site's founding locus remains unidentified. The only evidence of remodeling occurred during the Mangas phase, when an earlier pithouse was remodeled into a ceremonial structure. In contrast, superpositioning began early on, during the Cumbre phase, and was widespread. Evidence suggests that the practice was undertaken only at the household scale, as was the intramural placement of burials. Over time, the site contracted significantly to the north. By the Mangas phase, and during the subsequent Classic period, it could be argued that the village consisted of a single locus, thus preventing inter-locus comparisons. Like at most of the other sites, Classic period rooms were never built atop Wind Mountain's earliest structures. None of Wind Mountain's structures or loci can be identified as having greater primacy or more evidence of antecedence. That said, the North Locus was occupied throughout the site's history; this continuity may be indicative of antecedence but was not included in the present analysis.

Evidence by Index

Architectural Chronology Index. The earliest residential loci were identifiable at only three out of the eight study sites (Galaz, Mattocks, and NAN Ranch). Thus, at these villages, it is possible to empirically determine whether the oldest locus in a village also has the most evidence of antecedence. Surprisingly, this was not often case. At the household scale, rooms with the most evidence of antecedence were located in the earliest locus only half of the time. At the locus scale, roomblocks in the founding locus almost never had the most evidence of antecedence (see Table 3.46). In fact, the only exception was at NAN Ranch, where the Southeast Roomblock (only two rooms of which were excavated) had the highest relative frequency of cumulative superpositioning. At the same time, however, the South Roomblock had the highest relative frequency of remodeling. Thus, those living in the founding locus did not dominate all, or even most, indices of antecedence.

Table 3.46. Comparison of greatest evidence of antecedence to greatest primacy

Site	Founding Locus	Time [A]	Index [B]	Household Scale: Preeminent Household	Household Scale: Household is in Founding Locus?	Locus Scale: Preeminent Roomblock	Locus Scale: Is Founding Locus?
Galaz	Northwest	PH	ARI	PHs 27, 93	No	n/a	n/a
			ASI	PHs 8, 27	Yes, in 1 of 2 cases	n/a	n/a
			IBI	Pithouse 27	No	n/a	n/a
		CM	ASI	Room 19	Yes	n/a	n/a
			IBI	Room 36	No	E, SE zones	No
Mattocks	Southeast [C]	PH	IBI	Pithouse 286b	No	n/a	n/a
		CM	ASI	Room 106	No	n/a	n/a
			IBI	Room 435	No	400s RB	No
NAN Ranch	Southeast	3C [D]	ARI	Room 83	No	n/a	n/a
			ASI	Room 95	Yes	Southeast	Yes
			IBI	Pithouse 14	No	n/a	n/a
		Tr	ARI	Room 89	No	n/a	n/a
			ASI	Rooms 97, 99	Yes	Southeast	Yes
			IBI	Room 13	No	n/a	n/a
		CM	ARI	Room 75	No	South	No
			ASI	n/a	n/a	Southeast	Yes
			IBI	Room 28	No	n/a	n/a

[A] PH = pre-Classic era, 3C = Three Circle phase, Tr = Transitional phase, CM = Classic period

[B] ASI = Architectural Superpositioning Index, IBI = Intramural Burial Index; at the household scale, preeminent households are identified as having greater maximum vertical occupations as compared to other contemporaneous structures (ASI) or by having more intramural burials than other contemporaneous structures (IBI); at the locus scale, the preeminent locus is identified by having a higher superpositioning index than other loci or a higher relative frequency of intramural burials, with a low probability of resulting from chance in either case

[C] The site's earliest structure was located along the far eastern edge of the site. Nesbitt's "Southeast Group" (sic) would eventually be built in this area, though not directly above the locus' pithouse.

[D] Prior to the Three Circle phase, all architecture at NAN Ranch was contained within the Southeast Locus

Architectural Remodeling Index. Evidence of pre-Classic, architectural remodeling was encountered at three of the study sites: Cameron Creek, Galaz, and NAN Ranch. In each case, differences in the use of remodeling were evident only at the household scale. Changes across the pithouse-to-pueblo transition were varied. Harris Village was depopulated. At Cameron Creek and Galaz, remodeling remained manifest at the household scale, while at NAN Ranch, it expanded to include the roomblock scale as well. At two additional sites (Mattocks and Swarts), evidence of remodeling did not appear until the Classic period. This late emergence is likely due to sampling error. At Mattocks, differences were manifest only at the household scale, while at Swarts, they were present at the scales of both household and locus.

Architectural Superpositioning Index. Evidence of pre-Classic architectural superpositioning was encountered at six sites. In four of those cases, differences in pre-Classic superpositioning were manifest at the household scale alone. Differences in superpositioning at Cameron Creek and Wind Mountain continued to be manifest at the household scale during the Classic period. In contrast, the long-running pattern of more superpositioning in NAN Ranch's founding locus continued unabated. Occupation at Harris Village did not continue into the Classic period. At Swarts and Mattocks, the earliest evidence of superpositioning dates to the Classic period, where differences were manifest only at the household scale.

Associated Burial Index. At each of the study sites, intramural burials first appeared during the pre-Classic era. With the exception of Galaz, distributional differences were manifest only at the household scale. There was considerable variability, across the pithouse-to-pueblo transition, in the scales at which people used burials to assert antecedence. At Galaz, differences remained evident at both household and supra-households scales. Elsewhere, the household-scale use of burials continued, but only at Mattocks did people begin to employ the practice at the scale of locus. Thus, Galaz and Mattocks are the only two sites that evidence the use of intramural burials to establish or assert antecedence at supra-household scales. Founding loci have been identified for both sites, but these do not correspond with significantly-higher frequencies of intramural burials.

Trends in the Display of Antecedence

The four indices of primacy and antecedence indicate several general patterns. Almost all evidence of antecedence emerged during the Late Pithouse period. By the Three Circle phase, if not sooner, antecedence was apparently recognized at all seven sites, with evidence derived from all four indices. There are only four site-index combinations that do not appear until the Classic period: (1) remodeling and (2) superpositioning at Swarts, and (3) remodeling and (4) superpositioning at Mattocks. Both of these sites have relatively small pre-Classic components, suggesting that the late appearance of remodeling and superpositioning may result from sampling error. With but one exception, all evidence of antecedence was initially manifest at the household scale, regardless of index, site, or timing. At Swarts, the initial appearance of remodeling differed significantly among both households and roomblocks.

It proved difficult to determine whether loci with the most antecedence were also the loci with the greatest primacy. Founding loci were identified at only three sites – Galaz, Mattocks, and NAN Ranch – and in most cases there was no association between primacy and locus-scale antecedence; the only exception was the Southeast Locus/Roomblock at NAN Ranch. More data are available for the household level (Table 3.46), and the conclusion is the same; there is little association between primacy and antecedence. Surprisingly, households with the most burials were never found in their respective sites' founding loci.

In Chapters 4 through 7, I analyze differences in productive resources, ritual knowledge and practice, nonlocal objects and styles, and material wealth, comparing the results, when possible, to the evidence of primacy and antecedence discussed above. Such comparisons are made at various temporal scales, allowing for the recognition of diachronic change. The comparison of differences on one hand to evidence of primacy and antecedence on the other improves our understanding of how social inequality emerges and develops.

CHAPTER 4: ACCESS TO PRODUCTIVE RESOURCES

> "Agriculture is our wisest pursuit, because it will in the end contribute most to real wealth, good morals, and happiness." – Thomas Jefferson

> "Property is organized robbery." – George Bernard Shaw

Throughout the world and among societies of all sizes and types, one of the most impactful domains of inequality involves access to productive resources. The analyses presented in this chapter seek to determine whether meaningful differences in access to productive resources, as inferred from differences in storage capacity, existed at Mimbres sites and, if so, at what scales. The analyses are multi-dimensional in that they include both synchronic and diachronic views, multiple socio-spatial scales, and relationships between storage capacity and antecedence (see Chapter 3). Thus, the goals are to identify whether differences are evident at household, locus, or village scales, and whether any differences persisted over time.

The chapter is divided into seven parts. In the first, I present theoretical approaches germane to the analysis of productive resources. I then discuss productive resource inequality in the context of Mimbres archaeology, including previous research. This is followed by the introduction of methodologies used to quantify, compare, and interpret differences in storage capacity, the evidence I use to infer access to productive resources. The final four sections describe the actual analyses and results.

Part I: Productive Resource Inequality

Disparate access to productive resources is one of the most wide-spread domains of inequality. Recall the proprietary *!Kung* territories (*n!ore*) discussed in Chapter 2. Access to each *n!ore*, which encompasses a dependable water source, is under the control of a *!Kung* lineage. Thus, lineages that control an *n!ore* have reliable access to water, a precious resource in the Kalahari. Lineages that do not control their own *n!ore* live a precarious existence, often depending on the hospitality of others (Lee 1979; Marshall 1960). Water, however, is but one of many productive resources important to people in small-scale societies. Others include (but are not limited to) arable land, harvestable patches, and hunting territories. If people control access to productive resources, they can benefit immensely from the engendered inequality, either by producing more, sharing with others, or by facing less risk of food insecurity.

In the prehispanic Southwest, prime agricultural land constitutes one of the principal forms of productive resources. The most direct way to determine whether one group had more farmland than another is to quantify the controlled acreage for each group and then compare across social units (cf. Smith et al. 2014). However, discrete Mimbres fields have rarely been identified, much less associated with particular social units. We know from ethnographic accounts that farm fields in the Southwest were neither laid out nor distributed uniformly (e.g., Forde 1931; Levy 1992). Households regularly maintained multiple fields, in various micro-climates and locales, so as to increase the odds of a successful harvest (Forde 1931). This leads to a patchy pattern of land tenure. Lacking written documentation or oral testimony, it is difficult to assign plots – if they can even be found – to a specific group. This is even more problematic in communities that used irrigation. Recent excavations in the Tucson Basin provide a detailed picture of what prehispanic irrigation systems looked like (Mabry 2008). Ultimately, river water was channeled into small cells, each too small to have supported a household, yet crowded together to the extent that any intra-site social boundaries are invisible to the archaeologist. Thus, we are unlikely to ever quantify farmlands at a scale smaller than that of the village (if even that is possible).

An alternative to quantifying productive resources themselves is to use household storage capacity as a proxy for agricultural and foraging potential (Feinman 2000:44-45; see also Lightfoot and Feinman 1982:73). Chesson and Goodale (2014) recently took this approach, using differences in the size and accessibility of storage to demonstrate unequal control over productive resources at the Early Bronze Age settlement of Numayra, Jordan. This line of reasoning assumes that people generally do not build or allocate storage space much larger than they anticipate needing. Flannery and Marcus (2012:554) note that differences in storage capacity often betray inequality, even in the absence of ostentation. Schachner (2010) took this approach in the Northern San Juan region of New Mexico, where early pueblos included distinct architectural styles that suggest cultural differences. Schachner found that U-shaped roomblocks had relatively more storage space than contemporaneous, linear roomblocks, which he saw as evidence of burgeoning social differentiation (see also Kane 1986, 1989). In the same region, but later in time, Lipe (2002) inferred asymmetry in social power, based on changes in access to storage facilities.

Differential access to productive resources is frequently tied to primacy and antecedence. Assuming variability in the quality of productive resources, the first people to settle in an area (or those credited with doing so) are likely to use, and thereafter claim, the best portion thereof. As each successive group moves in, they must choose from the best remaining resources. Thus, greater primacy and/or antecedence often correlates with better (and/or more) productive resources (Flannery and Marcus 2012).

A number of studies have focused on the role of productive resources in the emergence and development of social inequality, and numerous archaeological studies link the rise of inequality in small-scale societies to the advent of agriculture and/or food storage in a number of archaeological settings (e.g., Ames 1981; Hayden 1995, 2001; Price 1995; Price and Bar-Yosef 2010, 2011; Price and Brown 1985; Smith et al. 2010;). In the present study, I view access to productive resources as one of several potential domains of inequality, rather than as a catalyst for inequality as a general phenomenon.

Part II: Mimbres Productive Resources

A number of anthropological models link emergent inequalities to the manipulation of surplus, but Levy (1992) demonstrated that in some cases, inequality can serve to mitigate the impact of scarcity. Levy's model, which resulted from ethnographic work among the Hopi, is especially applicable to semi-arid regions, where true surplus is rarely attainable. Research in the Mimbres area can benefit from Levy's (1992) model because, like much of the Southwest, rainfall here is intermittent and generally low. Valleys are narrow, disallowing large fields or expansive irrigation. There is also ample evidence of increasing population throughout the Mimbres sequence (Blake et al. 1986; Peeples and Schollmeyer 2007), suggesting the potential for correspondence between antecedence on one hand and differential access to productive resources on the other. Little research has been done to detect such differences, although some have noted that the largest sites in the Mimbres Valley are located in what appear to be the most productive locations (Anyon and LeBlanc 1984; Creel 2006a; Creel and Anyon 2003; Hegmon et al. 2015; Shafer 2003). This suggests that the farmland at these locales was good enough to encourage settlement and extensive enough to accommodate marked growth.

Mimbres crops were watered by direct rainfall, runoff (Sandor et al. 1990), and irrigation (Creel and Adams 1991; Ellis 1995; Herrington 1982; Shafer 2003:Chapter 7). As the regional population increased (Blake et al 1986; Peeples and Schollmeyer 2007), access to prime agricultural land became increasingly limited, possibly resulting in the development of land tenure systems (Schriever 2012; Shafer 2003, 2006). Cross-culturally, such systems are based largely on antecedence. In other words, those who can convince others that their ancestors arrived first are likely to have the moral authority to claim exclusive rights to or ownership of land, even in societies where egalitarianism is highly valued (Flannery and Marcus 2012). In the Mimbres area, researchers have suggested that architectural superpositioning and the accumulation of sub-floor burials were socially-recognized ways of demonstrating lineage continuity and concomitant claims of tenure (Hegmon 2002:337; Schriever 2012; Shafer 1999, 2003, 2006; Roth and Baustian 2015).

Differences in health often correspond with differences in diet and, by extension, unequal access to productive resources. In archaeological contexts, such differences may be detectable with skeletal analyses. A few bioarchaeological studies have focused on human remains from the Mimbres area, seeking to understand whether some individuals were healthier than others. Working at NAN Ranch, Holliday (1996) looked for evidence of health differences between the site's East and South roomblocks, but found none that convincingly suggest inequality. However, Holliday did find that women buried in NAN Ranch's South Roomblock lost teeth more often than did women associated with any other part of the site. Conversely, men buried in the South Roomblock were less likely than others to have lost teeth. These findings hint at health inequality at the scale of residential clustering, but suggest also that this disparity was cross-cut by gender-based inequity. Olive (1989) compared dental pathologies across several Mimbres villages, and found some compelling inter-site differences. For example, 94 percent of the examined burial population from Galaz exhibited evidence of periodontal disease, compared to 41 percent at Swarts Ruin. Only 23 percent of Galaz' population exhibited dental caries, compared to 68 percent at NAN Ranch. Although Olive's results suggest inter-village differences in dental health, the villages involved are ranked differently depending on the pathologies considered. Galaz, for instance, had the highest rate of periodontal disease, but the lowest rate of dental carries. Differences like this suggest that a more nuanced picture of dietary inequality remains unexplored.

In the analyses presented below, I infer unequal access to productive resources through differences in storage capacity. During the Late Pithouse period, food storage was located inside and outside residential pithouses. Extramural storage pits have been encountered at many sites, but these are difficult to date or associate with a given household (see Diehl 1996; Falvey 2014; cf. Wills and Windes 1989:364). Extramural granaries are rare and equally problematic (Anyon and LeBlanc 1984; Lucas 2007; Sauer and Brand 1930:435, 439, 440; Shafer 1999, 2003:122; Shafer and Drollinger 1998; Shafer and Taylor 1986:50). Thus, my analysis of pre-Classic access to productive resources is based on intramural storage capacity.

Most of the research concerning Mimbres storage capacity has focused on the Classic period. At this time, above-ground pueblos included rooms that appear to have been dedicated to food storage (see Keyser 1965; B. Nelson 1980; Rapson and Gilman 1981; Shafer 1982). Classic period storerooms were generally adjoined with habitational rooms, suggesting the presence of multi-room suites, occupied by distinct household groups. To compare Classic period storage capacity at the household scale, one would have to identify not only storage rooms, but their respective residential suites. When possible, this approach can provide compelling evidence of differential access to productive resources. Consider, for example, six room suites identified by Shafer (1982) at NAN Ranch. Within each suite, room functions were inferred based on size, features, and artifact assemblages. Variability in residential area and storage capacity is evident. To control for household size, a proportion of storage area, relative to all domestic space, can be calculated for each suite. The ratios for Shafer’s suites range from 0.37 to 1.00, suggesting that some households could (and likely did) store more food than others (see Table 4.1).

Table 4.1. Storage capacity for six room suites at NAN Ranch (adapted from Shafer 1982:Table 2)

	Floor Area (m^2)		
Room Suite	**Habitational**	**Storage**	**Proportion**
41/42	32.5	12	0.37
50/54	19.3	7.25	0.38
40/46	18.95	9	0.47
55/56/60	11.7	6.65	0.57
30/32	15.3	14	0.92
47/49	16	16	1

Working with data from NAN Ranch, Shafer (2003) argued that Classic period storage facilities associated with founding lineages were larger than those associated with late-comers, an argument consistent with ethnographically-based expectations. Unfortunately, it is seldom possible to associate storerooms with particular residential suites, making it difficult to replicate Shafer's analysis elsewhere. Rapson and Gilman (1981) examined rooms at a number of Classic period sites and found a trimodal distribution in room size: small ($< 8\ m^2$), medium ($8\text{-}26\ m^2$), and large ($> 26\ m^2$). Anyon and LeBlanc (1984:139) later interpreted the large room category as likely ceremonial in nature (see also Clayton 2006), while small and medium rooms are interpreted as serving domestic purposes. Anyon and LeBlanc (1984:112-114) compared the ratio of small to medium rooms at Galaz and Swarts. They stopped short of inferring room function, but did note that small rooms were less likely to have hearths or episodes of floor remodeling, observations that Rapson and Gilman (1981) had made previously (see also Shafer 1982). Using the size categories identified by Rapson and Gilman (1981), Hegmon and colleagues (2006) examined room sizes at 33 Classic Mimbres sites. They found that ratios of medium-to-small rooms vary considerably between villages. Ratios generally ranged from 0 to 4, but Galaz had a ratio of 16.8. The authors concluded that “the Galaz ruin … stands out as different from – and possibly more important than – other sites in many ways … including its very large medium : small room size ratio.” A possible interpretation of Galaz’ anomalous ratio (i.e., its paucity of small rooms) is that residents of Galaz were able to store far more food than those living elsewhere; enough, in fact, to necessitate storage rooms with areas greater than 8 m^2.

Part III: Analytical Methods

Below, I introduce the basic methods employed in Parts IV through VII. This discussion includes both interpretive approaches and means of statistical assessment. The latter are used throughout the remainder of the dissertation.

Architectural Analyses

For the analyses presented in parts IV through VII of this chapter, I calculate storage capacity and use this as a relative measure of differential access to productive resources at three scales: household, residential cluster (locus), and village (site). I assume that when Mimbres houses were built or renovated, past and prospective harvests were taken into account, along with the rate at which food was likely to be drawn from storage. Thus, differences in storage capacity are interpreted as evidence of productive resource inequality. My analyses use floor area as a proxy for storage capacity. Room volume cannot be accurately calculated because precise wall heights are unknown; all of the structures in the sample, however, are thought to have been a single story.

Given the architectural differences before and after 1000 C.E., I apply my methodology to different structural categories in each of the two eras. During the Early Pithouse and Late Pithouse periods – the "pre-Classic era" – I use pithouse floor area, whereas during the Classic period, I use the floor area of pueblo storage rooms.[5] Intramural and extramural storage pits have been found at each of the analyzed sites. The latter, however, are rarely datable and generally cannot be associated with a particular household (cf. Wills and Windes 1989:364). Given that intramural excavation was often prioritized, a substantial portion of extramural storage pits likely remains undocumented. In both intramural and extramural contexts, storage pit dimensions were not consistently recorded, making it impossible to calculate or systematically compare volume. For these reasons, I use pithouse floor area and storage room floor area rather than the area of storage pits.

It is generally held that during the pre-Classic era, pithouses represent distinct households (see LeBlanc 1989:182). Thus, the use of pithouse size as a proxy for storage capacity allows comparison at the household scale. (Other considerations are addressed below). Schachner (2010:480) held a similar expectation, although applied to pueblo households. During the Mimbres Classic period, in contrast, households often consisted of two or more adjoining rooms, some dedicated to storage (Hegmon et al. 2006; LeBlanc 1976; Shafer 1982, 2003). Storage rooms can be identified by lack of a roof entrance and hearth, and the presence of features like flagstone floors and baseboards, meant to keep rodents from burrowing in. They also tend to be smaller than habitational rooms, and previous studies have used room size to infer room function (e.g., Lowell 1991; Hansen

[5] My use of the term "pithouse" refers to domestic, (semi)subterranean structures only.

and Schiffer 1975; Hill 1968, 1970; Sullivan 1974; see also Adams 1978, 1982; Cameron 1999; Ciolek-Torrello 1978; Shafer 1982). In my analyses, I rely upon the presence and absence of particular features and floor assemblages – described above – to identify storage rooms. Because I use room size data to compare storage capacity, it is not used to infer room function.

To compare household storage capacity during the Classic period, storage rooms must be associated with domestic suites. Unfortunately, this is seldom possible, given differences in site preservation, excavation methods, and levels of recording. Because some suites are known to have included multiple storerooms (e.g., Shafer 1982, 2003), it cannot be assumed that each identified storeroom represents a discrete household. For these reasons, the comparison of storage capacity during the Classic period is limited to the scales of roomblock and site.

Variability in floor area can result from factors other than storage capacity, including differences in the number of people per household. Like storage capacity, however, household size can be an indicator of differential access to productive resources; more people can farm more land, and more food is required to feed them. Thus, prior to 1000 C.E., I interpret differences in pithouse size as an indication of differential access to productive resources, be it a reflection of more storage space, larger households, or both. During the Classic period, discrete households are rarely recognizable, preventing household-scale comparisons after 1000 C.E. At the locus scale, however, the floor area of storage rooms are compared across roomblocks (cf. Kane 1986, 1989).

When available, I use floor area as calculated by original excavators. In cases where dimensions were not reported, floor area is determined using ImageJ software (Schneider et al. 2012). Site maps are digitized and opened in ImageJ, where the resulting document's scale is calibrated to that of the original map. I then use the software's measurement features to calculate floor area per structure. In cases of partially-preserved and partially–excavated rooms, dimensions are projected only when at least three walls are known, and in those cases conservative estimates are used. Pit structures with floor areas less than 4 m^2 are excluded from analysis, assuming they were not large enough for habitation. Small structures like this may have been granaries, but they cannot be linked to specific residential units and are rarely datable.

In some plan maps, architectural boundaries overlap, indicating either structural superpositioning or architectural remodeling. Superpositioning involves distinct occupations, and each sequential structure is considered independently in analyses. In contrast, remodeling is assumed to have involved a single household that changed during the course of its occupation. Overlapping architecture is interpreted as evidence of remodeling if construction style remained consistent and differences in respective floor areas did not exceed 20 percent. Otherwise, superimposition is treated as evidence of distinct structures (see discussion in Chapter 3).

Gini Coefficients

Gini coefficients are used in this and subsequent chapters as a way to quantify inequality within a given sample and domain (Gini 1909, 1912, 1936). Essentially, they quantify the degree to which a distribution deviates from entirely equal values. The formula for calculating these coefficients was devised by Corrado Gini (1909) to quantify statistical dispersion in the context of economic variability. For the present study, Gini coefficients are obtained using an online calculator. In theory, Gini coefficients range from 0.0 to 1.0, reflecting a spectrum from perfect equality to perfect inequality, respectively. They are commonly used today to compare nations, based on their respective degrees of income inequality. In that context, a Gini coefficient of 0.0 would indicate that everyone had the same income, whereas a coefficient of 1.0 would indicate that one person earned all of the nation's income and that everyone else earned nothing. Although developed for and used mostly in the context of historic and contemporary wealth (Cowell 2011; Milanovic 2011), Gini coefficients can be calculated for any sample of continuous values, including datasets derived from the archaeological record (e.g., Ames 2008; Hayden 1997; McGuire 1983; Schulting 1995; Smith et al. 2014; Windler et al. 2013).

Fisher's Exact Test

The Fisher's exact test was developed by statistician and biologist Ronald Fisher (1922, 1954). This is a statistical significance test that analyzes numbers placed in a two-by-two contingency table (see Table 3.1). Whereas most significance tests provide increasingly accurate results (p-values) as sample sizes increase, the Fisher's exact test is able to provide exact results with relatively small samples. In the present study, the Fisher's exact test is used to assess differences in relative frequency. For example, one roomblock may have 100 rooms, 10 of which show evidence of remodeling (10 percent). Another roomblock may have 20 rooms, of which eight experienced remodeling (40 percent). To statistically assess this difference, the number of rooms that were and were not remodeled, for each roomblock – 10:90 and 8:12 – are compared. To this end, frequency pairs are placed in a contingency table (cf. Table 3.1), to which a two-tailed Fisher's exact test is applied. In this example and throughout the study, GraphPad software was used for this application. In the given example, a probability value of 0.0023 (rounded to $p < 0.01$) is obtained. This suggests there is a relatively low probability that the 30 percent difference in relative frequency is attributable to chance.

Mann-Whitney Test

The Mann-Whitney U-test, also called the Wilcoxon rank-sum test, is a non-parametric test for statistical significance, used to assess pairwise differences in two sample distributions. The test, developed by Henry Mann and Donald Whitney (1947), considers the null hypothesis that both samples came from the same population, and is generally used to determine whether the values in one distribution are larger than those in the other. The Mann-Whitney test requires no assumption of a normal distribution, making it ideal for the present study. Comparison of relatively small samples was made using VassarStats online software developed by Richard Lowry (2016a). Larger samples were compared using R Statistical Software (R Core Team 2012), with additional programming by Matthew Peeples.

Two-Proportion Z-Test

In a few cases, differences between two independent proportions are assessed using a two-proportion z-test. Functionally, the z-test is not unlike the Fisher's exact test, in that it can be used to assess differences in relative frequency. Although the Fisher's exact test – designed for small samples – is relatively accurate when used with large samples, the z-test is more precise. Z-tests were calculated using VassarStats software online (Lowry 2016b).

Significance Threshold

Given the small sample sizes involved in the present study, along with the non-parametric nature of most distributions, no significance threshold (i.e., minimum p-value) is established for statistical interpretation. Rather, all probability values are provided in text, tables, or appendices, allowing the reader to independently evaluate differences in conjunction with the interpretations presented. In many cases, the nature of samples is such that the traditional threshold of 0.05 simply cannot be met. However, other pertinent, non-metric data suggests either the possibility or the likelihood that observed differences were culturally significant. By avoiding a rigorous and inflexible threshold, such instances can be considered within a totality of evidence rather than dismissed out of hand. Throughout the dissertation, my use of the term *significant,* in the context of statistical comparison, indicates that there is a relatively low probability of difference being attributable to chance, based on the methods of assessment introduced above.

Part IV: Productive Resource Inequality at the Household Scale

Among small-scale societies, the most important and conservative scale of social organization is often the household, which requires and promotes close relationships and socio-economic cooperation. In this section, I describe the analysis of domestic storage capacity at the scale of household. The analysis is discussed chronologically, but limited to pre-Classic components, given that I am generally unable to associate Classic period storage rooms with particular households. Data derive from 254 domestic pithouses at six sites: Cameron Creek, Galaz, Harris, NAN Ranch, Swarts, and Wind Mountain. These households are listed individually in Appendix III, and temporally-parsed data are provided in Table 4.2. Because household-scale differences can vary from one community to the next, I also provide site-level data in Table 4.3. Together, these data allow me to consider evidence of unequal access to productive resources and how such differences changed over time. Part IV ends with an examination of the degree to which inequality in this domain corresponds with differences in primacy and antecedence.

Table 4.2. Pithouse floor area per temporal period

Finest Temporal Resolution Obtainable	**N Households**	**$\bar{x}$ Size (m^2)**	**σ (m^2)**	**Range (m^2)**	**Gini**
Pre-Classic era [A]	49	16.84	6.23	6.86-30.25	0.18
Late Pithouse period [B]	33	15.37	3.83	6.30-20.05	0.21
Mangas phase	7	12.76	2.09	9.82-15.37	0.09
Transitional phase	14	11.67	5.08	5.00-20.00	0.24
Mangas and Transitional phases together	21	12.03	4.28	5.00-20.00	0.20
Three Circle phase	88	15.59	6.27	4.44-33.98	0.22
Three Circle, Mangas, and Transitional phases together	109	14.90	6.08	4.44-33.98	0.22
San Francisco or Three Circle phase	19	12.62	3.83	4.99-20.04	0.16
San Francisco phase	19	15.68	5.67	5.46-31.30	0.19
Georgetown phase	16	14.05	8.49	4.99-33.98	0.31
Cumbre phase	9	11.71	5.30	4.91-20.56	0.24
All	254	15.08	6.09	4.44-33.98	0.22

[A] Category represents domestic structures that cannot be dated more precisely than as predating the Classic period, and does not reflect any data within the “Late Pithouse period” category.

[B] Category represents domestic structures that are dated to between 750 and 1000 C.E., and does not reflect any data within the “Pre-Classic era” category.

Table 4.3. Pithouse floor area, per site and temporal period

		Household			
Site	**Period**	**N**	**$\bar{x}$ Size (m^2)**	**σ (m^2)**	**Gini**
Cameron Creek	Pre-Classic era	49	16.82	5.59	0.18
	Three Circle phase	8	21.08	3.88	0.10
	Entire pre-Classic occupation	57	17.44	5.55	0.20
Galaz	Late Pithouse period	29	14.47	3.61	0.18
	Three Circle phase	14	16.34	8.04	0.25
	Georgetown phase	1	33.98	0.00	n/a
	Entire pre-Classic occupation	44	15.51	6.71	0.22
Harris Village	Late Pithouse period	2	27.1	17.79	0.23
	Three Circle phase	29	17.51	5.87	0.18
	San Francisco phase	7	15.68	8.67	0.28
	Georgetown phase	5	18.19	7.92	0.21
	Entire pre-Classic occupation	43	17.74	7.22	0.22
Mattocks	Late Pithouse period	2	16.68	4.77	0.10
	Georgetown phase	1	20.04	0.00	n/a
	Entire pre-Classic occupation	3	17.92	4.00	0.22
NAN Ranch	Transitional phase	14	11.67	5.08	0.24
	Three Circle phase	14	11.26	5.33	0.22
	San Francisco-Three Circle phase	1	12.25	0.00	n/a
	San Francisco phase	1	12.5	0.00	n/a
	Georgetown phase	1	10.5	0.00	n/a
	Entire pre-Classic occupation	31	11.49	4.86	0.22
Swarts	Three Circle phase	10	11.23	2.85	0.19
Wind Mountain	Mangas phase	7	12.76	2.09	0.09
	Three Circle phase	13	15.13	3.48	0.12
	San Francisco-Three Circle phase	18	12.64	3.94	0.17
	San Francisco phase	11	15.93	3.41	0.11
	Georgetown phase	8	8.62	2.88	0.17
	Cumbre phase	9	11.71	5.30	0.24
	Entire pre-Classic occupation	66	13.08	4.21	0.23

Temporal resolution varies across sites, given differences in preservation, excavation methods, and recording. In many cases, pithouses could not be dated to a particular phase, but rather to a range of phases. For example, 49 pithouses are known only to predate 1000 C.E., and 33 others can be dated only to the Late Pithouse period.

Thus, it is potentially instructive to consider, for a moment, all 254 pre-Classic households jointly. These data are unequivocal in suggesting disparate access to productive resources at the household scale. The sample's largest pithouse is over seven times the size of its smallest (and both date to the same phase). Pithouse size distributions (all unimodal) are displayed graphically in Figures 4.1 and 4.2. Asymmetric storage capacity was more pronounced in certain places and times, and such nuances are explored below.

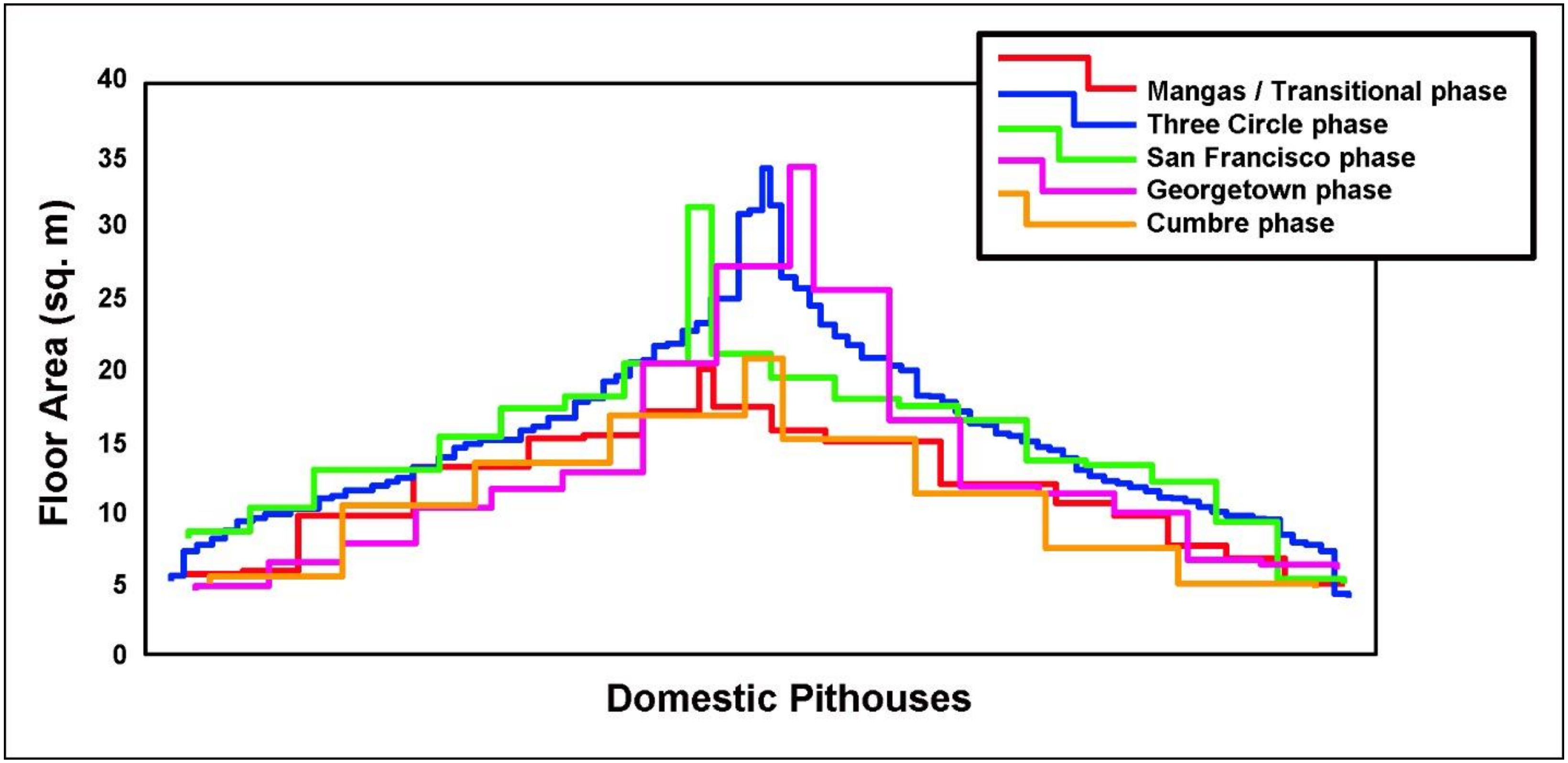

Figure 4.1. Pithouse size distributions by phase. (Lines trace the non-contiguous portions of columns, each representing a single pithouse. Columns are not shown in their entirety, so as to prevent some data from being eclipsed).

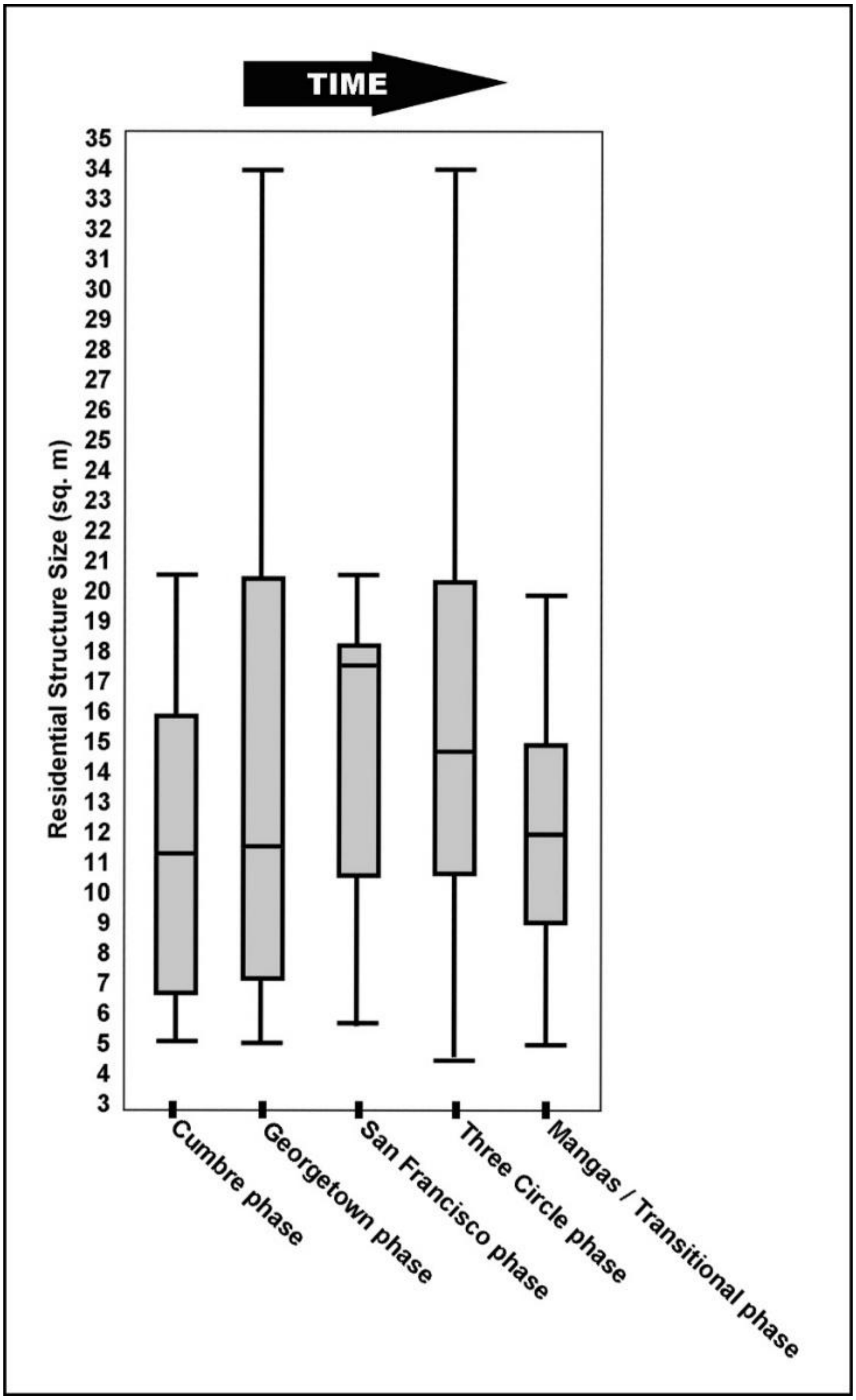

Figure 4.2. Box-and-whisker plots of pithouse size distributions across the pre-Classic era.

Cumbre Phase

The sample includes nine Cumbre phase pithouses, all of which were at the site of Wind Mountain. Floor areas range from 4.91 m^2 to 20.56 m^2, with a mean of 11.71 m^2 ($\sigma = 5.30$ m^2). The Cumbre phase distribution has a Gini coefficient of 0.24, which, along with the range in size, suggests some degree of asymmetry.

Georgetown Phase

Sixteen Georgetown phase pithouses are included in the analysis, coming from five separate sites (Wind Mountain, Harris Village, Galaz, Mattocks, and NAN Ranch) and ranging in size from 4.99 m^2 to 33.98 m^2 ($\bar{x} = 14.05$ m^2; $\sigma = 8.49$ m^2). A comparison of mean sizes between the Georgetown and preceding phase suggests an increase in general, but a decrease at Wind Mountain in particular. To statistically assess the inter-phase differences, size distributions are compared using a series of two-tailed Mann-Whitney tests, which are detailed in Appendix IV. Each difference has a high probability of resulting from chance ($p \geq 0.21$), suggesting no meaningful, diachronic change in pithouse sizes. Although size distributions may not have changed much overall, variance within the Georgetown corpus did, as evidenced by the highest Gini coefficient of the analysis ($G = 0.31$).

San Francisco Phase

Of the 254 pithouses in the sample, 19 date to the San Francisco phase and were located at three sites (Wind Mountain, Harris Village, and NAN Ranch). These range in size from 5.46 m^2 to 31.3 m^2, with a mean of 15.68 m^2 ($\sigma = 5.67$ m^2). Given this range, and a Gini coefficient of 0.19, it is clear that limited household-scale inequality continued beyond the Georgetown phase. That said, the degree of inequality, as measured by Gini coefficients, was substantially reduced. This coincides with a precipitous reduction in pithouse size. To statistically assess the latter change, Georgetown and San Francisco phase distributions are compared using a series of two-tailed Mann-Whitney tests (see Appendix V). Results indicate that pithouses in general grew slightly larger, and that those of Wind Mountain became considerably larger. Both differences have a relatively low probability of resulting from chance ($p \leq 0.08$).

Three Circle Phase

The sample includes 88 domestic pithouses that date to the Three Circle phase, spread among six sites (Cameron Creek, Galaz, Harris, NAN Ranch, Swarts, and Wind Mountain). Pithouse sizes range from 4.44 m^2 to 33.98 m^2 ($\bar{x}$ 15.59 m^2; $\sigma = 6.27$ m^2). This spread, along with a corresponding Gini coefficient of 0.22, implies continued, low-level inequality at the household scale. Using a series of two-tailed Mann-Whitney tests, I compare regional and site-level distributions of pithouse sizes during the San Francisco and Three Circle phases (see Appendix VI). All differences have a high probability of resulting from chance ($p \geq 0.45$), suggesting there was no meaningful change in pithouse sizes after 750 C.E.

Mangas / Transitional Phase

The sample includes 21 residential structures (including pithouses and semi-subterranean rooms) that have been dated to the Transitional (n = 14; NAN Ranch) or Mangas (n = 7; Wind Mountain) phase. These range in size from 5 m^2 to 20 m^2, with a notably low mean of 12.03 m^2 ($\sigma = 4.28$ m^2). Distributions are compared across time (i.e., Three Circle to Mangas/Transitional), using a series of two-tailed Mann-Whitney tests to assess differences (see Appendix VII). Results indicate that overall, the diachronic reduction in residential size has a low probability of resulting from chance ($p = 0.02$). Contemporaneous change in Gini coefficients (0.22 to 0.20) is slight. Thus, residences became generally smaller, but the degree of household-scale inequality remained relatively constant.

Summary of Pre-Classic Change

A diachronic examination of domestic pithouse size shows two primary trends. First, as seen in Table 4.2, household-scale inequality was – when viewed across all seven sites – fairly stable, with Gini coefficients shifting between 0.24 (Cumbre), 0.31 (Georgetown), 0.19 (San Francisco) and 0.22 (Three Circle). However, only some of these inter-phase changes have a low probability of resulting from chance. As shown in

Figure 4.3, all such significant changes are consistent with a reduction in household-scale inequality. Second, when household-scale Gini coefficients are calculated for each village, their range (of Gini scores) steadily decreases through time (see Figure 4.4).

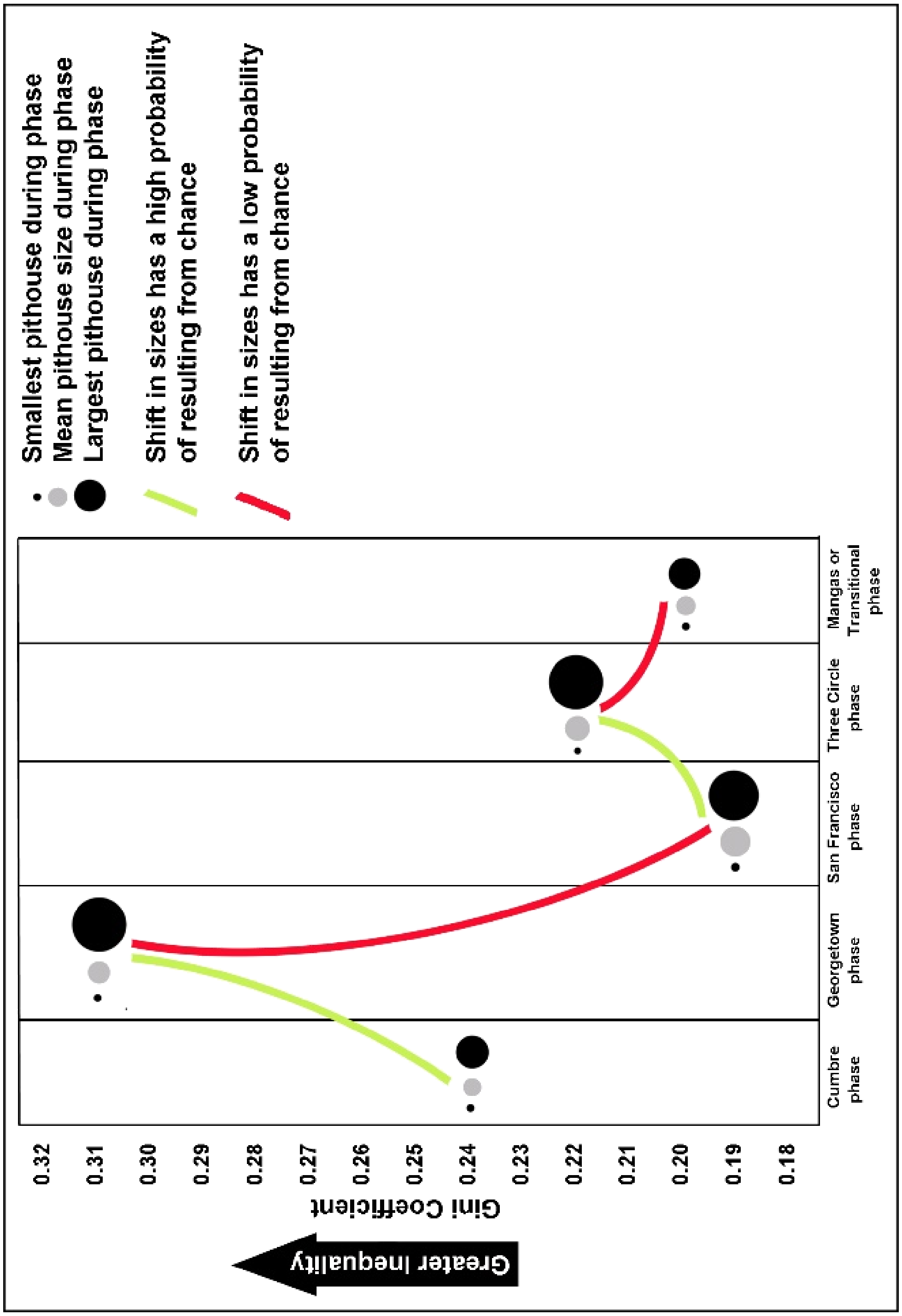

Figure 4.3 Diachronic change in household-scale, productive resource inequality. (Dots representing pithouses are scaled to actual size).

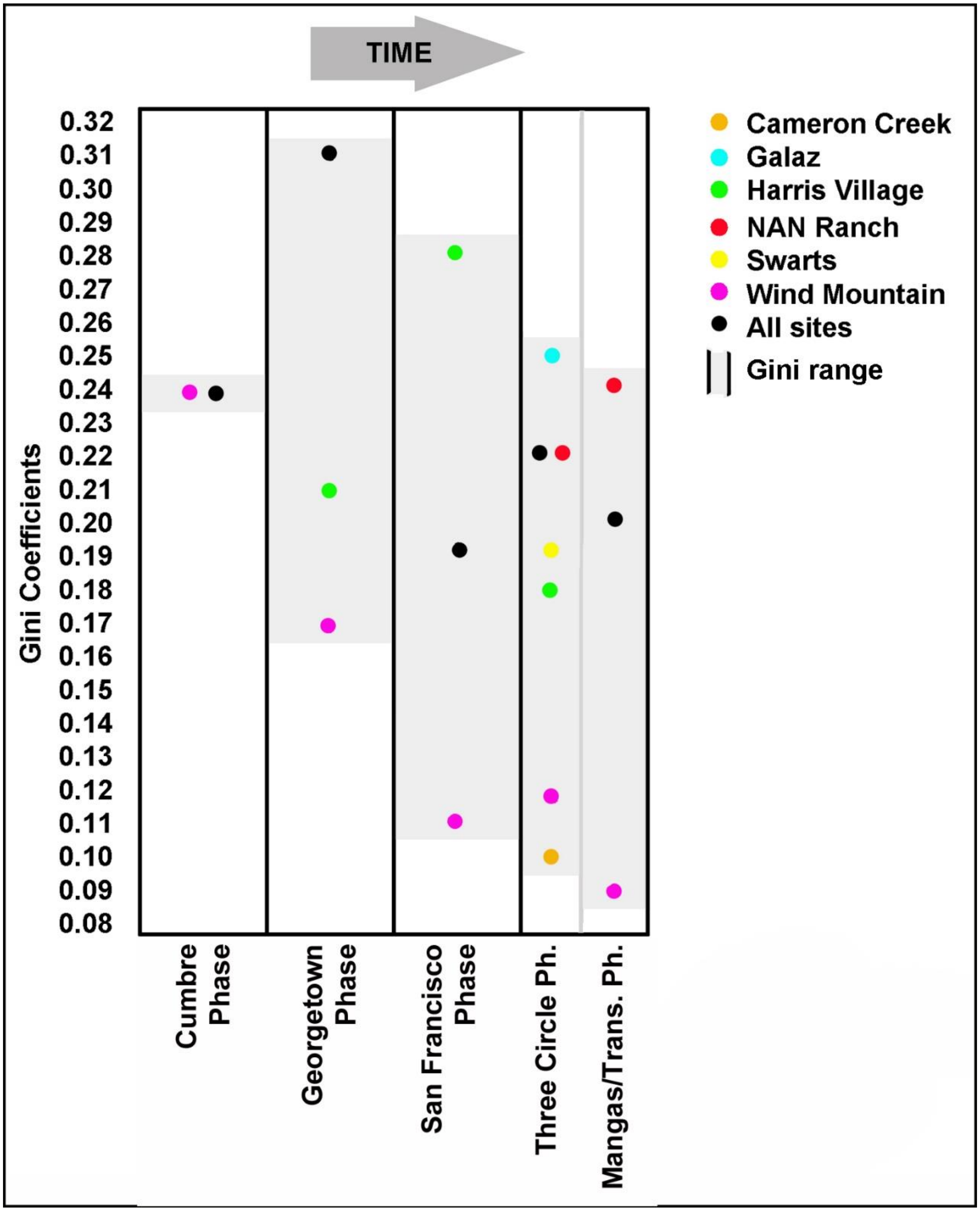

Figure 4.4. Household-scale Gini coefficients, per site, through time

Primacy, Antecedence, and Pithouse Size

Founding loci were identified at Galaz, Mattocks, and NAN Ranch, while preeminently-antecedent loci – none of which were founding – were identified at Cameron Creek, Galaz, Mattocks, and Swarts (see Chapter 3). At these five sites, questions of whether productive resource inequality corresponds with primacy and/or antecedence can be addressed. At the household scale, I simply ask whether the largest pithouses, which are presumed to be those with greatest storage capacity, were in the earliest or most antecedent sections of their respective villages. Did the earliest occupants of the sites (or those claiming to be) have greatest access to productive resources? In Figure 4.5, each of the 254 pithouses considered in the analysis is represented by an individual column. Structures located in a founding locus are colored green, while those encountered in their site's most antecedent locus are red. For each phase, pithouses (i.e., columns) are arranged in order of size (smallest to largest). No consistent association exists between primacy or antecedence on one hand and access to productive resource on the other. During the Georgetown and Three Circle phases, some of the largest pithouses were located in founding loci, but this was not always the case. During the Mangas / Transitional phase, for instance, founding-locus pithouses were among the distribution's smallest structures.

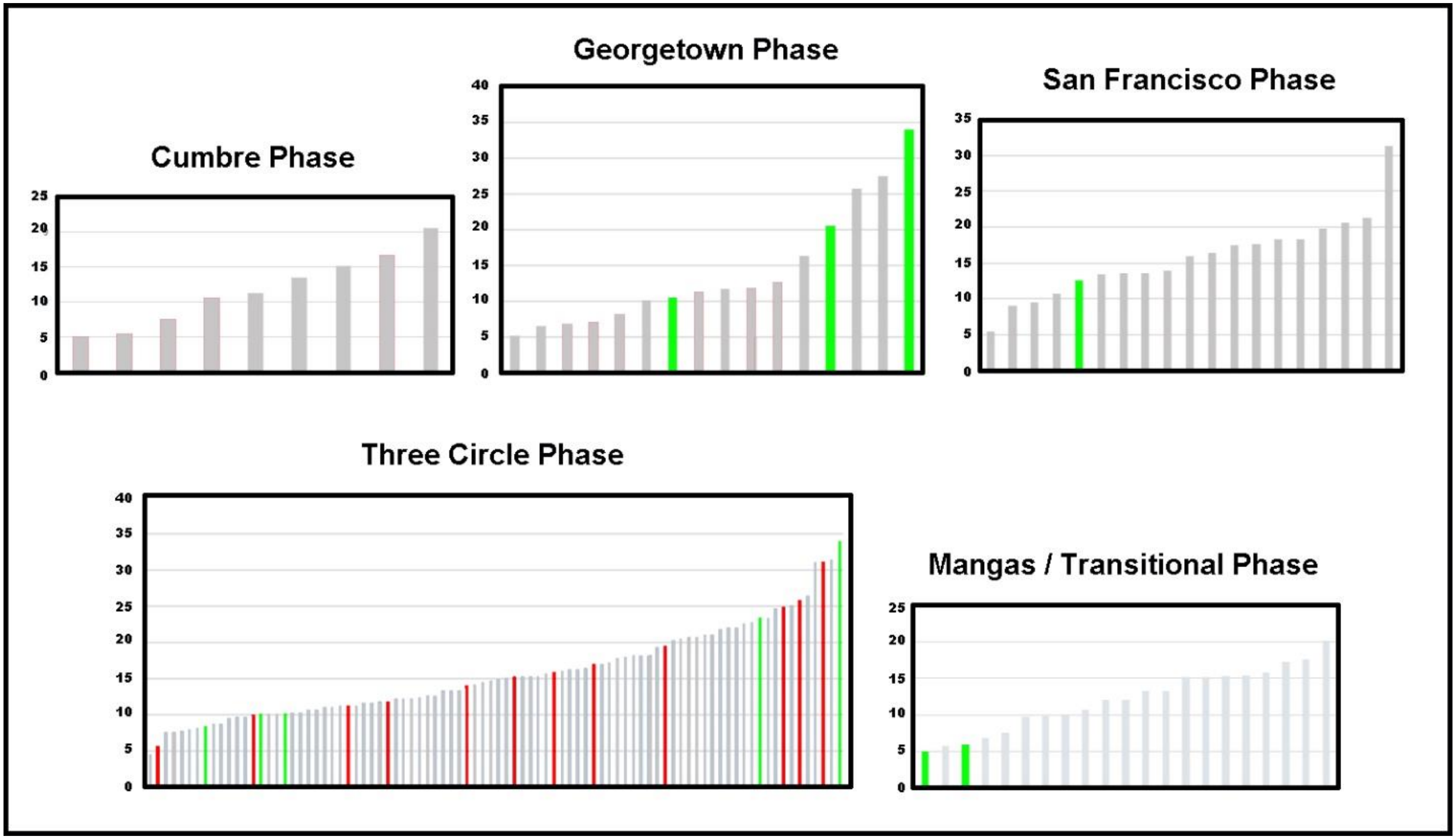

Figure 4.5. Comparison of pithouse floor area (y axis) to placement in founding (green columns) or antecedent (red columns) loci.

Part V: Primacy and Pueblo Room Centrality

Although storage capacity cannot be consistently calculated, nor distributions of sizes compared, at the household scale for the Classic period, it is possible to consider differences in Classic storeroom size in relation to primacy. This analysis falls somewhere between the scales of household and locus. Classic period roomblocks grew by accretion (Anyon and LeBlanc 1984; Bradfield 1931; Cosgrove and Cosgrove 1932; Creel 2006a; Gilman 1990; Shafer 2003), meaning that some rooms in a given roomblock are older than others. If multiple households lived in a roomblock simultaneously (see Shafer 2003; *contra* Gilman 1990), one could infer that some of those households had greater primacy (and perhaps more antecedence) than others. Roomblock growth can be constrained by factors such as topography, extant architecture, or social proscriptions. All else being equal, however, it is reasonable to assume that accretional roomblock growth would expand incrementally in all directions; thus, the earliest rooms, occupied by households with the greatest primacy (and perhaps antecedence), would be recognizable by their central positions within roomblocks. I use this approach to consider the relationship between antecedence and storeroom size.

In this analysis, pueblo rooms are assigned to one of three categories, based on a combination of the roomblock size and the room's centrality within the roomblock: peripheral, semi-peripheral, and core (see Figure 4.6). Within a large pueblo roomblock, rooms with at least one wall doubling as an exterior roomblock wall are classified as peripheral (see Figure 4.6d, Room C). If a room is separated from an exterior roomblock wall by only one interstitial room, it is classified as semi-peripheral (see Figure 4.6c, Room B). If the room in question is separated from an exterior roomblock wall by two or more interstitial rooms, it is classified as core (see Figure 4.6d, Rooms A and B). Core rooms are assumed to predate semi-peripheral rooms, and semi-peripheral rooms are assumed to predate peripheral rooms. The principle applies to all room types, including storerooms. If earlier social units had greater access to productive resources, it stands to reason that their storerooms would be larger than those of later arrivals.

Mimbres roomblocks started small (see Figure 4.6a) and not all of them became large enough to include rooms in all three positional categories. Thus, a roomblock's earliest rooms are "core" in a social sense, even if roomblock growth never rendered them "core" in an architectural sense. For this reason, the classificatory logic described above is sliding, such that every roomblock includes, at minimum, core rooms. In other words, a roomblock cannot have a peripheral room unless it also has a semi-peripheral room (see Figure 4.6c); it cannot have a semi-peripheral room unless it also has a core room (see Figure 4.6b). If a roomblock never experienced substantial growth, core rooms may ultimately form the outer ring of a roomblock (see Figure 4.6a). If growth continued, however, core rooms would become surrounded by semi-peripheral (see Figure 4.6b) and, eventually, peripheral rooms (see Figure 4.6c-d). The earliest rooms begin as core rooms and remain core rooms. Depending on the scale of growth, however, semi-peripheral and peripheral rooms may eventually become core rooms, should they eventually be surrounded, as is the case with Room B in Figure 4.6. It is important to note that rooms with the same classification do not necessarily have the same degree of primacy (and/or antecedence); for example, in Figure 4.6d, both Rooms A and B are classified as core, though A is assumed to have greater primacy than B.

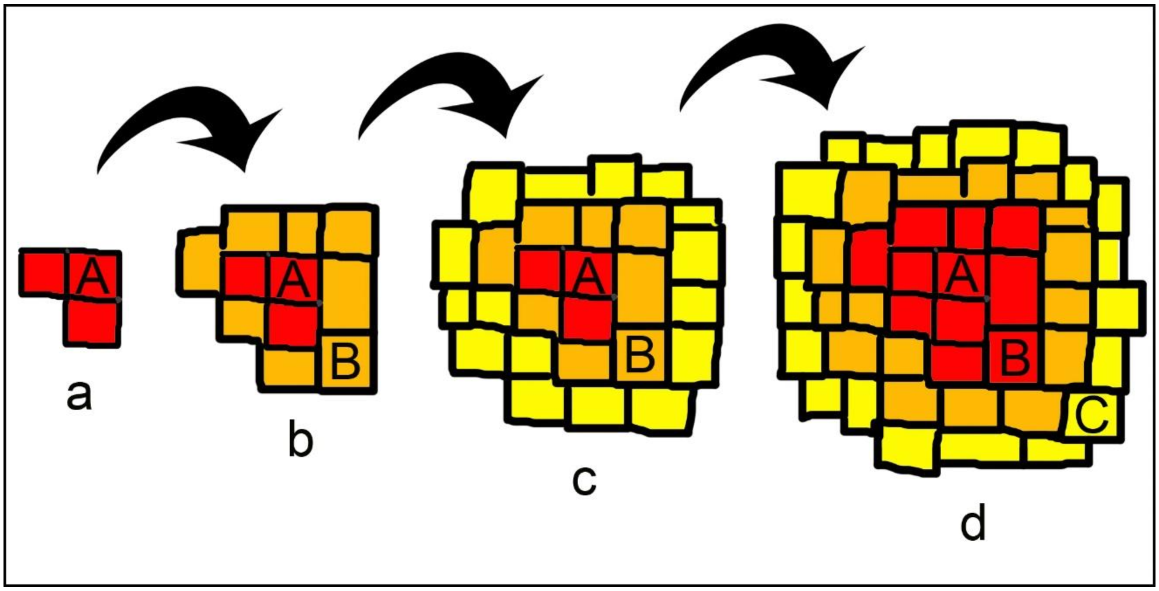

Figure 4.6. Idealized roomblock growth stages, showing core (red), semi-peripheral (orange), and peripheral (yellow) rooms over time.

I begin the analysis by identifying Classic period storage rooms using the architectural criteria described in Part III, above. Sufficient sample sizes are present only at the sites of NAN Ranch (n = 20) and Swarts (n = 15). These 35 storerooms are listed in Appendix VIII, which includes centrality class, floor area, criteria used for inclusion, and identification by other authors.

Using the positional criteria described above, I assign each of NAN Ranch's 20 Classic period storerooms to the centrality classes of core (n = 3), semi-peripheral (n = 9), and peripheral (n = 8). I then compare storeroom size distributions across the three categories for two of NAN Ranch's roomblocks, East (n = 16) and South (n = 4). All of the storerooms in the smaller South Roomblock are classified as semi-peripheral, meaning that their distribution cannot be compared to peripheral or core counterparts in the East Roomblock. The East Roomblock, however, contained storerooms in all three classes. A comparison of mean storeroom size follows the expected pattern, but the differences are not statistically significant; core storerooms have a higher mean (12.33 m^2; σ = 6.79 m^2) than semi-peripheral storerooms (9.11 m^2; σ = 5.09 m^2), and the latter have a higher mean than peripheral storerooms (6.86 m^2; σ = 2.39 m^2). Differences involving the East Roomblock's core storerooms cannot be statistically assessed using non-parametric analysis because the corpus includes fewer than five rooms. To assess the difference between the East Roomblock's peripheral (n = 8) and semi-peripheral (n = 5) storerooms, I employ a two-tailed Mann-Whitney test, which indicates there is a high probability that the distributional difference results from chance ($U = 26$, $p = 0.42$).

The same analysis is undertaken at Swarts Ruin. Only one storeroom is identified in the pueblo's South Roomblock, thus limiting the analysis to the North Roomblock, which includes one core (5 m^2), four semi-peripheral ($\bar{x}$ = 10.00 m^2; σ = 5.35 m^2), and nine peripheral ($\bar{x}$ = 6.89 m^2; σ = 5.78 m^2) storage rooms, a pattern inconsistent with expectations of larger storerooms in the core. Because two of the three classes have fewer than five data points, non-parametric analysis is not undertaken. However, the data are displayed graphically in Figure 4.7, wherein each column represents a single storeroom. Columns are colored – red (core), orange (semi-peripheral), and yellow (peripheral) – and arranged along the x-axis by size (smallest to largest). If roomblock centrality corresponded with primacy, and primacy with productive resource inequality, there should be a constant gradation from yellow to red. This pattern is not evident, however, suggesting that either centrality is an unreliable indicator of primacy, or that antecedence did not engender the benefits of productive resource inequality, at least within these roomblocks. Greater sample sizes are needed to yield reliable results.

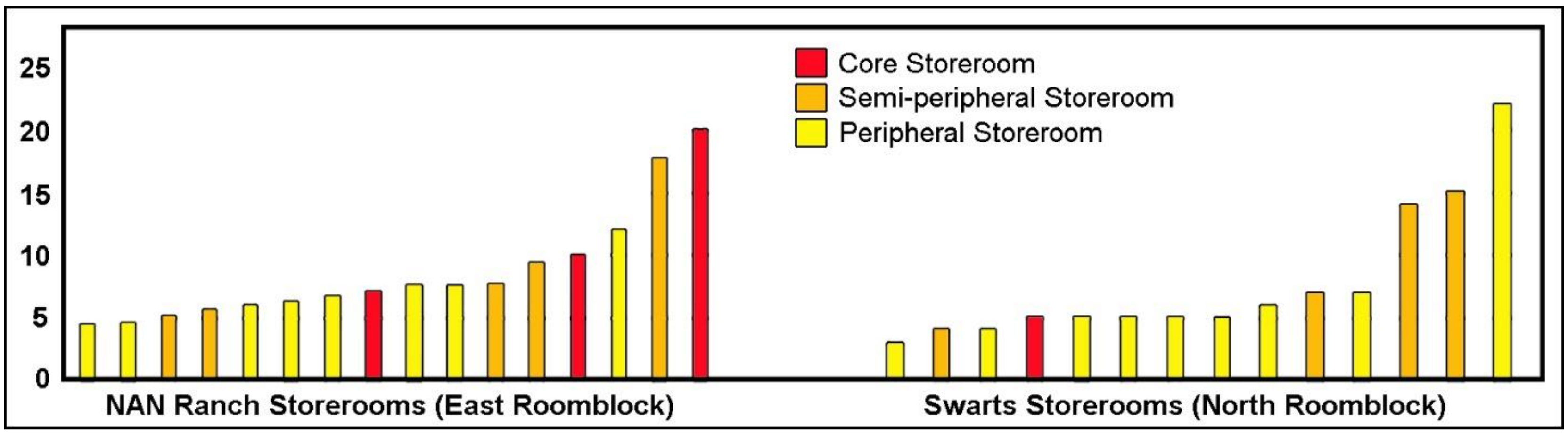

Figure 4.7. Distribution of storerooms at NAN Ranch's East Roomblock (left) and Swarts Ruin's North Roomblock (right). Bars represent individual storerooms and are color coded by positional class.

Part VI: Productive Resource Inequality at the Locus Scale

In some cases, Mimbres households can be grouped together into spatial clusters, such as pithouse concentrations or pueblo roomblocks. In small-scale societies, household clustering often (but not always) corresponds with social distinctions, reflecting differences in lineage, class, identity, or religion (e.g., Kroll and Price 1991; see also Tobler 1970). In this section, I compare storage capacity at the scale of residential clusters, which I refer to generally as loci. These loci were described and defined in Chapter 3, and data pertaining to their inferred storage capacity are presented in Appendix IX.

Storage capacity at the locus scale is compared statistically through a series of two-tailed Mann-Whitney tests. Such comparisons require sample sizes of at least five. In cases where comparisons either cannot be made because of sample size or no meaningful difference is found, results are noted in the last column of Appendix IX. Other cases are detailed in separate appendices. I now examine, in chronological order, locus-scale differences and changes over time.

Pre-Classic Era in General

As noted in Part IV, the dating of pithouses is often ambiguous; dozens of pithouses within the sample (and the loci to which they are assigned) can be dated only to the Late Pithouse period or, in some cases, a generalized pre-Classic era. I begin with an examination of all pre-Classic, domestic loci, including those datable to specific phases (see Appendix X). This diminishes temporal resolution but increases sample sizes, allowing for more comparisons than would otherwise be possible. Pre-Classic, inter-locus comparisons cannot be made at Swarts, where discrete loci have not been identified. Comparisons also cannot be made at Mattocks, where pre-Classic households are spread across the site without clustering. Thus, locus-scale differences are examined at Cameron Creek, Galaz, Harris, NAN Ranch, and Wind Mountain. These differences are assessed using a series of two-tailed Mann-Whitney tests, which are detailed in Appendices XI through XV.

Results vary by site. At Cameron Creek (Appendix XI) and NAN Ranch (Appendix XII), inter-locus differences were found to have a high probability of resulting from chance ($p \geq 0.26$). At Galaz (Appendix XIII), the South Locus had significantly more domestic space than three out of five other loci ($p \leq 0.05$). At Harris (Appendix XIV) and Wind Mountain (Appendix XV), certain loci stood out as having significantly more or less than others, but none emerged as preeminent.

Cumbre Phase

The only Cumbre phase loci within the sample are at Wind Mountain (see Appendix IX). Mean pithouse sizes vary considerably among these clusters; that of the Ridout Locus (16.40 m^2; $\sigma = 3.70$ m^2) is almost twice that of the North Locus (8.98 m^2; $\sigma = 4.85$ m^2). Unfortunately, two of the three loci have fewer than five pithouses, precluding non-parametric assessment. Based on a comparison of means alone, there is reason to suspect a larger sample size could reveal the presence of locus-scale productive resource inequality at Wind Mountain during the Early Pithouse period.

Georgetown Phase

This analysis uses data from seven domestic loci dating to the Georgetown phase. These are located at the sites of Galaz (n = 1), Mattocks (n = 1), NAN Ranch (n = 1), Wind Mountain (n = 1), and Harris Village (n = 3). Given these sample sizes, intra-site, inter-locus comparisons are made only at Harris Village (see Appendix IX). Each of the Georgetown phase loci at Harris had fewer than five pithouses, thus preventing the non-parametric assessment of size differences. However, a comparison of mean size and Gini coefficients can help to characterize locus-scale differences. For example, the South Locus had only one pithouse, but its floor area (25.6 m^2) was about twice the size of the North Central Locus' mean floor area (13.20 m^2; $\sigma = 4.41$ m^2). The South Central Locus, with a Gini coefficient of 0.12, had considerably less household-scale variability (i.e., inequality) than the North Central Locus (Gini = 0.20). Thus, some loci had larger pithouses than others, and some had more household-scale inequality than others.

San Francisco Phase

Data from eight San Francisco phase, domestic loci were included in this analysis. These were recorded at Harris Village (n = 2), NAN Ranch (n = 1), and Wind Mountain (n = 5). Given the sample sizes, inter-locus comparisons are possible only at Harris

Village and Wind Mountain (see Appendix IX). Because none of the loci at the two sites have five or more pithouses, comparison is made using mean area alone, without statistical assessment of significance. At both sites, differences in mean area, per locus, are relatively small, suggesting a reduction in productive resource inequality at the locus scale, as compared to differences in the Georgetown phase. At Harris Village, locus-scale Gini coefficients (0.25, 0.27) were a bit higher than they had been during the Georgetown phase (0.12, 0.20), suggesting greater intra-locus (i.e., household-scale) variability. At Wind Mountain, locus-scale Gini coefficients were low, but substantially different than one another (0.01 – 0.14). In sum, differences in mean pithouse size, per locus, went down during the San Francisco phase. At Harris Village, during the same time, locus-scale differences in household-scale inequality rose. At Wind Mountain, with no available Georgetown phase data, locus-scale Gini coefficients were fairly low during the San Francisco phase, yet dissimilar between loci.

Three Circle Phase

The sample includes 20 loci with domestic pithouses that date to the Three Circle phase. These are located at the sites of Cameron Creek (n = 2), Galaz (n = 6), Harris Village (n = 5), NAN Ranch (n = 3), Swarts (n = 1), and Wind Mountain (n = 3). With the exception of Swarts, inter-locus comparisons can be made at each of these sites (see Appendix IX). At Cameron Creek, Galaz, and Wind Mountain, low sample size prevented non-parametric assessment of distributional differences. Differences in average floor area were minimal at Cameron Creek and Wind Mountain, a pattern consistent with little inequality in locus-scale access to productive resources. Locus means are more variable at Galaz, ranging from 8.70 to 21.50 m^2 (σ: 0.00 – 12.10 m^2). Likewise, locus-scale Gini coefficients range from 0.07 to 0.30. These data suggest the appearance or continuation of locus-scale inequality in access to productive resources. Distributional assessment via two-tailed Mann-Whitney tests are possible at NAN Ranch and Harris Village. This process is documented in Appendices XVI and XVII, respectively. At NAN Ranch, the distributional difference between the East and South roomblocks was found to have a high probability of resulting from chance. Most of the comparisons at Harris Village provide similar results. The site's South Locus, however, was found to have larger pithouses than its Northeast Locus, a difference with a relatively low probability of resulting from chance ($p = 0.06$). Although spatial configurations at Harris Village were changing, pithouses in the South Locus persisted in being atypically large.

Mangas / Transitional Phase

The next analysis uses data from four loci that have been dated to the Mangas (Wind Mountain; $n = 1$) or Transitional (NAN Ranch; $n = 3$) phase. By this time, settlement at Wind Mountain had contracted into the site's North Locus, preventing inter-locus comparison. At NAN Ranch, the smallest mean pithouse size (5.5 m^2; $\sigma = 0.71$ m^2) came from the site's founding (Southeast) locus, which contained only two structures, thus preventing non-parametric comparison to other loci. The site's other two loci have near identical means, but can be compared using a two-tailed Mann-Whitney test, the results of which hold little interpretive value ($U = 18$, $p = 1.0000$). The data from NAN

Ranch are inconclusive. Structures in the site's founding locus were, on average, half the size of contemporaries elsewhere, which suggests unequal access to productive resources. That said, there are not enough structures here to permit non-parametric assessment.

Classic Period

Whereas in previous phases, pithouse size was used as a proxy for storage capacity, my methodology changes for Classic period components. At NAN Ranch and Swarts Ruin – the two sites with adequate numbers of identifiable storerooms – I compare roomblock-scale distributions of storeroom floor area (see Figures 4.8 and 4.9). Because of sample sizes, non-parametric assessment of distributional differences is undertaken at neither site, and reliance on mean storeroom size is necessary. At NAN Ranch, there is minimal difference in mean storeroom size (8.59 vs. 9.88 m^2; σ: 4.49 vs. 3.95 m^2, respectively) at the roomblock scale, suggesting limited or no locus-scale inequality in access to productive resources. Intra-locus Gini coefficients vary considerably, however (0.25 vs. 0.18), indicating that within roomblocks, some households had greater access than others and that this disparity was more pronounced in the site's South Roomblock. Inter-locus comparison at Swarts is more difficult to interpret, as the site's South Roomblock includes only one identified storeroom, the size of which (12 m^2) is larger than the North Roomblock's mean (7.85 m^2; $\sigma = 5.46$ m^2). As shown in other chapters, there are several qualitative differences between Swarts' two excavated roomblocks, perhaps suggesting that residents came from strikingly different cultural backgrounds. The data described in this analysis may indicate locus-specific differences in how food stores were conceptualized and safeguarded. Put simply, I suspect that food was stored much differently in the South Roomblock, in ways that have yet to be archaeologically recognized. This, in turn, prevents inter-locus comparison, at present.

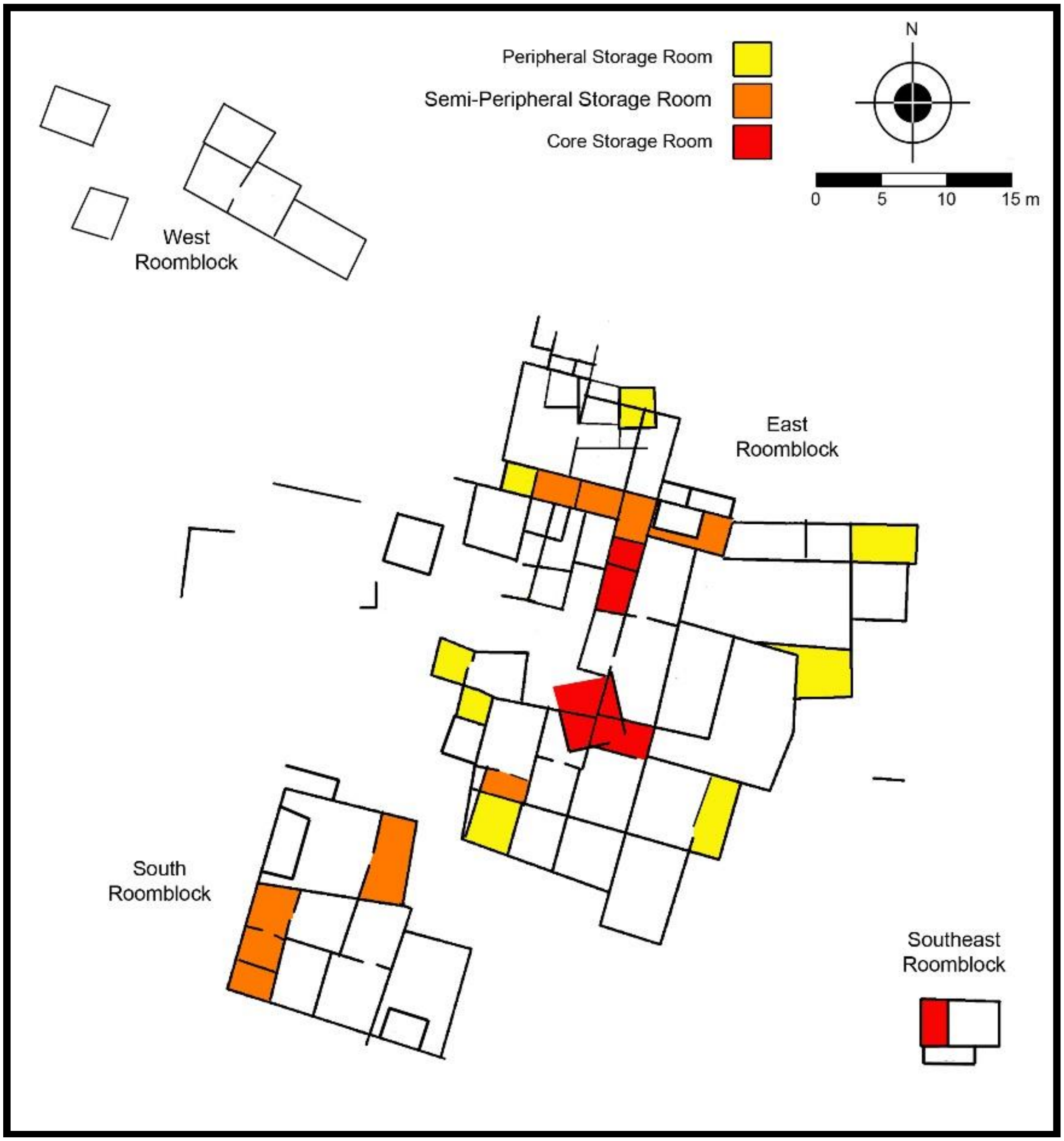

Figure 4.8. Classic period storage rooms identified at NAN Ranch (architecture after Shafer 2003:Figure P.2)

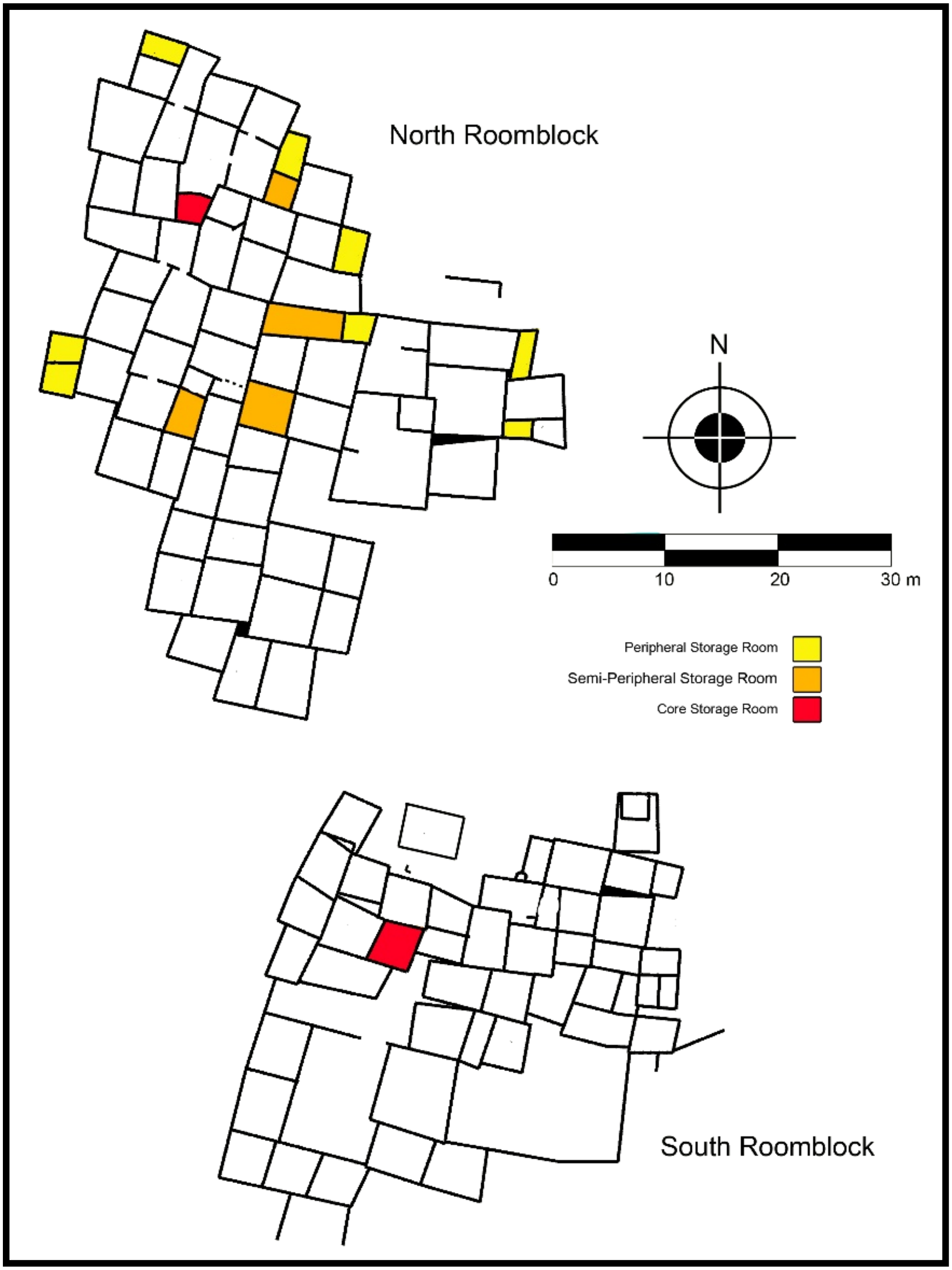

Figure 4.9. Classic period storage rooms identified at Swarts Ruin (architecture after Cosgrove and Cosgrove 1932:Plate 238)

As suggested by the data above, productive resource inequality (at the scale of residential locus) varied across space and time. Sample sizes limit the statistical assessment of locus-scale differences in pithouse size and Gini coefficients. Substantial differences in mean pithouse size suggest that with a larger sample, we might see statistically significant differences in pithouse size during the Cumbre, Georgetown, and Mangas/Transitional phases. Evidence of inequality, at this scale, is absent during the San Francisco phase and Classic period. The only statistically-compelling evidence of inequality occurs during the Three Circle phase and only at one site. There were no instances in which one locus had more storage space than all others (see Figure 4.10). All things considered, it does not appear that unequal access to productive resources was ever manifest primarily at the locus scale. Some loci, at some sites, had more storage capacity than others, but this appears not to have been overwhelming, widespread, or persistent.

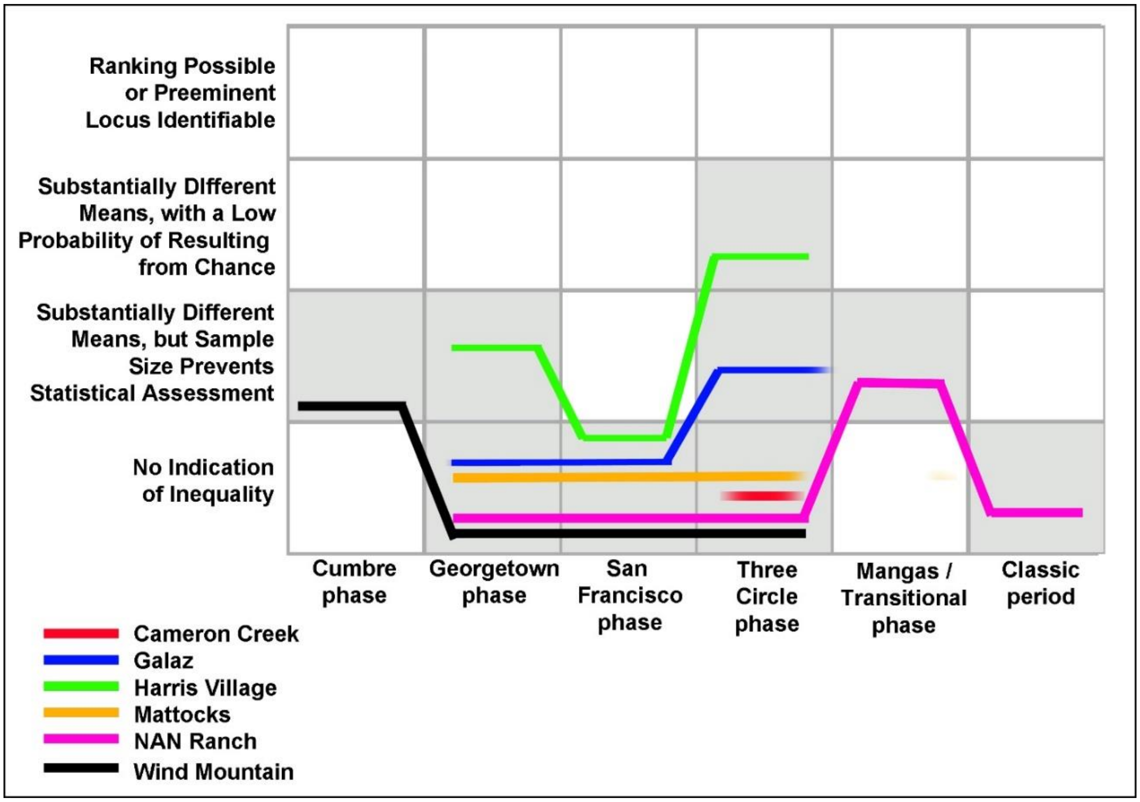

Figure 4.10. Degree of locus-scale, productive resource inequality over time

I also examine change, over time, in the range of locus-scale, mean pithouse size. In Figure 4.11, loci are represented by dots and colored according to site. Vertical placement corresponds with mean pithouse size. Contemporaneous loci, at the same site, are connected by vertical lines that represent locus-scale ranges of size. Colored shading illustrates diachronic change in these ranges (i.e., expansion, contraction, stasis), along with overall increase or decrease in locus means at a given site. The wider the vertical spread, the greater the locus-scale difference in storage capacity. The figure shows that change over time varied from village to village in nearly every attribute. The only constant seems to have been frequent and striking changes in the range of locus means during each phase, suggesting fluctuation in the degree of inter-locus differences. At times, locus-scale changes were parallel to one another, across sites. For example, variability in mean size contracted during the San Francisco phase at both Harris Village and Wind Mountain. During the Three Circle phase, however, contraction continued at Wind Mountain but reversed at Harris.

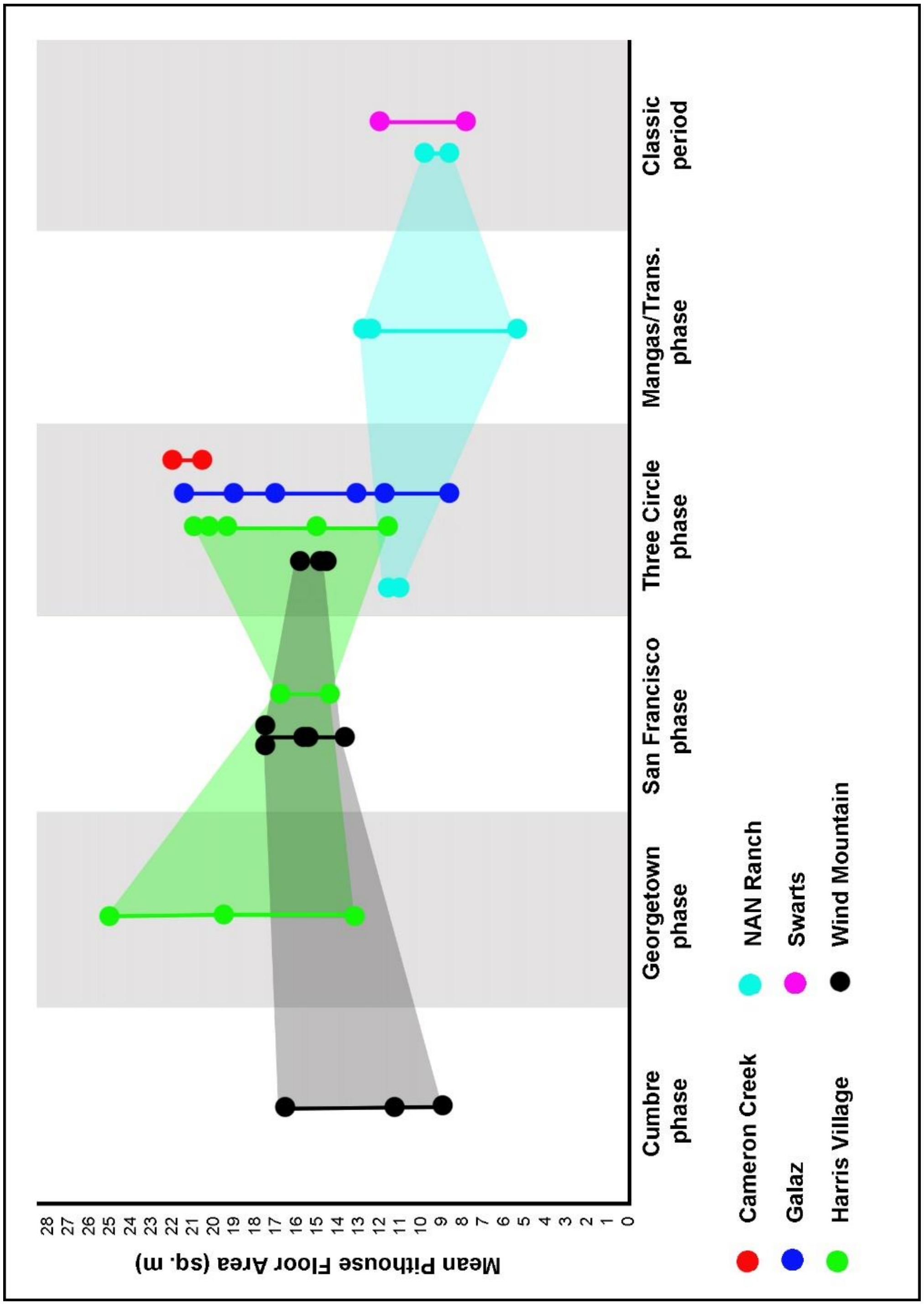

Figure 4.11. Diachronic change in locus-scale pithouse size

It is instructive also to keep in mind the variability within loci, which I quantify using Gini coefficients. This speaks to household-scale inequality within defined loci, and it also lends perspective on the degree to which locus means actually reflect locus-scale differences. Differences and changes in Gini coefficients are displayed graphically in Figure 4.12. Here again, loci are represented by dots. Each dot is colored according to its site and arranged vertically according to its Gini coefficient. A higher Gini coefficient suggests greater household-scale inequality within a given locus. Site-scale ranges of locus-scale Gini coefficients are shaded to illustrate change over time. Again, marked changes are apparent across temporal boundaries. An additional pattern is observed at Harris Village (green) and NAN Ranch (turquoise), both located in the middle Mimbres River Valley. Substantial contractions in locus-scale Gini ranges (per site), correspond with overall increases in Gini coefficients. Such instances are interspersed with times characterized by wider ranges and lower Gini coefficients. Consider, for example, the range of locus-scale Gini coefficients at Harris Village, beginning in the Georgetown phase. Here, coefficients have a relatively wide range (Figure 4.12A-B). During the San Francisco phase, the range shrinks considerably, while Gini coefficients increase (Figure 4.12C-D). Later, during the Three Circle phase, the change is reversed (Figure 4.12E-F). The same cyclic fluctuation is evident at NAN Ranch, although the sites' cycles are not temporally in sync; during the Three Circle phase, NAN Ranch's Gini range is in a high/compact state, whereas that of Harris Village is in a relatively low/dispersed state. In contrast, changes at the Upper Gila site of Wind Mountain (black) do not clearly follow the same pattern.

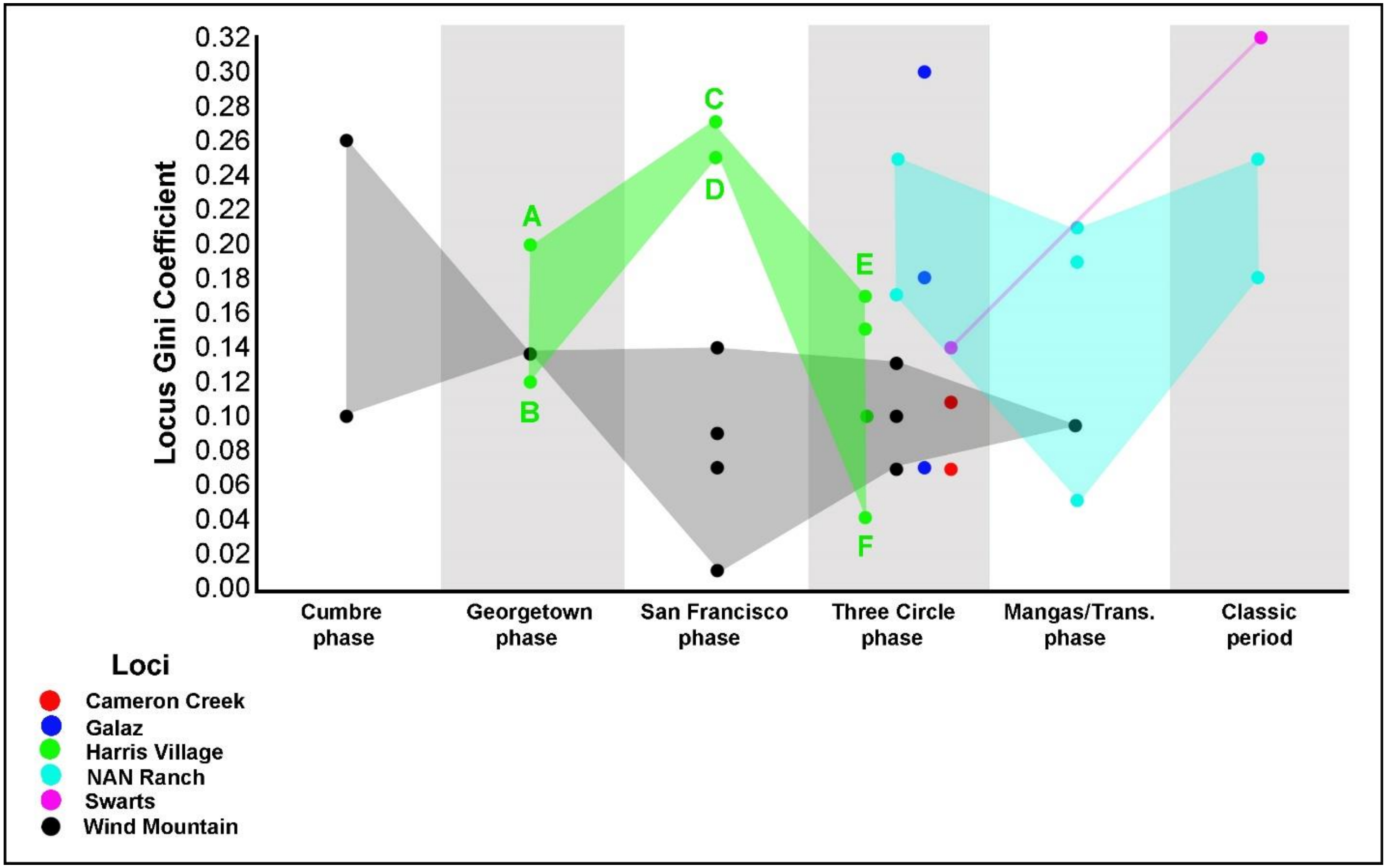

Figure 4.12. Diachronic change in locus-scale Gini coefficients

There is little to indicate that differences in storage capacity corresponded with differences in residential primacy or antecedence. In fact, there were no instances wherein a founding locus had significantly more storage than other loci (see Table 4.4). At NAN Ranch, during the Transitional phase, the site's founding locus actually had relatively less storage capacity than other loci. In only one case was there an association between relatively high storage capacity and antecedence; at Galaz, prior to the Classic period, pithouses in the antecedent South Locus were larger than those elsewhere. The overall paucity of correspondence between locus-scale inequality, primacy, and antecedence is especially surprising, given the frequent correlation elsewhere between order of arrival, antecedence, and access to prime productive resources (see Flannery and Marcus 2012). Results here may suggest that what we view as Mimbres loci either do not correspond with emic social units (see Chapter 8), or that such units were not intimately tied to matters of land tenure.

Table 4.4. Comparison of founding, antecedent, and advantaged loci with regard to storage capacity.

Period	Site	Founding Locus	Most Antecedent Locus	Locus with Most Storage	Association? [A]
Classic	Cameron Cr	? [B]	North	? [D]	? [D]
	Galaz	Northwest	East	? [D]	? [D]
	Harris	? [B]	n/a [C]	? [D]	? [D]
	Mattocks	Southeast	400s	? [D]	? [D]
	NAN Ranch	Southeast	n/a	≈ [E]	**No**
	Swarts	? [B]	North	? [D]	? [D]
	Wind Mtn	? [B]	n/a [C]	? [D]	? [D]
Mangas / Transitional	NAN Ranch	Southeast	n/a [C]	≈ [E]	**No**
	Wind Mtn	? [B]	n/a [C]	≈ [E]	**No**
Three Circle	Cameron Cr	? [B]	n/a [C]	≈ [E]	**No**
	Wind Mtn	? [B]	n/a [C]	≈ [E]	**No**
	Galaz	Northwest	South	South	**Yes**
	NAN Ranch	Southeast	n/a [C]	≈ [E]	**No**
	Mattocks	Southeast	400s	≈ [E]	**No**
	Harris Village	? [B]	n/a [C]	≈ [E]	**No**
San Francisco	Harris	? [B]	n/a [C]	≈ [E]	**No**
	Wind Mtn	? [B]	n/a [C]	≈ [E]	**No**
Georgetown	Harris	? [B]	n/a [C]	South	**No**
Cumbre	Wind Mtn	? [B]	n/a [C]	Ridout	**No**

[A] Does one locus have significantly greater storage capacity than the others, and if so, is it either the founding or most antecedent locus?
[B] Founding locus could not be identified
[C] No locus had considerably more evidence of antecedence than did the others
[D] Not analyzed due to paucity of identified storage rooms
[E] No meaningful difference in locus-scale storage capacity

Perhaps the best opportunity to compare pithouse storage capacity and antecedence is at Cameron Creek. Recall the courtyard group embedded within the larger North Locus. Unique among other concentrations of pithouses, this group was arranged in a semi-circular arc, around a common, cleared area, upon which house ramps emerged. Within the sample, this group stands out as the most convincing supra-household social unit, and one with strong evidence of antecedence. Thus, I compare the size distribution of this group ($n = 8$, $\bar{x} = 21.14$ m^2, $\sigma = 4.31$ m^2) to that of all other pithouses on the site ($n = 49$, $\bar{x} = 16.83$ m^2, $\sigma = 5.53$ m^2). The difference between groups is assessed using a two-tailed Mann-Whitney test, which indicates there is a low probability of attribution to chance ($U = 289$, $p = 0.03$). Thus, in closing Part VI, I note that there is limited evidence of locus-scale inequality within the domain of access to productive resources. At this scale, however, inequality appears not to have been widespread, long-lasting, or especially striking. At the temporal scale of phases, some pre-Classic loci had greater storage capacity than others, but none had more than all others. Only when viewed across the *longue durée* do certain loci stand out as having relatively more storage than all or most others.

Part VII: Productive Resource Inequality at the Village Scale

In this, the final analytical section of Chapter 4, I compare site-scale differences in relative amounts of storage space (see Appendix XVIII). As in earlier sections, I use domestic pithouse floor area as a proxy for household storage capacity before 1000 C.E. As Wills (1991:174-177) suggested in Northern Pueblo contexts, inter-village differences in pithouse size can be related to differences in agricultural productivity (see also Feinman et al. 2000). At each site, and for each temporal period, mean pithouse floor areas are compared. Differences are then assessed by subjecting pithouse size distributions to a pairwise series of two-tailed Mann-Whitney tests. A similar approach is used for Classic period components, except that instead of using all domestic space, I consider only dedicated storage rooms. The Classic period analysis is limited to NAN Ranch and Swarts Ruin, which have the largest distributions of identified storerooms. Among the two pueblos, mean storeroom areas are compared. Once again, differences are assessed using Mann-Whitney tests, when possible.

Meaningful, site-scale differences are evident at various times and temporal scales. Unfortunately, sample sizes complicate interpretation. For example, when all pre-Classic components are considered together (i.e., no phase distinctions), the pithouses at Cameron Creek ($\bar{x}$ = 17.04 m^2; σ = 5.59 m^2) are found to be significantly larger than those of Galaz ($\bar{x}$ = 14.47 m^2; σ = 3.68 m^2; U = 520, p = 0.05). Cameron Creek, however, is not necessarily preeminent among sites; the mean pithouse size at Mattocks (16.68 m^2; σ = 4.77 m^2) is only slightly smaller than that of Cameron Creek, and Harris Village's mean (27.1 m^2; σ = 17.79 m^2) is considerably larger. The distributions at Mattocks and Harris, however, are too small for the application of Mann-Whitney tests. Next, I examine differences at finer temporal scales.

Site-scale comparisons cannot be made during the Cumbre phase, given that within the sample, the only Cumbre phase component is at Wind Mountain. During the Georgetown phase, three sites had just one pithouse: Galaz (33.98 m^2), Mattocks (20.40 m^2), and NAN Ranch (10.5 m^2). The Georgetown phase pithouses at Galaz and Mattocks were larger than the average pithouse at Wind Mountain (8.62 m^2; σ = 2.88 m^2; n = 8) and Harris Village (18.19 m^2; σ = 7.92 m^2; n = 5). Non-parametric assessment of differences was possible only in the comparison of Wind Mountain and Harris Village, which supports an inference of village-scale inequality in access to productive resources at the village scale (U = 35, p = 0.03).

No such evidence is apparent during the San Francisco phase, but there is overwhelming evidence of unequal access to productive resources at the site scale after 750 C.E. In fact, a series of two-tailed Mann-Whitney tests – detailed in Appendix XIX – suggest a tiered hierarchy of sites during the Three Circle phase. At the top, Cameron

Creek has substantially greater storage capacity than every other site ($p \leq 0.07$). An intermediate tier includes Wind Mountain, Galaz, and Harris Village, each of which has greater storage capacity than the two sites in the lowest tier, NAN Ranch and Swarts ($p \leq 0.03$). Cameron Creek's preeminence may be related to its location along a tributary stream with relatively low population density. Classic period data are limited to two sites (NAN Ranch and Swarts) and suggest no meaningful differences in storage capacity at the village scale. Thus, site-scale inequality in access to productive resources appears to have cycled between presence (or prominence) and absence (or latency), a pattern illustrated in Figure 4.13.

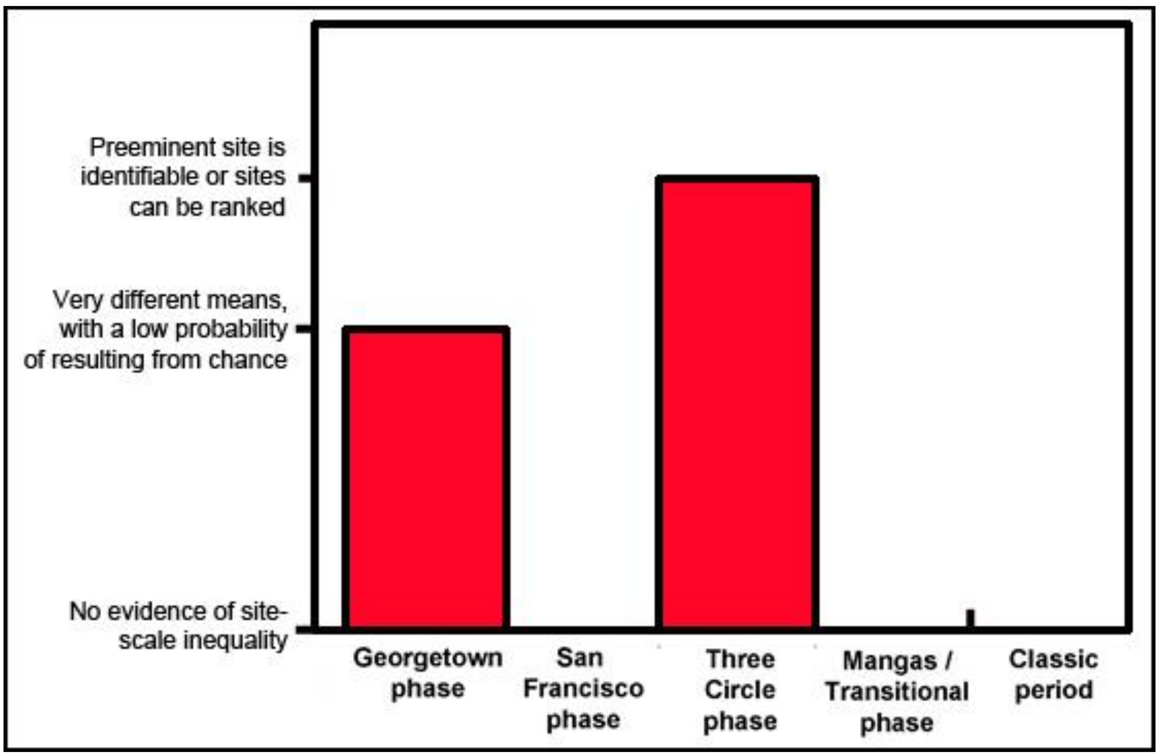

Figure 4.13. Diachronic change in the presence and degree of productive resource inequality at the site scale. (The Cumbre phase is excluded here because only one of the study sites includes a Cumbre phase component).

Discussion

Throughout the Mimbres sequence and at a number of socio-spatial and temporal scales, the social experiences of various households and larger-scale groups were anything but uniform. At every scale examined, I find that people were engaging with and affected by productive resource inequality differently. The most noticeable differences are outlined below, where reference to inequality is limited to the domain of productive resource access:

1. Differences rarely persisted in the same place or social scale for more than a single phase. In each examined dimension, evidence of inequality shifted from one social unit to another, cycled from presence to absence and back again, and fluctuated in both prevalence and degree. This suggests that differential control over prime agricultural land was anything but fixed.
2. Each of the analyses described above suggests that the advantages borne of unequal access to productive resources were seldom associated with evidence of residential primacy or antecedence, and never were at the locus scale. This is consistent with the noted plasticity and impermanence of productive resource inequality. Primacy is an empirical attribute and the linked domain of antecedence is generally conservative. However, it appears that in the Mimbres case, whatever social principles governed or

affected differential access to productive resources were fairly fluid. The question of what such principles were in play is addressed in Chapter 8.

3. At the household scale, evidence of inequality was relatively commonplace. Throughout the Mimbres sequence and at every socio-spatial scale, some households had more storage capacity than others, suggesting greater access to productive resources. The household, in fact, may well have been the primary scale at which inequality in this domain was manifest.

4. Between the third and tenth centuries, and across the region in general, household-scale inequality rose and fell between phases, with phase-specific Gini coefficients ranging between 0.19 and 0.31. Most of these diachronic changes have a high probability of resulting from chance, but the exceptions each involve a decrease in Gini coefficient, suggesting a subtle trend of reduced inequality over time (see Figure 4.3). When Gini indices are calculated for each individual site, phase-specific ranges comprise lower and lower Gini coefficients, further suggesting a general trend toward productive resource equality (see Figure 4.4). This coincides with a potential increase in supra-household inequality (see Figures 4.10 and 4.13).

5. Although omnipresent, household-scale inequality was more pronounced in some clusters and at some sites, suggesting that certain supra-household collectives had means to either mitigate or aggravate inter-household

differences. Such differences, however, were never widespread, long-lasting, or particularly striking.

6. At every social scale, the presence and degree of inequality cycled up and down through time (see Figures 4.4, 4.11, and 4.13). Increases in locus-scale inequality sometimes coincided with reductions in household-scale variability within loci (see Figure 4.12). At scales above that of the household, productive resource inequality was most pronounced during the Three Circle phase, which marked the apex of meaningful, locus-scale differences and the only time when sites can be ranked according to differences.
7. By and large, differences in access to productive resources are not associated with evidence of residential primacy or antecedence. This includes comparisons between Classic period storeroom size and roomblock centrality. In some cases, lack of association may have resulted from the imprecise definition of locus boundaries. When evidence of antecedence (rather than spatial distinction) are used to recognize supra-household groups at Cameron Creek, there is a strong association between antecedence and productive resource inequality.
8. The strongest evidence of locus-scale inequality is noted at Harris Village, during the Three Circle phase. Perhaps not coincidentally, Harris is the only site in the sample that was not occupied beyond the Three Circle phase. Following the Three Circle phase, there is no compelling evidence (though sample sizes are small) of locus-scale inequality at any of the

studied sites. This corresponds with other evidence of regional conformity, including consistency in burial practices, ceramic style, and nonlocal interaction.

As exemplified in the Hopi case, religious and ceremonial efforts are frequently used to establish moral authority and justify differential access to productive resources. In the following chapter, I examine differences in access to ritual knowledge and practice. These differences can be compared to the conclusions above as well as evidence of primacy and antecedence.

CHAPTER 5: ACCESS TO RITUAL KNOWLEDGE AND PRACTICE

> "In all history, we do not find a single religion without a Church. … sometimes it embraces an entire people [and] sometimes it embraces only a part of them, sometimes it is directed by a corps of priests, sometimes it is almost completely devoid of any official directing body." – Emile Durkheim (2010:112)

> "Religion is never the problem; it's the people who use it to gain power."
> – Julian Casablancas

Ethnographic research suggests that ritual is not only a critical component of Puebloan culture, but is inextricably linked to every aspect of Puebloan life (see Fowles 2013; Parsons 1939; Ware 2014). The ethnographic literature also makes clear that some people – individually or in groups – had more ritual knowledge and access than others, and could leverage this knowledge in the form of social power (Brandt 1994; Dozier 1970; Ortiz 1969; Parsons 1939; Titiev 1944; Ware 2014). What is more, there is every indication that this asymmetry extends deep into prehispanic times (Darling 1998; McGregor 1943; Nequatewa 1936; Ware 2014; Ware and Blinman 2000). In this chapter, I use architectural and mortuary data to investigate inequality in these realms, asking whether some people in Mimbres society had greater access than others to ritual knowledge and practice, and how such inequality was distributed.

Chapter 5 is divided into five parts. The first sets forth the analytical approaches that lead to the analyses, and also provides some background on past examinations of ritual in Mimbres archaeology. The four analytical sections that follow are arranged by ascending social scale: individual, household, locus, and site. Analytical approaches are presented chronologically in each section, focused at the relevant scale. Data derive from 3,143 Mimbres burial assemblages and 972 architectural features, spanning all seven sites and the entire cultural sequence.

To examine differences in access to ritual knowledge and practice, the chapter presents analyses of burial assemblages, the selection of gravesites, and the placement and distribution of ceremonial architecture. The mortuary distribution of restricted ritual paraphernalia and vessels depicting ceremonies, along with the placement of some burials in ceremonial architecture, are interpreted as signaling privileged ritual knowledge on the part of the interred. Similarly, the distribution of ceremonial architecture, including the number and type of facilities, provides information on differential access to such facilities for certain individuals and groups. These analyses also compare differences in ritual access on one hand to evidence of primacy and antecedence on the other (see Chapter 3).

Part I: Research Approaches

This section provides a brief introduction to those aspects of ritual, ceremony, and religion that are central to the analyses in Parts II through V. It draws primarily from the ethnographic literature of the U.S. Southwest, but benefits also from ethnographies of other small-scale societies and from religious theory in general. Following a discussion of key terms, four subsections focus on attributes of ritual paraphernalia, iconography, burial placement, and access to ceremonial structures.

As used throughout this dissertation, the word *ritual* refers to esoteric activities that are meant to control future outcomes through non-physical intervention. These activities are grounded within religious principles, guided by tradition, and repeated (either as needed or on a predictable schedule). Ritual activities are performed by individuals, and may occur in seclusion, within the view of others, or in public. Rituals can also constitute part of a larger ceremony, wherein different ritual acts contribute to a larger presentation. Most rituals are performed by non-specialists, and examples include prayers, offerings, and observations. Other rituals are undertaken only by sanctified specialists, and examples of these include the singing of sacred songs, the curing of illness, and the divining of witchcraft.

Among small-scale societies in general, and Puebloan cultures in particular, there is little distinction between religion and almost any other aspect of life. For this reason, I avoid the term *religion*, which evokes a bounded, separable institution. However, I do employ the term *religious* in reference to those aspects of culture that explain, for adherents, the forelife, afterlife, morality, cosmology, and other parts of the human experience wherein causation is neither apparent, nor readily discernable.

Ceremony and *ceremonial* refer to formal religious gatherings that generally involve two or more individuals and usually include at least one ritual specialist. Like the rituals they comprise, ceremonies are religious in nature, dictated by tradition, and repeated over time. Ceremonies often include an audience, and generally involve groups larger than a single household. Ceremonial success depends on the perfect execution of constituent rituals. Examples of Native Southwestern ceremonies include the Hopi *Soyal*, Tewa *Kah'bena*, and Zuni *Sha'lak'o*.

Restricted Ritual Paraphernalia

One way to identify individuals with atypical access to ritual knowledge is to recognize artifacts that were used – during historic times, at least – exclusively by ritual specialists. In Puebloan societies, most individuals take part in daily rituals that require some form of paraphernalia. Thus, it is necessary to distinguish between commonly-used paraphernalia and that used by ritual specialists alone. Examples of the former include ash placed on Hopi foreheads on December nights (Parsons 1939:106) and arrowheads tucked under the belts of pregnant women at Jemez during an eclipse (Parsons 1939:181 n. †). In the analyses to follow, emphasis is on identifying items used mostly or exclusively by ritual specialists, which I term *restricted ritual paraphernalia*. Restricted ritual paraphernalia can not only help to identify ritual specialists, but also allow researchers to infer qualitative differences between specialists (see Granero 1986; Pottery 1997; Schlegel 1992; Spielmann 2002).

Many small-scale societies have proscriptions against the possession of – or even exposure to – particular ritual objects by most community members. Among the Sulka of Papua New Guinea, for example, only certain ceremonial dancers can possess a particular class of ritual masks called *tumbuan*, and most community members do not even know these exist (Hill 1985; Jeudy-Bellini 1984). There are many ethnographic accounts of similar proscriptions in the Southwest, involving items such as altar pieces, cloud-blowers, Katsina masks, god imagery, and medicine bundles (e.g., Hauck and Knoki-Wilson 1996:75; Ladd 2001:109; Parsons 1926, 1928, 1939:105, 748; Sadongei 2001; Talayesva 1942). These were restricted because non-specialists had neither the authority nor training to handle them; the power contained in such items could be dangerous to the uninitiated. In other cases, ritual specialists possessed distinctive items that signified their roles and authority. Examples include the Hopi *típoni* (a sacred fetish carried by a chief) and *mongko* (a staff of ritual office), and the Zuni *mi'we* (sacred bundles entrusted to ritual leaders) (e.g., Monsen 1907:283; Parsons 1939:1117; Stephen 1936:781-782)

Restricted ritual paraphernalia were often passed from father to son, uncle to nephew, or mentor to apprentice. Thus, they would rarely have entered the archaeological record. At times, however, such items are known to have been buried with a specialist upon their death (e.g., Harvey 1963:485; Mills 2004:242; Parsons 1933a:614-615). Archaeologists have encountered similar items in prehispanic burials in the Southwest, and such artifacts may identify the decedents as ritual specialists (see Fenn 2004; Judd 1954; McGregor 1943; Plog and Heitman 2010; Ware 2014). Few Mimbres studies have focused on such grave goods or burial treatments. In one notable exception, Shafer excavated Burial 127 at NAN Ranch, who he described as:

> "an adult male placed in a sitting position in a specially prepared crypt dug into the north wall of pithouse 86. The crypt was walled up with cobble-adobe masonry. Crypt contents include a tubular cloudblower pipe, a quartz crystal, a turtle plastron, two Olivella shell beads, and two small biface projectile points, but unfortunately, no pottery. … The assortment of artifacts associated with burial 127 suggests an assemblage of items that could be used in curing ceremonies … This male may have been a shaman or an oracle. The makeshift cave in which he was placed was positioned in such a way that entry into the structure would allow visitation to the crypt" (Shafer 2003:162; see also Shafer 1988).

Artifact associations are not the only archaeological indicators of ritual specialization. For example, Burial 18 at Old Town, dating to the Classic period, was excavated and described by Creel (2006a, 2006b). Burial 18 was unaccompanied by grave goods but was identified as a ritual specialist based on a series of other variables. The man's arms were painted red at the time of his burial, and his grave was associated with a small, extramural platform and a unique, freestanding wall. The wall's foundation connected the floors of two great kivas that had been ritually burned during the preceding Three Circle phase. Creel argued that the man in Burial 18 may have had "special roles in activities conducted in the communal structures" (2006b:40).

One of the sets of analyses presented in this chapter examines the distribution of restricted ritual paraphernalia in mortuary contexts. The identification of restricted ritual paraphernalia in Mimbres burials is based on a comparison of Mimbres artifacts to ethnographic descriptions of Puebloan objects. Each artifact, in each of the 3,143 burials, is compared to ethnographic descriptions of historic objects, including their uses and contexts. Most of the artifact classes encountered in Mimbres burials are described in the ethnographic literature, and most, such as bowls, beads, ochre, manos, and projectile points, are reported to have been used in both ritual and non-ritual contexts. Such widely used artifacts, as well as those with no historic analogs, are not classified as restricted ritual paraphernalia. Artifacts are classified as restricted ritual paraphernalia only if they have historic Puebloan analogs that were used exclusively by ritual specialists for ritual purposes or as markers of ritual office. Ultimately, six classes of restricted ritual paraphernalia are identified in burial assemblages from the seven Mimbres sites: quartz crystals, fossils, cloud-blowers, speleothems, ladles, and turtle shells (see Figure 5.1). These are discussed below, with examples of ethnographic data pertaining to their use.

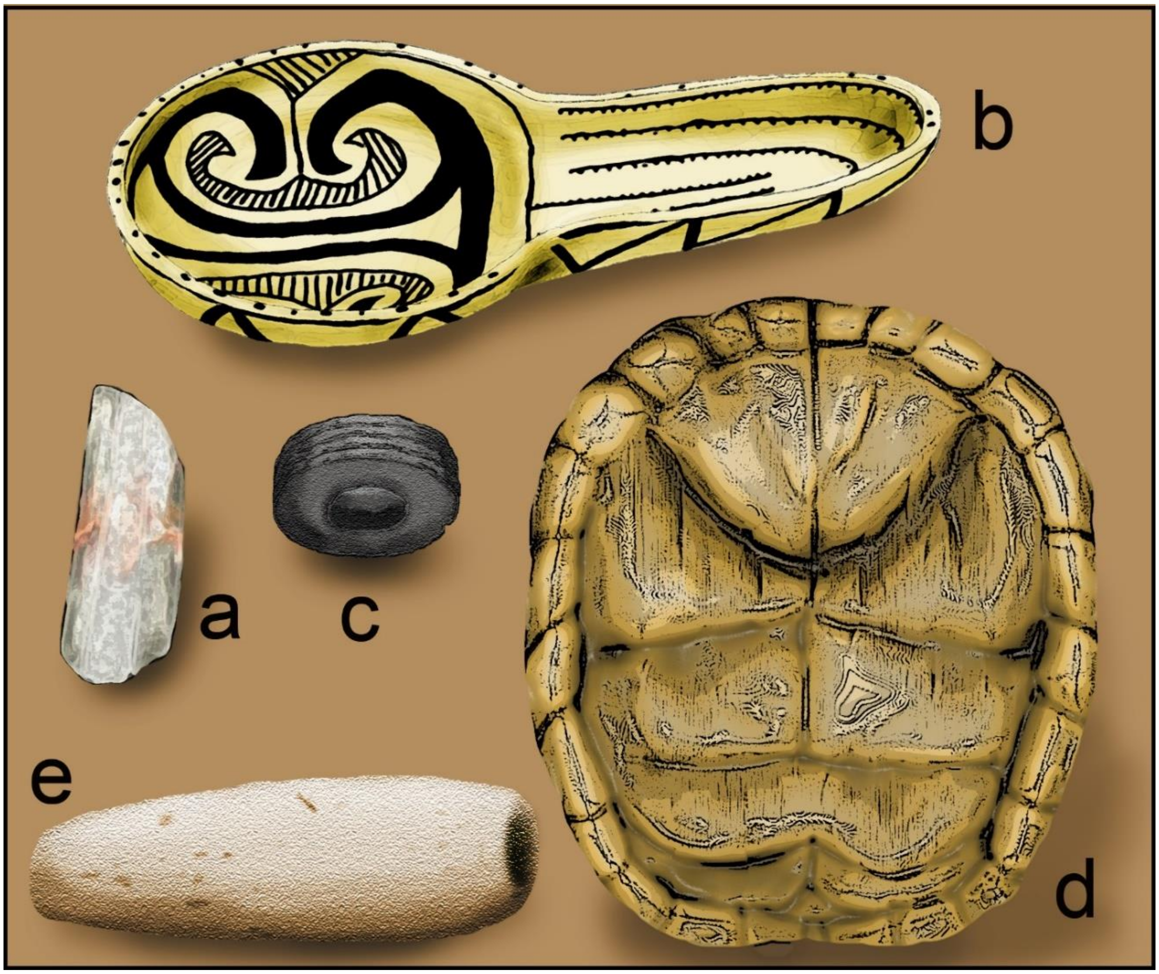

Figure 5.1. Illustrated examples of Mimbres restricted ritual paraphernalia; not to scale. (a) quartz crystal [Swarts; Peabody Museum of Archaeology and Ethnology, no. 25-11-10/95063]; (b) Mimbres Black-on-white, Style III ladle [unprovenienced; MimPIDD 9473; Deming Luna Museum]; (c) bead made from crinoid stem fossil [Roadmap Village; Mogollon Prehistoric Landscapes Project, Arizona State University, no. 8-5-1/E]; (d) box tortoise plastron, similar to that found in Burial 127 at NAN Ranch; (e) stone cloud-blower [Swarts; Peabody Museum of Archaeology and Ethnology, no. 25-11-10/95051].

Quartz Crystals. Crystals are described ethnographically as media through which power, purity, and insight are attained. Their possession is generally limited to ritual specialists because they are “power objects” (Walker 1995:113; see also Adler 2005:19). At Hopi, they are called “lightning stones” and are recognized as holding innate spiritual power, in part because rubbing them together can create sparks (Tyler 1964:1983).

Lightning, of course, is associated with rainstorms. A crystal is “a very sacred thing” (Octavius Seowtewa, quoted in Colwell-Chanthaphonh and Ferguson 2006:152), often used in rituals and ceremonies focused on healing as well as rainmaking (Parsons 1939:135). According to Walker (1995:23), crystals were used to manipulate beams of light entering kivas. Fewkes reported that crystals were included in a winter solstice altar in Hano’s *Moñkiva* structure (1899:268, Plate xviii) and in the *Owakülti* altar at Sichomovi (1901:221). In the latter context, he noted that light reflected by crystals was used to purify sacred corn meal and corn pollen. Fewkes (1902:19 n. 1) also saw Hopi priests suck on crystals that had been used in ceremonies in order to draw power from them. Crystals have been found in archaeological burials and used to infer ritual specialization (e.g., Hough 1903:901).

Fossils. Parsons (1939:194) suggests that among the Pueblos, fossils are understood to possess spirits, and Fewkes witnessed the feeding of a trilobite fossil – an “ancient butterfly” – during an *Owakülti* ceremony at Hopi (1901:221). He also described the presence of fossils in a Hopi *Lakakoñti* medicine bundle. Although the bundle contained numerous items, the fossils were apparently so central to its essence that the Hopi word for them and for the bundle itself were one and the same: *koaitcoko*. Fewkes noted that “the contents of [the bundle] were considered so sacred that we were not allowed to touch them” (1892:121). He later discussed fossils that were recovered from ancestral Hopi burials, including crinoids in particular. He wrote that similar “objects are still used in Hopi ceremonies, and … that some of the priests begged [him] to give them these ancient objects that they might use them in the preparation of medicine and in other sacred or ceremonial ways” (1904:107). Elizabeth Brandt (personal communication,

2015) has seen religious leaders at Zia Pueblo cup fossils in their hands and draw breath from across them.

Cloud-Blowers. Cloud-blowers are pipe-like devices made of stone or ceramic which, historically, could be possessed only by a "priest" (Goddard 1921:113) or "important functionary" (Fewkes 1895:283; see also Preucel 2000:14-15). During ceremonies, anointed tobacco smoke was puffed outward, symbolizing (and petitioning) clouds, snow, or other moisture (Hough 1912:125; Parsons 1939:118; Roberts 1930:141; Stephen 1936:680 n. 1; Voth 1903:15). Roberts (1930:Plate 37i) illustrated a ceramic cloud-blower from a site in southwestern Colorado that had an frog-like appliqué, and frogs are commonly associated with rain among historic pueblos. In describing a Hopi ceremony, Fewkes (1895:283) wrote:

> "In these rites, the one who controls the … [cloud-blower] … must light it and immediately hand it to the chief, friendly words being exchanged between the two. The chief blows from his mouth the smoke which he has inhaled toward the four cardinal points, north, south, east, west, upward, downward, and over the altar. They believe that the smoke is the cloud symbolized by it; and the ceremonies in which they smoke have some secret relation to the offerings made to the gods of rain."

Speleothems. Speleothems – stalagmites and stalactites – are, of course, associated with caves or caverns, and these, in turn, play prominent roles in Pueblo cosmology. Hough, in fact, interpreted deposits in the Upper Gila area as evidence of a prehispanic "cave cult," concerned with the "worship of beings from the underworld" (Hough 1914:91; cf. Ortiz 1969:19; Stevenson 1904:23). Caves are liminal places of death and power; they are portals into the underworld where the uninitiated seldom venture but where shrines were built and attended to by ritual specialists (E. Beaglehole

1937:46; Nicolay 2012; Parsons 1939:127, 264, 350; Stephen 1936:487). The ceremonial importance of caves in the Southwest was recognized early on:

> "Many caves in … [the Southwest] … have narrow entrance into passages which extend with many ramifications into the bowels of the earth. Most of these were used in ancient times for religious purposes, and still contain relics left on former visits by the Indians. The nature of the objects found in them shows that the caves were not inhabited, but were resorted to for purposes of prayer and sacrifice" (Fewkes 1898a:166).

Speleothems are known to have been removed from caves during historic and prehispanic times. Fewkes (1898b:730), for example, found that several graves at the Ancestral Hopi site of Sikyatki contained bowls with stalactite fragments. Ethnographic data regarding speleothems is fairly limited because of strict secrecy (Ellis and Hammack 1968:30), but evidence suggests that their possession was limited to ritual contexts or specialists. Kidder (1958:233), for instance, reported finding a stalactite in a kiva wall niche at Pecos Pueblo. Hrdlička (1908:240) listed the contents of a Diné "medicine outfit," which included a stalagmite.[6] Bourke (1890:63) described Apache rituals where speleothems were struck with sticks, producing "musical resonance".

Ladles. Among the ethnographic pueblos, ladles or "dippers" were generally used for ceremonial rather than utilitarian, purposes (Parsons 1939:561, 567, 580, 804). Although not quantified, the relative frequency of decoration (including painted designs, effigy elements, and rattle handles, which approximate thunder) on prehispanic ladles seems far higher than that of other pottery forms. Bourke (1884:Plate XXVIII-II.14), for example, illustrated an unprovenienced specimen that bears some resemblance to

[6] According to Nicolay (2012), cave rituals among the Diné are limited to witchcraft, potentially identifying Hrdlička's buried individual as a sorcerer (or accused sorcerer) (see also Kluckhohn 1989:27; Reilly 1973:46).

Mesoamerican *chac mool* features, which likely received sacrificial offerings (Miller 1985:15). In archaeological contexts, ladles are often recovered from ceremonial deposits. At Pueblo Bonito, for instance, they appear to have been left as offerings in several kivas (Pepper 1920:237, 253-254, 263). Ladle handles may have been of particular importance. Forty ladle handles were recovered from a single room at Pueblo Bonito; some were rattle handles and others had been modified (1920:99). A handle was also included in what was apparently a ritual cache in another room (1920:61). Ladles are exceedingly rare in Mimbres assemblages and constitute only 0.17 percent of known, decorated Mimbres pottery.

Turtle Shells. Turtle shells have been used for a number of ceremonial purposes among the Pueblos. Stevenson described the use at Zuni of turtle flesh for medicine, turtle-shell rattles by *Koi'kokshi* dancers, and turtle shell fetishes in ceremonial altars (1904:105, 145, 148, 161, Plate XXXIV). Pepper (1920:264) reported a “turtle carcass” left as an offering in a kiva at Pueblo Bonito. Two discs, ground from turtle shell, were recovered from a burial at Chevlon Ruin (Fewkes 1904:95). Matilda Coxe Stevenson was once asked by Hopi friends to bring them a turtle shell for rain-making rituals. She returned with a rather large one, which caused a flood. Stevenson was thanked, but asked not to bring any others so large, as they were too powerful (E. Brandt, personal communication, 2015).

Vessels Depicting Ceremonies

Restricted access to ritual knowledge can also be assessed by analyzing the distribution of vessels with designs that depict ceremonies. As noted in Chapter 2, Puebloan ritual knowledge has long been incorporated into kiva murals, accessible only to select community members, under certain conditions. Partial murals have been found at the Mimbres sites of NAN Ranch (Shafer 2003:Figure 3.16) and Old Town (Creel 2006a:Figure 93), though these bear little resemblance to later, more northern examples such as those at Pottery Mound, Awat'ovi, and Kawaika'a (Brody 1968; Dutton 1963; Hibben 1975; Smith 2006). However, scenes painted on some Mimbres vessels are quite similar to those seen in kiva murals elsewhere (see Figure 5.2) and probably conveyed much of the same information.

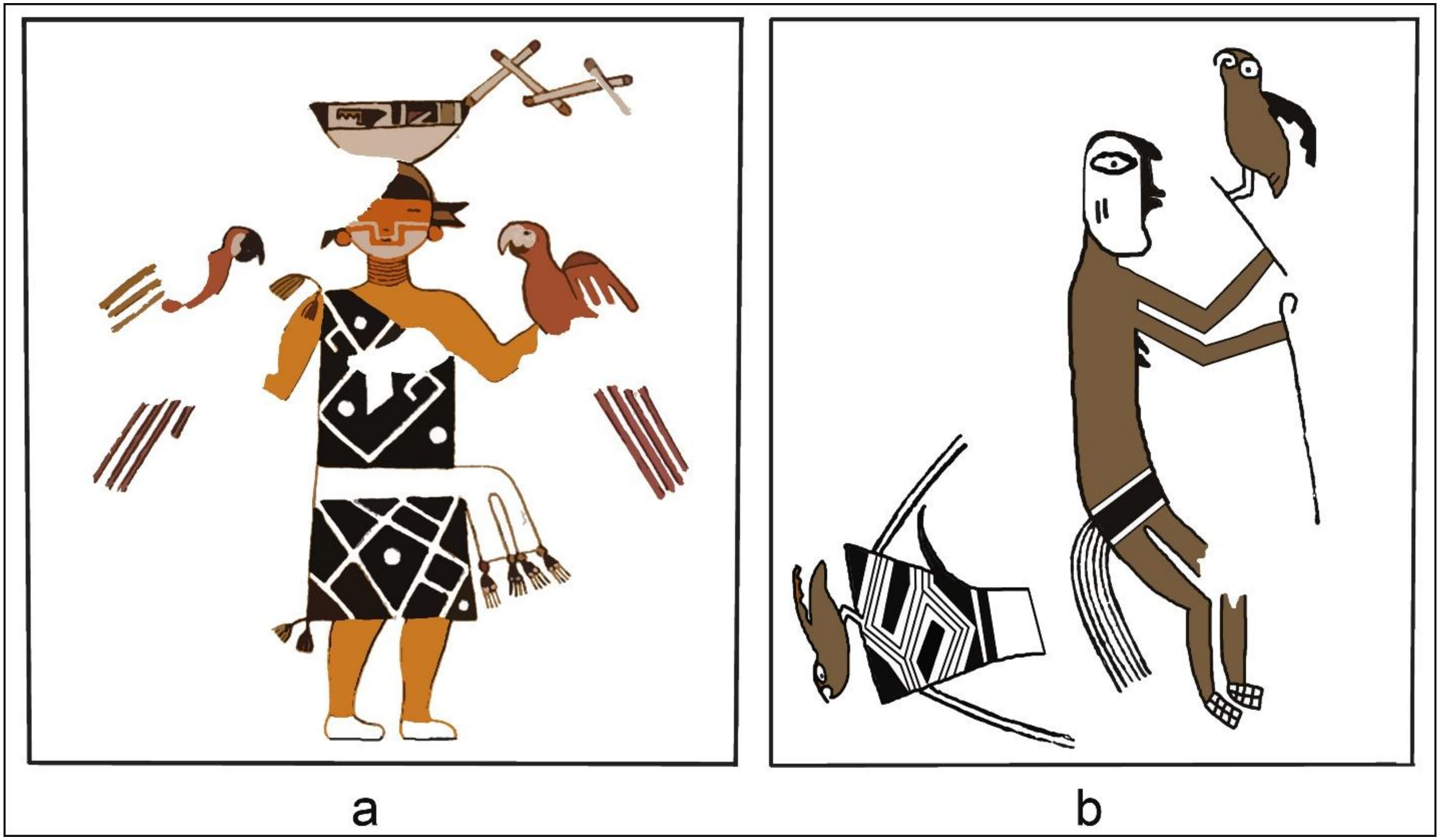

Figure 5.2. Similar ritual themes on kiva murals (left) and Mimbres pottery (right). (a) detail from fourteenth century kiva mural, Pottery Mound Pueblo (Kiva 9, south wall, Layer 2; after Hibben 1975:Figure 45). (b) detail from Mimbres Polychrome bowl, Mattocks Ruin (MimPIDD 3641; Logan Museum of Anthropology 16123).

About one fifth of painted Mimbres bowls contain representational images – mostly animals and occasional humans – in addition to geometric patterns. Several studies have focused on such imagery in general (e.g., Brody 2004; Brody et al. 1983; Fewkes 1914, 1924; LeBlanc 2004), and its ritual significance in particular (e.g., Carr 1979; Gilman et al. 2015; Kabotie 1982; Moulard 1984). A very small number of Mimbres bowls are decorated with what appear to be scenes of religious performances (Carr 1979; Brody 1977, 2004; Kabotie 1982; Moulard 1984), which I refer to as *vessels depicting ceremonies*. The analyses that follow examine the distribution of vessels depicting ceremonies in Mimbres mortuary contexts. Interpretations are based on the assumption that persons buried with these vessels had the ritual knowledge needed to understand the ceremonies portrayed, and therefore, that the vessels can be used to identify individuals with atypical access to ritual knowledge. The analysis is done by examining photographs of Mimbres bowls in the Mimbres Pottery Images Digital Database (MimPIDD) and comparing figurative designs to ethnographic data. Vessel scenes are identified as depicting ceremonial performances if their content (A) is similar to specific descriptions of historic Pueblo ceremonies or ceremonial figures (e.g., Figure 5.3), or (B), includes two or more individuals participating in activities that resemble historic Native performances (following Kabotie 1982; see Figure 5.4).[7]

[7] A number of bowls show humans with animal characteristics or that were partially costumed. These are not classified as vessels depicting ceremonies because it is not possible to determine whether they are depictions of ceremonies or therianthropic, other-than-human beings.

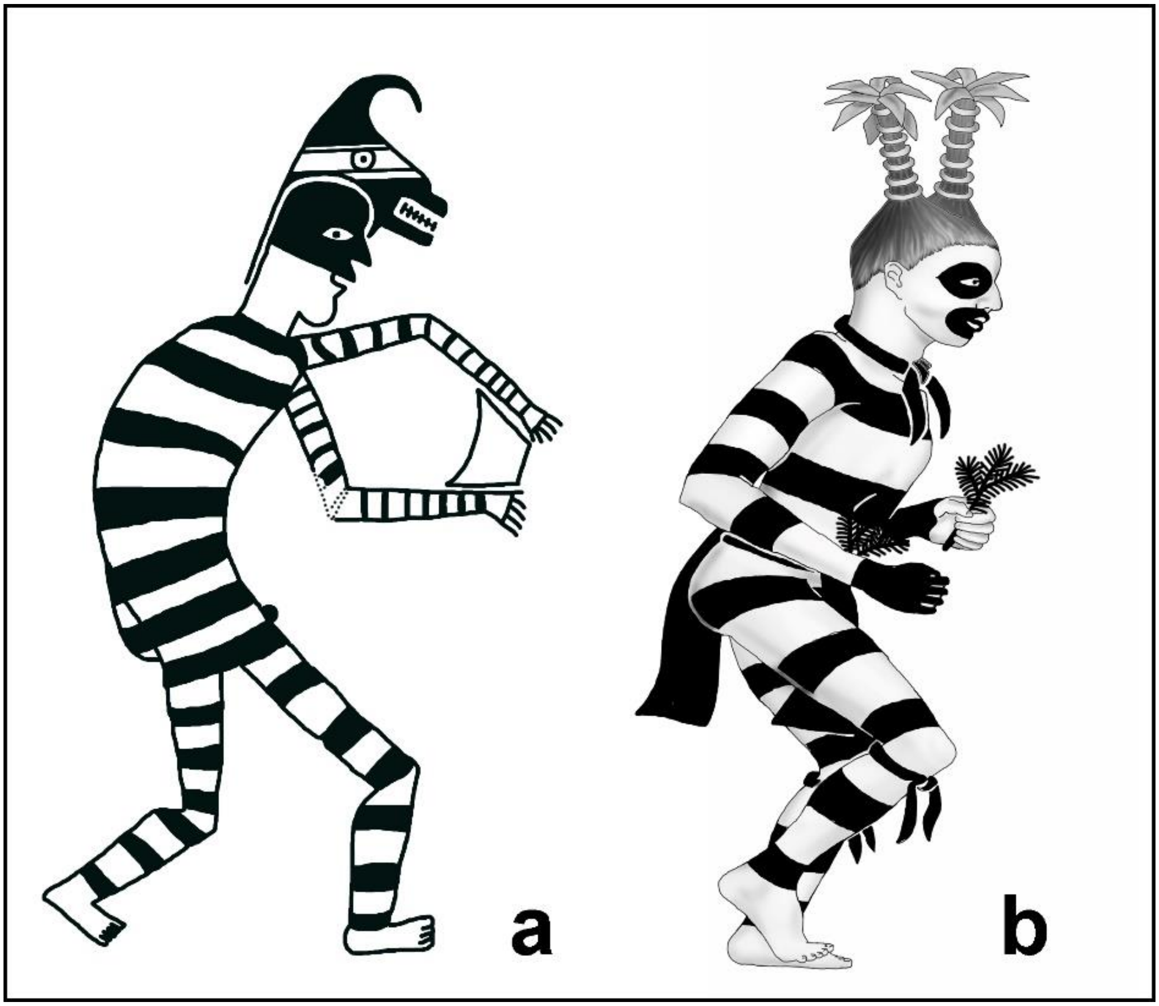

Figure 5.3. Ceremonial practitioner depicted on Mimbres bowl (left) compared to historic Hopi *Koshare* dancer (right). (a) after MimPIDD 4010 [Middle Style III bowl; unprovenienced; Taylor Museum no. 4589]; (b) after Roediger 1991:Plate 39.

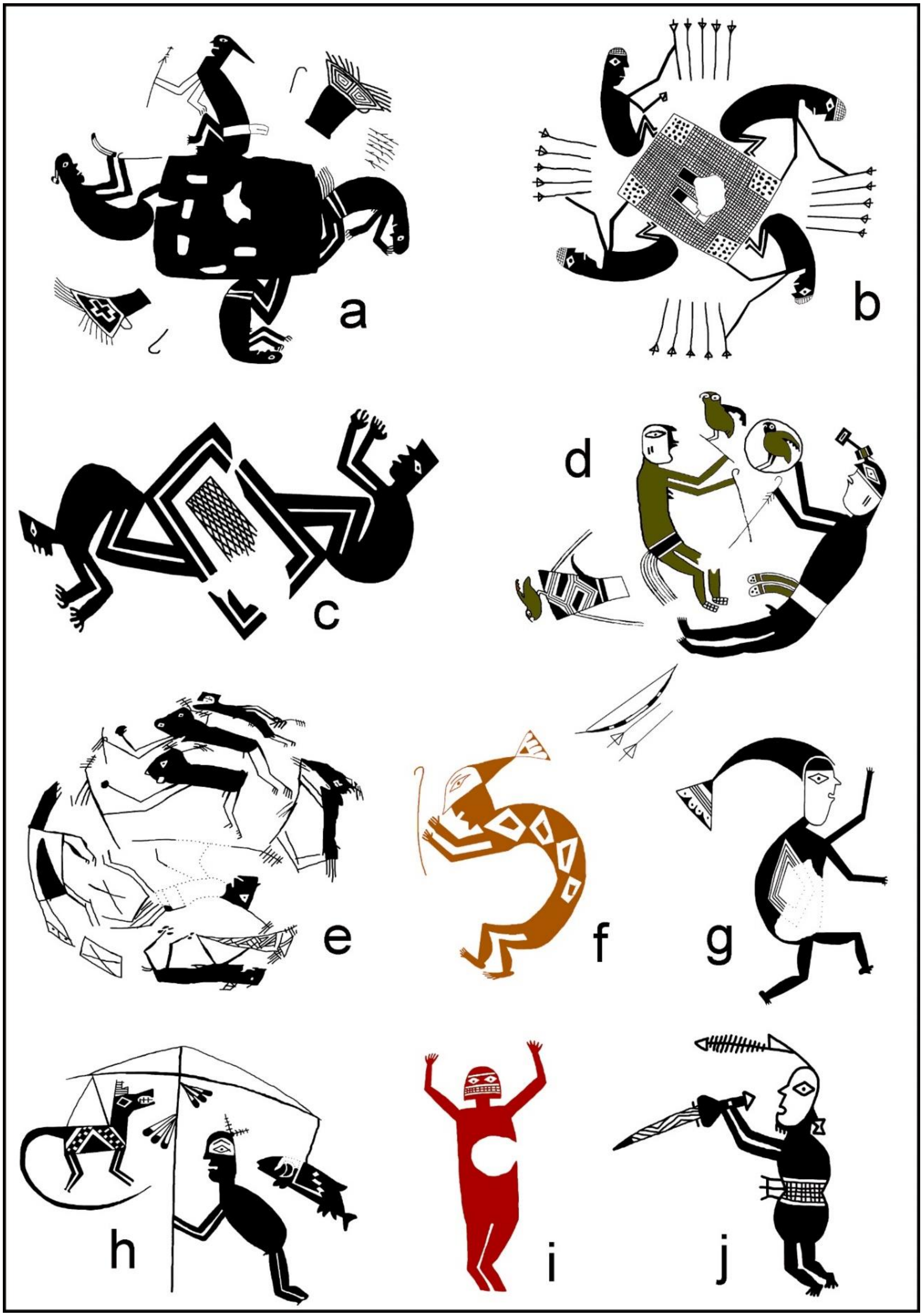
a
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Figure 5.4. Figurative portions of vessels in sample with designs that depict ceremonies. (a) Style III Mimbres Black-on-white bowl [MimPIDD 2683; Swarts; Peabody Museum of Archaeology and Ethnology, no. 94717]; (b) Middle Style III Mimbres Black-on-white bowl [MimPIDD 1308; Cameron Creek; Laboratory of Anthropology, no. 43438/11]; (c) Middle Style III Mimbres Black-on-white bowl [MimPIDD 7612; NAN Ranch; Western New Mexico University Museum]; (d) Mimbres Polychrome bowl [MimPIDD 3641; Mattocks; Logan Museum of Anthropology, no. 16123]; (e) Style III Mimbres Black-on-white bowl [MimPIDD 7682; NAN Ranch; Western New Mexico University Museum]; (f) Early Style III Mimbres Black-on-white bowl [MimPIDD 7674; NAN Ranch; Western New Mexico University Museum]; (g) Middle Style III Mimbres Black-on-white bowl [MimPIDD 2670; Swarts; Peabody Museum of Archaeology and Ethnology, no. 94704]; (h) Style II/III to Late Style III Mimbres Black-on-white bowl [MimPIDD 2696; Swarts; Peabody Museum of Archaeology and Ethnology, no. 95798]; (i) Middle Style III Mimbres Black-on-white bowl [MimPIDD 9373; Mattocks; Logan Museum of Anthropology, no. 16287]; (j) Middle Style III Mimbres Black-on-white bowl [MimPIDD 2794; Galaz; University of Minnesota, no. 2B-80]; not to scale).

Interment in Ceremonial Architecture

Differences in burial location may also indicate asymmetric access to ritual knowledge and practice. Mimbres burials were often placed under house floors, a practice that increased in relative frequency through time. However, they have also been encountered in plazas, middens, ceremonial architecture, and elsewhere. Individuals buried in ceremonial spaces have been interpreted as having special ritual status in Mimbres contexts (e.g., Creel 2006a, 2006b). Elsewhere in the Southwest, researchers have reached similar conclusions (e.g., Griffin 1967), as well inferring accusations of witchcraft (e.g., Adams 2016), and rare instances of human sacrifice (e.g., Kabotie 1982:77; see also Creel and Anyon 2003:77). In the present study, the placement of a burial in ceremonial architecture is treated as evidence of the interred individual’s access to ritual. This assumption is evaluated below, using other types of evidence, such as mortuary goods.

Ceremonial Architecture

Differences in access to ritual knowledge and practice can also be assessed by analyzing aspects of ceremonial architecture, including the form and relative frequency of ceremonial structures and the proportion of available ceremonial space. A number of previous studies have examined Mimbres ceremonial architecture, and most have used slightly different sets of terms and classifications (Anyon and LeBlanc 1980, 1984; Bluhm 1957; Bradfield 1929; Breternitz 1959; Bullard 1962; Clayton 2006; Cosgrove 1923; Cosgrove and Cosgrove 1932; Creel and Anyon 2003; Di Peso 1974; Haury 1936, 1950; Hawley 1950; Hough 1919; Nesbitt 1932; Olson 1960; Shafer 2003; Wheat 1955). Drawing from this body of work, the analyses here divide ceremonial structures into four categories: small kivas, great kivas, ceremonial rooms, and enclosed plazas. Structures in these categories are described below and listed in Appendix XX. [8]

[8] These broad categories do not necessarily include all possible kinds of ceremonial architecture such as open and semi-enclosed plazas (Cosgrove and Cosgrove 1932:14, 26; Shafer 2003:83-84, 220), road-like features (Creel 2006a:Chapter 9), diminutive, circular structures (Shafer 2003:82, Figure 5.35), freestanding walls (Creel 2006a:259-263, 2006b), and small, geometric platforms (Cosgrove and Cosgrove 1932:21, Plate 15b; Creel 2006a:259).

Small Kivas. Small kivas were semi-subterranean structures, consistently square or rectangular in shape,[9] and generally entered through roof hatches (see Figure 5.5). They were comparable in size to domestic pithouses but included non-domestic features such as *sipapus* (miniature representations of places of emergence; see Broadbent 1982; Smith 1952:5) and ventilator shafts. Small kivas were once thought to have been introduced during the Classic period (Anyon and LeBlanc 1980:255), but recent findings at Old Town (Creel 2006a:156-163; Creel and Anyon 2003:81; Lucas 1996) and NAN Ranch (Shafer 2003:35-36) suggest that small kiva use may have started during the Three Circle phase, if not before (see also Shafer 2003:49-50, 71-72; Woosley and McIntyre 1996:88-89, 92-94). Classic period small kivas were often adjacent to roomblocks and sometimes embedded within them. Some Classic period small kivas are remodeled Three Circle phase pithouses; earlier ramp entrances were walled off, roof entries added, and ventilator shafts constructed so that ceremonial fires could burn when hatches were closed for secrecy.

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[9] Bradfield's (1931:17) description of Pit Room 146 at Cameron Creek raises the possibility of round small kivas. According to this description, Pit Room 146 was round, deep, and early. The structure's "entrance," he wrote, was "one foot wide at the bottom and is nowhere more than 1 ½ feet wide between its side walls. The slope of the tread is a steep rise of 40 degrees. The firepit is … 1 ½ feet from the entrance." What Bradfield interpreted as an extraordinarily narrow and steep entrance may have been a ventilator shaft. Given the paucity of data on Pit Room 146, it is not included as a kiva in the present study. It is interesting to note that Pit Room 146 was somewhat isolated from other pithouses and was the farthest-north structure in the South Locus, positioned not unlike the North Locus' great kiva.

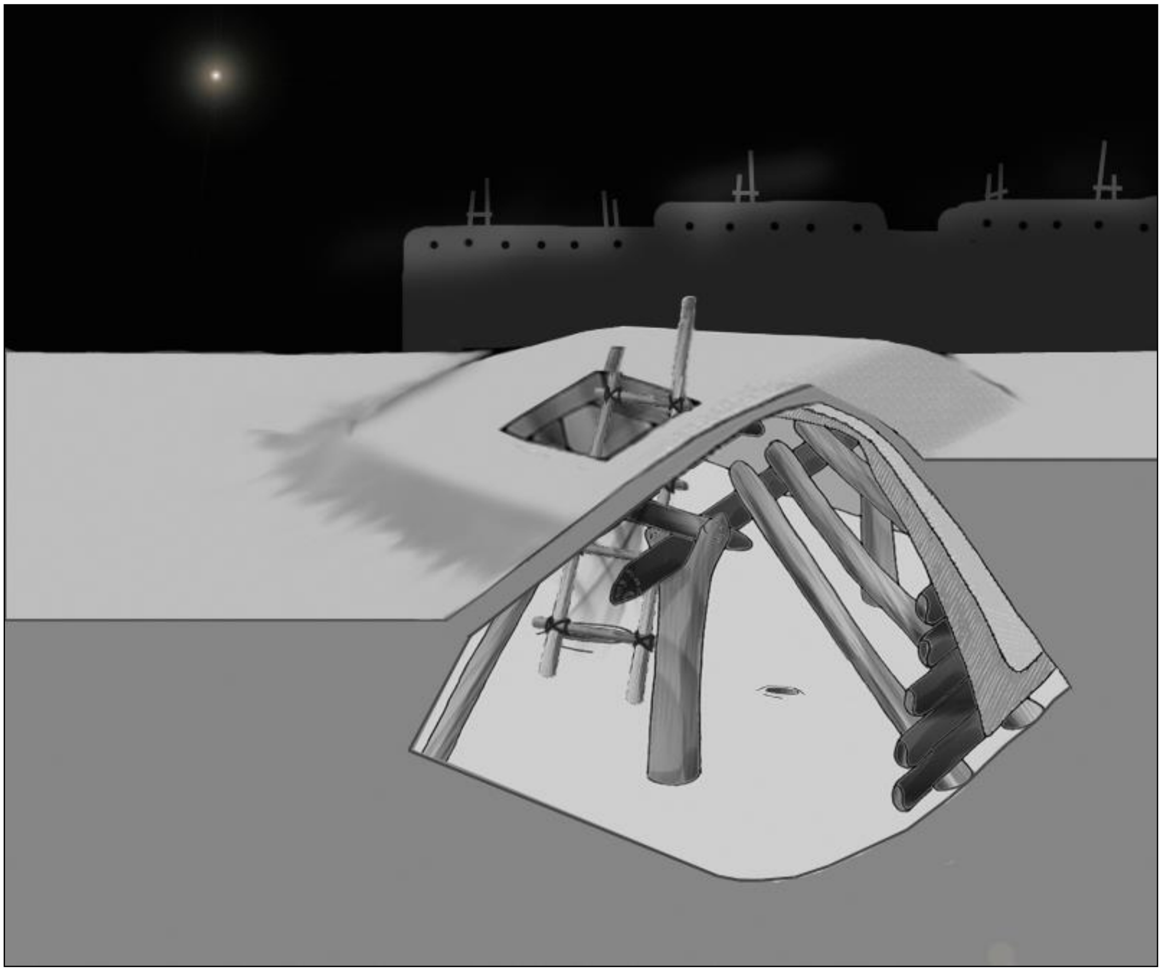

Figure 5.5. Artist's reconstruction of an idealized, Classic period kiva.

Great Kivas. Great kivas were large, semi-subterranean structures, often with ramped entries; early forms are circular or ovoid and later ones more rectangular (see Figure 5.6). The earliest examples date to the Cumbre phase, and the tradition did not last beyond the Three Circle phase. Interior features include floor vaults (sometimes called foot drums), *sipapus*, and other esotera. During the latter half of the tenth century, great kivas throughout the Mimbres region were burned, perhaps in a coordinated, ceremonial event (Creel and Anyon 2003). A few new great kivas were later built, but these were soon abandoned and allowed to deteriorate. The size of Mimbres great kivas suggests large-scale integration, perhaps even accommodating all the residents of a given village (Shafer 2006:18). Anyon and LeBlanc (1980:256) suggested that great kivas were ultimately replaced with open plazas. The ceremonies conducted in great kivas could have been moved outdoors, but the layout at some pre-Classic villages suggests that open plazas had been in use for some time (see Figures 3.8, 3.14, and 3.18 for examples).

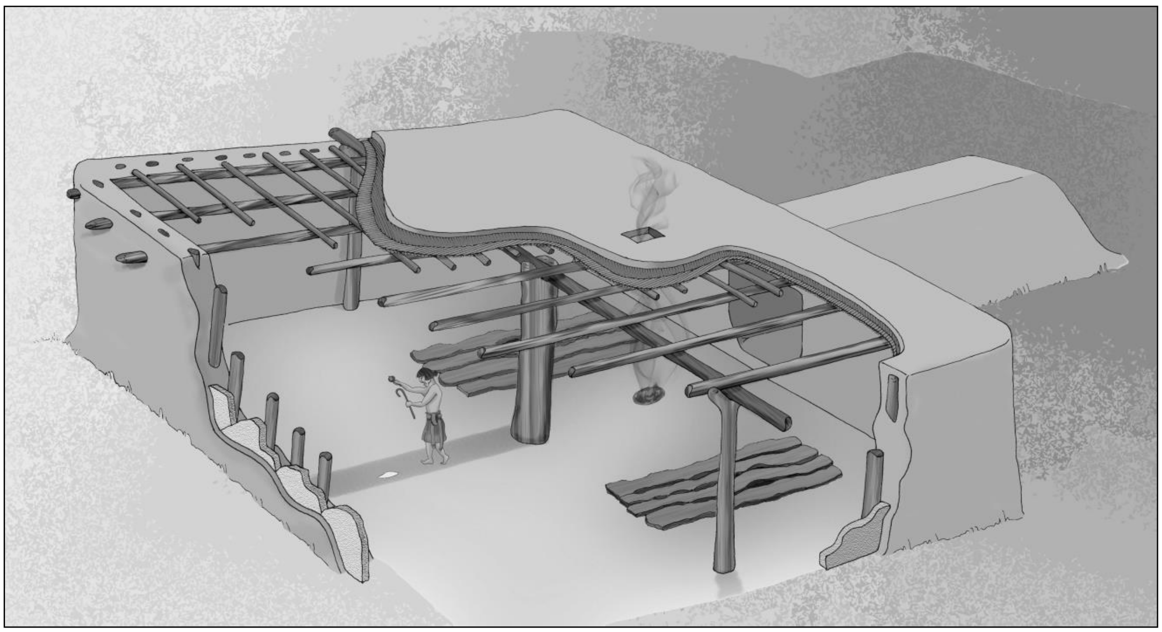

Figure 5.6. Artist's reconstruction of a Three Circle phase great kiva (Structure A16 at Old Town; after Nelson and Hegmon 2010:Plate 9).

Ceremonial Rooms. Ceremonial rooms, introduced during the Classic period, were above-ground, roofed enclosures, embedded within larger pueblo roomblocks (see Figure 5.7). Rapson and Gilman (1981) analyzed Classic period room sizes and found a trimodal distribution, the largest category having a floor area greater than 26 m^2. Anyon and LeBlanc (1984:139) suggested that rooms in this category likely served ceremonial purposes (see also Clayton 2006). Most of the ceremonial rooms considered in the analyses here are of this size. A few smaller, above-ground rooms are also classified as ceremonial because of sub-features and/or artifact assemblages.[10]

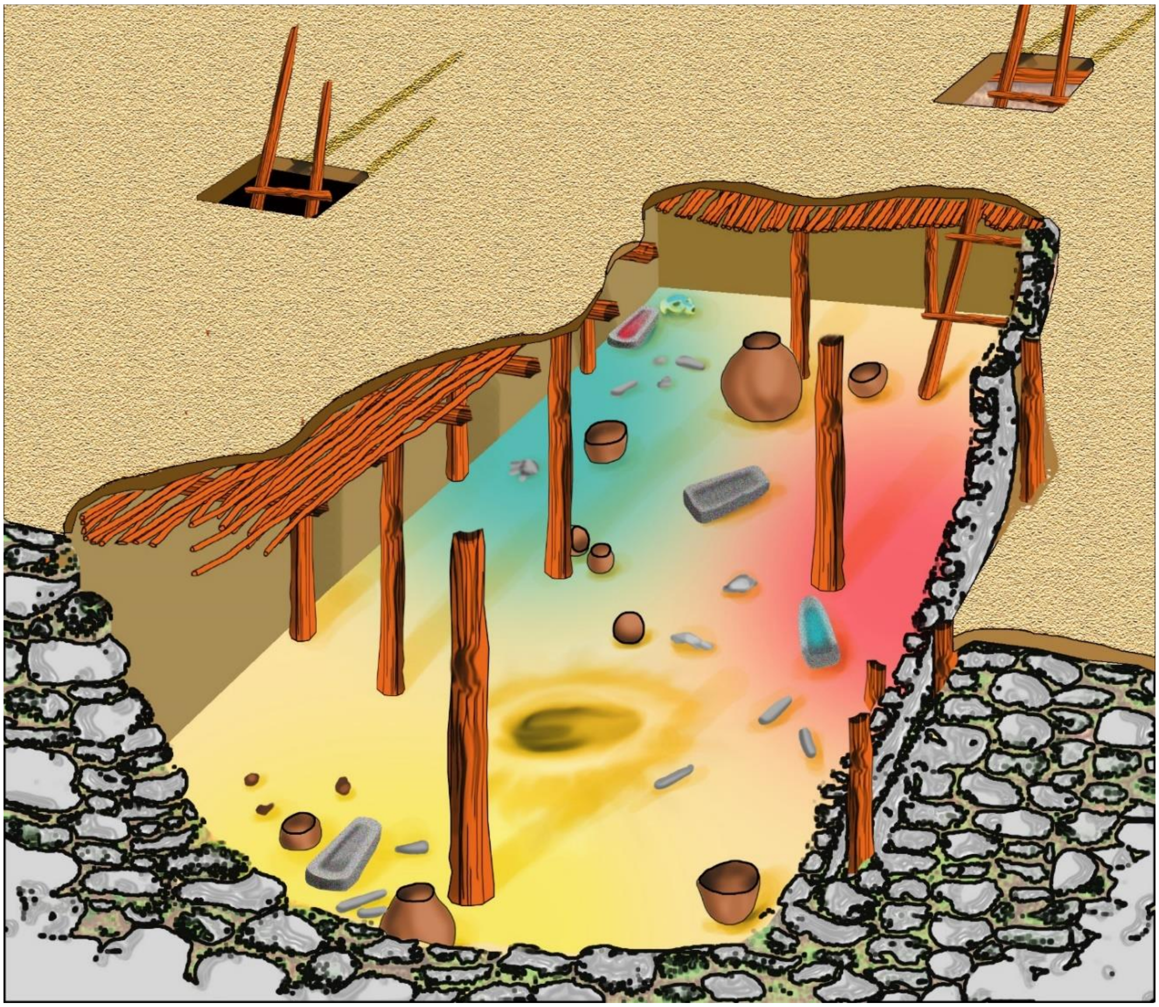

Figure 5.7. Artist's reconstruction of a Classic period ceremonial room (Room 35 at Flying Fish Village; after Nelson and Hegmon 2010:Plate 10; note the turquoise-coated badger skull in one corner).

Enclosed Plazas. Enclosed plazas can be described as unroofed versions of Classic period ceremonial rooms; these too were limited to the Classic period. Like ceremonial rooms, they were generally large, and always embedded within, or attached

[10] All of the NAN Ranch rooms that Shafer (2003) refers to as kivas are classified as ceremonial rooms in this study.

to, roomblocks. Also like ceremonial rooms, enclosed plazas generally had formal floors and, in some cases, esoteric sub-features such as low, geometric platforms (e.g., Cosgrove and Cosgrove 1932:21).

I use information on the above types of structures to investigate differences, and possible inequalities, in access to ritual at scales above that of the household. Architectural analyses consider three general dimensions per social scale: the kind(s) of ceremonial structure(s) present, the relative frequency of ceremonial structures, and the proportion of ceremonial space. Data derive from 89 ceremonial structures at the seven sites (see Appendix XX). Most of these were identified previously, either by the original excavators, later researchers, or in regional compendia, as referenced in Appendix XX. The list also includes 17 structures not previously classified as ceremonial in nature. In some cases, this re-classification is based on special treatment of the room. For example, when Room 15 at Mattocks was retired, several decorated vessels were placed on the floor. Two contained unidentified plant materials, and one contained a "geode rattle," 11 quartz crystals, two projectile points, a squirrel skull, a sheet of gypsum, and two pendants, one of quartz (Gilman and LeBlanc 2016). In other cases (e.g., Room 109 at NAN Ranch and Room 64 at Galaz) rooms are re-classified as ceremonial because of their large size (i.e., > 26 m^2).

Part II: Ritual Inequality at the Individual Scale

This section considers differences in ritual access, at the individual scale, by examining the mortuary distribution of two artifact classes: *restricted ritual* *paraphernalia* and *vessels depicting ceremonies*. The placement of individual burials within ceremonial structures is also considered, and the combined lines of evidence support the interpretation that such placement is indicative of privileged ritual access. Data derive from 3,143 burial assemblages, recovered from the seven study sites.

Restricted Ritual Paraphernalia

Although many burials contain items that were likely used in rituals (e.g., shells, turquoise, ochre), this analysis focuses on restricted ritual paraphernalia, that is, those items that would only have been used by ritual specialists. Of the 3,143 burials in the sample, 16 were accompanied by a total of 50 such specialized items. The 16 burials and their restricted ritual paraphernalia are listed in Table 5.1, while additional data are presented in Appendix XXI. Two of the burials (29-6-27[1] and [2], at Galaz) were encountered in a single grave, while the others were buried individually.

Table 5.1. Burials with restricted ritual paraphernalia. (See Appendix XXI for additional details).

Time	Site	Burial	Restricted Ritual Paraphernalia
Classic	Galaz	15-152	1 quartz crystal
		15-19	2 quartz crystal fragments
	NAN Ranch	[41-F]	1 quartz crystal, drilled longitudinally
	Swarts	63(11)	4 quartz crystals
	Mattocks	6	5 perforated crinoid fossils
Three Circle	Wind Mountain	102	1 quartz crystal, 1 drilled speleothem
	Galaz	29-6-23[11]	1 quartz crystal, 1 decorated ladle
		29-4-3	1 quartz crystal
		29-6-27[1], [2]	1 quartz crystal
		15-416	1 quartz crystal
	Harris Village	1 (UNLV)	24 quartz crystals
San Francisco to Three Circle	NAN Ranch	127	1 cloud-blower, 1 quartz crystal, 1 turtle plastron
San Francisco	Wind Mountain	RO-8	1 cloud-blower
Cumbre to San Francisco	Wind Mountain	RO-1	1 cloud-blower
		RO-2	1 cloud-blower

The relative paucity of restricted ritual paraphernalia in burial assemblages is consistent with the nature and disposition of "inalienable objects" (*sensu* Weiner 1992), which are usually passed down from one generation to the next, rarely entering the archaeological record (see Mills 2004; Walker 1999). This rarity supports the interpretation that access to these objects was restricted. Even among burials with restricted ritual paraphernalia, some had considerably more than others. Seven of the 16 had more than one item of restricted ritual paraphernalia. Three of the 16 had two or more objects, from separate paraphernalia classes. For example, Burial 102 at Wind Mountain had a crystal and a fossil. Four of the 16 had two or more objects from the same paraphernalia class. Burial 6 at Mattocks, for instance, was accompanied by five fossils.

The most common restricted ritual paraphernalia in Mimbres burials were quartz crystals (n = 38), found in 11 of the 16 burials. In eight of those cases, crystals were the only restricted ritual paraphernalia present. Geologically, crystals are not especially rare in the Mimbres region (see Vaskys and Freed 2008), yet very few were included in Mimbres burials. This suggests that crystals held special significance, and that there may have been social rules governing their possession, much as there has been historically. In three burials, crystals co-occurred with other restricted ritual paraphernalia (i.e., cloud-blower, turtle shell, speleothem).

Half of the individuals buried with crystals were children, most under the age of two. One child, at Harris Village, was buried with 24 crystals. It is doubtful that children this young could have attained status as ritual practitioners. Ethnographically, however, shamanic qualities and capabilities were often considered hereditary, and children could be viewed as future healers or seers, despite their age and lack of training (see Farish 1918:278; Spier 1928:277; Stenn 1956:185; Stewart 1974:218). Other occurrences or characteristics, noted at the time of birth, could likewise foretell ritual prowess. For example, Talayesva (1942:33) reported omens at the time of his birth and said that it

> "was anticipated … that I would have a special power to protect myself, do many strange things before the people, and be able to heal certain diseases, even as a boy. My mother, father, and grandfather made careful note of these signs and sayings and were prepared to fill my mind with them as soon as I could know anything."

Aside from quartz crystals, the most common restricted ritual paraphernalia were perforated crinoid stems (n = 5), although all came from a single burial. There were also four cloud-blowers, recovered from four separate burials. The remaining items of restricted ritual paraphernalia consisted of one drilled speleothem, a Mimbres Black-on-white ladle, and a large turtle shell.

Three of the burials with restricted ritual paraphernalia had no other artifacts, and two of the three had several things in common: both were adults, encountered at the southern end of Wind Mountain, pre-dated the Classic period, and held a single cloud-blower. The third, at Galaz, had a single quartz crystal.

The majority of burials with restricted ritual paraphernalia (n = 13) did include other artifacts, making them better provisioned than most Mimbres burials. Eight included pottery vessels, and in four of those cases, two or more vessels were present. In contrast, most Mimbres burials have only one vessel (see Chapter 7; Gilman 1990). Accompanying artifacts included not only vessels, but also palettes, projectile points, ochre, and a substantial amount of jewelry. For example, Burial 1 at Harris Village contained 24 quartz crystals, a *Glycymeris* bracelet, an unworked *Glycymeris* shell, a shell pendant, eight turquoise tesserae, and four vessels, two of which were decorated (Roth and Baustian 2015:Table 2). Three of the burials with restricted ritual paraphernalia had additional items that were probably ritual in nature. These included a perforated projectile point, yellow ochre, and three groundstone palettes. However, ethnographic data do not indicate that such objects were used by ritual specialists alone. Thus, they are not counted as restricted ritual paraphernalia in the present study. Burials with restricted ritual paraphernalia cross-cut various age and sex categories, and there are no clear associations between personal characteristics and types of restricted ritual paraphernalia. Six of the 16 individuals were children (sex indeterminate) and nine were adults: four male, one female, and one potentially female.

Burials with restricted ritual paraphernalia range from possibly as early as the Cumbre phase to the Classic period. The relative frequency of such burials by time period (Table 5.2) decreases over time, and the statistical significance of the differences between phases is evaluated with a series of two-tailed Fisher’s exact tests (detailed in Appendix XXII). The downward trend is illustrated in Figure 5.8.

Table 5.2. Proportions of burials with restricted ritual paraphernalia, by time

Period [A]	N Burials in Sample	N Burials in Sample w/restricted ritual paraphernalia	Proportion of Burials in Sample w/restricted ritual paraphernalia (%)
Classic period	2,237	7	0.31
Three Circle phase	180 [B]	4 [C]	2.22
San Fran. - Three Circle	251 [D]	1 [E]	0.40
San Francisco phase	26	1	3.85
Cumbre - San Francisco	49 [F]	2 [G]	4.08

[A] Data are provided only for those periods to which burials with restricted ritual paraphernalia were dated
[B] All burials dating between 750 and 1000 C.E. (i.e., Three Circle phase, "Transitional" phase/period, "Mangas" phase/period)
[C] Burials having restricted ritual paraphernalia and dating to the Three Circle phase
[D] All burials dating between 650 and 1000 C.E. (i.e., San Francisco phase, "San Francisco-Three Circle", Three Circle phase, "Transitional" phase/period, and "Mangas" phase/period)
[E] Burials having restricted ritual paraphernalia and which could only be dated to between 650 and 1000 C.E.
[F] All burials dating between 200 and 750 C.E. (i.e., Cumbre phase, "Cumbre-Georgetown", "Cumbre-San Francisco", Georgetown phase, "Georgetown-San Francisco", San Francisco phase
[G] Burials having restricted ritual paraphernalia and which date to the "Cumbre-San Francisco" range

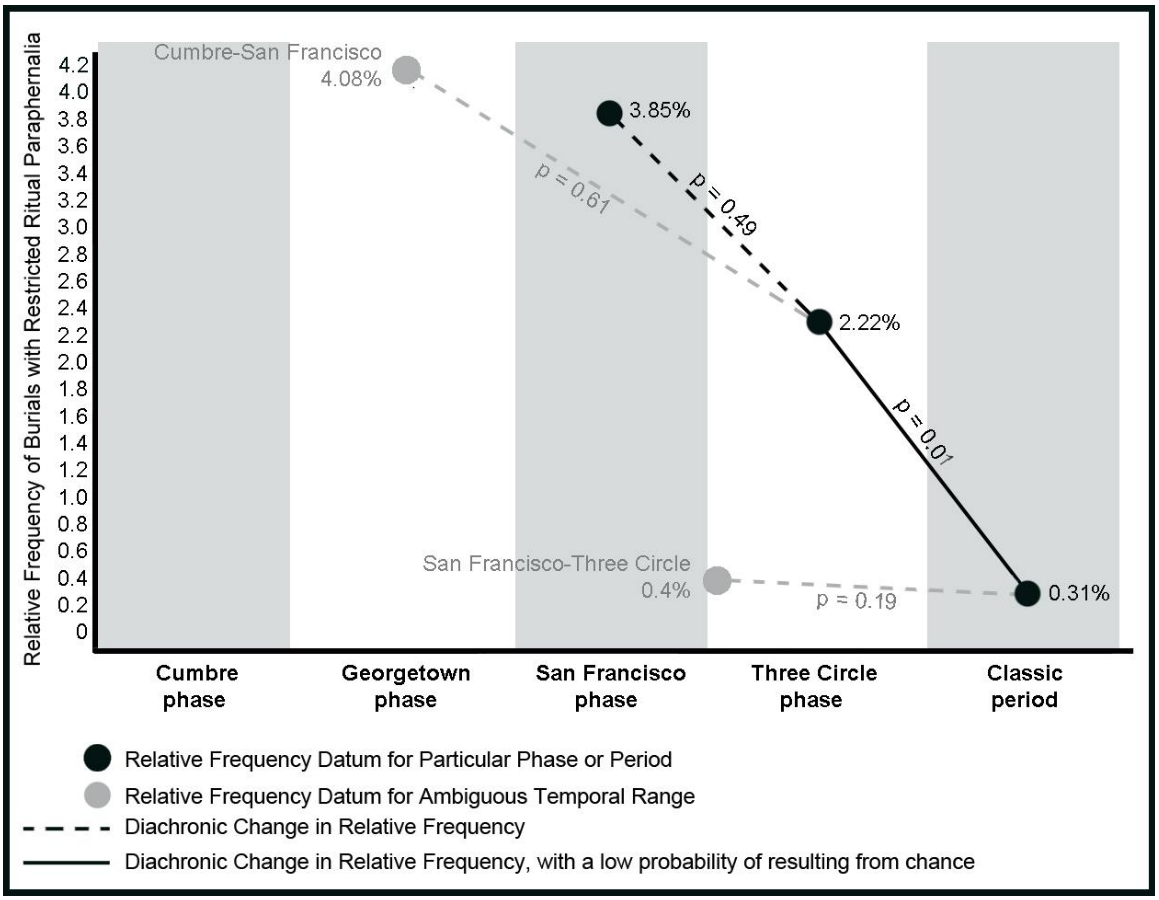

Figure 5.8. Diachronic changes in the proportion of burials with restricted ritual paraphernalia

Vessels Depicting Ceremonies

Many Mimbres graves, especially those dating to the Classic period, include decorated pottery vessels. The 3,143 burials considered in the analysis contained a total of 2,877 painted vessels, 784 of which have representational designs. However, only 10 of these depict ceremonial activities. Relevant parts of the designs are reproduced in Figure 5.4, above. Basic data on the 10 bowls are provided in Table 5.3, and additional details are presented in Appendix XXIII. The 10 vessels depicting ceremonies were found with 10 different burials, all inhumations that date to the Classic period. Sex was determinable for only two of these, both male. Age at death was determined for nine of the 10 individuals: two infants, two children, and five adults. As was the case with restricted ritual paraphernalia, the sparse data on vessels depicting ceremonies show no strong association with any particular age or sex.

Table 5.3. Vessels depicting ceremonies

MimPIDD No.	**Site**	**Style [A]**
3641	Mattocks	Polychrome
7612	NAN Ranch	Middle-late Style III
1308	Cameron Creek	Middle Style III
2794	Galaz	Middle Style III
9373	Mattocks	Middle Style III
2670	Swarts	Middle Style III
7682	NAN Ranch	Style III
2683	Swarts	Style III
7674	NAN Ranch	Early Style III
2696	Swarts	Style II/III-Late Style III

[A] after Shafer and Brewington 1995; see Figure 3.3

Burial in Ceremonial Architecture

Some individuals were buried in ceremonial architecture, and they are tentatively interpreted as having privileged access to ritual. Such placement is not especially uncommon; across all time periods, 15 percent of the burials in the sample were placed in ceremonial structures (471 out of 3,143). The data are divided temporally in Table 5.4, and show that the relative frequency of such placement fluctuates over time. However, there is little difference when comparing the Classic period (18.86 percent) and the pre-Classic era (15.96 percent).

Table 5.4. Frequency of burials in ceremonial architecture

	N Burials Relative to Ceremonial Features			**Relative**
Time	**Inside** [A]	**Elsewhere** [B]	**Total**	**Frequency** [C]
Classic period	412	1,772	2,184	18.86
Three Circle phase [D]	34	185	219	15.53
San Francisco phase	5	19	24	20.83
Georgetown phase	1	5	6	16.67
Cumbre phase	0	3	3	0.00
Other pre-Classic [E]	13	120	133	9.77

[A] Number of burials placed inside ceremonial architecture
[B] Number of burials not placed in ceremonial architecture, including extramural burials
[C] Percentage of burials placed in ceremonial architecture
[D] Including Mangas/Transitional phase burials
[E] Burials known to predate 1000 C.E., but which are not reflected elsewhere in this table

As noted previously, restricted ritual paraphernalia and vessels depicting ceremonies were associated with persons of all ages and both sexes. These attributes are also examined with regard to burial location. To this end, burials are classified as either (A) having been placed in ceremonial architecture, or (B) having been placed anywhere else. The prevalence of male and female burials is compared across categories, using a series of Fisher's exact tests to assess differences. This process, detailed in Appendix

XXIV, indicates there is no significant difference between samples; neither males nor females were preferentially interred in ceremonial space. Similarly, the prevalence of adults, children, infants, and sub-adults (children and infants combined) are compared across categories. Differences are assessed using a series of z-tests (see Appendix XXV), which suggests that age, like sex, was not a determining factor in whether people were buried in ceremonial architecture.

Comparison of Lines of Evidence and Summary

As noted above, the interpretation that burial in ceremonial architecture indicates privileged access to ritual is tentative. In the Mimbres area and other parts of the Southwest, burials in ceremonial structures have been interpreted in a number of ways, not all of which are consistent with ritual specialization. The association of such burials with restricted ritual paraphernalia or vessels depicting ceremonies can be used to examine the inference of privileged ritual access and add nuance to the interpretation of both rare artifact classes.

No burial had both restricted ritual paraphernalia and a vessel depicting ceremony. The 10 burials with vessels depicting ceremonies came from five sites: Cameron Creek, Galaz, Mattocks, NAN Ranch, and Swarts. Of the 2,231 burials excavated at these sites, 398 were in ceremonial architecture (17.8 percent). However, burials with vessels depicting ceremonies were placed in ceremonial architecture far more frequently (40 percent; [4 of 10]).

Sixteen burials (in 15 graves) had restricted ritual paraphernalia, and these came from six sites: Galaz, Harris, Mattocks, NAN Ranch, Swarts, and Wind Mountain. Of the 2,895 burials excavated at these six sites, 381 were encountered in ceremonial architecture (13.2 percent). Two of the 15 graves with restricted ritual paraphernalia came from ceremonial structures (13.3 percent), resulting in a relative frequency that is nearly identical to that of the larger sample ($p = 1.00$, Fisher's exact test, two-tailed).

Thus, there is some indication that vessels depicting ceremonies were placed in ceremonially-situated burials at a higher rate than in burials elsewhere, but no such association exists between restricted ritual paraphernalia and burials in ceremonial spaces. Given the small sample sizes, the apparently special treatment of burials with vessels depicting ceremonies is not statistically significant ($p = 0.25$; Fisher's exact test, two-tailed). Nevertheless, the fact that some of the burials in these ceremonial structures have artifacts indicative of privileged access to ritual strengthens the interpretation that this burial placement is also indicative of privileged access to ritual.

In summary, this section examined three lines of evidence regarding privileged ritual access at the individual scale, drawing on a sample of 3,143 burials. Results point to three conclusions. First, the lines of evidence – burial with restricted ritual paraphernalia, burial with vessels depicting ceremonies, and burial in special ceremonial structures – presuppose that access to ritual was uneven; restricted ritual paraphernalia are, by definition, restricted. The results of the analyses bear out this presupposition in several respects. First, restricted ritual paraphernalia and vessels depicting ceremonies were rare, occurring with only 16 and 10 burials, respectively. Furthermore, restricted ritual paraphernalia were concentrated in a few graves, one having as many as 24 such objects. Finally, although burial in ceremonial architecture was somewhat more common, it was still restricted to about 15 percent of the burial population.

Second, both restricted ritual paraphernalia and burial in ceremonial architecture occur throughout the Mimbres sequence; restricted ritual paraphernalia may appear in graves as early as the Cumbre phase, and burial in ceremonial architecture dates at least to the Georgetown phase. Both practices change over time, but their trajectories are not parallel; restricted ritual paraphernalia decline in relative frequency over time while burials in ceremonial architecture becomes more common. Most importantly, evidence of ritual inequality, at the individual scale, is present early in the Mimbres sequence and changes little between the pre-Classic era and the Classic period.

Third, all three lines of evidence pertaining to privileged access to ritual occur with all ages and are not definitively associated with either sex. Clearly, some of these individuals (especially infants) could not have been ritual practitioners. According to ethnographic accounts, however, the traits necessary to become a ritual specialist were at times passed down within lineages or noted at birth, such that some children might be recognized at birth as an heir apparent to ritual office.

Evidence of individual-scale, ritual inequality is not surprising, given that ritual knowledge continues to function as one of the primary media of social differentiation among modern Pueblos. As Ware (2014) recently stressed, however, the ritual efforts, effects, and status associated with ritual inequality are often couched, among the Pueblos, in collectives of individuals, including households, lineages, sodalities, and communities. In Parts III, IV, and V, I examine differences at such supra-individual scales.

Part III: Ritual Inequality at the Household Scale

In Part II, I showed that restricted ritual paraphernalia and vessels depicting ceremonies are exceedingly rare among Mimbres burials. These items, I suggest, mark individuals who had more ritual knowledge and access – potential, latent, or realized – than others. Although there are some ritual practitioners who operate alone in the Southwest, privileged ritual access often operates at scales above that of the individual. That is, specialists often cooperate in ritual sodalities of various scopes and kinds (see Ware 2014, Ware and Blinman 2000). Frequently, such cooperation involves familial connections, and experienced ritualists often select younger relatives as apprentices. These practices can produce multi-generational synergy between religious-political authority and specific lineages. Also, in many societies, religious powers and abilities accrue in particular lineages, inherited from one generation to the next. For these reasons, it is worthwhile to examine evidence of ritual inequality at and above the scale of household.

As explained in Chapters 3 and 4, pre-Classic, domestic pithouses are equated with households. During the Classic period, however, discrete households are not so easily identified; thus the present analysis uses domestic pueblo rooms as an imperfect proxy for Classic period evidence. The analysis seeks to determine whether certain households had more burials with restricted ritual paraphernalia or vessels depicting ceremonies than others. Differences in the relative frequency of such burials is interpreted as evidence of disparate access, at the household scale, to ritual knowledge.

Restricted Ritual Paraphernalia and Vessels Depicting Ceremonies

Restricted Ritual Paraphernalia. The 16 burials with restricted ritual paraphernalia were widely distributed, and only one household had more than one. Specifically, three of the graves at Galaz with restricted ritual paraphernalia were associated with Pithouse 29. Although this feature clearly predates the Classic period, only one of its 17 associated burials included diagnostic pottery, which dates to the Three Circle phase.[11] The structure was unusual in two additional respects. For a pre-Classic household, it had a relatively large number of intramural burials. It was also the site's only pithouse with evidence of substantial remodeling. Both attributes speak to the household's antecedence (see Chapter 3). Within Pithouse 29, one of the three graves with restricted ritual paraphernalia contained two individuals. Thus, four of the seven burials at Galaz that were accompanied by restricted ritual paraphernalia were associated with a single household. The burials in Pithouse 29 may represent a lineage of ritual specialists, perhaps multigenerational. Although the household accounts for one quarter of all burials with restricted ritual paraphernalia, the remaining burials with restricted ritual paraphernalia were widely distributed.

Vessels Depicting Ceremonies. Within the sample, no rooms contained two or more burials with vessels depicting ceremonies. What is more, none of the 10 rooms with

[11] Two Style I bowls and one late Style I-to-early Style II bowl.

such burials were adjacent, which might have suggested co-membership in a single household. Thus, the only evidence to suggest household-scale inequality in access to vessels depicting ceremonies is the presence of burials with such items in some houses and the absence of such burials in others.

Primacy and Antecedence. Residential primacy is empirically determinable at three sites: Galaz, Mattocks, and NAN Ranch. Evidence of antecedence is spatially clustered at four sites: Cameron Creek, Galaz, Mattocks, and Swarts (see Chapter 3). Thus, at these sites, the mortuary distribution of restricted ritual paraphernalia and vessels depicting ceremonies can be compared to primacy and antecedence. Correspondence is rare but not unheard of. At Galaz, for example, all but one of the pre-Classic burials with restricted ritual paraphernalia came from the site's antecedent (South) locus. At Swarts, two of the three Classic period burials with vessels depicting ceremonies came from the site's North Roomblock, which had more evidence of antecedence than did the South Roomblock. However, other sites evidence no link between primacy or antecedence on one hand and these special objects on the other.

Part IV: Ritual Inequality at the Locus Scale

The analyses presented in Parts II and III suggest that ritual inequality was clearly manifest at the individual scale – at least as early as the San Francisco phase – and potentially at the scale of household. This section broadens the scale of analysis to that of the residential cluster or locus. During the pre-Classic era, loci are recognized as pithouse clusters, whereas during the Classic period, pueblo roomblocks constitute loci. At this scale, it is possible to examine inter-locus differences in access to ceremonial architecture, as well as restricted ritual paraphernalia and vessels depicting ceremonies.

Restricted Ritual Paraphernalia and Vessels Depicting Ceremonies

Restricted ritual paraphernalia. Here, relative frequencies of restricted ritual paraphernalia are used to compare loci. Consider, for example, the Classic period burials with restricted ritual paraphernalia at Galaz. In the Southeast Locus, two out of 137 individuals were buried with restricted ritual paraphernalia (1.46 percent), whereas none of the 169 people buried in the Northwest Locus had such items. A two-tailed Fisher's exact test indicates that this inter-locus difference has a high probability of resulting from chance ($p = 0.20$). This process is repeated for all sites and periods in which restricted ritual paraphernalia have been identified, and the results are presented in Appendices XXVI through XXXII. At every site but one, burials with restricted ritual paraphernalia were limited to just one locus (see Appendix XXI). This suggests inequality among loci, although sample sizes are generally so small as to preclude statistical confirmation of differences. The sole exception was at Galaz, during the Three Circle phase. At this time, burials with restricted ritual paraphernalia were placed in two loci: South and East. The South Locus, with four out of five such burials, was the site's most antecedent locus. The relative frequency of such burials in this sector was significantly higher than that of the founding (Northwest) locus ($p = 0.05$; see Appendix XXVIII). The East Locus, with the site's only other such burial, would soon become the most antecedent locus (i.e., after 1000 C.E.).

Overall, the distribution of restricted ritual paraphernalia provides evidence of locus-scale inequality in access to ritual, beginning as early as the San Francisco phase and continuing into the Classic period. For the most part, locus-scale inequality in this realm is unassociated with primacy and antecedence. As noted above, however, restricted ritual paraphernalia, in mortuary contexts, was preferentially associated with antecedence at Galaz, and is anticorrelated with primacy.

Vessels Depicting Ceremonies. The same analysis is performed using data on vessels depicting ceremonies, all of which date to the Classic period. At two sites – NAN Ranch and Swarts – burials with such vessels were encountered in two different loci. At the other three sites (Mattocks, Cameron Creek, and Galaz), vessels depicting ceremonies were encountered in just one locus. This is potentially indicative of locus-scale inequality, but sample sizes are too small for statistical assessment. The analysis does, however, identify several significant differences at Mattocks (see Appendix XXXIII). The 300s Roomblock had two burials with vessels depicting ceremonies, whereas all other loci had none. In comparison to the 100s, 400s (most antecedent), and Southeast (founding) loci, this difference is found to have a relatively low probability of resulting from chance ($p \leq 0.07$).

Considering all seven sites, throughout the Mimbres sequence, there are 12 instances wherein loci had burials with restricted ritual paraphernalia or vessels depicting ceremonies at a particular time (see Table 5.5). In three of the 12 cases, these items are found in two contemporaneous loci, whereas in the other nine instances, they are in just one locus. The pattern is difficult to assess statistically because the sites have differing numbers of loci, which have undergone varying degrees of looting, bulldozing, excavation, and recording. However, the fact that these special objects never appeared in more than two loci – and generally no more than one – suggests inequality in access to ritual at the locus scale.

Table 5.5. Number of loci, per time and site, where people were buried with restricted ritual paraphernalia or vessels depicting ceremonies. (Red text corresponds with locus-scale antecedence. There is no correspondence with locus-scale primacy).

Instance	Site	Time	Artifacts [A]	N Loci w/Artifacts	Loci w/Artifacts	Appendix
1	Wind Mtn.	San Francisco	RRP	1 (of 4)	South	XXVI
2	Wind Mtn.	Three Circle	RRP	1 (of 3)	S. Central	XXVII
3	Galaz	Three Circle	RRP	2 (of 6)	East, **South**	XXVIII
4	Harris	Three Circle	RRP	1 (of 7)	West	XXIX
5	Mattocks	Classic	RRP	1 (of 7) [B]	Unknown [C]	n/a
6	Galaz	Classic	RRP	1 (of 5)	**Southeast**	XXX
7	Galaz	Classic	VDC	1 (of 5)	Southwest	XXXVI
8	NAN Ranch	Classic	RRP	1 (of 4)	East	XXXI
9	NAN Ranch	Classic	VDC	2 (of 4)	East, South	XXXIV
10	Swarts	Classic	RRP	1 (of 2)	South	XXXII
11	Swarts	Classic	VDC	2 (of 2)	South, **North**	XXXVII
12	Cameron Cr.	Classic	VDC	1 (of 4)	South	XXXV

[A] RRP = restricted ritual paraphernalia; VDC = vessel depicting ceremony

[B] Mattocks had, during the Classic period, at least eight roomblocks (i.e., the 100s, 200s, 300s, 400s, Southeast, North, Northwest, and South roomblocks), but only seven have had some degree of professional excavation.

[C] Only one burial with restricted ritual paraphernalia was encountered at Mattocks; Burial 6, in Room 64. The burial was excavated by Nesbitt (1931), but its placement within the site is currently unknown.

Primacy and Antecedence. In Chapter 3, founding loci were identified at Galaz (Northwest), Mattocks (Southeast), and NAN Ranch (Southeast); preeminently-antecedent loci were identified at Cameron Creek (North, North/East), Galaz (South, East), Mattocks (400s), and Swarts (North). Unfortunately, site-level data on primacy and antecedence coexist at only two of the seven sites – Galaz and Mattocks – and at both of these villages, evidence of primacy and antecedence are clearly associated with different loci. This is counterintuitive and suggests that over the course of the Late Pithouse period, antecedence was being established and asserted by groups living in non-founding loci. Such efforts are documented ethnographically, and one of the most common means to this end involves – perhaps requires – the manipulation of religious institutions to defend change and garner moral authority (see Chapters 2 and 8).

Of the 26 burials (in 25 graves) with restricted ritual paraphernalia or vessels depicting ceremonies, 16 came from the three sites where founding loci are known (Galaz, Mattocks, and NAN Ranch). These 16 burials were divided among 13 domestic spaces, none of which were in a founding locus (see Table 5.6). In half of the cases where locus-scale differences were significant, the locus with significantly *less* is the site's founding locus (see Appendices XXVII and XXXIII). Once again, the final deposition of these special objects with individuals is anticorrelated with primacy.

In contrast, there is some indication that burials with restricted ritual paraphernalia or vessels depicting ceremonies were more common in preeminently antecedent loci, which were identified at Cameron Creek, Galaz, Mattocks, and Swarts. At these sites, five of the 12 features with specially-provisioned burials came from the most antecedent loci (see Table 5.7). These five features contained half of the burials with restricted ritual paraphernalia or vessels depicting ceremonies at those sites, and nearly a third of such burials across the board. Of the four instances with statistically-compelling differences, two involve antecedent loci. At Galaz, for example, and during the Three Circle phase, the site's most antecedent (South) locus had a significantly higher relative frequency of burials with restricted ritual paraphernalia than did the site's founding (Northwest) locus (see Appendix XXVIII).

Table 5.6. Placement of burials with restricted ritual paraphernalia or vessels depicting ceremonies, in relation to locus-scale primacy

Site	Index [A]	Feature	Locus	In Founding Locus?
Galaz	RRP	29	S	**No**
		79	SE	**No**
		93	SE	**No**
		134	E	**No**
	VDC	8A	SW	**No**
Mattocks	RRP	64	Unknown	Unknown [B]
	VDC	21	300	**No**
		49	300	**No**
NAN Ranch	RRP	41	E	**No**
		86	South	**No**
	VDC	29A	South	**No**
		41	East	**No**
		47	East	**No**

[A] RRP = restricted ritual paraphernalia; VDC = vessel depicting ceremony
[B] Room 64 was excavated by Nesbitt (1931) and its location is not recorded

Table 5.7. Placement of burials with restricted ritual paraphernalia or vessels depicting ceremonies, in relation to locus-scale antecedence.

Site	Attribute [A]	Feature	Locus	In Most Antecedent Locus?
Cameron Cr.	VDC	119	South	No
Galaz	RRP	29	South	**Yes** [B]
		79	Southeast	No
		93	Southeast	No
		134	East	No [C]
	VDC	8A	Southwest	No
Mattocks	RRP	64	Unknown	Unknown
	VDC	21	300s	No
	VDC	49	300s	No
Swarts	RRP	11	South	No
	VDC	35	North	**Yes**
		64A	North	**Yes**
		B	South	No

[A] RRP = restricted ritual paraphernalia; VDC = vessel depicting ceremony
[B] Pithouse 29, at Galaz, contained four burials with restricted ritual paraphernalia
[C] Although the East Locus would emerge as the most antecedent locus during the Classic period

In sum, four general patterns emerge from the analyses described above. First, people in some loci were buried with restricted ritual paraphernalia or vessels depicting ceremonies, while people in other loci were not. Sample sizes are small, but in at least four cases, the odds of such a presence/absence dichotomy having resulted from chance are small (see Appendices XXVIII and XXXIII). Second, burials with restricted ritual paraphernalia or vessels depicting ceremonies were almost always limited to just one locus per village, and they were never found in more than two (see Table 5.5, Column 5). Third, burials with restricted ritual paraphernalia or vessels depicting ceremonies were never encountered in founding loci (see Table 5.6, Column 5). Finally, six of the 26 burials with restricted ritual paraphernalia or vessels depicting ceremonies came from the most antecedent loci (see Table 5.7, Column 5).

Interment in Ceremonial Architecture

Inter-locus differences in the relative frequency of placing burials in ceremonial space are evident and begin during the pre-Classic era. At Cameron Creek, for example, during the Three Circle Phase, five of the 11 burials in the South Locus (45 percent) are in that sector's great kiva, whereas none of the 10 burials in the North Locus are in that cluster's great kiva, which was considerably larger. However, a two-tailed Fisher's exact test indicates that the difference has a relatively high probability of resulting from chance ($p = 0.12$), which does not support an inference of locus-scale inequality. This process was repeated at each site, during each time period, and is detailed in Appendices XXXVIII through XLIX.

Within the sample, the earliest burial in ceremonial architecture dates to the Georgetown phase and was encountered at Harris Village. Burials dating to this time are rare, and the inter-locus difference in relative frequency, at Harris Village, has a high probability of resulting from chance ($p = 1.00$; see Appendix XXXVIII).

Seven San Francisco phase burials were encountered in ceremonial structures, all at Wind Mountain (see Appendix XXXIX). This marks the earliest point at which two or more loci had such burials. The site's South Locus was particularly striking, as all five of the cluster's burials came from its great kiva. The difference between this and the North Locus, which had no burials in ceremonial architecture, has a low probability of resulting from chance ($p = 0.05$) (and is uncannily similar to the Three Circle phase example from Cameron Creek). Furthermore, the South Locus' relative frequency was substantially higher than that of the Central Locus, which did have burials in ceremonial architecture ($p = 0.06$). These results indicate unequal access to ritual knowledge and practice.

Three Circle phase burials were found in ceremonial facilities at Cameron Creek and Galaz. At both sites, the majority of pre-Classic deposits cannot be dated to a particular phase. Thus, the analysis considers two temporal scales: the Three Circle phase alone (finer resolution, smaller sample; see Appendices XLI and XLII), and the pre-Classic era (broader resolution, larger sample; see Appendices XLIII and XLIV). At Cameron Creek, and considering only the Three Circle phase, loci differ in terms of the relative frequency of burials in ceremonial facilities (31 percent vs. 0 percent), although the difference has a high probability of resulting from chance ($p = 0.12$). In contrast, inter-locus differences at Galaz for Three Circle phase loci have a low probability of random occurrence. Specifically, only two of the site's six loci had burials in ceremonial architecture: Northwest and Southeast. The former is the site's founding locus, and the relative frequency of such burials here is nearly twice that of the Southeast Locus ($p = 0.04$). Six other comparisons reveal statistically-comparable differences (see Appendix XLII).

Parallel analyses, considering all pre-Classic deposits, produced similar results. At Cameron Creek, one locus had burials in ceremonial architecture and the other did not, the difference again having a high probability of resulting from to chance ($p = 0.15$; see Appendix XLIII). At Galaz, the Northwest (founding) and South (antecedent) loci are the only clusters with burials in ceremonial spaces, and differences between these and other loci are again unlikely to result from chance ($p < 0.01$; see Appendix XLIV). Furthermore, the founding locus has a far higher relative frequency than does the antecedent locus ($p < 0.01$).

Meaningful differences in the locus-scale, relative frequency of burials placed in ceremonial structures are far more common during the Classic period. This coincides with other changes in mortuary practice, including an increase in the relative frequency of placing burials in any form of architecture. Thus, more people are being buried indoors in general, but there is growing asymmetry with regard to the placement of burials in ceremonial space. Classic period burials were encountered in ceremonial architecture at five sites: Cameron Creek, Galaz, Mattocks, NAN Ranch, and Swarts (see Appendices XLV – XLIX). Fortunately, the founding and/or most antecedent loci are known at each of these sites (see Chapter 3). Of the five sites with burials in ceremonial structures, all but Cameron Creek had compelling inter-locus differences, although these differences are not consistently associated with either antecedence or primacy. At Galaz, the site's five loci can be ranked according to the relative frequency of such burials, and the Northwest (founding) locus had the most by far. At Mattocks, all differences with a low probability of resulting from chance involved comparisons of locus-scale presence and absence ($p \leq 0.08$); however, the earliest (Southeast) and most antecedent (400s) loci are not significantly different from others. At NAN Ranch, the East Roomblock's relative frequency was about 15 percent higher than that of the South Locus ($p = 0.08$). The founding (Southeast) locus was not significantly different from the other loci ($p = 1.00$). At Swarts, the most antecedent (North) roomblock had nearly twice as many burials in ceremonial structures as the South Roomblock ($p < 0.01$).

Classic period differences in the placement of burials in ceremonial architecture may correspond with differences in ceremonial structure type. Burials are more common in ceremonial rooms than in small kivas or enclosed plazas. For example, the two roomblocks at Swarts (North and South) have different kinds of ceremonial architecture and significant differences in the frequency of burials therein. Of the burials in the North Roomblock, 15.84 percent were in ceremonial structures, almost all of which were ceremonial rooms. In the South Roomblock, only 8.64 percent of burials were in ceremonial structures, most of which were enclosed plazas. At Galaz, the founding locus had only great kivas during the Late Pithouse period, only ceremonial rooms and plazas during the Classic period, and the highest relative frequency of burials in ceremonial architecture throughout the site's occupation. In contrast, the site's most antecedent (South) locus had the site's only small kiva before 1000 C.E.. During the Classic period, the only small kiva was again opposite the founding locus, in an area with far fewer ceremonial rooms, no enclosed plazas, and low frequencies of ceremonially-placed burials.

The analyses presented above show that perhaps as early as the Georgetown phase, and certainly no later than the Three Circle phase, there were clear differences between loci in the placement of burials in ceremonial architecture, and those differences became more pronounced through time. By the Classic period, such asymmetry was present in nearly every site with multiple loci, the sole exception being Cameron Creek. In some, but not all, cases, high frequencies of interment in ceremonial space coincided with evidence of primacy (e.g., Galaz) or preeminent antecedence (e.g., Swarts). Throughout the region, people living in certain loci may have been burying their ancestors in ceremonial structures in an effort to maintain or acquire moral authority. In some cases, such efforts seem to have articulated with the negotiation oyyyf antecedence.

Access to Ceremonial Architecture

In this section, I examine differences in locus-scale access to ceremonial architecture, over the course of the Mimbres sequence. The analysis considers three sets of variables. First is the number of different forms of ceremonial architecture in a locus at a given time (i.e., small kivas, great kivas, ceremonial rooms, enclosed plazas). Since these may have served different purposes, a locus with access to more types is interpreted as having had access to a wider portion of the ceremonial landscape. Second is the relative frequency of ceremonial facilities per locus, calculated as a proportion of the total number of rooms. Third is the relative amount of architectural space dedicated to ceremonial activity, calculated as a proportion of the locus' total floor area. Loci with larger proportions of ceremonial space are more likely to have been able to conduct ceremonies that could engage most or all residents simultaneously.

Kinds of Ceremonial Architecture. The types of ceremonial architecture encountered in each locus are listed in Appendix L. Prior to the Three Circle phase, all identified ceremonial architecture consisted of great kivas. During the Three Circle phase, small kivas appeared at some sites, including Galaz (see Figure 5.9, center), NAN Ranch (see Figure 5.10, left), and Old Town (see Creel 2006a:Figure 87). It was not until the Classic period that some loci had more than one form of ceremonial architecture, and no locus ever had more than two.[12] Only three pueblos had loci with two contemporaneous forms of ceremonial architecture: Cameron Creek, Galaz, and Swarts. At these three sites, richness in ceremonial architecture was distributed quite differently, suggesting varying degrees of inequality. At Cameron Creek, only one out of four roomblocks had two forms of ceremonial architecture (see Figure 5.11, right). At Galaz, three out of five loci had two forms, including the site's earliest (Northwest) sector (see Figure 5.9, right). At Swarts, both roomblocks had two forms of ceremonial architecture (see Figure 5.12, right).[13] Thus, evidence hints at unequal access to types of ceremonial architecture at the locus scale, but only in certain places and times.

[12] Although see discussion in Chapter 8 regarding corner-touching rooms as a possible form of ceremonial architecture.

[13] Although by the end of the Classic period, the North Roomblock's enclosed plaza had been built over, leaving the locus with only ceremonial rooms.

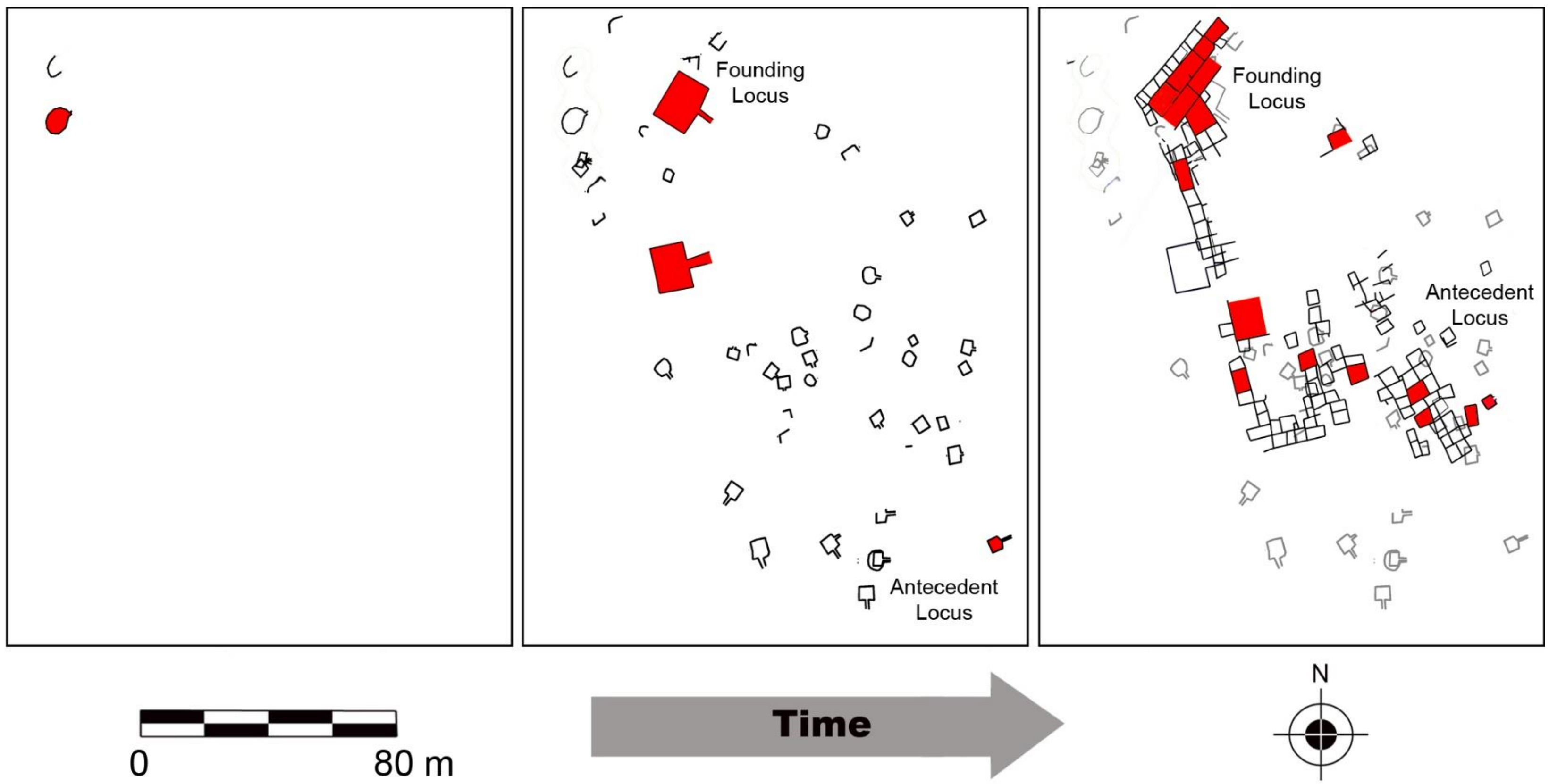

Figure 5.9. Location of ceremonial architecture (red) at Galaz Ruin, during the Georgetown phase (left), Three Circle phase (center), and Classic period (right), in relation to the site's earliest known architecture and various lines of evidence relating to antecedence. (Architecture after maps in Anyon and LeBlanc 1984).

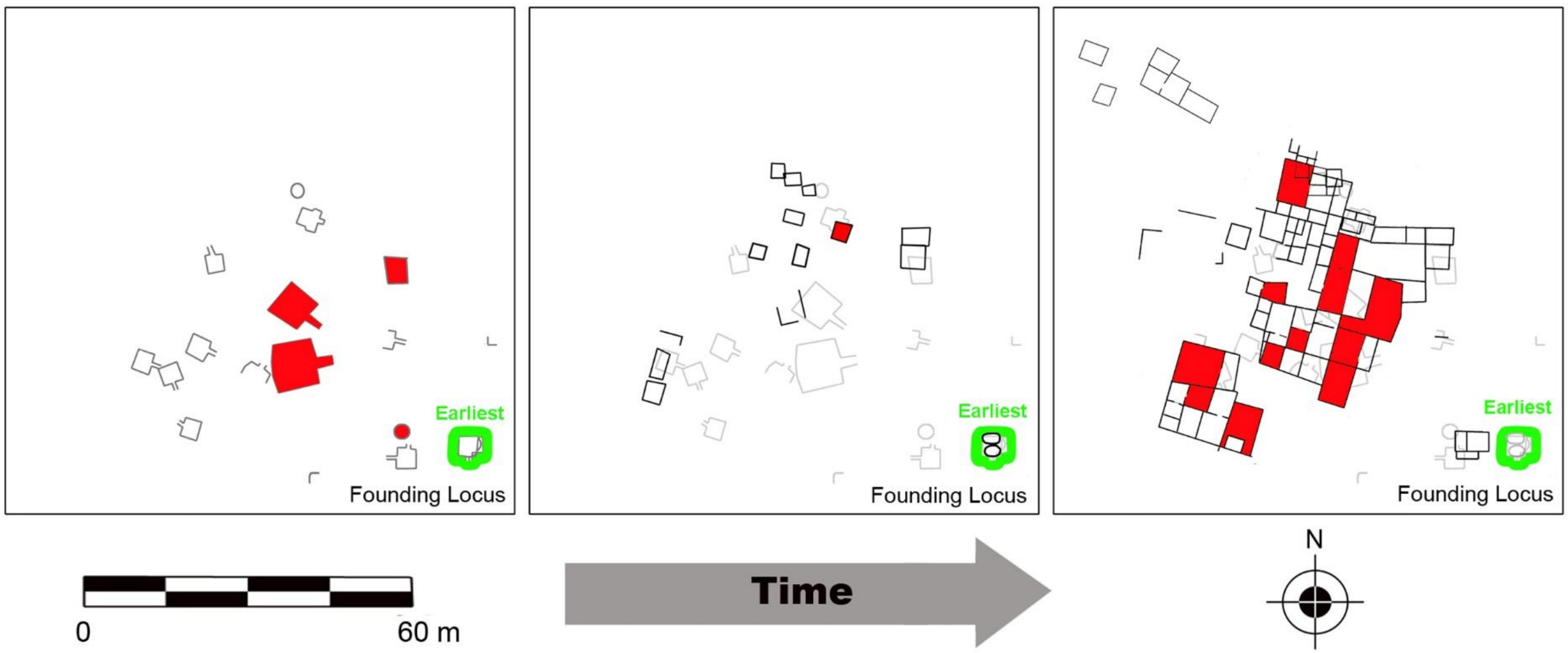

Figure 5.10. Location of ceremonial architecture (red) at NAN Ranch, during the Three Circle phase (left), Transitional phase (center), and Classic period (right), in relation to the site's earliest known architecture and various lines of evidence relating to antecedence. (Architecture after Shafer 2003:Figures P.2 and 3.5).

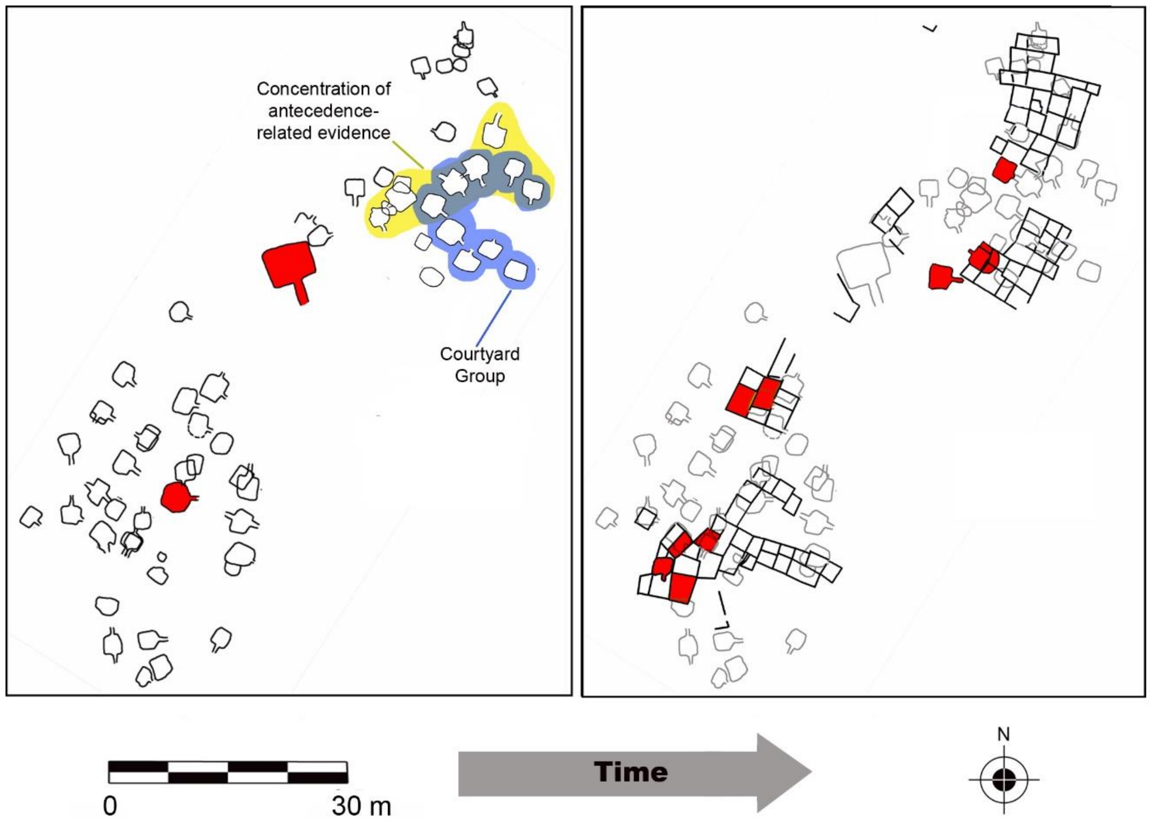

Figure 5.11. Location of ceremonial architecture (red) at Cameron Creek during the pre-Classic era (left) and Classic period (right), in relation to the most antecedent portion of the site. (Architecture after map in Bradfield 1931).

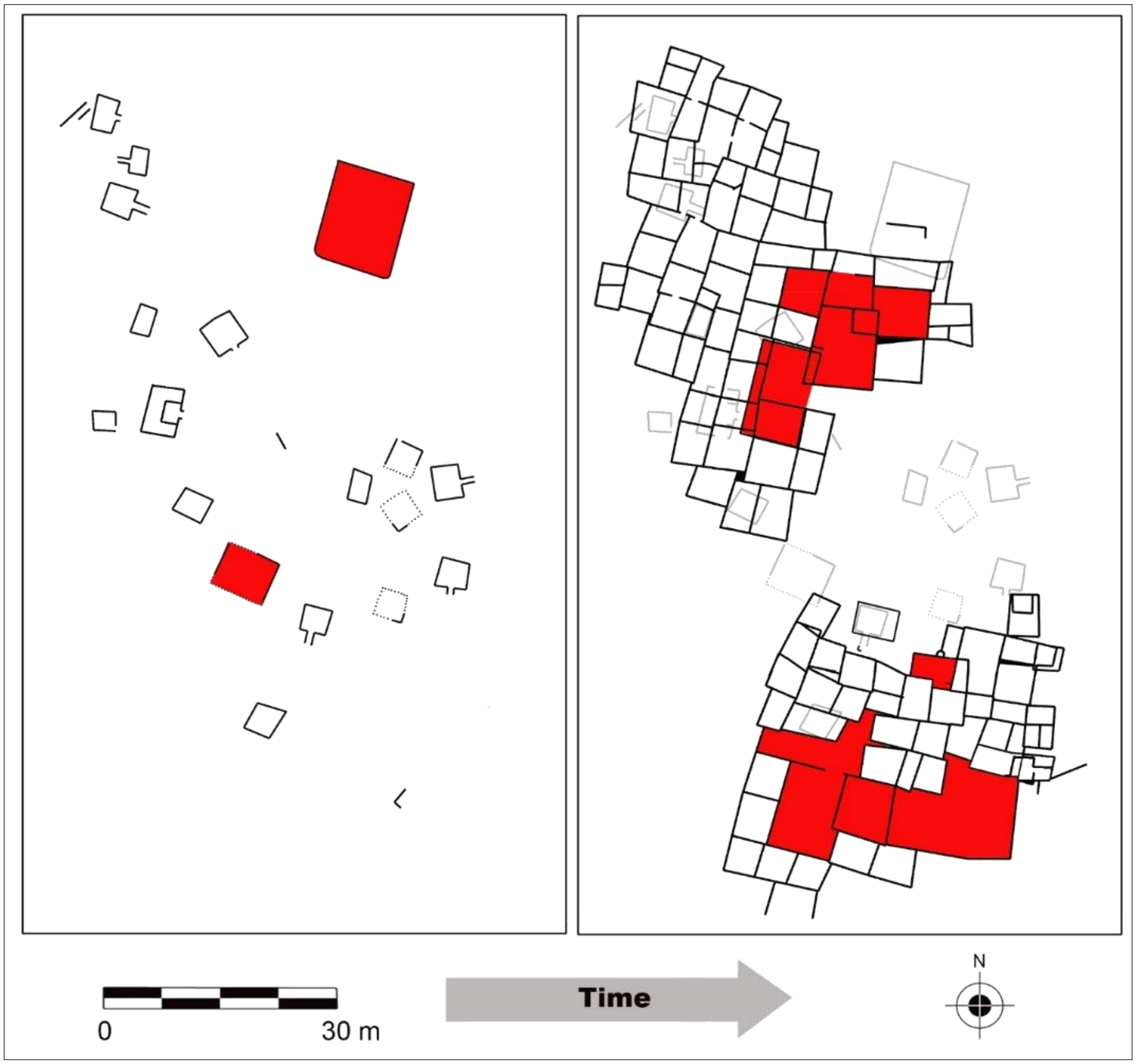

Figure 5.12. Location of ceremonial architecture (red) at Swarts Ruin, during the Three Circle phase (left) and Classic period (right). (Architecture after Cosgove and Cosgrove 1932:Plate 238).

Relative Frequency of Ceremonial Structures. The earliest ceremonial structures in the sample date to the Georgetown phase and are limited to one locus each at Galaz (see Figure 5.9, left) and Harris Village (see Figure 5.13, left). At this time, there is only one identifiable locus at Galaz, thus ruling out locus-scale comparison. In contrast, Harris Village had at least two loci. The restriction of ceremonial architecture to just one of these suggests unequal access to ritual practice, although sample sizes preclude statistical assessment (see Appendix LI).

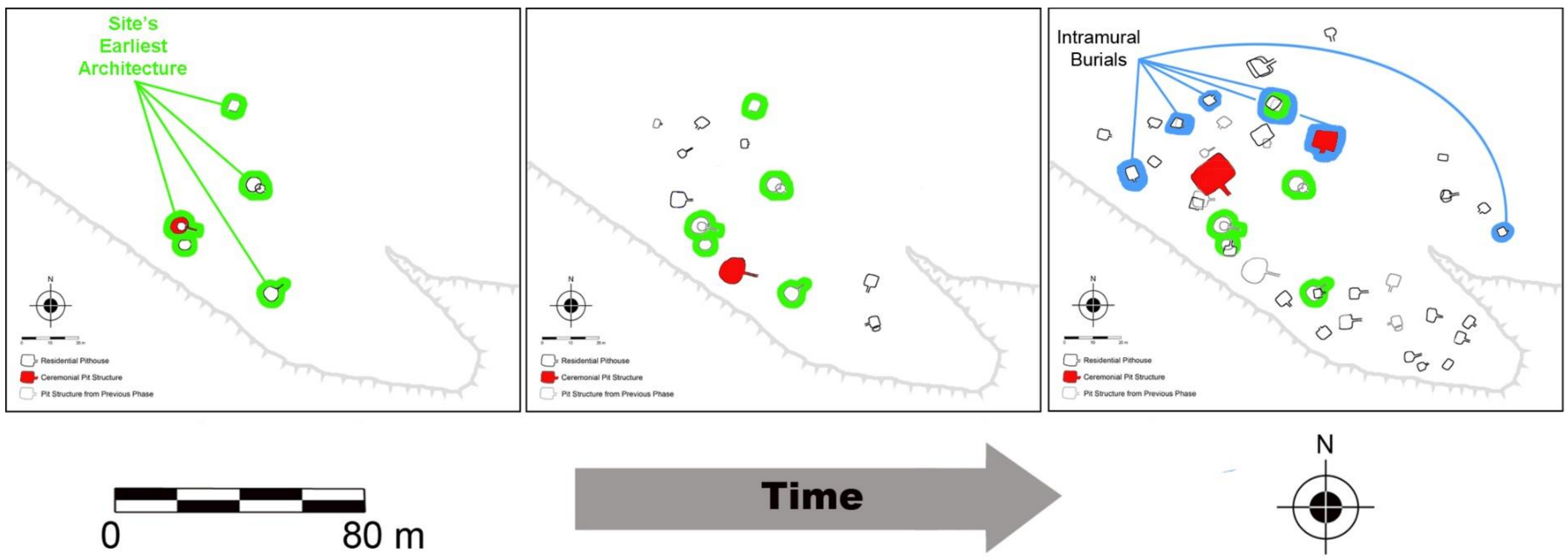

Figure 5.13 Location of ceremonial architecture (red) at Harris Village during the Georgetown (left), San Francisco (center), and Three Circle (right) phases, in relation to intramural burials. (Architecture after Haury 1936; Roth and Baustian 2015:Figures 2 and 3).

Ceremonial facilities dating to the San Francisco phase are found at Wind Mountain (three of five loci; see Figure 5.14 [left] and Appendix LII) and Harris Village (one of three loci; see Figure 5.13 [center] and Appendix LIII). The lack of ceremonial architecture in some loci suggests locus-scale inequality, although statistically the differences in relative frequency have a high probability of resulting from chance ($p \geq 0.40$).

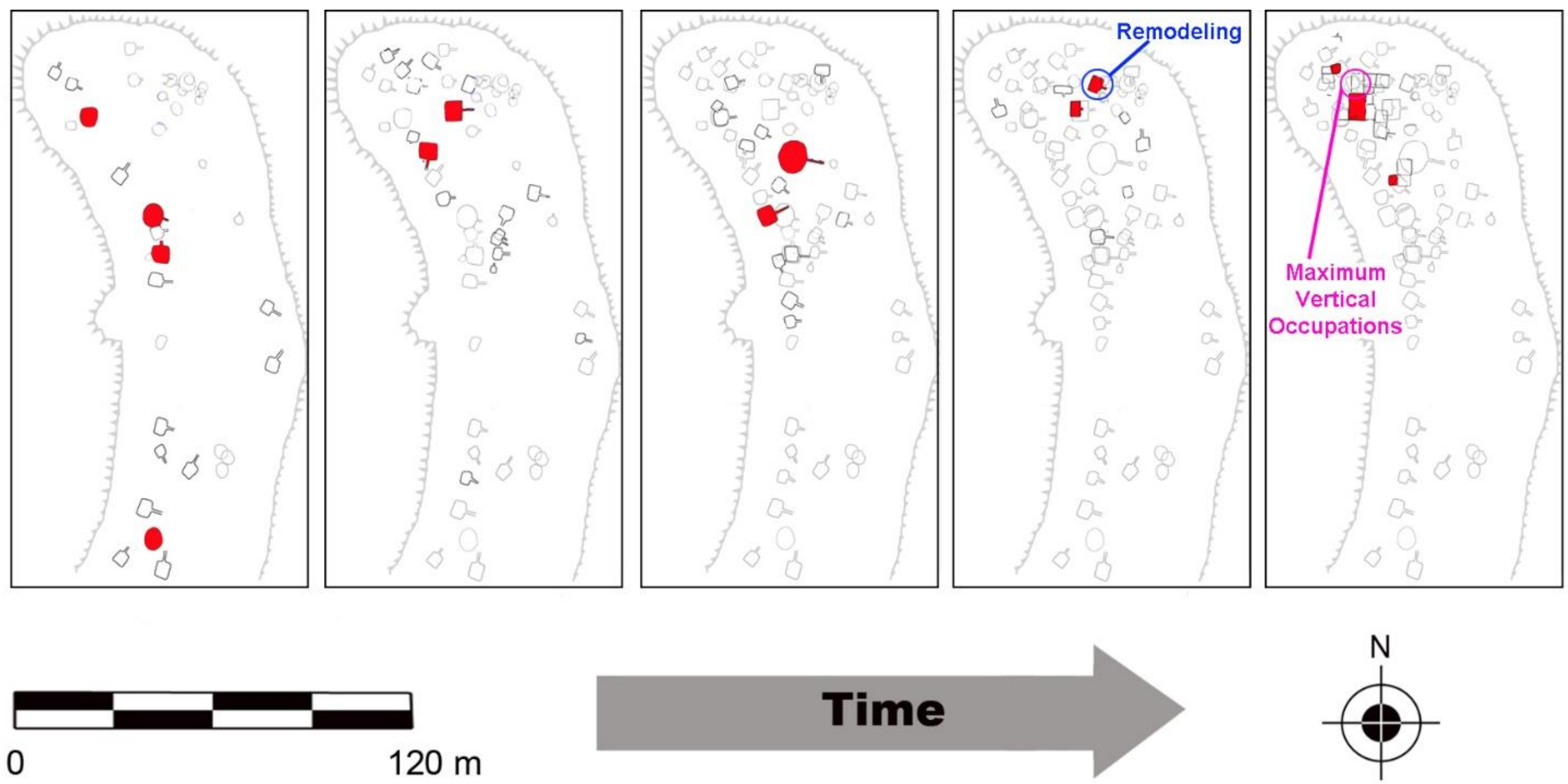

Figure 5.14. Location of ceremonial architecture (red) at Wind Mountain, during the San Francisco phase (left), San Francisco-Three Circle era, Three Circle phase (center), Mangas phase, and Classic period (right), in relation to evidence of remodeling and superpositioning. (Architecture after maps provided by Patricia Gilman).

Five of the seven sites have Three Circle phase components with two or more loci and there are various differences in the relative frequency of ceremonial structures. One of the two great kivas at Cameron Creek dates to the Three Circle phase, and other is likely to as well (Figure 5.11, right). At Wind Mountain (Figure 5.14, center), ceremonial architecture is limited to one locus, while At Galaz (Figure 5.9, center), Harris Village (Figure 5.13, right), and NAN Ranch (Figure 5.10, left), ceremonial architecture is present in two loci but absent in others. However, because of small sample sizes, all differences are found to have a high probability of resulting from chance ($p \geq 0.40$; see Appendices LIV – LVIII).

At NAN Ranch, and during the Transitional phase, only one out of three loci had ceremonial architecture, but again the difference has a high probability of resulting from chance ($p = 1.00$; see Figure 5.10 [center] and Appendix LIX). By the Mangas phase, the site boundaries at Wind Mountain had contracted into the North Locus, thus preventing inter-locus comparison (Figure 5.14, right of center). Most of the pit structures at Cameron Creek and Galaz can be dated only to a broad, pre-Classic era, and analyses at this scale produce similar results. At Cameron Creek, each of the two similarly-sized, pre-Classic loci had a single great kiva and there is no meaningful difference in relative frequency ($p = 1.00$; see Appendix LX). At Galaz, the earliest (Northwest) locus had three great kivas (used sequentially) and the most antecedent (South) locus had a single small kiva, while other parts of the site had no ceremonial structures; however, the differences all have a high probability of resulting from chance ($p \geq 0.25$; see Appendix LXI).

During the Classic period, it was unusual for loci to lack ceremonial architecture; loci where no ceremonial structures are known either experienced very little excavation (e.g., the West Roomblock at NAN Ranch) or were impacted severely by looting (e.g., the Northeast Locus at Galaz). The primary exceptions are the 200s and 300s roomblocks at Mattocks; both were excavated extensively and there is nothing to indicate that either had ceremonial architecture (see Figure 5.15, right). Given the small sample sizes, however, differences have a high probability of resulting from chance (see Appendices LXII through LXVI).

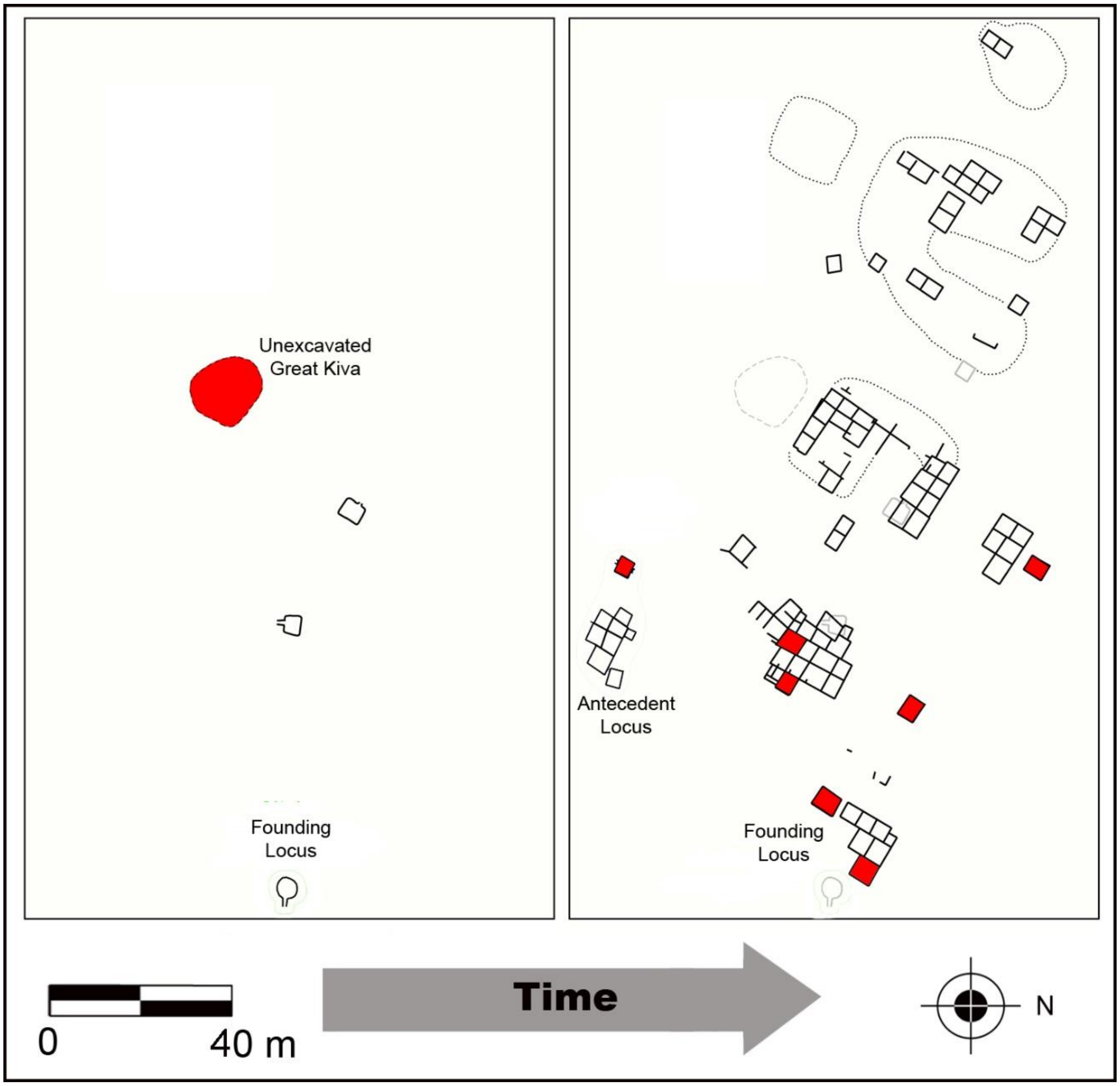

Figure 5.15. Location of ceremonial architecture (red) at Mattocks, during the pre-Classic era (left) and Classic period (right), in relation to the site's earliest known architecture and most antecedent locus. (Architecture after maps provided by Patricia Gilman).

Overall, it is clear that there were a number of places and times when some loci had ceremonial structures and others did not. This pattern of presence and absence is indicative of locus-scale inequality in access to ceremonial practice (cf. Clayton 2006). That said, the small sample sizes (no site had more than seven contemporaneous loci) preclude robust statistical assessment of the differences. The proportions of contemporaneous loci per site that included ceremonial architecture are plotted in Figure 5.16, which shows an increase in the proportion of loci with ceremonial facilities over time. In the Three Circle phase and Classic period, there are some sites where all loci have ceremonial architecture [14] (*contra* Clayton 2006). Below, the apparent decrease in inequality suggested by this analysis is interpreted in relation to other lines of evidence.

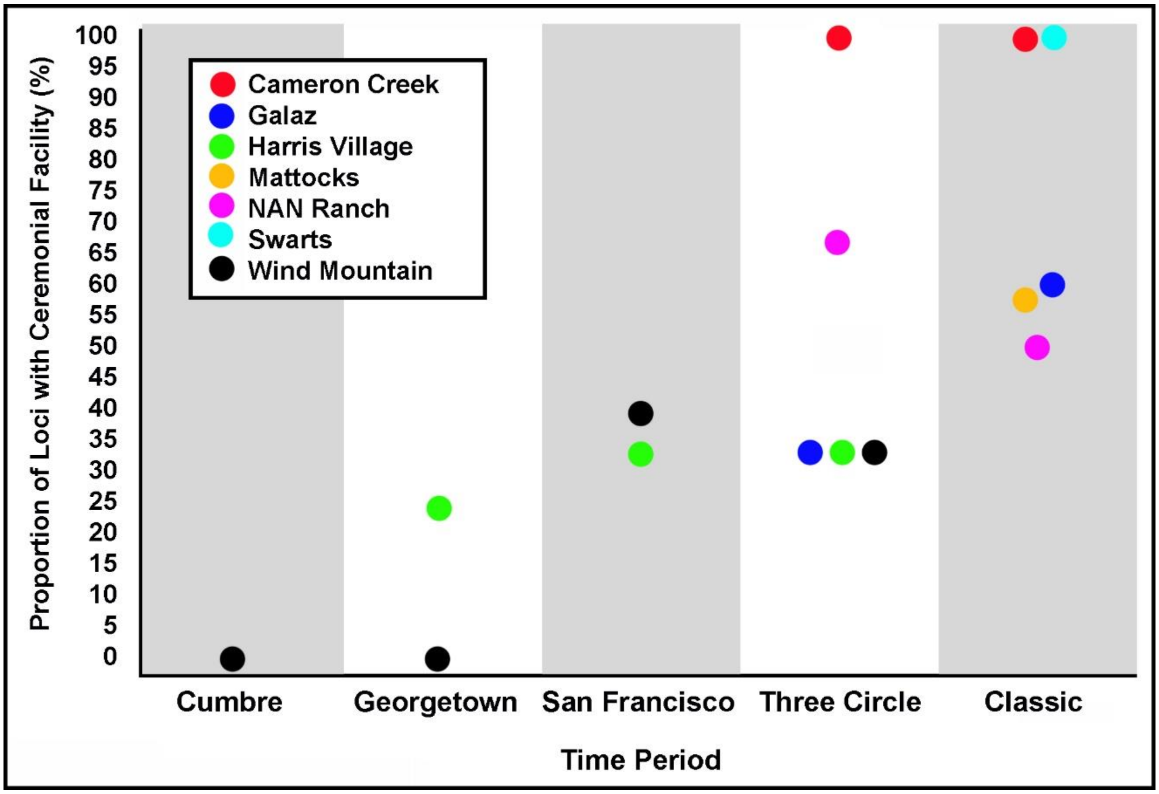

Figure 5.16. Proportion of loci with ceremonial architecture, including only cases where there are more than one locus.

Proportion of Ceremonial Space. The proportion of ceremonial space per locus is measured as the floor area of all ceremonial facilities per locus, in relation to the floor

[14] One of the two great kivas at Cameron Creek (in the South Locus) was dated to the Three Circle phase. The other great kiva (in the North Locus) could not be dated to a particular phase, but was almost certainly used during the Three Circle phase, if not built therein (see Figure 5.11, right).

area of all architecture, per locus. Inter-locus differences are statistically assessed using a series of two-tailed z-tests, detailed in Appendices LXVII through LXXXII.

The earliest ceremonial facilities in the sample date to the Georgetown phase and were found only at Galaz and Harris Village (see Figures 5.9 [left] and 5.13 [left]). Only one Georgetown phase locus is evident at Galaz. Harris Village had at least two loci during this time, only one of which included ceremonial architecture; thus this locus had a higher proportion of ceremonial space (60.73 percent) than the other, a difference with a low probability of resulting from chance ($p < 0.01$; see Appendix LXVIII).

During the San Francisco phase, only Harris Village and Wind Mountain had more than one locus. At Harris, only one of three loci had ceremonial architecture and the difference in proportionality is unlikely to result from chance ($p < 0.01$; see Figure 5.13 [center] and Appendix LXIX). Three of the five loci at Wind Mountain have ceremonial architecture, and the proportions of ceremonial space for two of them (69.38 and 61.81 percent) are significantly higher than that of the third (40.62 percent; $p \leq 0.03$; see Figure 5.14 [left] and Appendix LXX). These results show that some loci had relatively more ceremonial space than others during the San Francisco phase.

More comparisons were possible during the Three Circle phase, when multiple loci are identifiable at Cameron Creek ($n = 2$), Galaz ($n = 6$), Harris Village ($n = 6$), NAN Ranch ($n = 3$), and Wind Mountain ($n = 3$). At Cameron Creek, one of the site's two great kivas is definitively dated to the Three Circle phase, and I assume that the other great kiva (in the North Locus) was also used during the Three Circle phase (see Figure 5.11, left). The North Locus' great kiva was unusually large (85.26 m^2) and the proportion of ceremonial space in the North Locus, during the pre-Classic era (15.61 percent), is much greater than that in the South locus, at the same time (6.20 percent), a difference unlikely to result from chance ($p < 0.01$; see Appendix LXXI). In fact, the large great kiva in the North Locus (which includes the site's most antecedent sector) may have been large enough to accommodate all of the village's occupants. The structure sits on the southern edge of the North Locus, its ramp opening to the south onto a large, plaza-like clearing that separates the two loci.

The analysis of ceremonial space at Galaz considers both Three Circle phase architecture (see Appendix LXXII) and all pre-Classic architecture (see Appendix LXXIII). At both temporal scales, ceremonial facilities are limited to the site's founding (Northwest) and antecedent (South) loci (see Figure 5.9, left). At both temporal scales, the founding locus had far higher proportions of ceremonial space than all other loci, although most of the others had none. Proportional differences between the Northwest and South loci, both of which had ceremonial space, were also significant ($p < 0.01$).

During the Three Circle phase, two out of six loci at Harris Village had ceremonial architecture: the North Central Locus and the West Locus (see Figure 5.13, right). The former comprised just one Three Circle phase structure, which was a great kiva. In the West Locus, only 3.72 percent of all floor area was dedicated to ceremony, a difference in proportion that is unlikely to result from chance ($p < 0.01$; see Appendix LXXIV) but which is nevertheless unconvincing, given the sample sizes. At NAN Ranch, two out of three loci had ceremonial structures, but their proportions of ceremonial space were very similar (East: 32.89 percent; Southeast: 38.08 percent), with a high probability of resulting from chance ($p = 0.71$; see Figure 5.10 [left] and Appendix LXXV). At Wind

Mountain, only one of three loci had ceremonial space (see Figure 5.14 [center] and Appendix LXXVI).

Of the five sites with multiple Three Circle phase loci, all had significant differences in the locus-scale proportion of ceremonial space (illustrated graphically in Figure 5.17). In some cases, some loci had ceremonial architecture and others had none, while in other cases, two loci with ceremonial architecture had significant differences in the proportion of ceremonial space. This constitutes strong evidence of unequal access to ceremonial space at the locus scale, during the Three Circle phase.

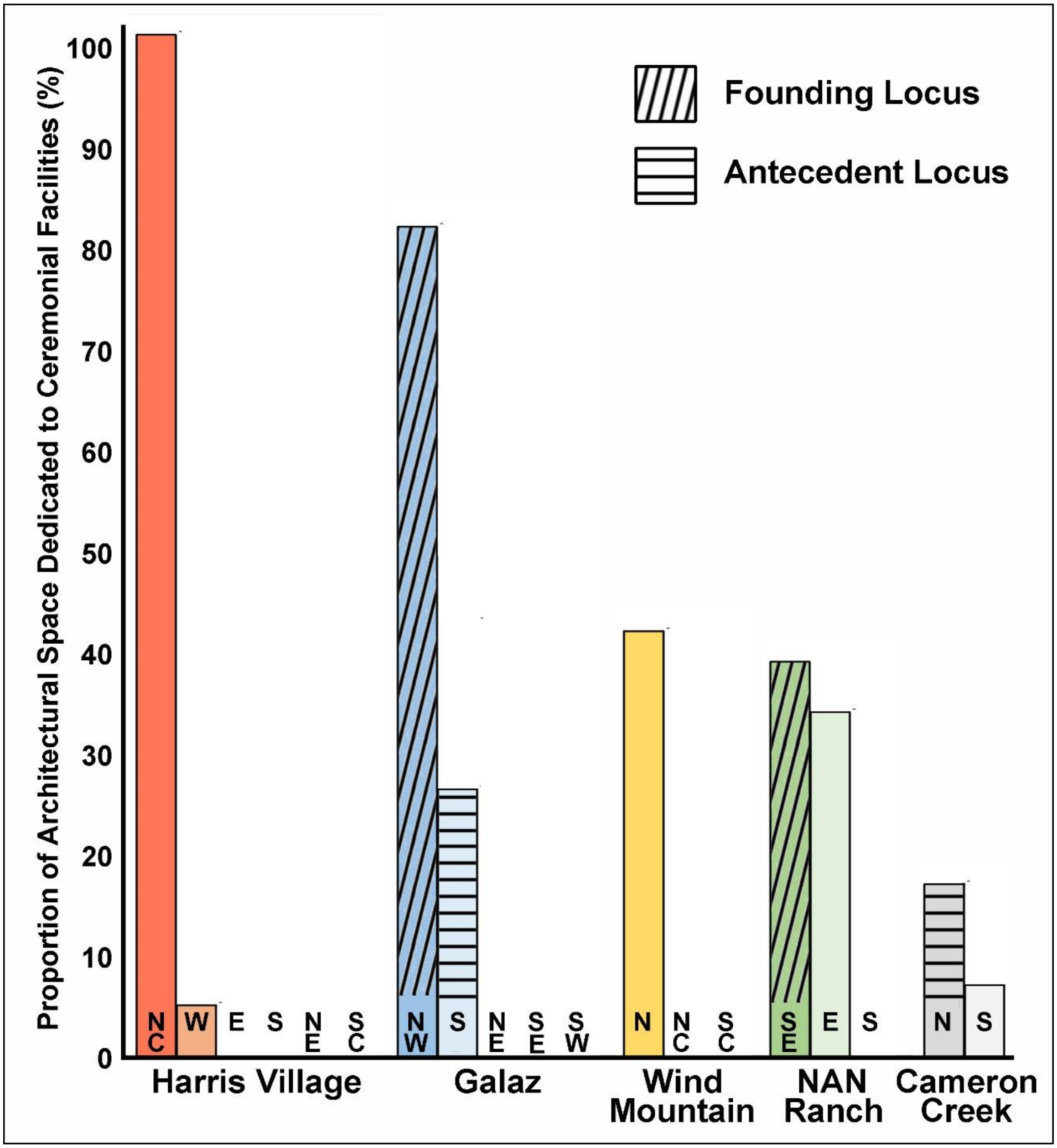

Figure 5.17. Proportions of architectural space, per locus, dedicated to ceremonial architecture during the Three Circle phase.

The Three Circle phase marks the earliest point at which most sites had more than one locus, likely the result of populations that were both growing and becoming either more diverse (in terms of relatedness) or more factionalized. Interestingly, most of the sites had only two loci with ceremonial architecture, regardless of how many total loci the village compreised. In several cases, the loci with ceremonial space were the site's earliest and/or most antecedent (see Figure 5.17, above). Furthermore, the two loci that had ceremonial architecture often had different kinds. At Galaz, for example, ceremonial architecture in the founding Northwest Locus consisted of three great kivas, used sequentially throughout the Late Pithouse period (see Figure 5.9, left). During the Three Circle phase, a small kiva was added at the opposite end of the village, in the South (antecedent) Locus. The latest and largest of the great kivas in the Northwest Locus had ramps facing inward, toward what was probably an open village plaza (Roger Anyon, personal communication, 2015). They could be easily approached from any of the loci and were perhaps large enough to accommodate the entire village population. In contrast, the South Locus' small kiva could not have held more than a handful of people and was positioned on the outskirts of the village, isolated from other loci and cordoned off with domestic structures.

Cameron Creek exhibits a similar pattern (see Figure 5.11, left), wherein a large great kiva was built next to the site's most antecedent pithouse cluster (within the North Locus), but it opened onto what was likely a village-scale plaza. The great kiva was the closest structure (in the North Locus) to the South Locus, making it very approachable. It was also likely large enough to accommodate everyone in the village. In contrast, the South Locus' great kiva was much smaller, distant from the North Locus, and surrounded by domestic pithouses. Finally, at NAN Ranch, a small kiva was encountered in the founding locus, while great kivas were encountered elsewhere (see Figure 5.10, left).

This pattern, detailed in Table 5.8, is consistent with a bifurcation in the Mimbres ritual landscape during the Three Circle phase. People living in some loci built large, inclusive, easily-approachable facilities, often associated with open plazas and consistent with efforts toward community-scale integration. Other groups built smaller, more exclusive facilities, peripheral to the village at large, and suggestive of efforts to create or maintain social distinctions. In several cases, the two approaches are associated with founding and/or antecedent loci. These strategies – in addition to those involving the mortuary behavior discussed above – may have been used to garner moral authority. A possible scenario is that founding lineages were clinging to one kind of religious expression (which had validated their antecedence), while later arrivals used new forms and organizations of ritual practice to justify changes in the establishment of antecedence. Data are sparse because founding and antecedent loci could not always be identified (see Chapter 3), but there is no obvious patterning with regard to the types of architecture preferred. For example, the founding locus at Galaz had only great kivas, the founding locus at NAN Ranch had only a small kiva, and the founding locus at Mattocks had no ceremonial architecture prior to the Classic period. This inconsistency suggests one of three things:

1. Spatially-defined loci became, at some point, poor indications of social groupings as they relate to antecedence (cf. Mendeleff's [1891] and Cameron's [1992, 1999] work at Hopi).
2. Differences in ceremonial architecture coincided with social differences that are not related to antecedence.

3. Differences in ceremonial architecture do not reflect differences in social groupings.

Puebloan ethnographic literature suggests that the first explanation is most likely. That is, early pithouse clusters probably did correspond with founding lineages, and people who moved into these clusters were probably affiliated with those lineages, at least initially. However, over the course of the Late Pithouse period, social rules concerning marriage and post-marital residence likely blurred the correlation between social identity and residential locus (see Cameron 1992, 1999; Mendeleff 1891). Under such circumstances, it becomes increasingly important for the descendants of founders to emphasize cohesion and assert antecedence. At Hopi, founding lineages (*Núutungqwsinom*) preserved their identity and asserted moral authority by maintaining control over proprietary ceremonies, using exclusivity, secrecy, inheritance, and the valuation of proprietary ritual knowledge. In Mimbres contexts, the late introduction of small kivas, which facilitated secrecy and exclusion, is potentially consistent with such a strategy. At Hopi, later arrivals (*Motisinom*) emphasized community-scale integration and the redistribution of food, employing public Katsina ceremonialism. In the Mimbres case, great kivas convey inclusion and integration, but these were systematically destroyed in the late tenth century (Anyon and LeBlanc 2003). If the Hopi scenario is analogous to the Mimbres evidence, it may suggest that the religious institution associated with the great kivas (and perhaps with later arrivals) fell out of favor at this time. The alternative institution, represented architecturally by small kivas (and possibly associated with founding lineages) effloresced during the Classic period.

Table 5.8. Binary characteristics of ceremonial architecture during the Three Circle phase

		Attribute			
Site	**Locus**	**Form**	**Size A (m2)**	**Primacy or Antecedence**	**Accessibility**
Cameron Creek	North [B]	Great kiva	Large (85.26)	Antecedent [C]	Accessible [D]
	South	Great kiva	Small (35.3)	n.d.	Restricted [E]
Galaz	Northwest	Great kivas	Large (146.8-175.3)	Founding	Accessible [D]
	South	Small kiva	Small (12)	Antecedent	Restricted [F]
Harris Village	West	Great kiva	Large (143)	n.d.	Accessible [D]
	Central	Great kiva	Small (45.5)	n.d.	Accessible
Mattocks	200s [G]	Great kiva	Large (182.75)	n.d. [H]	Accessible
NAN Ranch	n/a [I]	Great kivas	Large (43-68.85)	n/a	Accessible [H]
	Southeast	Small kiva	Small (6.15)	Founding	Accessible [D]
Swarts	n/a [J]	Great kiva	Large (106.6)	n.d.	Accessible
		Great kiva	Small (33.15)		Restricted
Wind Mountain	North	Great kiva	Large (70.5)	n.d. [K]	Accessible [D]
	Ambiguous [L]	Great kiva	Small (27.95)	n.d.	Accessible

[A] With one exception, size characterization is relative to contemporaneous ceremonial structures at the same site. The sole exception is the great kiva at Mattocks, which is the only Three Circle phase ceremonial facility at the site, but happens to be the sample's largest great kiva.

[B] The North Locus' great kiva has been dated only to the general pre-Classic era. Regardless of when it was initially constructed, however, it was almost certainly used during the Three Circle phase.

[C] Cameron Creek's most antecedent cluster of pithouses is located within the North Locus. The North Locus in whole, however, has no more evidence of antecedence than does the South Locus. No founding locus has been identified at Cameron Creek.

[D] Structure is spatially associated with one particular locus, but is positioned in such a way as to invite, or at least not overtly restrict access to those living in other loci.

[E] Structure is completely or largely surrounded by domestic architecture, potentially discouraging or preventing access.

[F] Structure is positioned along the village perimeter and separated from the remainder of the site by domestic pithouses in the same locus.

[G] Structure is near the eventual construction site of the 200s Roomblock. The great kiva is the only identified, Three Circle phase architecture at Mattocks.

[H] No pre-Classic differences in antecedence are apparent at Mattocks, but the structure is definitely not located in the site's founding (Southeast) locus.

[I] The two Three Circle phase great kivas at NAN Ranch are positioned in the center of a triangle that is formed by three residential loci; they are not spatially associated with one locus in particular, and thus appear to have been equally accessible to those living throughout the site.

[J] I am unable to identify distinct loci at Swarts during the Three Circle phase using spatial analyses. That said, the practice of intramural burial was more prevalent and concentrated in the southern portion of the site, where the smaller and more restricted of the two great kivas was located. The two ceremonial structures are at opposite ends of the village. Thus, the two great kivas may correspond with residential loci that are otherwise indistinguishable.

[K] None of Wind Mountain's loci have been identified as definitively earlier or having more antecedence than others. I note, however, that the North Locus is the only portion of the site to have been occupied continuously from the Cumbre phase through Classic period.

[L] Structure straddles the locus boundaries of the North and Central loci, as defined in Chapter 3. Thus, the two Three Circle phase great kivas at Wind Mountain, may have been associated with distinct loci.

Transitional or Mangas phase components were recorded only at NAN Ranch and Wind Mountain, respectively. By this time, the site boundaries at Wind Mountain had contracted into the North Locus, thus preventing inter-locus comparison (see Figure 5.14, right of center). At NAN Ranch, only one of three loci had ceremonial space (see Figure 5.10, center). This suggests unequal access, an inference supported by statistical results ($p < 0.01$; see Appendix LXXVII).

By the Classic period, Harris Village was depopulated and Wind Mountain had contracted into a single locus. Data from multiple loci are available at the sites of Cameron Creek ($n = 4$), Galaz ($n = 5$), Mattocks ($n = 7$), NAN Ranch ($n = 4$), and Swarts ($n = 2$). By this time, only a few loci lacked ceremonial architecture of any kind. At each of the five sites with multiple loci, there were significant differences in the relative amount of ceremonial space per locus. In many cases, roomblocks can be ranked according to their proportions, each rank separated from the next by a significant margin.

At Cameron Creek, all differences among the four roomblocks have a low probability of resulting from chance ($p \leq 0.04$; see Appendix LXXVIII). The two roomblocks farthest from the site's most antecedent sector had the highest proportions of ceremonial space. At Galaz, at least three out five loci had ceremonial architecture and again, all differences between ranked positions have a low probability of resulting from chance ($p < 0.01$; see Appendix LXXIX).[15] Four of the seven roomblocks at Mattocks included ceremonial architecture, and the founding (Southeast) locus had the highest proportion of ceremonial space, significantly more than every other locus ($p \leq 0.02$; see Appendix LXXX). Of the four roomblocks with ceremonial facilities, the site's most antecedent (400s) locus had the lowest proportion of ceremonial space. At NAN Ranch, two of the site's four roomblocks had ceremonial architecture, neither of which were the

[15] The two potential exceptions (the East and Northeast loci) experienced the most looting and the least professional excavation, thus raising the possibility that ceremonial architecture was present in the past.

site's founding (Southeast) locus. The proportion of ceremonial space in the South Roomblock was about 10 percent higher than that of the East Roomblock, a difference with a low probability of resulting from chance ($p = 0.02$; see Appendix LXXXI). Both of the roomblocks at Swarts included ceremonial architecture, although there were more ceremonial rooms in the North Roomblock and more enclosed plazas in the South Roomblock. This likely contributes to the striking difference in locus-scale proportions of ceremonial space; that of the South Roomblock (40.47 percent) is over twice that of the most antecedent (North) roomblock (17.42 percent), a difference with a low probability of resulting from chance ($p < 0.01$; see Appendix LXXXII).

Overall, these patterns indicate that although more loci were coming to have their own ceremonial facilities during the Classic period (see Figure 5.16), there was growing inequality with regard to the amount of ceremonial space available. To clarify, each site can be assigned to one of four categories:

1. **No Inequality**: The site has two or more loci, each of which may or may not include ceremonial architecture. There are no significant differences, in any paired combination, in the proportion of space dedicated to ceremonial architecture. In Appendices LXVII through LXXXII, sites in this category have only grey cells.
2. **Inequality in the Presence of Ceremonial Architecture**: This category can be thought of as having at least one significant "presence-absence" difference. That is, significant differences in proportion exist between some or all loci, but all such differences involve one locus with

ceremonial space (presence) and one locus without (absence). In Appendices LXVII through LXXXII, sites in this category have yellow and grey cells only.

3. **Inequality in the Proportion of Ceremonial Architecture**: In contrast to the previous category, this can be thought of as having at least one significant "presence-presence" difference. That is, the site has two or more loci with ceremonial architecture, and at least one paired comparison (wherein both loci have ceremonial structures) indicates significant differences in the proportions of ceremonial space. In Appendices LXVII through LXXXII, sites in this category include one or more orange cells.
4. **Ranked Inequality**: The site has two or more loci with ceremonial architecture. When all of the site's loci are arranged in order of lowest to highest proportion, the difference between most or all ranks has a low probability of resulting from chance. In Appendices LXVII through LXXXII, sites in this category include a high number of orange cells and few, if any, grey cells.

With each site assigned to one of the above categories, for each temporal period, diachronic changes are illustrated in Figure 5.18. At each site, save one, the inequality in this domain increased over time. The sole exception is Wind Mountain, where the evidence of greatest inequality occurred during the San Francisco phase (see Appendix LXX). Overall, there is a trend toward more and more loci having their own ceremonial facilities. Simultaneously, however, some loci were emerging as having far more ceremonial space than others. These opposed trends are displayed graphically in Figure 5.19.

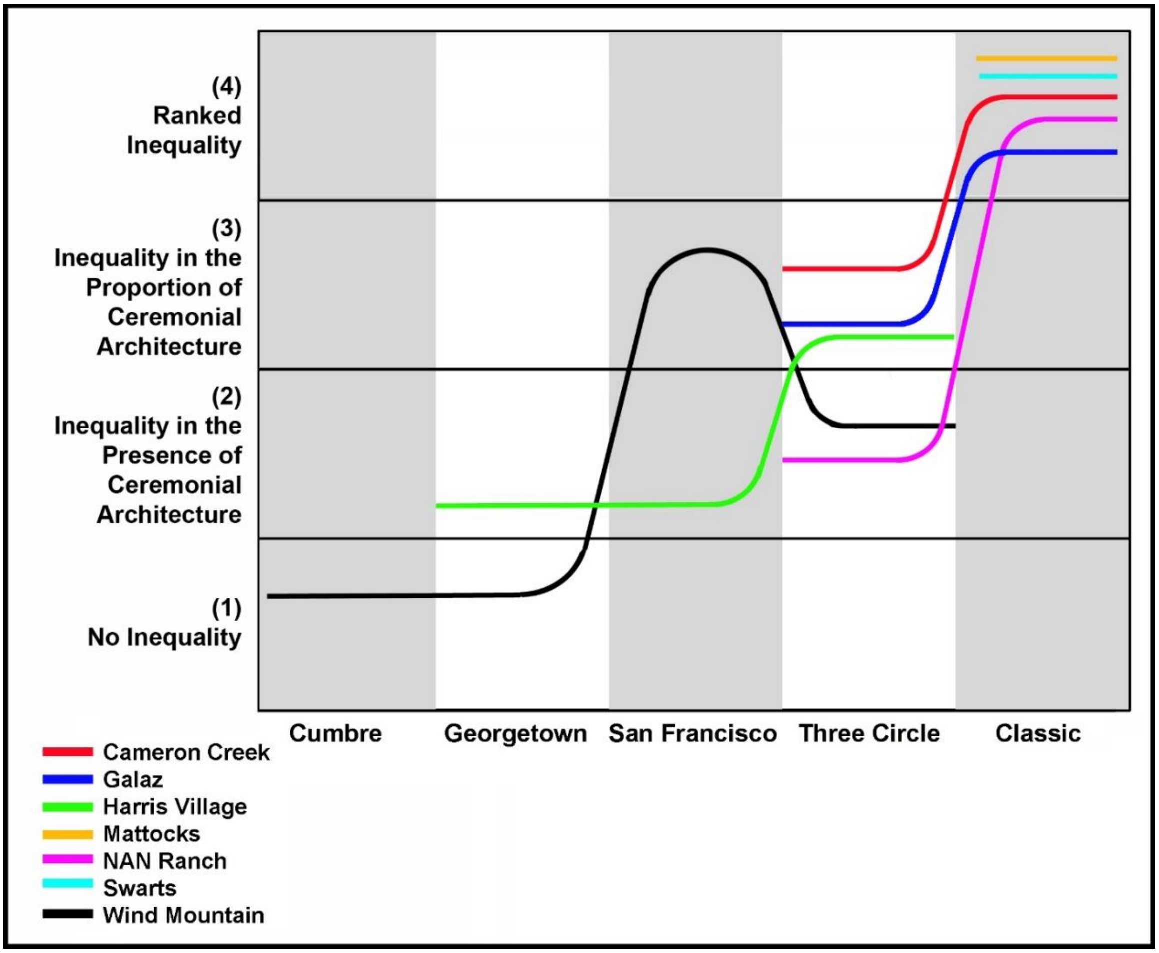

Figure 5.18. Diachronic change in the degree of locus-scale, ceremonial space inequality

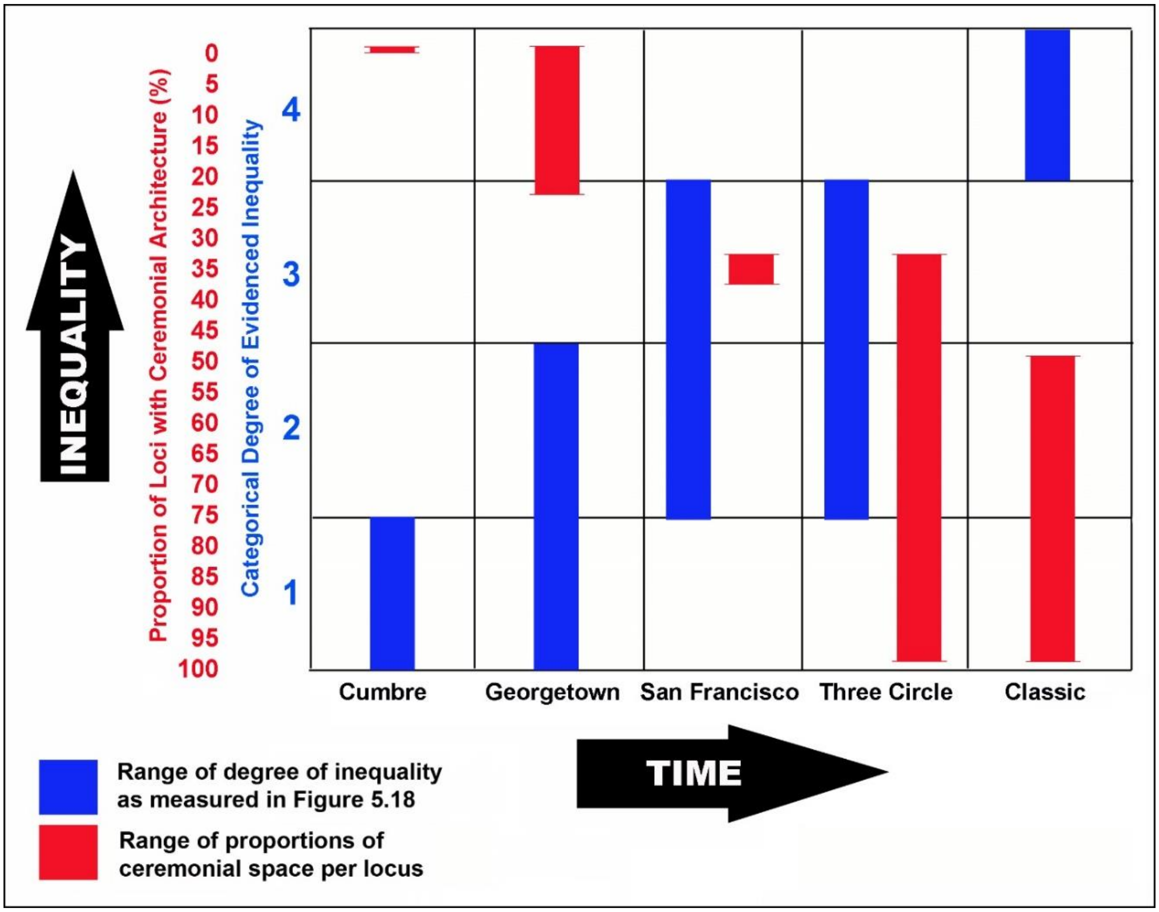

Figure 5.19. Diachronic change in the prevalence of loci with ceremonial architecture (red; decreasing inequality) and the degree of inequality in the distribution of ceremonial space (blue; increasing prominence).

Comparison of Lines of Evidence and Summary

The analytical results above clearly suggest that architectural clustering at Mimbres sites frequently coincided with elements of social inequality, within the ritual domain. Namely, loci differed significantly in the relative frequency of burials with restricted ritual paraphernalia, burials with vessels depicting ceremonies, and burials placed in ceremonial architecture. Loci also differed significantly in their richness of ceremonial structure form, relative frequency of ceremonial facilities, and proportion of ceremonial space. In many cases, these differences persisted over time, making ritual knowledge and practice the most stable domain of inequality identified during this study.

Throughout the Mimbres sequence, some loci had burials with restricted ritual paraphernalia and/or vessels depicting ceremonies, while others did not. This dichotomy alone is suggestive of locus-scale inequality, an inference that is supported by several cases wherein the difference has a low probability of resulting from chance (see Appendices XXVIII and XXXIII). These statistically-compelling instances did not occur prior to the Three Circle phase.

In most cases, restricted ritual paraphernalia (in burials) were limited to one locus (per village) at a time, and the same is true of vessels depicting ceremonies (see Table 5.5). This too is suggestive of asymmetric access to ritual knowledge at the locus scale. These artifacts never appeared (in burials) in more than two loci at the same time, regardless of how many loci were present. This raises the possibility of locus-scale competition with regard to individual control over ritual knowledge.

Interestingly, neither restricted ritual paraphernalia nor vessels depicting ceremonies were ever recovered from burials in founding loci (see Table 5.6). The placement of such ritually-charged items in burials speaks to some degree of individual control over ritual knowledge. Thus, the absence of this practice in founding loci is consistent with a less individualistic approach to ritual knowledge and access. At Galaz, if not elsewhere, this corresponds with the persistent association of larger, more inclusive and inviting ceremonial venues with the founding locus (see Figure 5.9).

In contrast to the absence of restricted ritual paraphernalia and vessels depicting ceremonies in founding locus burials, nearly a third of all such burials came from the most antecedent loci (see Table 5.7). This suggests an association between efforts to establish antecedence on one hand and privileged access to ritual knowledge on the other. Based on the ethnographic literature, both in the Southwest and beyond, such an association is to be expected. As noted earlier, antecedence is a fundamental route to moral authority (Flannery and Marcus 2012) and one that is almost always promoted and legitimized through disparate access in the ritual domain.

The evidence is also clear that differences in the relative frequency of burying the dead in ceremonial architecture corresponded with locus-scale divisions (see Appendix XLI). The practice, which sometimes corresponded with evidence of primacy or antecedence, became more common through time. The placement of ancestors in ceremonial architecture (as opposed to domestic architecture or extramural space) not only suggests asymmetric ritual access (on the part of the decedent), but is also consistent with a more communal approach to ritual. Returning again to Galaz as an example, note the multi-dimensional association between the founding locus, large and inclusive ceremonial architecture, the deposition of restricted ritual paraphernalia within this architecture (but only in non-mortuary contexts), and the frequent placement of ancestors in communal facilities. These supra-household-scale practices all stand in contrast to the site's most antecedent sector, with its small kivas, burials with restricted ritual paraphernalia, and preponderance of household interment.

The tripartite analysis of ceremonial architectural points to a complex series of changes throughout the Mimbres sequence. These are illustrated in Figures 5.9 through 5.15 (introduced earlier), which show the development of the ceremonial built environment at seven sites over time. In nearly every case, ceremonial architecture became more frequent and diverse through time, although specific trajectories differed between sites. The results can be synthesized with six primary points.

First, and throughout the Late Pithouse period and Classic period, some loci had ceremonial architecture and others had none. This indicates unequal access to ritual practice at the scale of locus. Second, the number and proportion of loci with ceremonial structures increased over time. Eventually, and at some sites, every locus had at least one ceremonial facility (see Figure 5.16), suggesting lessening inequality in access to ceremonial practice. Third, contemporaneous loci with ceremonial architecture had similar relative frequencies (see Appendices LI through LXVI). This suggests that if a locus was able to have ceremonial architecture, the number of such structures depended on the number of households in the locus, a relationship that was comparable across the region but fluctuated over time.[16] Fourth, and throughout the Late Pithouse and Classic periods, some loci had far higher proportions of ceremonial space than others. In many cases, this involved one locus with ceremonial architecture and without (see Appendices LXVIII, LXIX, and LXXV – LXXVII), but there were also cases where two contemporaneous loci both had ceremonial facilities but one locus had relatively more ceremonial space than the other (see Appendices LXX – LXXIV and LXXVIII – LXXXII), a clear indication of unequal access to ritual practice. Fifth, the relative frequency and degree of meaningful differences in ceremonial space increased over time, across the region (see Figure 5.18). By the Classic period, and at several sites, loci could be ranked according to the proportion of total space dedicated to ceremonial practice (see

[16] In general, the proportion of ceremonial structures per locus decreased over time, following the Georgetown phase (0.33, n = 1). The San Francisco phase marked the highest relative frequency of ceremonial structures, relative to domestic structures (0.42, n = 3), followed by the Three Circle phase (0.25, n = 8) and Classic period (0.13, n = 15).

Appendices LXXVIII – LXXXI). Thus, although more and more loci were able to have their own ceremonial facilities (see Figure 5.16), differences in the relative amount of ceremonial space per locus were growing (see Figures 5.17 – 5.19). Sixth, and during the Three Circle phase, a pattern emerged wherein most sites had multiple residential loci, yet only two loci per site had ceremonial architecture. In several cases, one (or both) of the two loci was the site's earliest or most antecedent (see Figure 5.17 and Table 5.8), suggesting that differences in ceremonial space were used to procure or defend moral authority based on antecedence. The two loci tended to have different forms of ceremonial architecture, which may indicate differences in religious practice and/or social identity. The size of ceremonial facilities varied considerably between the two loci, indicating different degrees of emphasis on community-scale integration. The larger ceremonial facilities tended to be located adjacent to large, open, central plazas and were positioned such that access from throughout the village would have been unencumbered. These characteristics indicate an inclusive, integrative approach to religion. The smaller ceremonial facilities, in contrast, were often positioned along the periphery of a site and were surrounded or partitioned off by residential pithouses, suggesting access to them was restricted.

Part V: Ritual Inequality at the Site Scale

This section expands the socio-spatial scale of analysis, asking whether some sites had collectively greater access to ritual knowledge or practice than others. The analyses consider the same criteria used at the locus scale: restricted ritual paraphernalia, vessels depicting ceremonies, interment in ceremonial space, and access to ceremonial architecture.

Restricted Ritual Paraphernalia and Vessels Depicting Ceremonies

Restricted Ritual Paraphernalia. The village-scale distribution of burials with restricted ritual paraphernalia is detailed in Appendix LXXXIII. Burials with restricted ritual paraphernalia were found at all of the study sites except for Cameron Creek. The earliest appearance of restricted ritual paraphernalia in burials was during the San Francisco phase, but at that time, it is encountered in a single burial at Wind Mountain. Inter-site differences in the distribution of restricted ritual paraphernalia are compared based on relative frequencies, and two-tailed Fisher's exact tests consistently show that the differences are minor and are likely to have resulted from chance (see Appendix LXXXIV).

During the Three Circle phase, burials with restricted ritual paraphernalia were encountered at Galaz ($n = 5$), Harris Village ($n = 1$), and Wind Mountain ($n = 1$). As was the case with San Francisco phase data, all differences in relative frequency are found to have a high probability of resulting from chance, both when comparing instances of presence and absence ($p \geq 0.22$) and when comparing two sites that both had restricted ritual paraphernalia in burials ($p \geq 0.47$; see Appendix LXXXV).

During the Classic period, burials with restricted ritual paraphernalia were encountered at Galaz ($n = 2$), Mattocks ($n = 1$), NAN Ranch ($n = 1$), and Swarts ($n = 1$), but not at Cameron Creek or Wind Mountain, the two sites not located in the Mimbres

Valley. All differences in relative frequency are minimal, however, and assessment using Fisher's exact tests shows once again that differences all have a high probability of resulting from chance, both when comparing sites that did and did not have restricted ritual paraphernalia in burials ($p \geq 0.49$) and when comparing two sites that did ($p \geq 0.30$; see Appendix LXXXVI).

In summary, beginning in the San Francisco phase, some sites had one or two burials with restricted ritual paraphernalia and others had none. However, with the exception of Cameron Creek, each village had at least one such burial at some point in time. These burials are so extraordinarily rare that their absence carries little statistical weight. Thus they provide no conclusive evidence regarding site-scale inequality in access to this ritual realm.

Vessels Depicting Ceremonies. Vessels depicting ceremonies date exclusively to the Classic period (see Appendices XXIII and LXXXVII) and were found at five sites: Cameron Creek (n = 1), Galaz (n = 1), Mattocks (n = 2), NAN Ranch (n = 3), and Swarts (n = 3). The highest relative frequency is at NAN Ranch, where 1.59 percent of the site's Classic period burials included such vessels. This is nine times greater than the relative frequency at Galaz (0.17 percent) and five times that of Swarts (0.3 percent). Both differences have a low probability of resulting from chance ($p = 0.05$ and 0.06, respectively). This suggests unequal access to vessels depicting ceremonies, at the site scale.

Interment in Ceremonial Space

Site-scale differences in the relative frequency of placing burials in ceremonial architecture vary through time. Three sites have Georgetown phase burials (Harris Village, Mattocks, and Wind Mountain), and three have San Francisco phase burials (Galaz, Harris Village, and Wind Mountain), but there are no meaningful differences in the relative frequency of burials in ceremonial architecture for either phase ($p \geq 0.40$, see Appendix XCI; and $p \geq 0.53$, see Appendix XCII, respectively).

Clear differences do emerge during the Three Circle phase. Although Three Circle phase burials were excavated at all seven sites, burials were found in ceremonial architecture only at Cameron Creek, Galaz, and Wind Mountain. The difference between sites that do and do not have burials in ceremonial architecture has a low probability of resulting from chance ($p \leq 0.06$), although there were no significant differences among the three sites that did have such burials ($p \geq 0.46$; see Appendix XCIII).

Within the sample, burials dating to the Transitional or Mangas phase were identified only at NAN Ranch ($n = 24$) and Wind Mountain ($n = 2$). None of the Transitional phase burials at NAN Ranch came from ceremonial structures, whereas both of the Mangas phase burials at Wind Mountain did, and the difference in relative frequency has a low probability of resulting from chance ($p < 0.01$; see Appendix XCIV). This appears to be a continuation of the Three Circle phase pattern identified above. Analyses that consider the broad, pre-Classic scale produce similar results (see Appendix XCV).

Differences in the relative frequency of placing burials inside ceremonial structures are more striking during the Classic period, represented by six sites in the sample (Harris had been depopulated by 1000 C.E.). All six had Classic period burials, and at each of the sites, save Wind Mountain, some of these burials were placed in ceremonial architecture. The statistical comparison of differences in relative frequency are detailed in Appendix XCVI. The six sites can be ranked according to the relative frequency with which burials were placed in ceremonial structures, and they comprise three tiers that are separated by differences in relative frequency that each have a low probability of resulting from chance ($p < 0.01$; Appendix XCVI). Burials in ceremonial architecture are most common at Cameron Creek (42.71 percent) and NAN Ranch (39.68 percent), less common at Galaz (20.58 percent), and least common at Swarts (11.57 percent), Mattocks (8.30 percent), and Wind Mountain (0.00 percent). Clearly, people living in some Classic period pueblos were burying their ancestors in ceremonial architecture more frequently than those living elsewhere.

The previous analysis, of locus-scale differences, found that burials were placed in ceremonial rooms more frequently than in other types of ceremonial architecture. This pattern is also evident at the inter-site scale, in that NAN Ranch is one of only two sites where all Classic period, ceremonial architecture consists of ceremonial rooms. NAN Ranch also has one of the highest frequencies of interment within ceremonial space. However, the causality underlying this correlation remains unclear.

Access to Ceremonial Architecture

This section considers whether residents of some villages had more collective access than others to ritual practice and participation. It uses the three variables developed for the locus-scale comparison, above, but applied at a larger scale: the number of different kinds of ceremonial structures per site, the relative frequency of ceremonial facilities per site, and the proportion of architecture dedicated to ceremonial use per site. Data used in the analysis are provided in Appendix XCVII.

Kinds of Ceremonial Structures. Ceremonial structure forms changed over time and became increasingly diverse (see Appendices XX and L; Anyon and LeBlanc 1984). Prior to the Three Circle phase, the only recognized form of ceremonial architecture was the great kiva, and this form was present at each of the seven study sites. During the Three Circle phase, small kivas were introduced at some sites. Within the sample, this occurred only at Galaz (Unit 18) and NAN Ranch (Structure 71). If Mangas and Transitional phases are included, four additional kivas can be added, at NAN Ranch (Structures 12 and 91) and Wind Mountain (Structures P2 and V). Thus, the sites of Galaz, NAN Ranch, and Wind Mountain had two forms of ceremonial architecture between 750 and 1000 C.E., while the sites of Cameron Creek, Harris Village, Mattocks, and Swarts had but one. If different forms of ceremonial architecture represent differing approaches to ritual interaction, it is safe to assume that some people, living at Galaz, NAN Ranch, and Wind Mountain, had access to a wider portion of the ceremonial landscape in the years leading up to the Classic period. What is more, the early introduction of small kivas at these three sites may correspond with early factionalism along (or using) religious lines.

The number of available ceremonial structure types increased during the Classic period. Great kivas were no longer built, but ceremonial rooms and enclosed plazas were added to the assemblage, alongside small kivas. Harris Village had been depopulated by this time. At NAN Ranch and Wind Mountain, the construction of small kivas halted and all ceremonial architecture consisted thereafter of ceremonial rooms. This may signify a rejection of whatever religious changes brought about the introduction of small kivas at both sites during the Three Circle (and/or Mangas/Transitional) phase. The same may be true at Swarts, where small kivas never emerged and Classic period roomblocks included only ceremonial rooms and enclosed plazas. This is not to say, however, that there was no religious factionalism at Swarts during the Classic period; ceremonial architecture in the North Roomblock consisted almost entirely of ceremonial rooms, whereas most of the ceremonial space in the South Roomblock occurred in the form of enclosed plazas (see Figure 5.12, right). Small kivas and ceremonial rooms coexisted at Cameron Creek, Mattocks, and Galaz after 1000 C.E., suggesting a continuation of whatever religious factionalism led to the Three Circle phase introduction of small kivas and destruction of great kivas. Galaz also had a number of enclosed plazas, representing the least exclusive, least secretive form of ceremonial architecture during the Classic period (see Figure 5.9, right). The enclosed plazas at Galaz were concentrated in the site's founding locus, as were the site's ceremonial rooms, perhaps representing additional efforts by one faction to promote communal solidarity.

Relative Frequency of Ceremonial Structures. The relative frequency of ceremonial structures – the number of ceremonial structures as a proportion of all structures – is calculated for each time period at each site, and differences are assessed with two-tailed Fisher's exact tests. During the Georgetown, San Francisco, Three Circle, and Transitional/Mangas phases, all differences in site-scale, relative frequency have a high probability of resulting from chance ($p \geq 0.33$; see Appendices XCVIII through CI). That is, the number of kivas and great kivas in a village was proportionate to the number of domestic pithouses, each representing a household. These results parallel those of the locus-scale analysis and suggest that people in the different settlements had relatively similar access to ceremonial architecture, prior to 1000 C.E.

Meaningful differences in the site-scale, relative frequency of ceremonial structures arose during the Classic period. Not all inter-site differences are significant, but Wind Mountain and NAN Ranch have the highest relative frequencies (18.8 and 18.2 percent, respectively; see Appendix CII). The Classic was a time when inter-locus differences also increased. The emergence of this inequality coincides with Mimbres society becoming decidedly more like the Pueblos we know from ethnographic times. Furthermore, we know that during the ethnographic present, Puebloan ceremonial facilities are often associated with a particular sodality (see Ware 2014). Thus, one might infer that a relative increase in the number of ceremonial facilities relates to the introduction or proliferation of religious sodalities within Mimbres society (see Shafer 2006). The presence of such sodalities, with concomitant ritual authority and prestige, could have propelled some sites into prominence.

Proportion of Ceremonial Space. Although meaningful differences in the relative frequency of ceremonial structures did not appear until the Classic period, significant differences in proportions of ceremonial space were present by the Georgetown phase. During the Georgetown and San Francisco phases, some villages had ceremonial architecture and some did not, producing significant differences in proportions of ceremonial space that are unlikely to have resulted from chance ($p \leq 0.03$). However, among sites that did have ceremonial architecture (limited to the San Francisco phase), differences in proportions are minor ($p = 0.38$; see Appendices CIII [Georgetown] and 5.85 [San Francisco]). From the Three Circle phase on, all sites had some ceremonial space and some inter-village differences were significant. Galaz and Swarts, during the Three Circle phase, had nearly-identical proportions of ceremonial space (59.36 and 60.50 percent, respectively), which were higher than those of all other sites ($p < 0.01$). The remaining sites can be ranked according to their respective proportions, with all interstitial differences having a low probability of resulting from chance ($p \leq 0.05$; see Appendix CV). Transitional/Mangas phase deposits were comparable only at Wind Mountain and NAN Ranch, and the difference is striking; the proportion of ceremonial space at Wind Mountain was more than twice that at NAN Ranch, a difference with a low probability of attribution to chance ($p < 0.01$; see Appendix CVII). Analyses that combine all pre-Classic deposits likewise reveal differences; all of the study sites, save Harris, can be ranked, with all interstitial differences unlikely to be the result of chance ($p < 0.01$; see Appendix CVI). This pattern of ranked sites continued into the Classic period, when it became even more pronounced. Although Swarts and Wind Mountain had very similar proportions of ceremonial space (22.54 and 22.01 percent, respectively), the sites can otherwise be ranked from highest (NAN Ranch) to lowest (Mattocks), with all interstitial differences having a low probability of occurring by chance ($p \leq 0.06$; see Appendix CVIII).

Comparison of Lines of Evidence and Summary

Evidence of site-scale inequality in the domain of ritual knowledge and practice varies considerably through time and across the attributes used in the above analyses. General patterns are summarized in five points. First, the earliest restricted ritual paraphernalia in mortuary contexts was found in one San Francisco phase burial at Wind Mountain. The relative frequency of restricted ritual paraphernalia in burials increased over time, and by the Classic period, almost every site had burials with restricted ritual paraphernalia and there is no evidence of inter-site inequality in this variable.

Second, vessels depicting ceremonies were present in burials only that date to the Classic period, and several lines of evidence suggest that people living at NAN Ranch had greater access to such vessels than contemporaries elsewhere.

Third, and throughout the Mimbres sequence, about 15 percent of burials were placed in ceremonial architecture. During the pre-Classic era, such burials are found at some sites but not others. By the Classic period, such burials are found at all sites with Classic occupations, yet there are significant inter-site differences in relative frequency, with NAN Ranch and Cameron Creek having the most.

Fourth, each site had some form of ceremonial architecture during most or all of their occupations. During the pre-Classic era, there are clear inter-site differences in the proportion of ceremonial space (illustrated in Figure 5.20), although not in the relative frequency of ceremonial structures. By the Classic period, there are differences in both proportion and relative frequency. Galaz and NAN Ranch generally have the highest in both attributes during the Three Circle phase and Classic period.

Fifth, two sites in the middle Mimbres Valley evidenced consistent trends with regard to ceremonial architecture over time. NAN Ranch, which was occupied throughout the Late Pithouse and Classic periods, had more and more ceremonial space and structures over time (see Figure 5.10). In contrast, Harris Village (which was depopulated prior to the Classic period) had fewer and fewer (see Figure 5.13). Note also the precipitous decline in Harris Village's ranking (according to proportion of ceremonial space), illustrated in Figure 5.20. These contrasts suggests that success and growth in the ritual domain was linked to overall community success. It also points to the importance of understanding differences within this realm as a component of inequality.

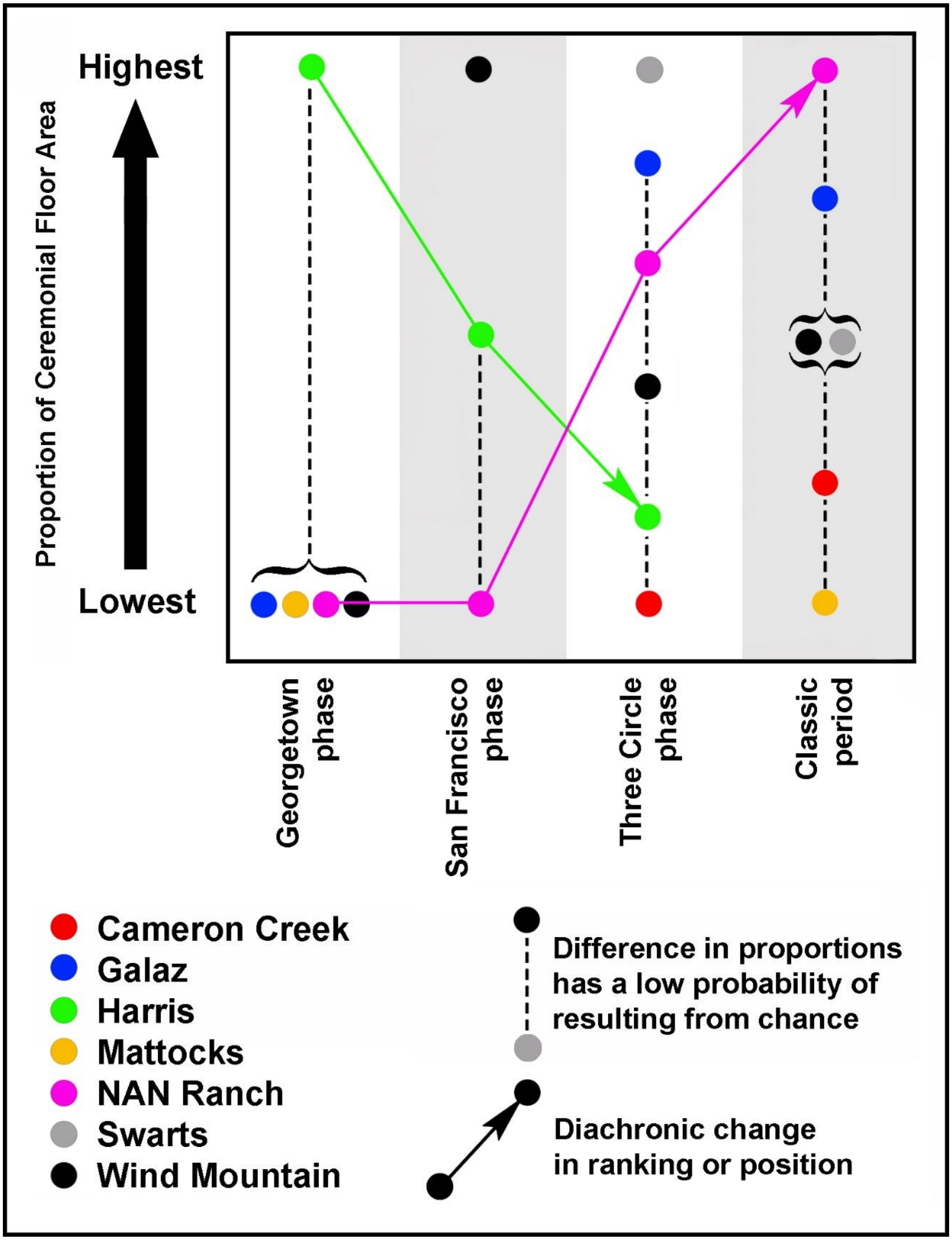

Figure 5.20. Diachronic changes in the relative positioning and ranking of sites with regard to proportions of ceremonial space.

Discussion and Conclusions

The analyses above are designed to determine whether some individuals, households, residential groups, and/or villages had greater access than others to ritual knowledge and practice. They consider differences in restricted ritual paraphernalia, vessels depicting ceremonies, interment within ceremonial structures, richness of ceremonial architecture forms, relative frequency of ceremonial structures, and proportions of ceremonial space. These analyses consider four social scales, with data from seven sites and nearly eight centuries. Results show, if nothing else, that differences varied considerably across space, through time, and according to the attributes in question. Overall, it is unlikely that there was ever a time when Mimbres society existed without some form and degree of ritual inequality.

Throughout this chapter, differences in access to ritual have been considered relative to evidence of primacy and antecedence, as established in Chapter 3. This relationship is complex; the loci that devoted the most effort to establishing and asserting antecedence were not those with the greatest primacy, suggesting that these two factors were a matter of considerable contestation. The analyses in this chapter show that the construction of ceremonial architecture might have been linked to that contestation.

The analyses in this chapter lead to a number of inferences which are explained and summarized in Parts II through V. Multidimensional change, involving both ritual inequality and antecedence, are illustrated in Figures 5.21 and 5.22, below. Here, I focus on two themes that dominate those findings: trajectories of change, and religious factionalism.

Trajectories of Change. There appears always to have been some form of social inequality related to ritual access of some kind. As with the domains covered in other chapters, this inequality frequently shifted in space, time, scale, and degree. That said, ritual inequalities were clearly the most persistent and consistent of the inequalities identified in this study. That is, ritual inequalities were more likely to remain with a given group, or at a given scale, over time than were inequalities in other domains. This speaks to ritual's central role and stabilizing force in Mimbres society. It is important to realize, however, that most of the ritual attributes examined here – be they paraphernalia, iconography, burial location, architectural type and relative frequency, or ceremonial space – changed independently of one another. This demonstrates the importance of considering multiple dimensions within each domain of inequality studied, rather than assuming one line of evidence is representative of the entire domain.

In most cases, Mimbres ritual inequality increased over time, reaching a crescendo during the Mimbres horizon's final period. Fewer and fewer people were buried with restricted ritual paraphernalia, such that by the Classic period, less than one-third of 1 percent of individuals were thus provisioned (see Appendix XXI, Table 5.2, and Figure 5.8). Fewer and fewer people were buried in ceremonial architecture (see Table 5.4). Differences in the relative frequency of ceremonial structures per site did not appear until late in the sequence (see Appendices XCVIII – CI). Variability in structure form increased over time and differed at varying scales, meaning that some people had collective access to a larger corpus of ceremonial options (see Appendix L). Most dramatic are the increased differences in the amount of architectural space dedicated to ceremonial practice (see Figures 5.17 – 5.20).

There are but three possible exceptions to the overall trend of increasing inequality. First, more and more loci were able to have their own ceremonial facilities, although differences in size continued to grow. Second, evidence of unequal access to restricted ritual paraphernalia, at the household-scale, is less robust after the pithouse-to-pueblo transition (see Figure 5.21, "b"). Third, evidence of inequality, in the same category, is likewise weaker after 1000 C.E., at the locus scale (see Figure 5.21, "a"). Overall then, rising ritual inequality mirrored other aspects of worsening social conditions that ultimately coincided with major cultural transformation in the middle eleventh century.

Religious Factionalism. The Three Circle phase has long been recognized as a tumultuous period of change within the Mimbres tradition. Villages came to be occupied year-round, and populations grew. Sedentism allowed for agricultural intensification that culminated in irrigation. These and other changes are sure to have strained extant integrative mechanisms, represented architecturally by great kivas. In their size, construction, and placement, Mimbres great kivas evoke a sense of inclusivity, integration, and community. In the ethnographic Southwest, these qualities are often emphasized by late arrivals to a community, with limited access to productive resources. During the Three Circle phase, a new approach to Mimbres ritual was introduced, characterized architecturally by the small kiva. They were smaller, secluded, and more difficult to access, qualities that evoke a sense of exclusivity, secrecy, and small-scale control over ritual knowledge. Ethnographically, this approach is often associated with antecedent groups, which explain their apical status in terms of proprietary ritual knowledge.

Other ritual differences correspond with the dichotomy in ceremonial architecture, and these too are related to the scale at which ritual was situated and controlled. As noted previously, this pattern is most fully developed at Galaz, where the founding (Northwest) locus had all of the site's great kivas and most of the ceremonial rooms and enclosed plazas. In contrast, the most antecedent (South) locus had the site's only early small kiva, and the site's only Classic period small kiva was still at the opposite end of the site. In the founding locus, people were more likely to be buried in communal structures, and restricted ritual paraphernalia were more likely to be deposited in non-mortuary, communal contexts. In contrast, burials at the other end of the site were more likely to be placed under domestic floors, and restricted ritual paraphernalia were more likely to accompany individual burials. This pattern, which is more evident at some sites than at others, suggests a fundamental divergence in how groups were navigating their ritual universes. One faction, perhaps associated with founding lineages, was heavily invested in the establishment and assertion of antecedence, and was actively working to develop and maintain limited control over ritual knowledge and practice. The other faction, perhaps associated with later arrivals, had substantially less antecedence and emphasized community-wide integration and unrestrained access to ritual knowledge and practice.

Based on the similarities between Mimbres archaeology and Hopi ethnography, we might expect Three Circle phase small kivas to coincide with founding loci, and great kivas to correspond with non-antecedent loci. This, however, was not consistently the case (see Table 5.8 and Figure 5.22). As noted earlier, this is likely due to an unavoidable breakdown in the correlation between residential locus and social identity. In other words, by the Three Circle phase, founding lineages are unlikely to have resided exclusively in the founding locus. Over the course of generations, exogamous marriage and post-marital residence changes would likely erode any initial, coterminous boundaries, making the establishment and assertion of antecedence increasingly relevant for those who feel entitled (see Kopytoff 1977 for review of matrilineal/virilocal impacts, for example). Thus, the potential link between (A) exclusivity and antecedence on one hand, and (B) integration and non-antecedence on the other – think *Núutungqwsinom* and *Motisinom*, respectively – is not necessarily invalidated by the inconsistency shown in Figure 5.22.

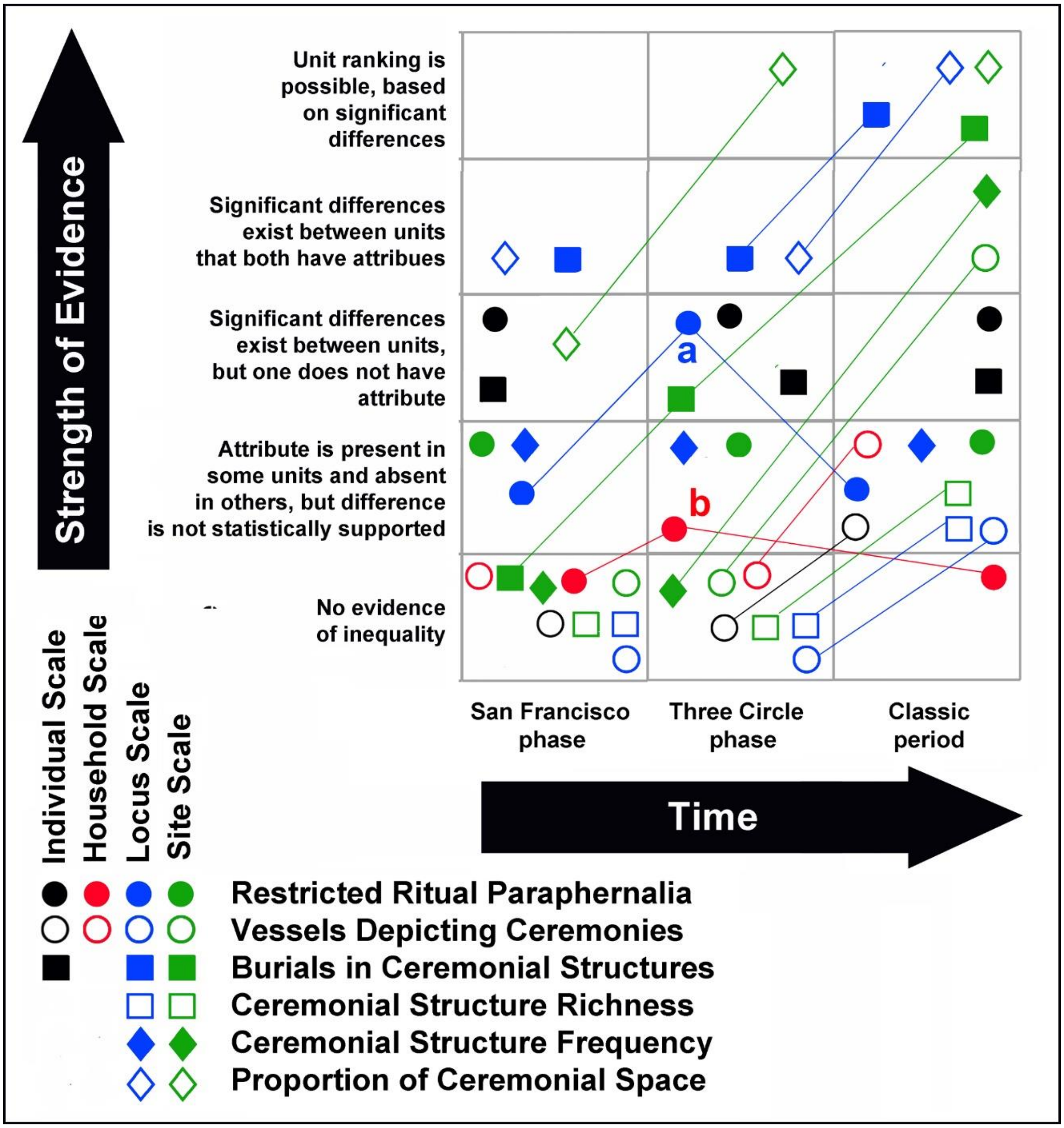

Figure 5.21. Diachronic change in the degree of ritual inequality through time

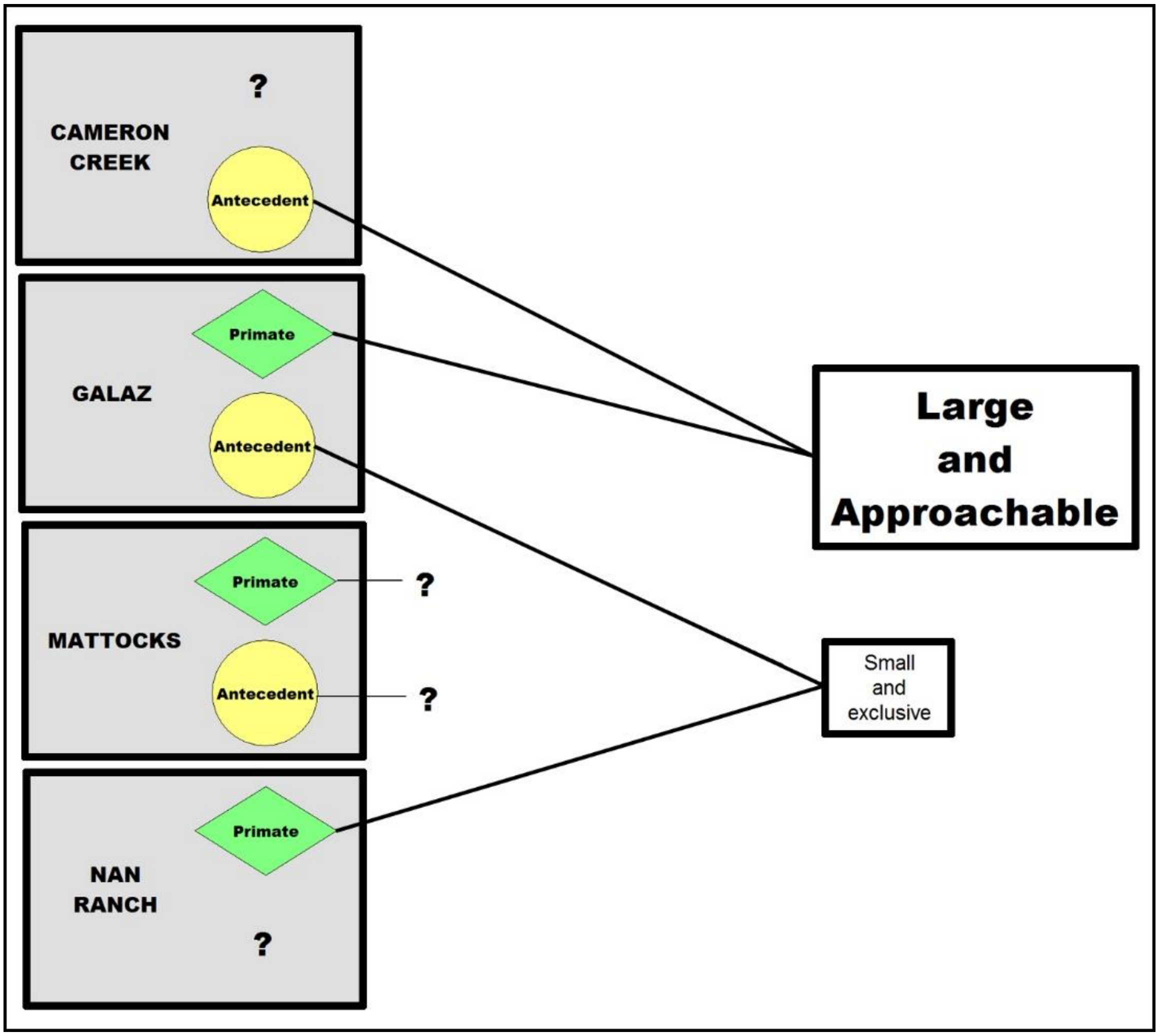

Figure 5.22. Comparison of primacy, antecedence, and the two classes of Three Circle phase ceremonial structures.

CHAPTER 6: ACCESS TO NONLOCAL OBJECTS, MATERIALS, STYLES, AND ICONOGRAPHY

> “Why this obsession with everything imported?” – Abdul Kalam

> “Not only exotic materials but also intangible knowledge of distant realms and regions can be politically valuable "goods" both for those who have endured the perils of travel and for those sedentary homebodies who are able to acquire such knowledge by indirect means and use it for political advantage” (Helms 1988:4).

This chapter examines evidence of social inequality in access to nonlocal objects, materials, styles, and iconography, which I collectively refer to as *exotica*. Analyses are limited to exotica in burials and to material from the Hohokam, and Mesoamerican regions (see Figure 6.1). For the purposes of my analyses, the latter includes Central America and all of what is now Mexico.

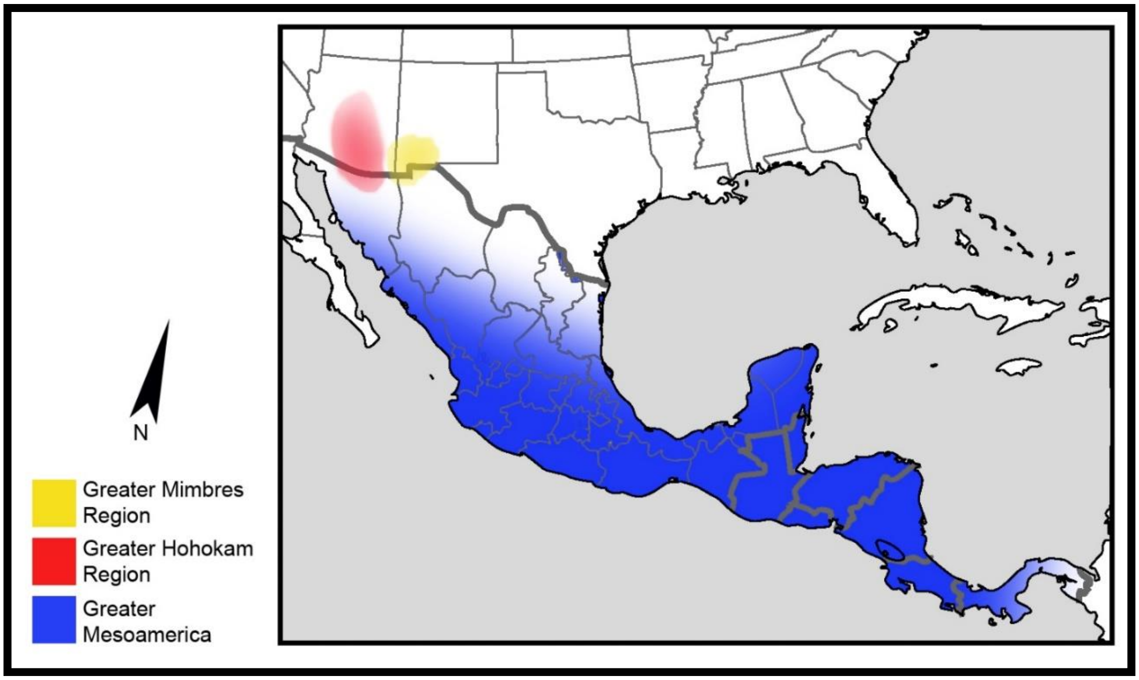

Figure 6.1. The Mimbres, Hohokam, and Mesoamerican regions, showing modern political boundaries for spatial reference.

For over a century, archaeologists in the New World have recognized distinct material similarities between artifacts and features in the U.S. Southwest and greater Mesoamerica. Investigations have focused on particular artifact types, including copper bells (Hawley 1953; Palmer et al. 1998; Sprague and Signori 1963; Sprague 1964; Vargas 1996; Withers 1946), groundstone palettes (Lowell 1990; Maldonado Cárdenas 2002), shell trumpets (Brown 1967; Mills and Ferguson 2008), and parrots (Hargrave 1970; Minnis et al. 1993). They have also examined large-scale features – most notably ballcourts (Wilcox 1991a; Wilcox and Sternberg 1983) – and iconography (e.g., Mathiowetz 2001; Sánchez 2008; Searcy 2010) as evidence of interaction and influence. A few have sought to understand the social mechanisms behind Southwest-Mesoamerican interaction, including commerce (Di Peso 1974; Weigand and Harbottle 1977), religion (Mathiowetz 2001; Nielsen-Grimm and Bingham 2008; Parsons 1933b;

Wallace 2014), managerial strategies (Torvinen et al. 2016), migration, and political expansion (Pailes and Whitecotton 1979; Turner and Turner 2011). Most researchers now acknowledge that the circumstances of interaction were far more nuanced and complex than previously thought (Mathien and McGuire 1986; McGuire 1980). It seems likely that Southwest-Mesoamerican interaction was an ongoing process, involving numerous social scales, motives, and outcomes. Nevertheless, evidence of direct contact (e.g., copper bells, scarlet macaws), material procurement (e.g., Glycymeris shell bracelets), and influence (e.g., ballcourts) fluctuated over time and was more prevalent in some areas than others.

Mesoamerican artifacts, faunal remains, and features are found in small numbers throughout the Southwest. Much of the research into Southwest-Mesoamerican interaction has focused on the Hohokam and Casas Grandes (Paquimé) regions (e.g., Di Peso 1974; Harmon 2006; Haury 1945; R. Nelson 1986; Searcy 2010; Whalen and Minnis 1996; Wilcox 1986), but additional work has been done elsewhere, including Chaco Canyon (e.g., Lister 1978; Mathien 1986; B. Nelson 1995, 2006), the Hopi mesas (James 2000; Parsons 1933b), and the Mimbres region (discussed below).

This chapter is divided into six parts. The first reviews Mimbres research regarding exotica. The second is concerned primarily with methodology and also provides some background on the origin of specific artifact classes, styles, and materials. The four sections to follow describe analyses of exotica distribution at the scales of the individual, household, locus, and village. Within each of the analytical sections, evidence is discussed in chronological order and includes comparisons of inequality, primacy, and antecedence.

Part I: Exotica and the Mimbres Region

Archaeologists working in the Mimbres region have long noted the presence of Hohokam and Mesoamerican exotica. Macaws and other parrots have been the primary focus of several studies (Creel and McKusick 1994; Gilman et al. 2014; Wykoff 2009). De Quevado (2004) compared groundstone palettes in the Mimbres and Hohokam regions. A number of analyses have examined iconographic similarities among Mimbres, Hohokam, and Mesoamerican ceramic traditions (e.g., Brody 1977; Hegmon and Nelson 2005; Thompson 2007; VanPool 2003; see also Hays-Gilpin and Hill 2000). Either explicitly or implicitly, most of these studies have addressed the asymmetric distribution of exotica in Mimbres contexts. My analyses build on these studies by expanding the number of artifact classes examined, and by situating the distribution of exotica within a broader theoretical framework.

Part II: Methods and Origins

The analyses to follow are based on artifacts from 3,143 burial assemblages from seven Mimbres sites (Cameron Creek, Galaz, Harris, Mattocks, NAN Ranch, Swarts, and Wind Mountain); these are listed in Appendix I. Analyses are limited to mortuary assemblages because burials are the only consistent unit of excavation with which to standardize counts, thus producing comparable, relative frequencies. Exotica recovered from non-mortuary contexts are not included in this analysis but are, on occasion, mentioned anecdotally to provide additional context for interpretation.

The analyses presented below include exotica that are labeled as either Mesoamerican or Hohokam in origin. Objects made of Mesoamerican materials are classified as Mesoamerican exotica (e.g., marine shell artifacts, copper bells). Other items have arguably Mesoamerican roots but ultimately became most prevalent in Hohokam contexts and were made of materials that cannot be traced to Mesoamerican sources. Such artifacts – namely, palettes censers, and clay figurines – are classified as Hohokam exotica.

Analyses examine the distribution of specific artifact classes (e.g., shell beads), related groups thereof (e.g., shell jewelry), artifacts that collectively came from a given source area (e.g., all Hohokam artifacts), and all exotica combined. In general, it is not possible to determine where exotica were prior to their arrival in the Mimbres region. Marine shell jewelry serves as a perfect example. Most, if not all, of the marine shell recovered from Mimbres deposits originated in the Gulf of California, and for this reason, it is treated analytically as Mesoamerican exotica. However, much of the shell jewelry found at Mimbres sites likely came from the Hohokam region, where shell procurement and shell jewelry manufacturing have been well documented (e.g., Bayman 1996; McGuire and Howard 1987; Mitchell and Foster 2013; Seymour 1988). Thus, some shell ornaments may have been obtained directly from coastal groups or manufactured locally from directly-procured materials (see McGuire 2011:39). Most, however, are likely to represent interaction with Hohokam, rather than more southern, sources. In either regard, differences in the presence of mortuary exotica can imply inequality, but I do not infer asymmetric access to nonlocal groups. Fourteen classes of exotica were identified within the sample and these are introduced below:

Mesoamerican Exotica Classes

Copper Bells (see Figure 6.2a). Copper bells, or *crotals*, are known to have been made in and around the Balsas River Valley of Mexico. Their method of entry into the Southwest is not known. They are exceedingly rare but have been found in many parts of the Southwest (Hosler 1988; Sprague 1964; Sprague and Signori 1963; Vargas 2001; Withers 1946). Bells were probably valued for their brilliance and divine sound, and were likely used in ceremonial contexts (Hosler 1994).

Parrots (see Figure 6.2m). Parrots, including macaws, were brought into the Southwest from the south. Some species, such as the Scarlett Macaw, probably traveled farther than others, such as thick-billed parrots. Their method of initial entry is not known. By the Medio period (ca. 1250-1450 C.E.), parrots were being bred at Casas Grandes (Minnis et al. 1993) and perhaps elsewhere, but all such evidence postdates the Mimbres Classic period. Parrots were probably valued for their ability to "speak," along with their size and brilliant colors. In Mesoamerican traditions, parrots are frequently associated with the Sun, cosmic rebirth, and specific deities.

Ear spools (see Figure 6.2n). Lapidary ear spools were known in Mesoamerica since formative times (e.g., Paradis 1981) and are quite rare in the Southwest. Ceramic analogs have been recorded as far north as Veracruz, Mexico (Weiant 1943).

Marine shell. Within the sample, this category comprises five separate classes of exotica: *Glycymeris* bracelets (see Figure 6.2d), *Conus* tinklers (see Figure 6.2l), shell pendants (see Figures 6.2c, j), shell rings (see Figure 6.2e), and shell beads (see Figure 6.2g). Marine shell artifacts are found throughout the Southwest, in varying numbers and styles. Their place of manufacture is unknown, although there is little evidence to suggest widespread manufacture in the Mimbres region. Artifactual shell found here is generally agreed to have originated in the Gulf of California. There is evidence to suggest that Mimbres artisans visited the Pacific coast (Jett and Moyle 1986), so it is possible that shell artifacts were directly procured from Mesoamerican places or sources. There is evidence of shell jewelry manufacture at some Hohokam sites (particularly with regard to bracelets), and Mimbres consumers may have obtained jewelry there. Because the place of manufacture and method of entry are unknown, but the materials' origin is secure, marine shell artifacts are categorized as Mesoamerican exotica for the present study.

Tcamahias (see Figure 6.2h). Mimbres *tcamahias,* frequently referred to as "hoes," have been found in caches and graves, suggesting importance.[17] They have not been found in frequencies consistent with agricultural use, and examinations have found no use-wear consistent with digging (Powell-Martí and James 2006:169; Shafer 2003:201). Similar artifacts have been found in the northern Southwest (Brugge 1955; Ellis 1967), where they have been interpreted as ceremonial in nature. The inspiration for these artifacts is unknown, but their shape is similar to ceremonial celts found in Mesoamerican sites dating back to formative times (e.g., Taube 2000) and perhaps representing oversized axe heads or miniature stelae. Ellis (1969:174) noted that a cache of these were found in a sealed kiva wall niche at Pecos Pueblo. Both she and Brugge (1955) suggested that *tcamahias* may have served as "kiva bells," while in Mimbres contexts, Shafer (2003:201) suggests they were ritualized versions of agricultural tools.

Mosaic ornaments (see Figure 6.2b). Mosaic ornaments have been found throughout the Southwest (in small numbers), but the decorative style – particularly the use of blue-green stone (e.g., jade, turquoise) tesserae – dates back to at least Olmec times, when mosaic images were room-sized

[17] The term *tcamahia* comes from the Keres proper noun *Tcamahia,* a warrior spirit. Ellis (1969:167) reported that at Santa Ana Pueblo, *Tcamahia* impersonators carried, as rattles, elongated bits of petrified wood on fringes. The Hopi referred to an ancestral sub-phratry as *Tcamahia,* and indicated that this group left *Wukoki* and traveled to Acoma (Fewkes 1912:159). According to Fewkes (1912:159), the Hopi *Tcamahia* were intimately tied to the Snake Society, and Ellis (1969:167) indicated that at Oraibi, members of the Snake Society wore fringed belts with petrified wood danglers, much like those carried at Santa Ana by *Tcamahia* impersonators.

(e.g., Bernal 1969:Plate 7). Southwestern analogs tend to be smaller, often consisting of personal ornaments with perishable backings. Larger items, such as tile-covered baskets, have been found to the north (e.g., McGregor 1943:Plate 1).

Comales. *Comales* are thin, flat griddles used to fry tortillas. They are common in early Mesoamerican sites (Fournier 1998), but were not introduced into the Southwest, in any quantity, until the late thirteenth or early fourteenth century (Beck 2001:203; Snow 1990:293). Their arrival in the Southwest generally coincides with the advent of the Salado Phenomenon (Crown 1994). The Cosgroves found two *comales* in a Classic Mimbres burial at Swarts.[18] As near as I can tell, these are the earliest examples in the Southwest, and are indicative of Mimbres-Mesoamerican interaction.

Hohokam Exotica Classes

Palettes (see Figure 6.2f). Palettes are thin, tray-like artifacts. They are almost always ground from stone and are generally, though not always, rectangular. The earliest known palettes are from sites in Guerrero and Michoacán (Haury 1976:289; Maldonado Cárdenas 1980, 2002). They appear in the Hohokam region during the Colonial period (ca. 750-950

[18] According to the Cosgroves' field notes (data shared by Steven LeBlanc, 2013), Burial 329 contained two "tortilla stones," which I interpret as referring to *comales.*

C.E.) and quickly become prominent features in cremation rituals. Thereafter, palettes are most frequently found at Hohokam sites. Allen Denoyer (personal communication, 2015) believes that Hohokam palettes developed from local groundstone “trays” dating to Archaic times (ca. 12,000 B.C.E.-200 C.E.) and thereafter diffused south (see Ferg 1997:8). Palettes are categorized as Hohokam exotica for the present study.

Censers (see Figure 6.2i). Stone censers are encountered in Mesoamerican contexts dating back into formative times (e.g., Goldstein 1977). Their entry into the Southwest coincided with that of palettes and were likewise used in Hohokam cremation rituals (Adams 2011:95; Haury 1976:288). Hohokam stone censers developed into a style of their own and similar artifacts from Mimbres deposits are categorized as Hohokam exotica.

Clay figurines (see Figure 6.2o). Small human and animal figurines, fashioned from clay, have been encountered in formative-period, Mesoamerican contexts. Like palettes and censers, these figurines eventually became staples of Hohokam mortuary ritual, where they developed into a distinctly local style (Thomas and King 1985). Though quite rare, Hohokam-like figurines have been encountered in Mimbres contexts (Lambert 1956). Given their stylistic similarity to Hohokam analogs, these are included in the present study as Hohokam exotica.

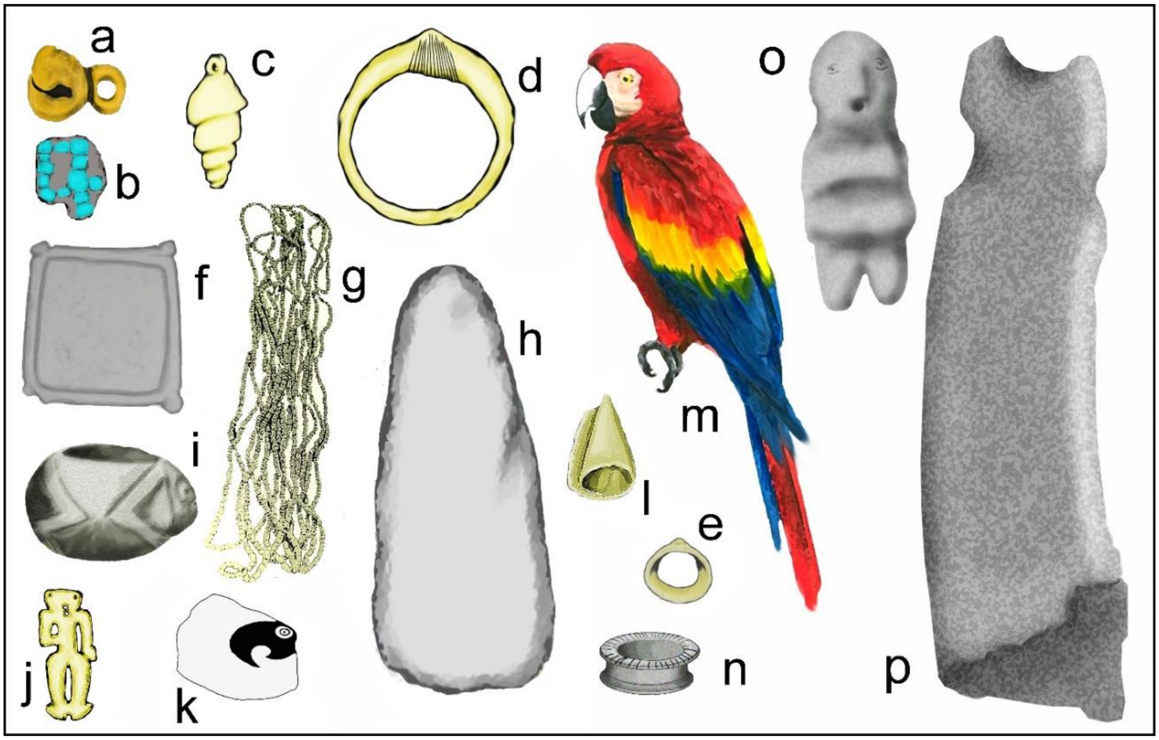

Figure 6.2. Examples of Mesoamerican and Hohokam exotica forms recovered in the Mimbres region. (a) copper bell; Cameron Creek [after Bradfield 1931:Plate CIII.128-28]; (b) turquoise and shell mosaic; NAN Ranch [after Shafer 2003:Figure 11.13]; (c) shell pendant; Galaz [after Anyon and LeBlanc 1984:Figure 19.8Y]; (d) shell bracelet; Swarts [after Cosgrove and Cosgrove 1932:Plate 72f]; (e) shell ring; Swarts [after Cosgrove and Cosgrove 1932:Plate75d]; (f) palette; Galaz [after Anyon and LeBlanc 1984:Figure 19.1A]; (g) shell beads; Swarts [after Cosgrove and Cosgrove 1932:Plate 71b]; (h) *tcamahia*; Old Town [after Creel 2006a:Figure 66]; (i) censer; Swarts [after Cosgrove and Cosgrove 1932:Plate 27a]; (j) shell effigy pendant; NAN Ranch [after Cosgrove and Cosgrove 1932:Plate 76e]; (k) sherd with parrot motif; Swarts [after Cosgrove and Cosgrove 1932:Plate 232d]; (l) shell tinkler; Swarts [after Cosgrove and Cosgrove 1932:Plate 71a]; (m) scarlet macaw [after "Scarlet Macaw" greeting card by Christopher Cox]; (n) Hohokam schist ear spool; Snaketown [after Haury 1945:Figure 2m]; (o) clay figurine; Cow Springs Draw [after Creel 2006a:Figure 12B; MimPIDD 4685; University of Arkansas Museum, no. 47-123-5A]; (p) notched floor support, Old Town [after photo by Nels Nelson, neg. no. 1562, Department of Library Services, American Museum of Natural History]; not to scale).[19, 20]

[19] Several shell pendants, nearly identical to that pictured in Figure 6.2j, have been encountered at Hohokam sites. The anthropomorphic figure shown here has two mouths, as does a life-size stone head recovered by Jack and Vera Mills from the post-Classic Dinwiddie site, in the Upper Gila area.

The analyses also examine the distribution of non-local, ceramic attributes in Mimbres burials. These include certain decorative motifs, themes, and select styles of effigy jars (see Figure 6.3). Twenty-one such vessels were identified within the sample, and data from these are presented in Appendix CIX. The motifs in these vessels comprise five Mesoamerican classes: human effigy jars (n = 1), and depictions of parrots (n = 5), detached human arms (n = 1), waterbirds/fish interactions (n = 11), and *Glycymeris* bracelets (n = 3). These vessels are included in the analyses of exotica, along with the artifact classes listed above.

There are three iconographic themes that hint at Mesoamerican interaction, but which are not considered here: marine life, crested serpents, and geometric motifs. Jett and Moyle (1986) showed striking similarities between some Mimbres fish depictions and select species of marine fishes, suggesting travel between the Mimbres region and the Pacific coast. Other Mimbres vessels may likewise portray coastal animals (see Figure 6.4), but these are not included in the present analysis because of the inherent uncertainty that accompanies such interpretation (see Bettison et al. 1996). Several archaeologists have commented on or examined the presence of Mesoamerican-like crested serpents portrayed in Mimbres pottery designs (e.g., Hegmon and Nelson 2007; McGuire 2011; Nelson 2010; Phillips et al., 2006; VanPool et al., 2008). In a previous analysis, I found that serpent imagery (in varying levels of abstraction) quickly became pervasive in

[20] A number of notched stone slabs, such as that shown in Figure 6.2p and discussed further below, have been recovered in the Mimbres region, most notably at Swarts and Old Town and always in non-mortuary contexts. These are generally compared to Hohokam notched floor supports (see Schroeder 1953), and this is the most parsimonious analog. However, the objects do bear resemblance to "kiva bells" from the northern Pueblo region (see Brugge 1955:Figure 36), especially with regard to the lateral notches.

Mimbres decoration (2010). Nuances in the distribution of crested serpent imagery is worthy of further study, but no such analysis is included here, as the ubiquity of these motifs is likely to overshadow the distribution of other, less common exotica. Finally, certain geometric motifs found in some Mimbres designs may have originated in Mesoamerica (e.g., outlined cross, dot-in-box, four-pointed star). Such observations, however, have yet to be systematically assessed.

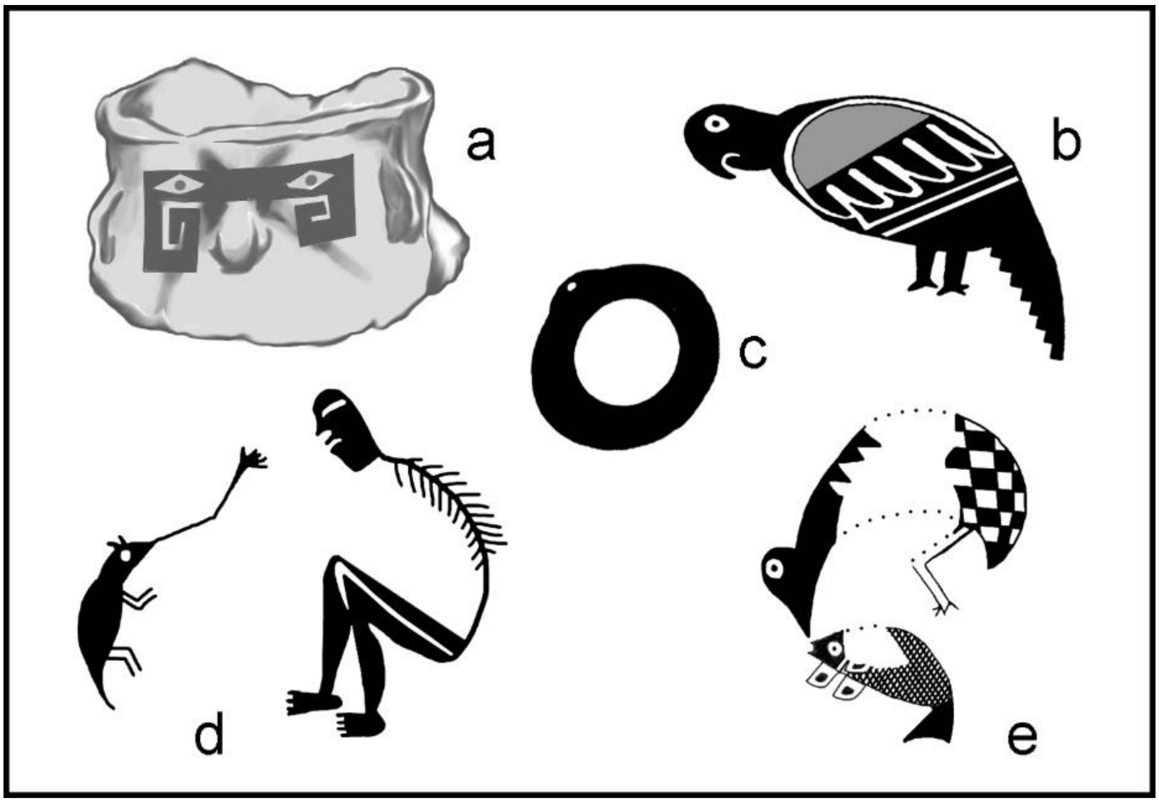

Figure 6.3. Examples of figurative, nonlocal motifs and themes encountered in Mimbres pottery decoration (not to scale); (a) head from human effigy jar [after MimPIDD 8750, Old Town], (b) parrot [after MimPIDD 1114, Cameron Creek], (c) Glycymeris bracelet [colors inversed here; after MimPIDD 2970, Galaz], (d) removal of human arm [after MimPIDD 9555, Swarts], (e) interaction between bird and fish [after MimPIDD 2619, Swarts])

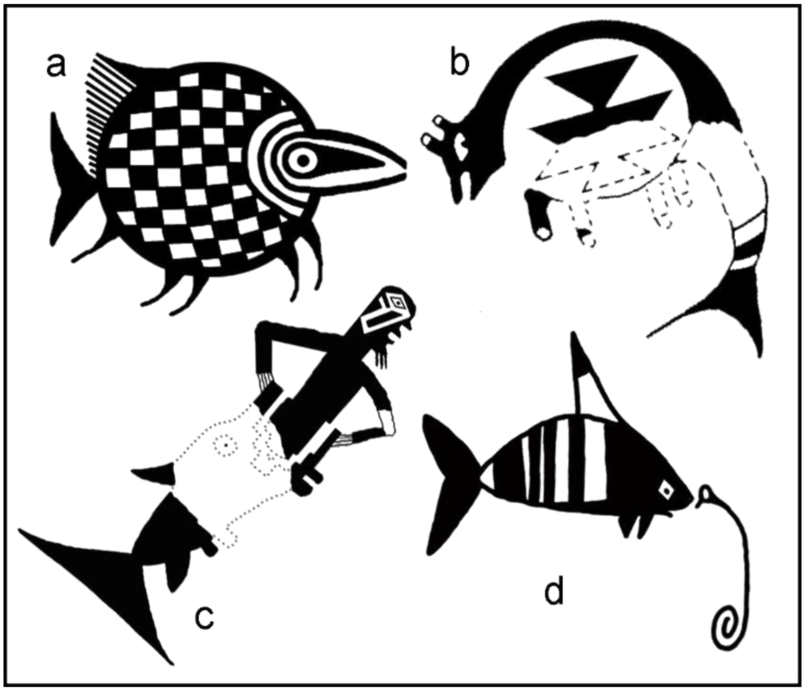

Figure 6.4. Mimbres pottery designs that potentially show marine wildlife (not to scale). (a) identified by Jett and Moyle (1986:701-702, Figure 6) as a longnose butterfly fish (late Style II bowl; MimPIDD 2723; Swarts; Peabody Museum of Archaeology and Ethnology; museum no. 94799); (b) possible harbor seal (late Style II to middle Style III bowl; MimPIDD 2095; Swarts; Peabody Museum of Archaeology and Ethnology; museum no. 94550); (c) possible shark attack (middle Style III bowl; MimPIDD 2764; Galaz; University of Minnesota; museum no. 15B-258); (d) possible fish and seahorse (middle Style III bowl; MimPIDD 5680; Hinton Site; Texas A&M University).[21]

Part III: Access to Exotica at the Individual Scale

[21] In Figure 6.4c, note that the man's facial decoration is unique among Mimbres depictions of humans and that he has a beard, which are rarely depicted. These traits may identify him as a coastal resident.

This section considers inequality in individuals' access to exotica and how such differences, if present, relate to age and sex. The analyses are based on the presence of exotica in burials, and trace processes and changes over time. Cumbre and Georgetown phase burials were rare (numbering three and six, respectively) and none contained exotica. Thus, the analyses begin with the San Francisco phase.

San Francisco Phase

A number of nonlocal materials and styles appeared in the Mimbres region during the San Francisco phase. The first decorated pottery in the Mimbres sequence – Mogollon Red-on-brown – is made at this time, and it resembles contemporaneous Hohokam wares in a number of ways, including coloration, design layout, and geometric motifs (Brody 2004:85). For the purpose of the present analysis, however, Mogollon Red-on-brown pottery is not included.

Exotica were not distributed evenly across burials during the San Francisco phase. Of the 24 San Francisco phase burials in the sample, seven (29.2 percent) were accompanied by exotica (see Appendix CX). Among these, the mean number of nonlocal items per burial is 214.4 ($\sigma = 420.28$). Six of seven burials in question were from Wind Mountain, and the seventh was from Harris Village. Of the seven, only the one from Harris village was clearly associated with a domestic pithouse. Of those at Wind Mountain, one was in a great kiva, one intruded into an earlier pithouse, and the others were clearly (n = 3) or probably (n = 1) extramural. Founding and preeminently-antecedent loci are unknown at Wind Mountain and Harris Village, thus preventing consideration of exotica distribution in relation to these factors during the San Francisco phase.

There were four types of exotica present in San Francisco phase burials, all of which are classified as Mesoamerican. One burial had 167 turquoise tesserae, assumed to be the remains of a Mesoamerican-style mosaic. All other exotica consist of marine shell artifacts. Five of the seven individuals were adults, and of the three for whom sex was determinable, two were male and one was potentially male. Given the small sample size, there is no clear association between exotica and either age or sex.

Three Circle Phase

The asymmetric distribution of exotica continued into the Three Circle phase. Although the percentage of burials that contain exotica decreased, they did become more evenly distributed across sites. Of the 193 Three Circle phase burial assemblages considered,[22] 26 (13.5 percent) contain exotica (see Appendix CXI) and these were found at six different sites (i.e., all but Mattocks). This relative frequency represents a reduction, as compared to the previous phase, although the significance of this change is unclear ($p = 0.08$; Fisher's exact test, two-tailed). Among the 26 burials with exotica, the mean number of nonlocal artifacts per burial was 22.7 ($\sigma = 43.00$), down from the previous phase, but not decidedly so ($U = 107.5$, $p = 0.48$; Mann-Whitney test, two-tailed). Twenty-two of the burials with exotica (84.6 percent) came from domestic

[22] Including 26 Mangas/Transitional phase burials.

pithouses, two were extramural (7.8 percent), and two were from a great kiva. The increase in intramural placement parallels a general trend of moving burials indoors.[23] Burials with exotica were placed in ceremonial architecture (7.8 percent) about half as often as were burials in general during the Three Circle phase (16.6 percent). This difference, however, has a high probability of resulting from chance ($p = 0.39$; Fisher's exact test, two-tailed).

There is no discernible correlation between mortuary exotica and either primacy or antecedence during the Three Circle phase. There are several instances wherein two or more burials with exotica co-occurred in the same household, and these are discussed further in Part IV. Exotica also co-occur, in some instances, with restricted ritual paraphernalia. Specifically, all four Three Circle Phase burials with restricted ritual paraphernalia were also accompanied by exotica, including at least one *Glycymeris* bracelet apiece.

The number of types of exotica increased during the Three Circle phase, from four to six. Most of these are again classified as Mesoamerican, although the corpus does include 10 groundstone palettes (and one palette fragment), which are classified as Hohokam. In Hohokam contexts, palettes are most often associated with cremations (e.g. Haury 1976; Hawley 1947), but this was never the case with Mimbres palettes during the Three Circle phase. Sex was determinable for only five of the individuals, four of whom were male. Ages were variable, with six infants, eight children, and 10 adults.

[23] Of the 193 burials dating to the Three Circle phase, 180 were indoors (93.3 percent). The differences between this relative frequency and that of intramural burials with exotica has a high probability of resulting from chance ($p = 0.76$; Fisher's exact test, two-tailed).

Classic Period

The asymmetry in access to exotica continued into the Classic period and once again became even more pronounced. Of the 2,184 Classic period burials in the sample, 188 (8.6 percent) were accompanied by exotica, and these are detailed in Appendices CIX and CXII. This represents a significant decrease in relative frequency, as compared to the Three Circle phase ($p = 0.03$; Fisher's exact test, two-tailed). Among the assemblages with exotica, the mean number of nonlocal items was 46.8 ($\sigma = 309.6$), a significant and twofold increase from the previous phase ($U = 3{,}094$, $p = 0.02$; Mann-Whitney test, two-tailed). As was the case during the Three Circle phase, most of the Classic period burials with exotica were found indoors ($n = 162$; 86.2 percent), with 120 coming from domestic houses (63.8 percent), 42 from ceremonial architecture (22.3 percent), 20 from extramural contexts (10.6 percent), and six having unclear intrasite provenience (3.2 percent). The relative frequency of burials with exotica occurring in ceremonial architecture is higher during the Classic period than it was during the Three Circle phase, but not significantly so ($p = 0.12$; Fisher's exact test, two-tailed). The rate at which Classic period burials with exotica were placed in ceremonial architecture (22.3 percent) does not differ significantly from the rate at which Classic period burials in general were (18.9 percent; $p = 0.25$; Fisher's exact test, two-tailed).

Diversity in exotica types again increased, from six to 15. Most of these were Mesoamerican in origin; only 13 of the 188 burials in question contained Hohokam or Hohokam-like objects (6.9 percent). For the first time, whole shells and pieces of shell (aside from broken jewelry) were found in burials. Other newly-introduced marine artifacts include Conus shell tinklers, two-dimensional shell effigy pendants, and a coral bead. Copper bells first appear in Mimbres graves during the Classic period and offer some of the best evidence of direct contact with Mesoamerica. Stone bowls, or censers, like those found in Hohokam cremation contexts, are also introduced to the Mimbres mortuary tradition.

Several items of potential Mesoamerican origin or style deserve additional discussion. A “ceramic ring sherd (or ear spool)” was found at NAN Ranch (Shafer 1981:11-14). Ear spools have been encountered in the Southwest (e.g., Gladwin et al. 1937:Plate 113d), but are known primarily from Mesoamerica contexts (e.g., Brown 2007; Charlton 1993). *Tcamahias*, sometimes called “hoes,” were found in four burials within the sample; three of the burials had one, and the fourth was accompanied by 47. Shafer (2003:201) recovered several of these, from NAN Ranch and said they were “presumably used to tip digging sticks and in ritual performances.” He described one in particular as “finely ground and polished specimen of a silicious banded mudstone from the Morrison Formation near the Four Corners area … certainly an item of exchange from the Chaco region.” Thirty-seven *tcamahias* were recovered from Galaz (Anyon and LeBlanc 1984:99, Figure 6.2); neither these, nor those recovered from NAN Ranch showed wear consistent with agricultural use (Powell-Martí and James 2006:169; Shafer 2003:201). The shape of these items is not unlike that of ceremonial celts found in Mesoamerica (e.g. Taube 2000), and may represent local analogs. Both Ellis (1967) and Taube (2000:325-326; 2004:128) have noted this parallel. Ellis (1969:174) and Brugge (1955) suggested a possible connection between *tcamahias* and “kiva bells” used during ceremonies. Finally, two *comales*, thin flat rocks probably used to fry tortillas, were found in one burial at Swarts (see footnote 15, above). *Comales* were commonly used in Mesoamerica (Fournier 1998), but were not widely introduced into the Southwest until the late thirteenth or early fourteenth century (Snow 1990:293).

Approximate age is determinable for 160 of the 188 Classic period burials with exotica: 34 infants, 68 children, and 58 adults. Sex was determinable for seven females and 14 males. Another individual was tentatively identified as female. These data are examined in more detail below.

Temporal Trends

The analyses thus far suggest that the range of exotica increases over time, despite a steady decrease in the proportion of burials with exotica (see Figure 6.5). To understand the trends in more detail, the data are synthesized by type of item (see Table 6.1). Many types appear in graves for the first time during the Classic period (e.g., censers, figurines, bells, coral, ear spools, *tcamahias*, and tinklers). Although not included in the present analysis, some of these items are known from non-mortuary, pre-Classic contexts, where they were often deposited in great kivas.

Figure 6.6 illustrates diachronic changes in the relative frequency of five classes of exotica that appeared prior to the Classic period: shell pendants, shell beads, *Glycymeris* bracelets, mosaic ornaments, and palettes. Frequencies in these artifact classes all peaked in the phase of their respective introduction and thereafter decreased. This might suggest that the novelty or exclusivity of the items was somehow important.

Table 6.1. Relative frequency of burials, per temporal period, that include exotica

Source	Exotica Class	% of Burials Including Exotica Type During the San Francisco phase	Three Circle phase	Classic period
Mesoamerica	Glycymeris bracelets	15.4	7.8	3.5
	Mosaics	3.8	1.7	0.2
	Marine shell beads	11.5	3.3	2.4
	Marine shell pendants	7.7	3.3	1.2
	Comales	0	0	0.05
	Ceramic earspool	0	0	0.05
	Marine shell [A]	0	0	0.4
	Copper bells	0	0	0.3
	"Hoes"	0	0	0.2
	Marine shell rings	0	0	0.5
	Conus tinklers	0	0	0.2
	Coral bead	0	0	0.05
	All Mesoamerican	23.1	11.11	8.04
Hohokam	Palettes	0	3.3	0.5
	Censers	0	0	0.1
	Ceramic figurines	0	0	0.05
	All Hohokam	0	3.33	0.8
Both	All Exotica	26.9	13.5	8.6

[A] Including worked and unworked specimens, but not fragmentary artifacts

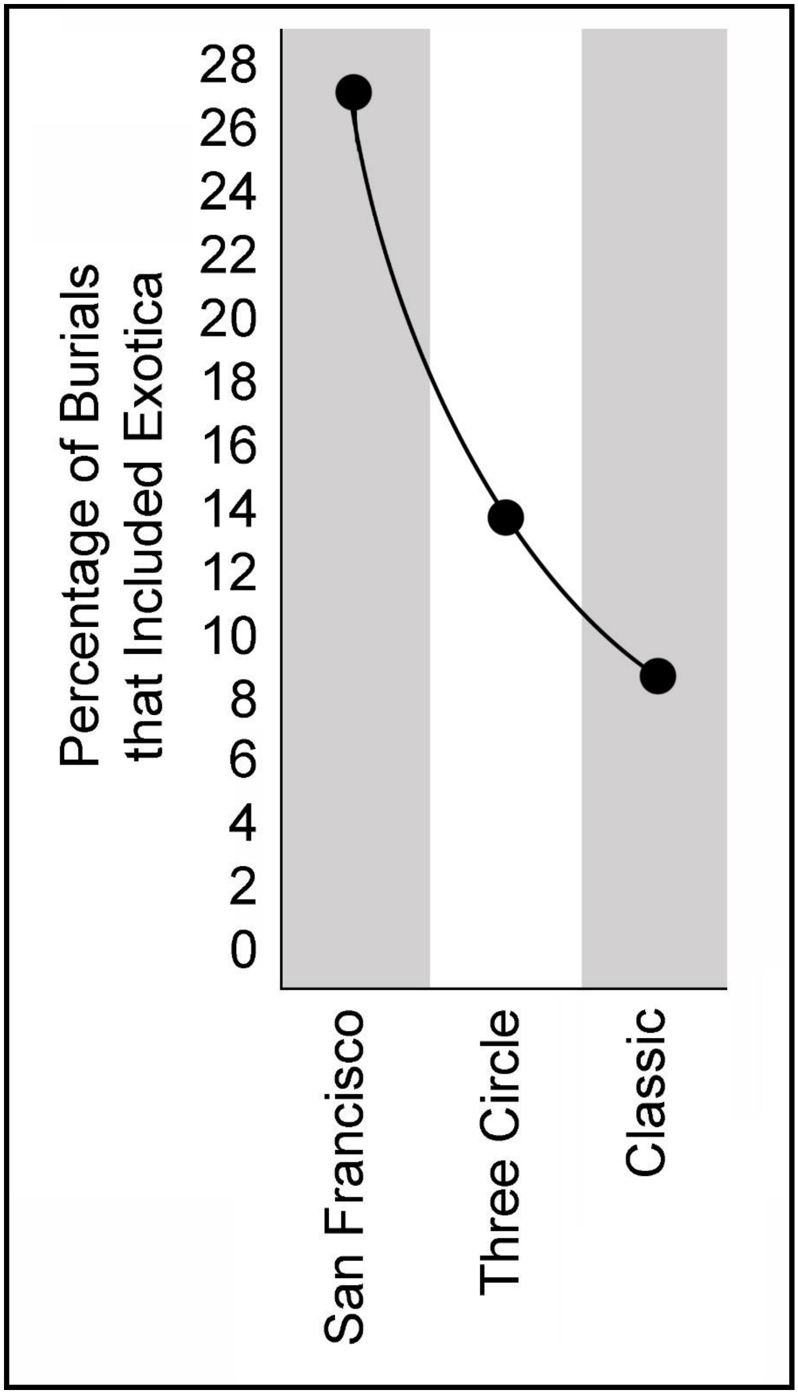

Figure 6.5. Diachronic change in the proportion of excavated burials found to contain exotica

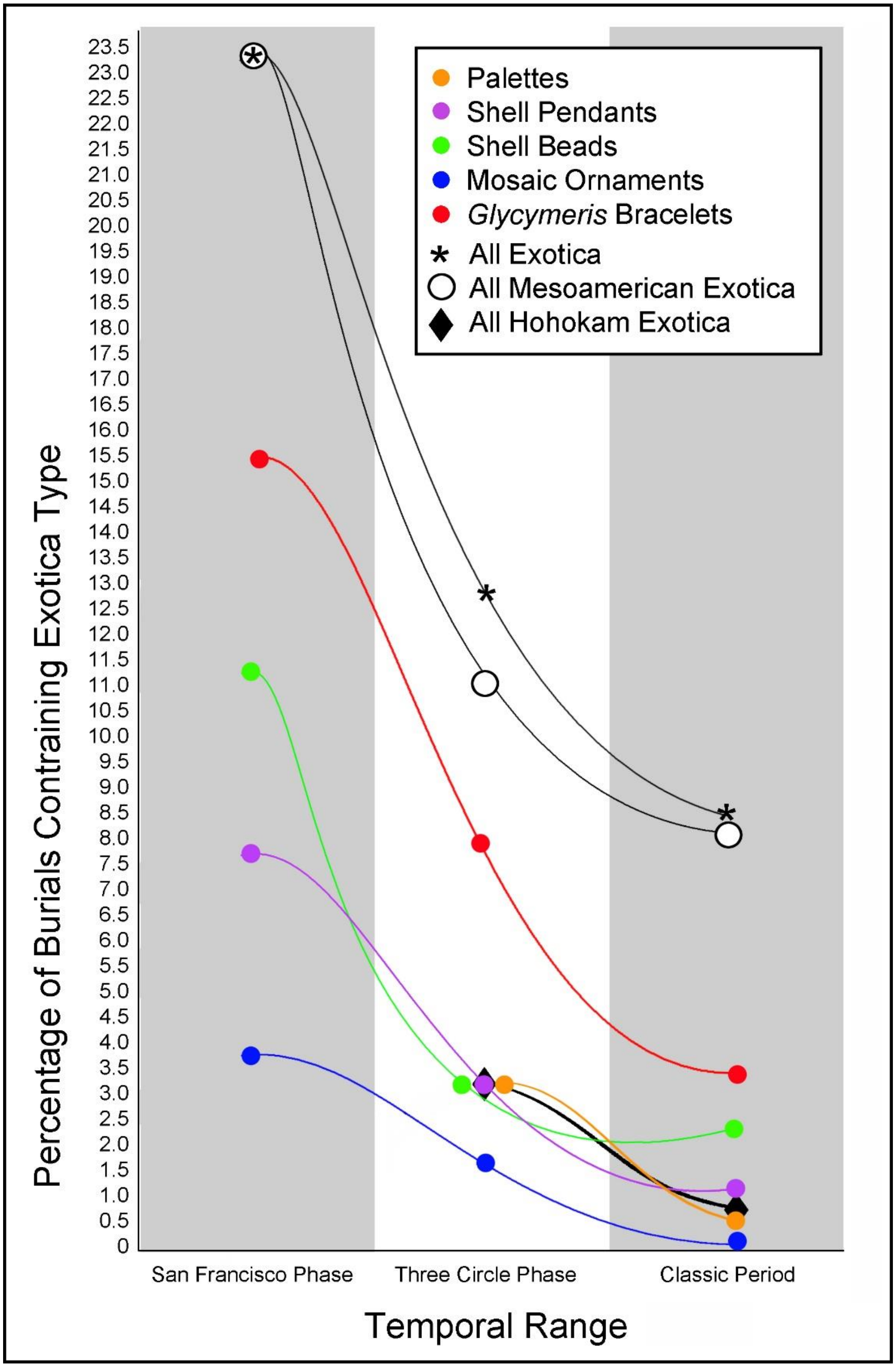

Figure 6.6. Changes in the prevalence of the five exotica classes that appeared in Mimbres graves before 1000 C.E. (Icons represent data points per phase or period, connected by best-fit lines assuming previous-phase absence).

Exotica Types and Biological Sex

Studies elsewhere in the Southwest suggested that some artifact types were preferentially associated with one sex. At Hawikku, Howell and Kintigh (1998:165) found that "feathers, hewe stones, wooden combs, turquoise-inlay combs, bone needles, pinyon seeds, and finger rings occur exclusively in graves containing females." At Grasshopper Pueblo, Whittlesey and Reid (2004:77) determined that some "ornaments were found only with one sex or the other. Bone hairpins, *Conus* sp. shell tinklers, bone beads, and *Glycymeris* sp. shell pendants were found only with male burials, whereas only females had shell ornaments covered with turquoise mosaic and finger rings of bone and shell." To assess whether similar patterns were present in Mimbres society, the mortuary association of exotica and biological sex is examined over the course of several periods of time (see Appendix CXIII). Individuals with determinable sex are associated with only nine classes of exotica. Seven of these are considered Mesoamerican in origin: *Glycymeris* bracelets, shell beads, shell pendants, pieces of shell, ear spools, copper bells, and celt-like *tcamahias.* The other two classes – palettes and censers – are analyzed as Hohokam exotica. These nine types are analyzed individually, collectively, and by source area.

Possible differences are examined by considering the relative frequency of a given class of artifact in male and female graves. Considering the Classic period, for example, five out of 133 (3.8 percent) female, and six out of 150 (4.0 percent) male, burials have *Glycymeris* bracelets. A two-tailed Fisher's exact test indicates that the small difference in relative frequency has a high probability of resulting from chance (p =

1.00), suggesting that shell bracelets were not preferentially associated with a particular sex. Similar results are obtained for nearly all of the nine artifact classes (data for these calculations are detailed in Appendix CXIII). When all time periods are considered together, exotica in general and Mesoamerican exotica in particular are found to be more strongly associated with males than females ($p = 0.06$ and 0.04, respectively) although – and in contrast to the findings at Hawikku and Grasshopper – the association is not exclusive.

Exotica Types and Decedent Age

It is also possible that certain types of exotica were reserved for, or preferentially associated with, people of certain ages. Association between exotica types and age is examined using the procedures described above, with data presented in Appendix CXIV. The 192 individuals for whom age was determinable are classified as infants ($<$ 1 year), children (1 – 17 years), or adults ($\geq$ 18 years). Results (summarized in Table 6.2) show that children were buried with exotica far more frequently than were adults and infants. In some cases, infants were buried with more exotica than adults, but never more than children.

As noted in the previous section, exotica in general (and Mesoamerican exotica in particular) were preferentially associated with males, although there were no clear associations between males and any specific classes of exotica. The distribution of exotica across age sets differs in this regard. That is, there do appear to have been meaningful differences in the distribution of particular exotica classes that correspond with decedent age. In nearly all such cases, which are detailed in Table 6.2, children were accompanied by particular kinds of exotica more often than others. Interestingly, each of these cases involves either marine shell jewelry or groundstone palettes.

Table 6.2. Classes of exotica that appear in child burials more frequently than others

	Children were Buried with…		
Time	**More…**	**More Often Than…**	**Probability [A]**
Classic period	Glycymeris bracelets,	Adults	0.02
	Mosaic ornaments,	Infants and adults	0.07, 0.05
	Shell beads,	Infants	0.03
	Shell pendants,	Adults	< 0.01
	Shell rings,	Adults	0.01
	Palettes,	Adults	0.05
Three Circle phase	Glycymeris bracelets,	Adults	0.06
Between 650 and 1130 C.E.	Glycymeris bracelets,	Infants and adults	0.06, 0.01
	Shell beads,	Infants	0.02
	Shell pendants,	Adults	0.01
	Shell rings,	Adults	0.02
	Marine shell, [B]	Adults	0.03
	Palettes,	Adults	0.07

[A] Based on two-tailed Fisher's exact test(s)
[B] Worked or unworked, but not fragmentary objects

Part IV: Access to Exotica at the Household Scale

The previous section showed that some individuals in Mimbres society had greater access to nonlocal objects, materials, styles, and iconography than others. Mesoamerican and Hohokam exotica were rare and seldom buried with people. Among those who were accompanied by exotica, some had far more than others, children had more than adults or infants, and there is some indication that males had more than females. This section extends the socio-spatial scale of analysis to determine whether some households had greater access to exotica than others.

For the pre-Classic era, the analysis assumes that each domestic pithouse represents a distinct household. Classic period households are more difficult to discern; thus, the analysis in this section focuses simply on domestic rooms. Only one burial with exotica can be associated with a household during the San Francisco phase, representing 4.8 percent of excavated structures (n = 21). This hints at household-scale inequality but simultaneously excludes comparison of households beyond presence and absence. For this reason, the analysis considers only the Three Circle phase and Classic period.

Three Circle Phase

Of the 99 Three Circle phase households considered in this analysis, 15 contained burials with exotica (15.2 percent, a less than significant increase from the previous phase [p = 0.23, Fisher's exact test, two-tailed]). [24] Each of the 15 households had an average of 36 pieces of exotica, with a range of one to 154. Clearly, some households had access to exotica while others did not, although there are no meaningful differences among those that did have burials with exotica.

The association of households with mortuary exotica with evidence for primacy and antecedence is shown in Figures 6.7 through 6.12. At Galaz (Figure 6.7), five of the 11 burials with exotica (in domestic pithouses) came from the antecedent South locus. Four of the five came from Pithouse 27/27A. The fifth came from next door, Pithouse 29, and was one of four burials in that household that were accompanied by restricted ritual

[24] Including seven "Mangas" and 19 "Transitional" phase domestic structures

paraphernalia. However, the other sites exhibit no association between exotica and either primacy or antecedence.

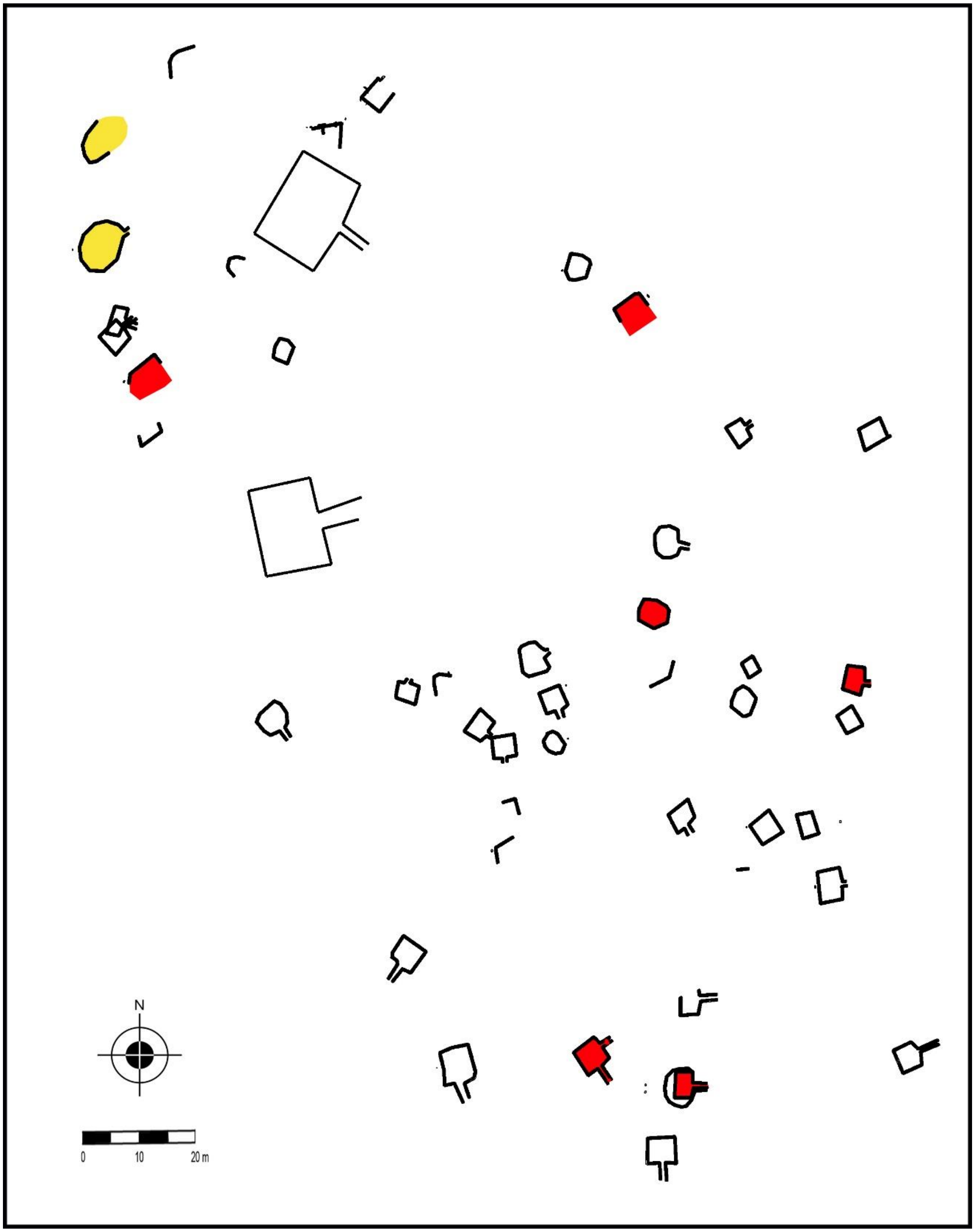

Figure 6.7. All pre-Classic architecture at Galaz, including the site's earliest structures (yellow; Georgetown phase) and its Three Circle phase, domestic pithouses with burials containing exotica (red). (Architecture after maps in Anyon and LeBlanc 1984).

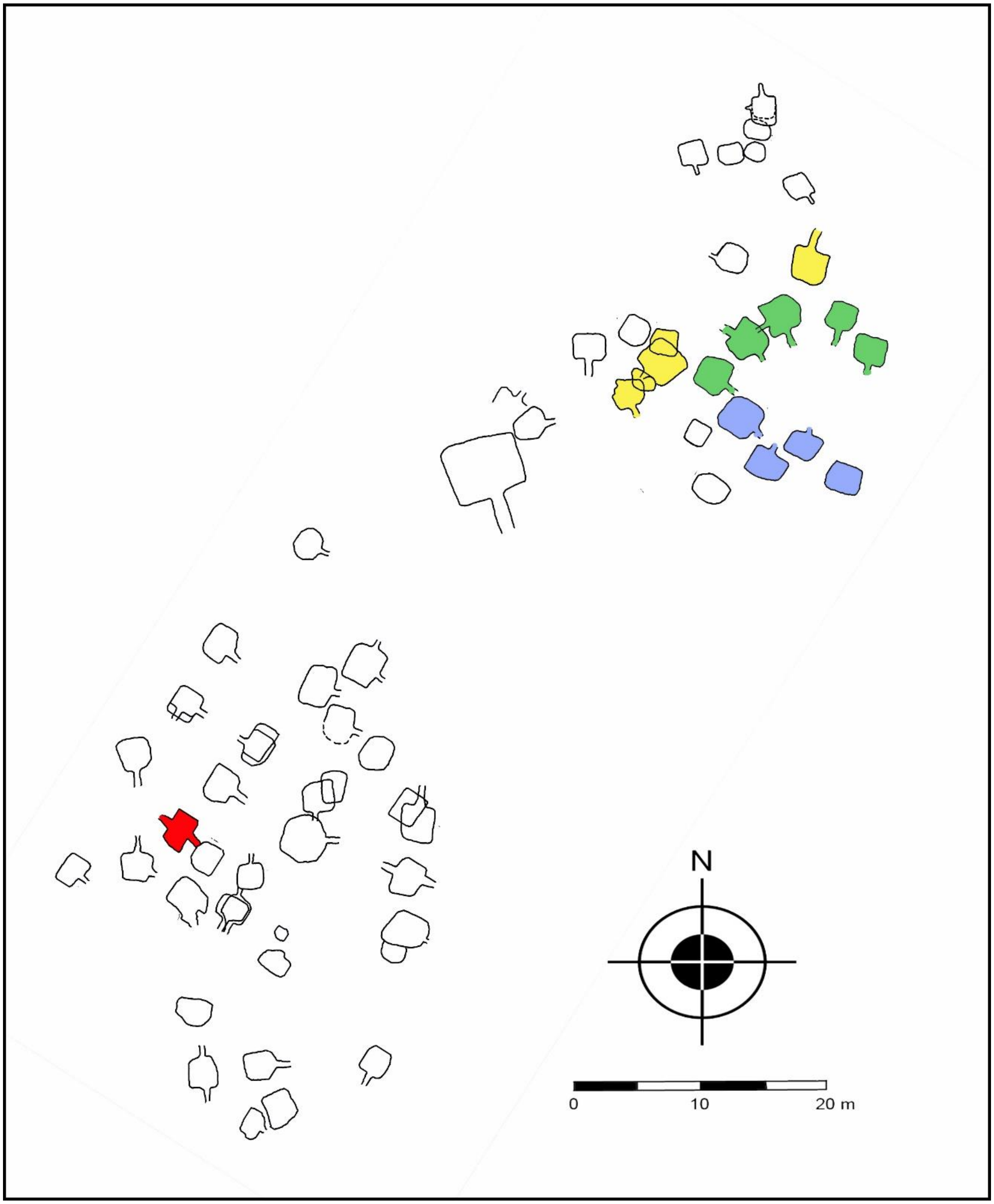

Figure 6.8. All pre-Classic architecture at Cameron Creek, including the site's most antecedent cluster (yellow and green), courtyard group (blue and green), and its Three Circle phase, domestic pithouse with a burial containing exotica (red). (Architecture after map in Bradfield 1931).

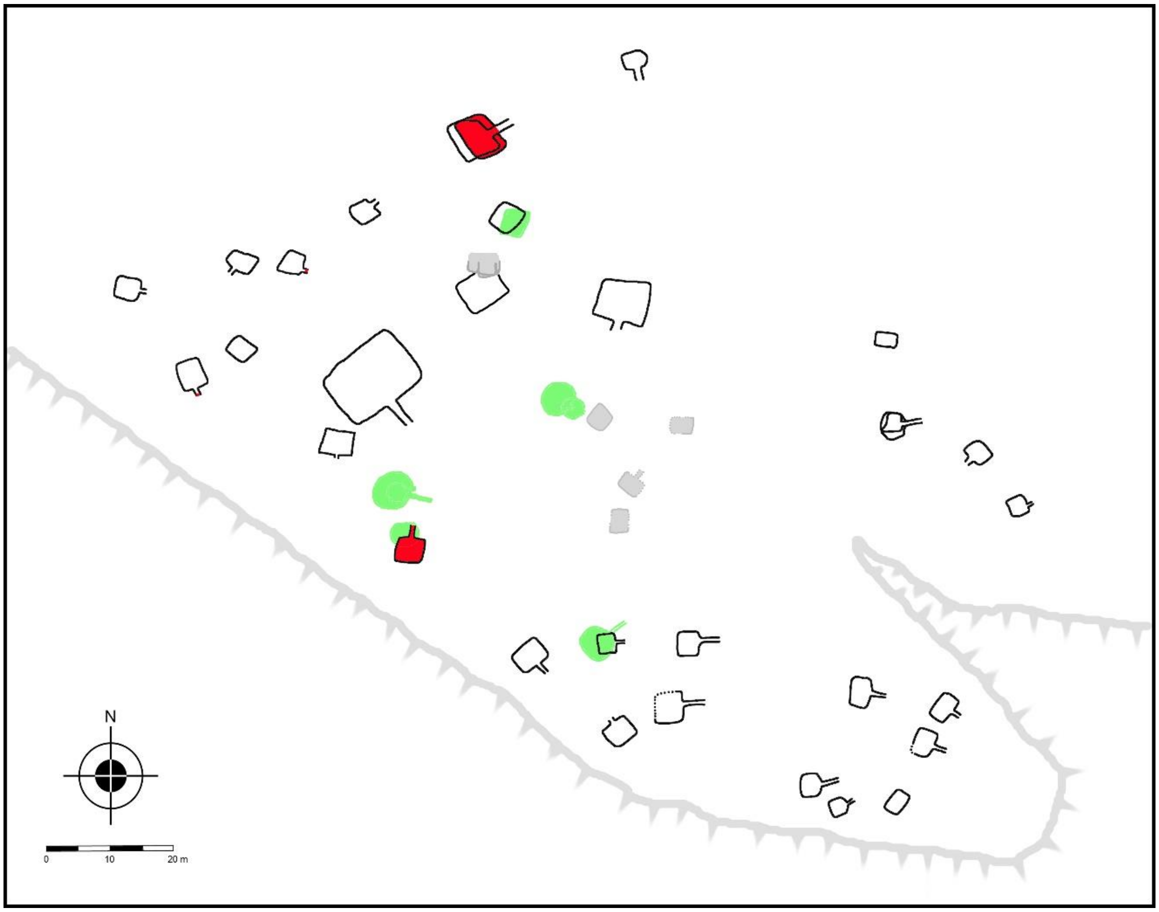

Figure 6.9. Three Circle phase architecture at Harris Village, showing domestic pithouses with burials that included exotica (red) and the site's earliest architecture (green). (Architecture after map in Haury 1936 and Roth and Baustian 2015:Figure 3)

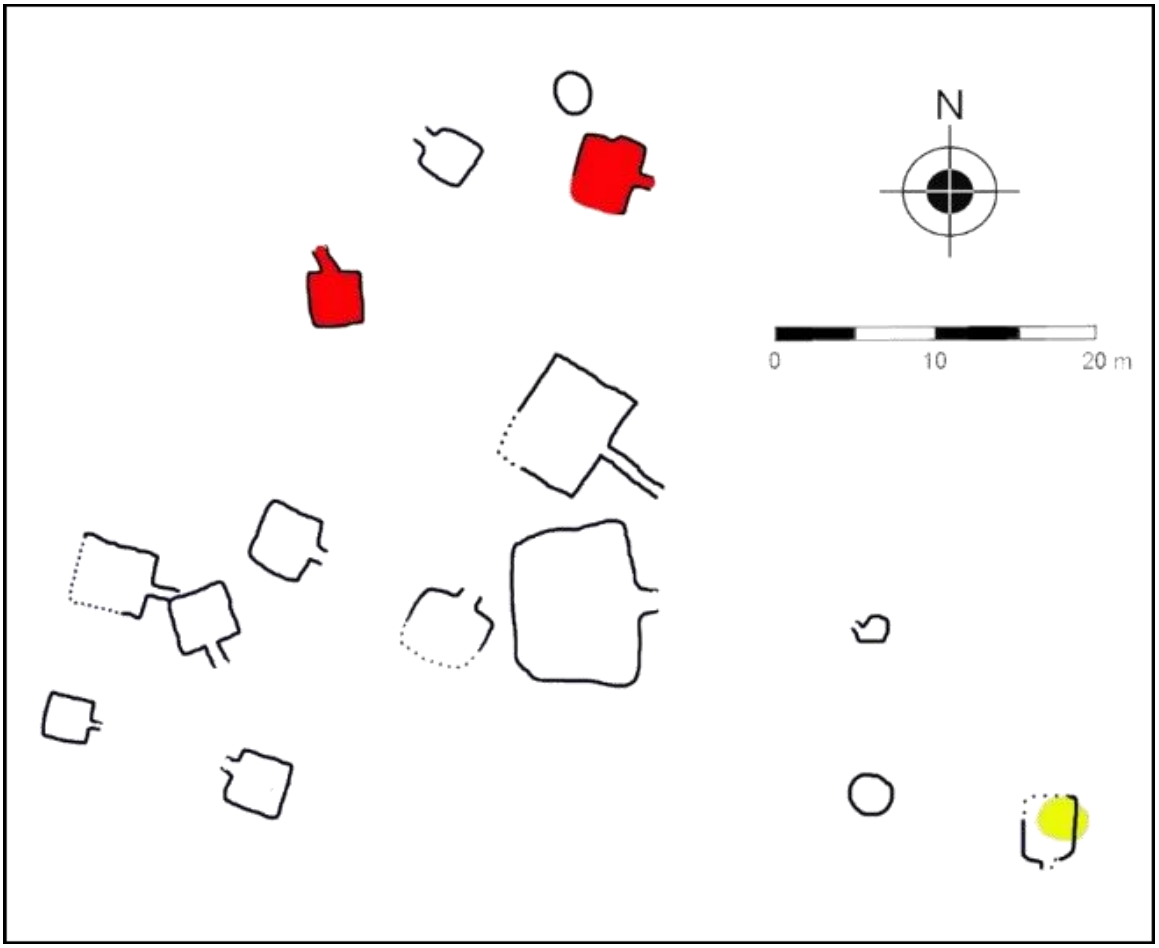

Figure 6.10. Three Circle phase architecture at NAN Ranch, showing domestic pithouses with burials that included exotica (red) in relation to the site's earliest (Georgetown phase) pithouse (yellow). (Architecture after Shafer 2003:Figure 3.5)

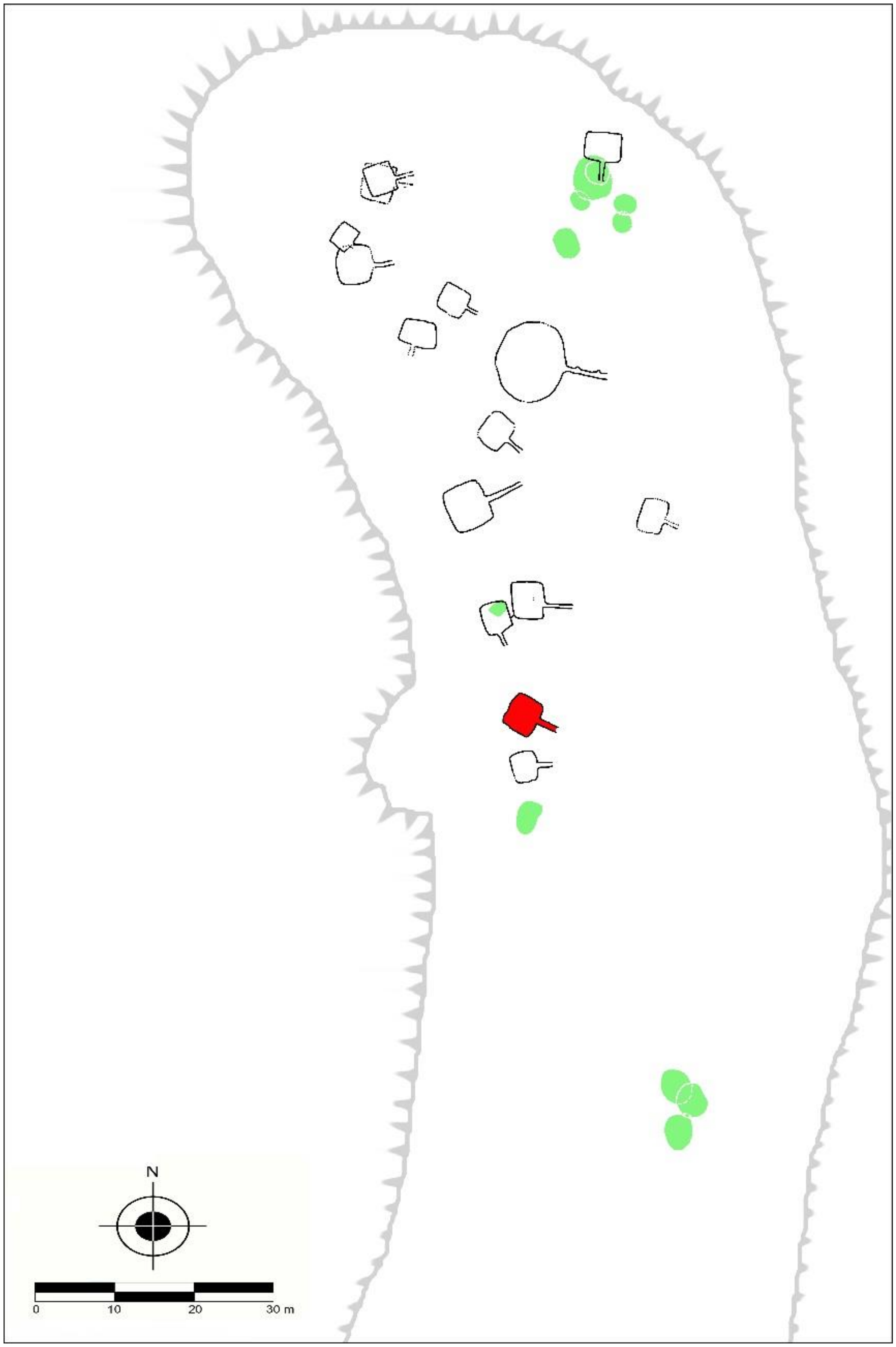

Figure 6.11. Three Circle phase architecture at Wind Mountain, showing the one pithouse with a burial that included exotica (red), in relation to the village's earliest (Cumbre phase) architecture (green). (Architecture after maps shared by Patricia Gilman)

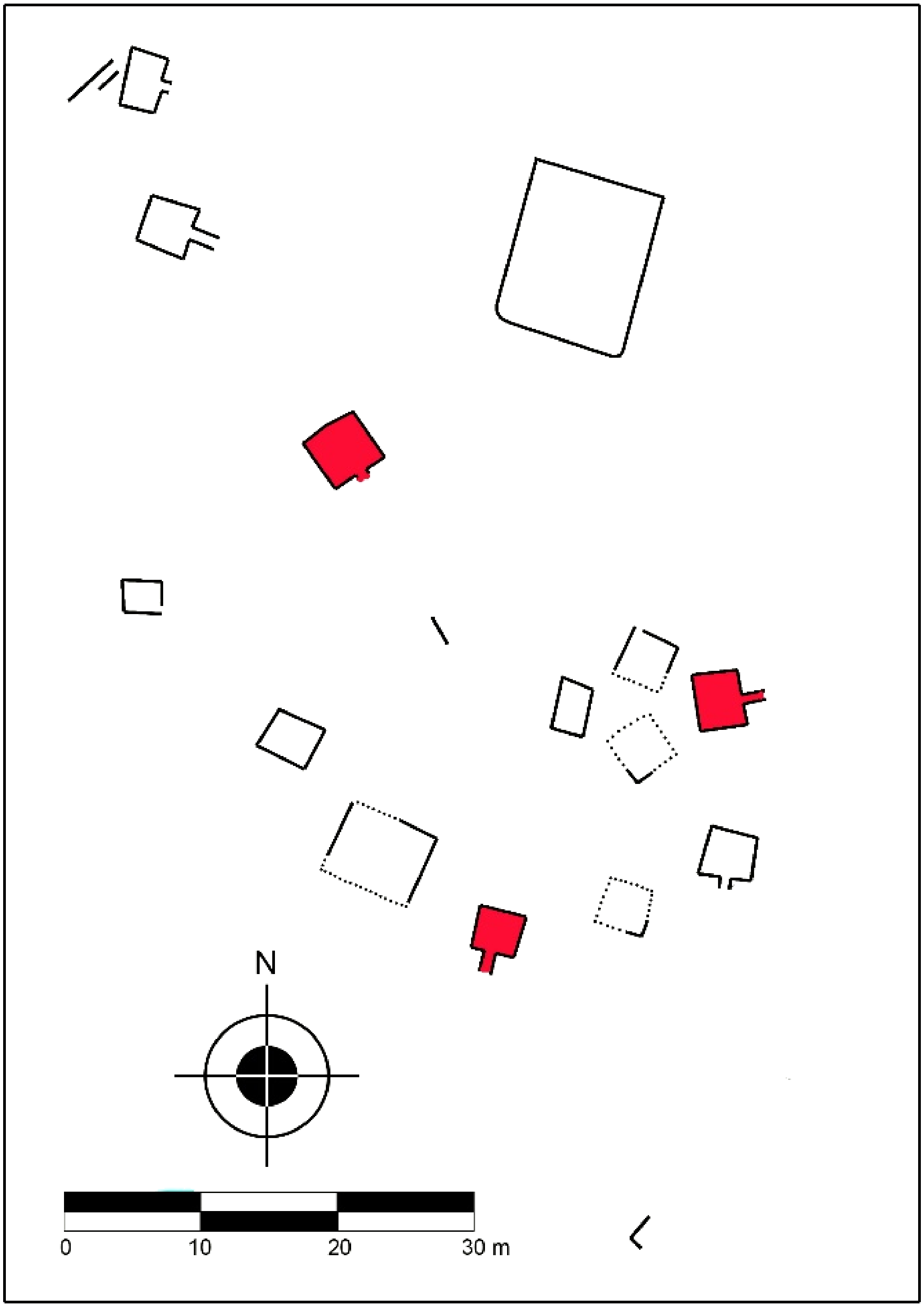

Figure 6.12. Three Circle phase architecture at Swarts, showing the definable pithouses with burials that included exotica (red), (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

Classic Period

Of the 544 Classic period, domestic rooms in the sample, 85 (15.6 percent) contained burials with exotica. This represents practically no change in relative frequency as compared to the Three Circle phase (p = 1.00, Fisher's exact test, two-tailed). The rooms that had exotica in burials contained, on average, 50.2 pieces of mortuary exotica. Most rooms had only one kind of exotica, although some held as many as four. Most of the 85 rooms had just one burial with exotica (n = 59; 69.4 percent), but 18 had two (21.2 percent) and eight had three (9.4 percent). As illustrated in Figures 6.13 through 6.17, rooms with mortuary exotica were often adjacent to one another, potentially identifying them as architectural units within the same household. Thus it appears that some Classic period households had greater access to exotica than others.

There is some indication that unequal access to exotica may have related to differences in antecedence at the household scale. At Cameron Creek (Figure 6.13), for example, only three Classic period rooms contained burials with exotica, and these ringed the very edge of the site's most antecedent sector. Although rooms with mortuary exotica are spread throughout Galaz (Figure 6.14), the densest concentrations are situated in the site's earliest (Northwest) locus and at the far opposite end of the site. At Mattocks (Figure 6.15), the only cluster of rooms with mortuary exotica is in the site's most antecedent (400s) roomblock. At NAN Ranch (Figure 6.17), no rooms with mortuary exotica were encountered in the founding Southeast Locus; rather, burials with exotica were spread across the East and South Roomblocks, both of which have evidence of antecedence. In contrast, at Swarts (Figure 6.16) mortuary exotica are distributed across the site.

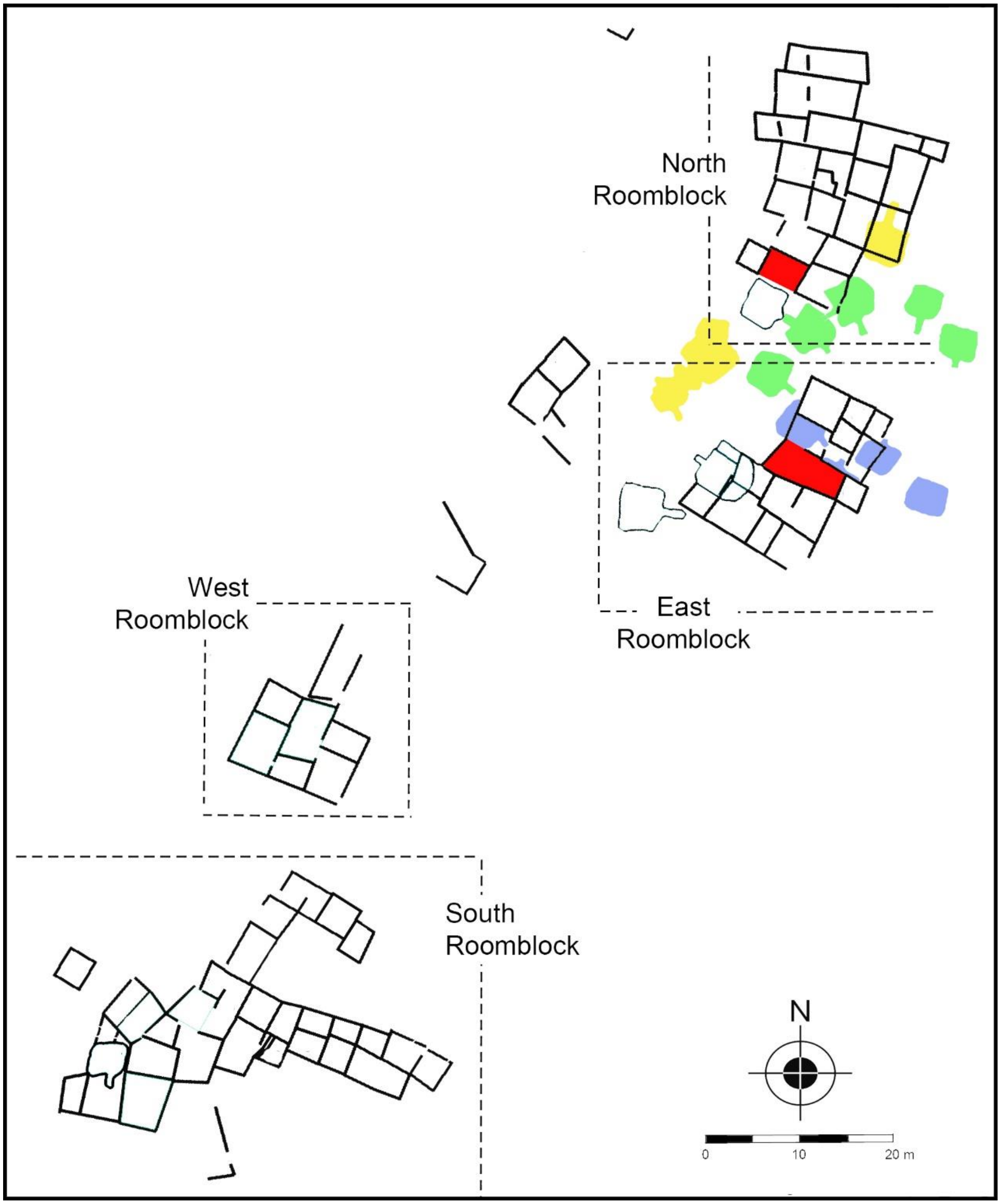

Figure 6.13. Classic period architecture at Cameron Creek, showing rooms with mortuary exotica (red) in relation to the site's densest concentration of antecedence-related evidence (yellow and green) and courtyard group (blue and green). (Architecture after map in Bradfield 1931).

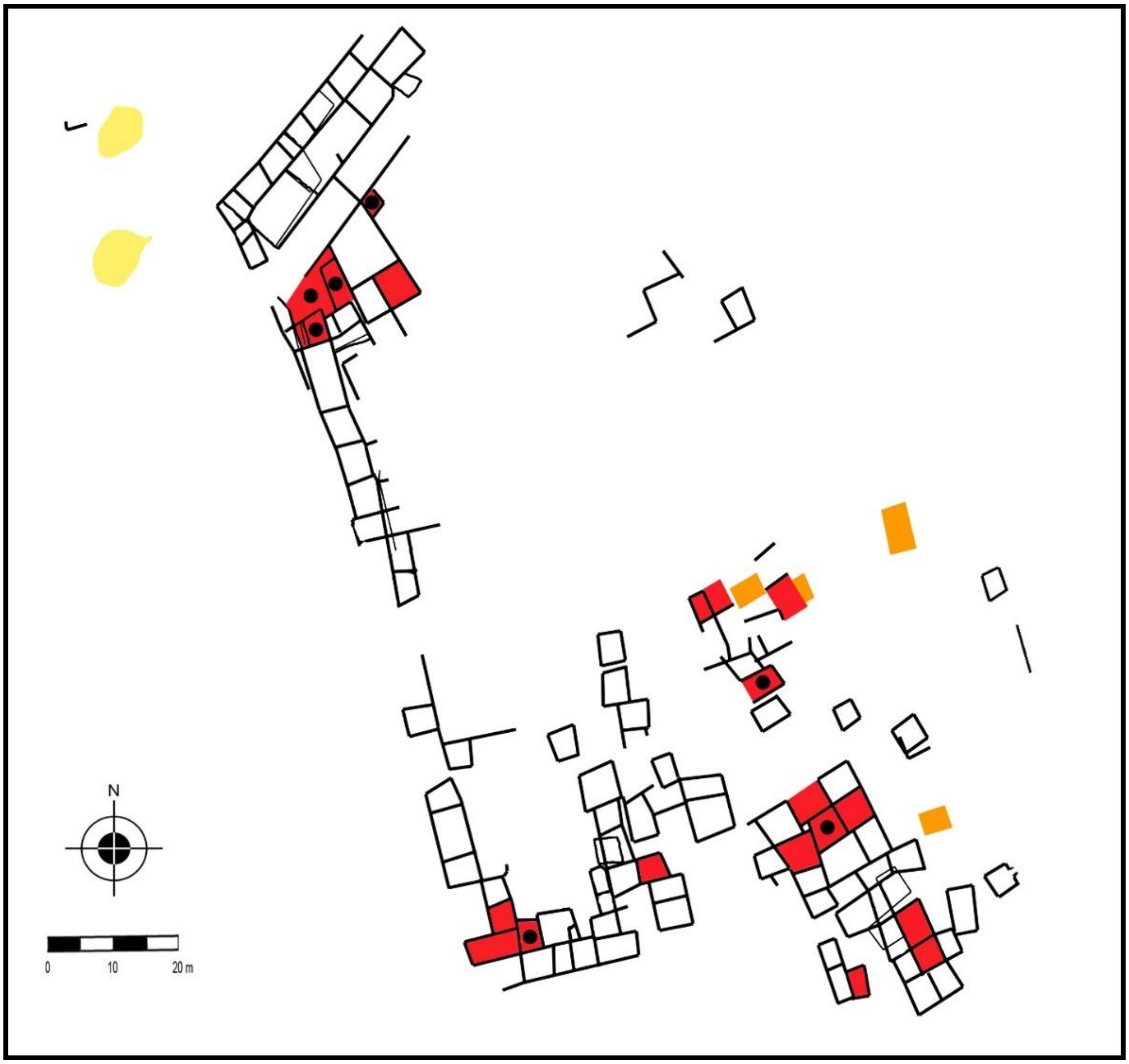

Figure 6.14. Classic period architecture at Galaz, showing rooms with mortuary exotica (red) in relation to the site's earliest structures (yellow). Orange shading identifies locations of post-Classic rooms, under which seemingly-Classic period burials, with exotica, were encountered. Black dots signify rooms wherein two or more burials with exotica were encountered. (Architecture after maps in Anyon and LeBlanc 1984).

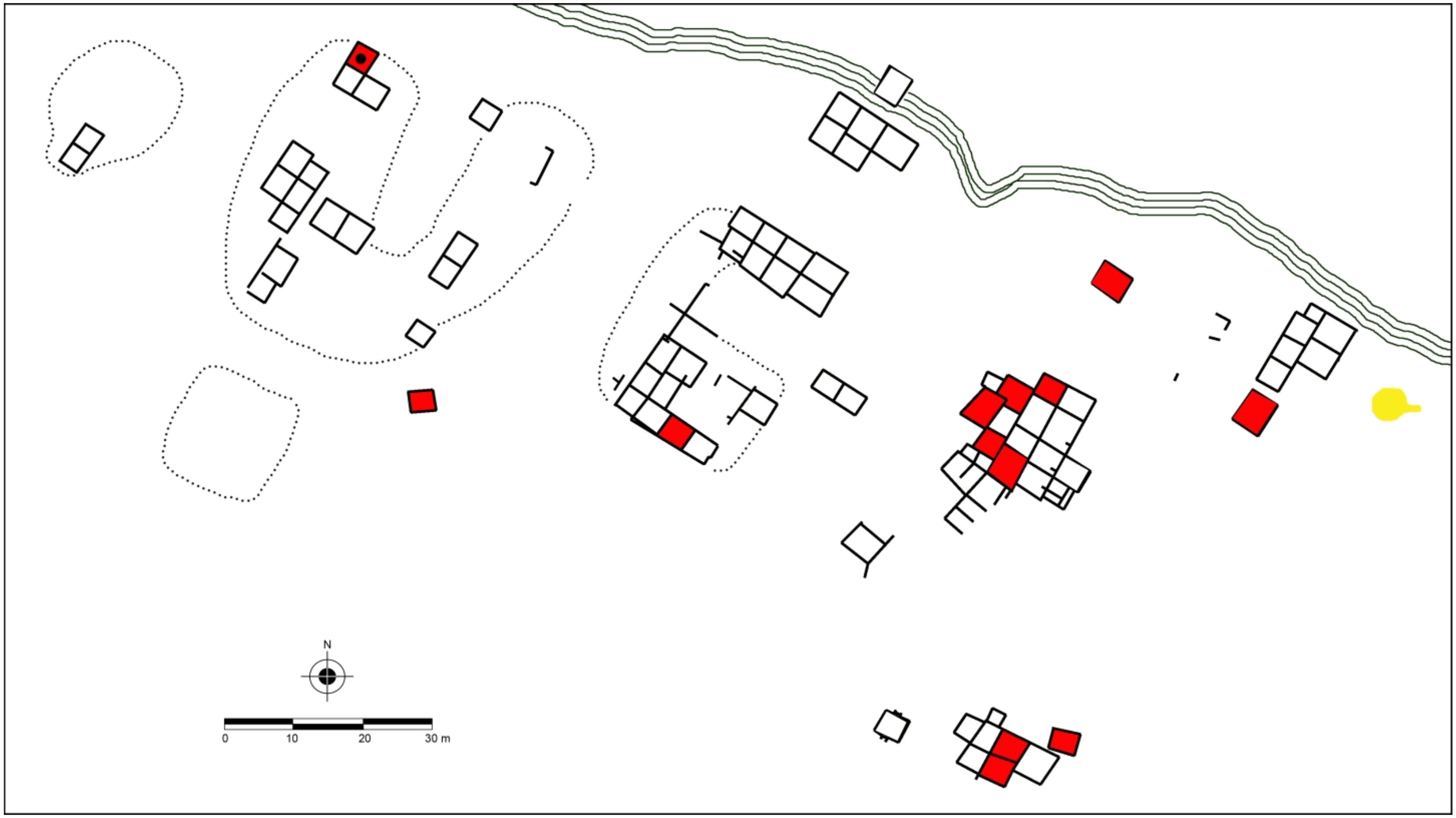

Figure 6.15. Classic period architecture at Mattocks, showing rooms with mortuary exotica (red) in relation to the site's earliest structure (yellow). Black dot identifies room wherein two or more burials with exotica were encountered. (Architecture after maps shared by Patricia Gilman).

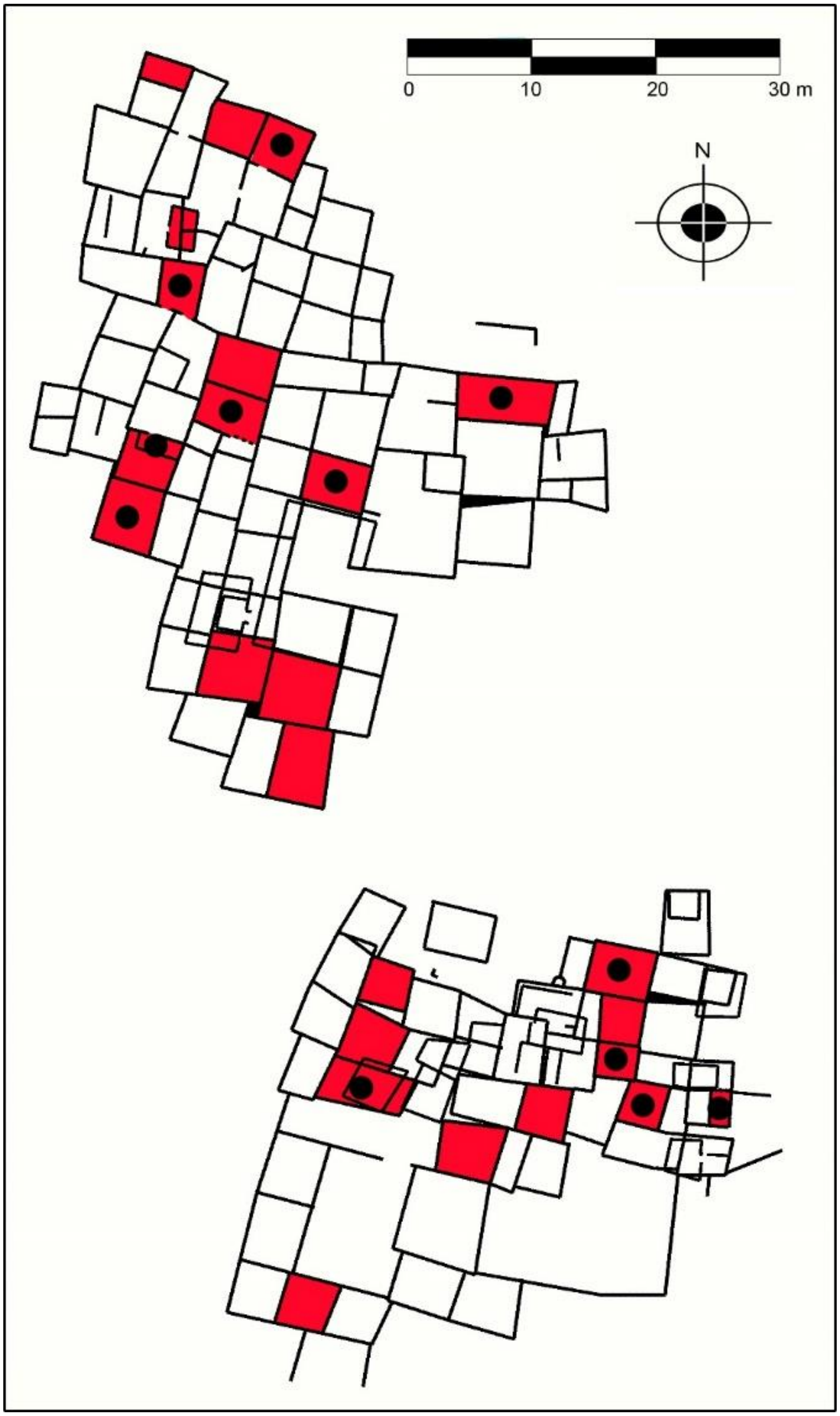

Figure 6.16. Classic period architecture at Swarts, showing rooms with mortuary exotica (red). Black dots identify rooms with two or more burials accompanied by exotica (after Cosgrove and Cosgrove 1932:Plate 238).

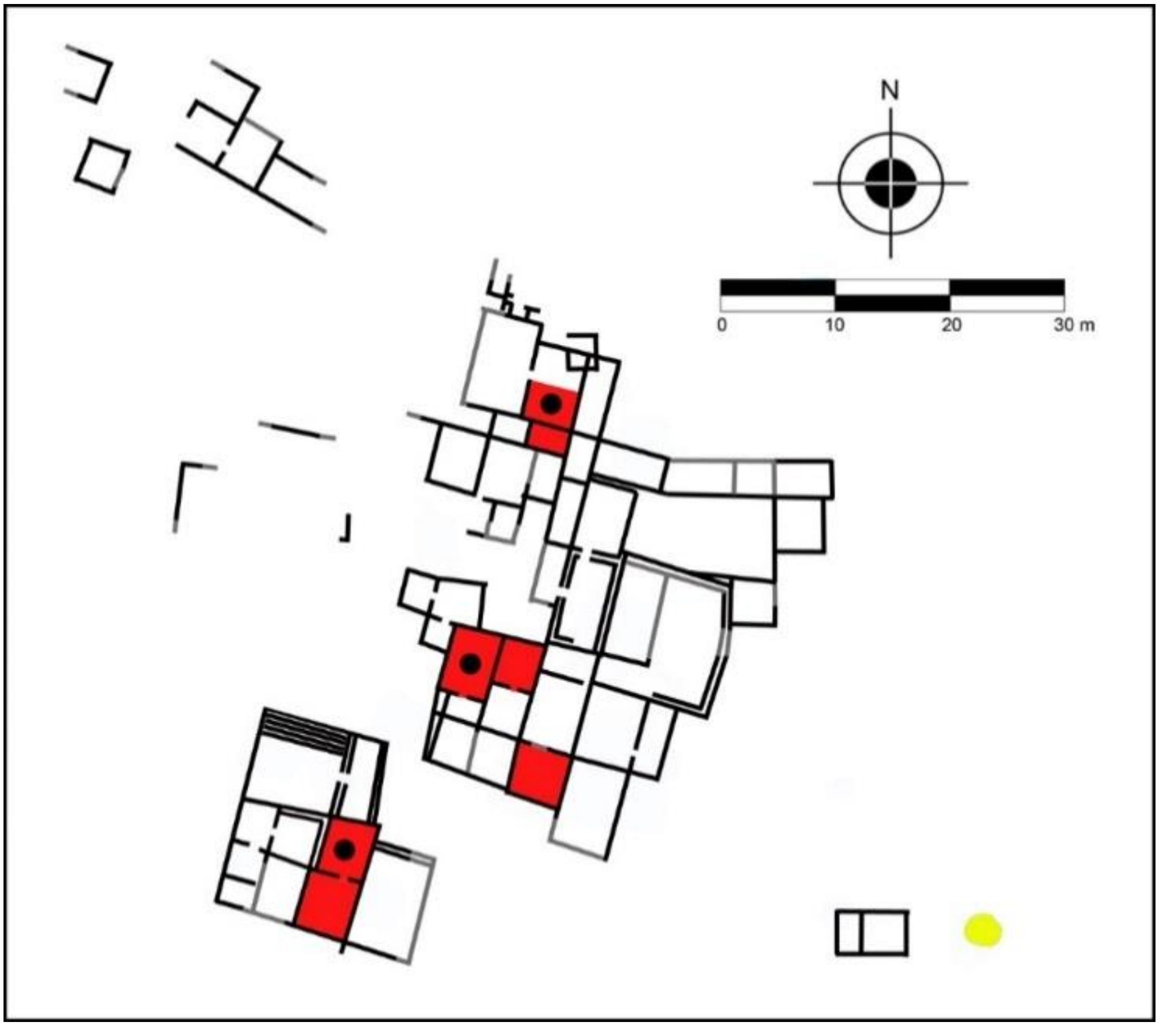

Figure 6.17. Classic period architecture at NAN Ranch, showing rooms with mortuary exotica (red) in relation to the site's earliest structure (yellow). Black dots signify rooms wherein two or more burials with exotica were encountered. (Architecture after Shafer 2003:Figure P.2).

Part V: Access to Exotica at the Locus Scale

The household scale analysis above hints at differences between loci, some of which are associated with the elements of primacy and antecedence. This section focuses specifically on inter-locus differences in the relative frequency of burials with exotica.

Some loci have no mortuary exotica at all, and of those that do, some have more than others. Differences in the relative frequency of burials with exotica are assessed statistically and presented in Appendix CXV. Sample sizes are small, and there is only one instance in which the difference in the relative frequency has a low probability of resulting from chance. At Galaz, during the Classic period, the East Locus had a higher relative frequency of rooms with mortuary exotica than did the founding (Northwest) locus ($p = 0.03$). Interestingly, the East Locus is the only part of Galaz to have remained in use after the Classic period.

Similarly, consideration of specific types of exotica reveals significant differences only at Galaz; data are presented in Appendix CXVI and findings summarized in Table 6.3. During the Three Circle phase, Galaz' South Locus – with high antecedence – had more burials with shell pendants and palettes than did the site's founding (Northwest) locus. The South Locus also had more burials with *Glycymeris* bracelets than almost every other locus. In contrast, during the Classic period, the Northwest locus has the most burials with shell beads.

Table 6.3. Significant Locus-scale differences in the distribution of specific exotica classes

Period	Site	Observation	Probability [A]
Classic period	Galaz	6.4% of the burials in the Northwest Locus included shell beads, far more than those in the East (0%) and Southeast (1.4%) loci	0.0022 and 0.0376, resp.
		The Southwest Locus (3.3%) also had more burials with beads than the East Locus	0.0644
	Swarts	26.7% of the burials in the North Roomblock included shell beads, over 21 times as common as in the South Roomblock (1.3%)	<0.0001
	Mattocks	16.7% of the burials in the 300s Roomblock included Glycymeris bracelets, in contrast with 0% of those buried in the 100s Roomblock	0.0399
	NAN Ranch	12.1% of the burials in the South Roomblock were accompanied by shell bracelets, whereas only 2.4% of those buried in the East Roomblock were	0.0120
Three Circle phase	Galaz	40% of the burials in the South Locus included shell pendants, in contrast to the Northwest Locus (0%)	0.0230
		40% of the South Locus burials also included palettes, whereas none of those in the Northwest Locus did	0.0230
		80% of the burials in the South Locus include Glycymeris bracelets, far more than the burial assemblages of the Northwest (12%), Southeast (0%), and Southwest (0%) loci	0.0058, 0.0476, and 0.0027, resp.

[A] Probability that the inter-locus difference in relative frequency is attributable to chance, as calculated using a two-tailed Fisher's exact test.

In sum, there is some evidence of inequality in access to exotica at the locus scale, though results are hampered by small sample sizes. The only statistically significant inter-locus differences were found at Galaz.

Part VI: Access to Exotica at the Site Scale

This final analytic section considers inequality in access to exotica at the village scale. The analysis involves comparisons of the relative frequency of burials with exotica, with consideration given to various categories thereof. The data are addressed below, chronologically, and presented in Appendix CXVII.

San Francisco Phase

The earliest mortuary exotica in the sample dates to the San Francisco phase. However, only three sites have burials dating to this time period, 22 at Wind Mountain, three at Harris Village, and one at Galaz. Only Wind Mountain and Harris Village have mortuary exotica, but because of the small sample of burials from this time period it is impossible to know if this difference in the presence of exotica is meaningful.

Three Circle Phase

Exotica in burials were found at more sites during the Three Circle phase (Galaz, Harris, NAN Ranch, Swarts, and Wind Mountain). Sample sizes are larger, and significant differences become apparent; these are summarized below, in Table 6.4. During the Three Circle Phase Galaz stands out as having relatively more shell bracelets, shell artifacts, Mesoamerican exotica, and exotica in general than several other sites.

Classic Period

More kinds of exotica are present during the Classic period. Although the overall relative frequency of burials with exotica decrease at this time (see Figure 6.7) the absolute number increases, making inter-site comparisons more feasible. Significant inter-site differences are summarized in Table 6.4. Three sites – NAN Ranch, Galaz, and Mattocks – have more mortuary exotica and more of some specific kinds of exotica than other sites. These three sites are all located in the middle Mimbres Valley. In contrast, Cameron Creek, situated in a side drainage, had lower relative frequencies of burials with exotica.

Table 6.4. Significant site-scale differences in the distribution of exotica

		Site Having			
Time	**Exotica**	**More**		**Less**	**Probability** [A]
Classic period	*Glycymeris* bracelets	NAN Ranch, Galaz, Mattocks, and Swarts	>	Cameron Creek	0.0007, 0.0002, 0.0202, and 0.0231, resp.
		NAN Ranch and Galaz	>	Swarts	0.0540 and 0.0107, resp.
	Shell beads	NAN Ranch	>	Cameron Creek, Galaz, and Swarts	0.0152, 0.0444, and 0.0001, resp.
		Galaz and Mattocks	>	Cameron Creek	0.0152 and 0.0444
		Galaz	>	Swarts	0.0182
	Shell pendants	Galaz	>	Swarts	0.0025
	Shell Rings	Galaz	>	Swarts	0.0608
	Shell material	NAN Ranch	>	Galaz	0.0175
	“Hoes”	Mattocks	>	Swarts	0.0216
	Marine shell in any form	NAN Ranch, Galaz, Mattocks, and Swarts	>	Cameron Creek	<0.0001, <0.0001, <0.0001, and 0.0025, resp.

		Site Having			
Time	**Exotica**	**More**		**Less**	**Probability** [A]
		NAN Ranch, Mattocks, and Galaz	>	Swarts	<0.0001, 0.0410, and <0.0001
	Mesoamerican exotica in general	NAN Ranch, Galaz, Mattocks, and Swarts	>	Cameron Creek	<0.0001, <0.0001, <0.0001, 0.0016, resp.
		NAN Ranch, Galaz, and Mattocks	>	Swarts	<0.0001, 0.0001, 0.0070, resp.
		NAN Ranch	>	Galaz	0.0368
	Exotica in general	Galaz, Mattocks, and NAN Ranch	>	Cameron Creek	<0.0001, <0.0001, <0.0001, 0.0011, resp.
		NAN Ranch, Mattocks, and Galaz	>	Swarts	<0.0001, 0.0145, 0.0001, resp.
		NAN Ranch	>	Galaz	0.0408
Three Circle phase	*Glycymeris* bracelets	Galaz	>	NAN Ranch and Cameron Cr	0.0243, 0.0141, resp.
	Marine shell artifacts	Galaz	>	NAN Ranch and Cameron Cr	0.0406, 0.0531, resp.
	Mesoamerican exotica in general	Galaz	>	NAN Ranch and Cameron Cr	0.0238, 0.0314, resp.
	Exotica in general	Galaz	>	NAN Ranch, and Cameron Cr	0.0225, 0.0293, resp.

[A] Probability based on two-tailed Fisher's exact test

Summary and Conclusions

This chapter assesses evidence of inequality in Mimbres society in terms of access to nonlocal objects, materials, and styles (exotica). These derive from Mesoamerica and the Hohokam region. To facilitate comparability, the analyses are based solely on the presence of exotica in mortuary contexts. A few exotica are found in Mimbres burials dating to the San Francisco phase, but most data are from the Three Circle phase and Classic period. The changes over time are summarized in Table 6.5 and Figure 6.18, and key findings are listed below.

Summary of Key Findings

Over the course of the Mimbres sequence, only about 7 percent of all burials included exotica. Within this corpus, some burials had few exotica while others held large concentrations. Although the absolute number of burials with exotica increased over time (as did the number of sites with such burials, the diversity of exotica types, and the amount of exotica placed in some graves), the relative frequency of burials with exotica actually decreased. This suggests rising inequality in the domain of access to exotica, but predominantly at the individual scale.

Although exotica are associated with both sexes and various ages, they were, at least by the Classic period, most frequently interred with males and children, ages one to 17. In this way, the distribution of exotica differs from the evidence of ritual access analyzed in Chapter 5. That is, individual access to ritual knowledge and practice did not differ relative to age or sex.

There is some suggestion of unequal access to exotica at the scales of household and locus. Differences, however, are difficult to interpret because of small sample sizes. Most households had no burials with exotica, but some did, and some had more than one (n = 27). During the Classic period, rooms with mortuary exotica were often clustered, suggesting household-scale concentrations. To the extent that such differences are present, they are not clearly associated with either primacy or antecedence (see Figures 6.8 – 6.18, Appendix CXV).Some of the most compelling differences in the distribution of exotica occur at the village scale. Throughout the Mimbres sequence, large sites in the middle Mimbres Valley had more exotica than contemporaneous villages elsewhere. By the Classic period, the smaller sites of Wind Mountain and Cameron Creek – neither located in the Mimbres Valley – had considerably less exotica than other settlements.

Different types and categories of exotica pattern somewhat differently. Although exotica were found more frequently with males and children, there is no strong evidence to suggest that any place, individual, or group had exclusive access to any single kind of exotica. A long-term look at the distribution of specific exotica types shows that frequencies were highest shortly after their introduction into burials (see Figure 6.5).

Conclusions

Results from this chapter indicate that the presence of exotica in burials does mark some form of inequality, most definitively at the scales of the individual and the village. By and large, the distribution of exotica does not parallel any of the trends identified in previous chapters. Subtle concentrations of exotica exist, but do not map onto areas with high storage capacity. Persons, households, and loci with greater access to ritual knowledge did not also have greater access to exotica. Nor were these distributions mutually exclusive. Rather, although exotica appear sparingly in burials, those burials were interspersed across and between groups wherein other forms of inequality were more evidently concentrated. These comparisons support the assertion that inequality is multifaceted.

As noted above, several forms of exotica were most prevalent (in burials) when they were first introduced and thereafter declined steadily in relative frequency. If mortuary use began immediately, this trend suggests, perhaps not surprisingly, that the elements of novelty and exclusivity contributed to the allure of exotica. Over time, as the newness of various forms wore off, their frequencies diminished steadily. Some forms of exotica, such as copper bells and censers, are found in non-mortuary deposits before appearing in burials, probably because of how these objects were thought of and used. As described in Chapter 5, control over ritual objects became increasingly individualized over time. Because different types of exotica may have been placed in burials for different reasons – reasons that likely evolved over time – it is important to consider various forms of exotica independently as well as collectively.

Results continue to show that while primacy and antecedence may be important factors in social inequality, their intersection with other domains is both complex and dynamic. In some cases, such as at NAN Ranch during the Classic period, exotica have no spatial association with evidence of primacy or antecedence. In other cases, there are shifts in the distribution of exotica that may or may not align with primacy and antecedence. During the pre-Classic era, for example, Cameron Creek's only mortuary exotica was buried at the opposite end of the village from the most antecedent sector. During the Classic period, however, all of the site's mortuary exotica was tightly clustered around the old courtyard group. At Galaz, pre-Classic houses with mortuary exotica were concentrated in the site's most antecedent sector. After 1000 C.E., however, this distinction shifted suddenly to the site's founding locus and involved several contiguous rooms, each with multiple burials provisioned with exotica.

Table 6.5. Changes in the diversity, prevalence, and mortuary distribution of exotica over time. (Yellow cells indicate a relatively low probability of the difference resulting from chance.)

Temporal Transition	Variable	Direction	Change	Statistic	Probability
Georgetown phase [A] → San Francisco phase [B]	Diversity of exotica	Appearance	0 to 4 types	--	--
	Relative frequency of burials w/exotica	Appearance	0 to 26.9 %	--	p = 0.30
	Mean number of exotica per burial	Appearance	0 to 214.4	--	UTSA [C]
	Relative frequency of households w/mortuary exotica	Appearance	0 to 4.8 %	--	p = 1.00
	Relative frequency of burials w/exotica occurring in ceremonial architecture	Appearance	0 to 3.8 %	--	p = 1.00
San Francisco phase [B] → Three Circle phase [D]	Diversity of exotica	Increase	4 to 6 types	--	--
	Relative frequency of burials w/exotica	Decrease	26.9 to 13.5 %	--	p = 0.08
	Mean number of exotica per burial	Decrease	214.4 to 22.7 %	U = 107.5	p = 0.48
	Relative frequency of households w/mortuary exotica	Increase	4.8 to 15.2 %	--	p = 0.23
	Relative frequency of burials w/exotica occurring in ceremonial architecture	Increase	3.8 to 7.8 %	--	p = 0.39
Three Circle phase [D] → Classic period [E]	Diversity of exotica	Increase	6 to 15 types	--	--
	Relative frequency of burials w/exotica	Decrease	13.5 to 8.6 %	--	p = 0.03
	Mean number of exotica per burial	Increase	22.7 to 46.8	U = 3,094	p = 0.02
	Relative frequency of households w/mortuary exotica	Increase	15.2 to 15.6 %	--	p = 1.00
	Relative frequency of burials w/exotica occurring in ceremonial architecture	Increase	7.8 to 22.3 %		p = 0.12
Pre-Classic era [F] → Classic period [E]	Diversity of exotica	Increase	6 to 15 types	--	--
	Relative frequency of burials w/exotica	Decrease	12.9 to 8.6 %	--	p = 0.02
	Mean number of exotica per burial	Decrease	60.3 to 46.8	U = 4,260	p < 0.01
	Relative frequency of households w/mortuary exotica	Increase	9.1 to 15 %	--	p = 0.02

[A] 0 out of the 6 burials dating to the Georgetown phase (and 0 out of 18 households) included mortuary exotica
[B] 7 out of the 26 burials dating to the San Francisco phase (and 1 out of 21 households) included mortuary exotica
[C] Unable to statistically assess using non-parametric analysis due to small sample size (i.e., n < 5)

D 26 out of the 193 burials dating to the Three Circle phase (and 15 out of 99 households) included exotica
E 188 out of the 2,184 burials dating to the Classic period (and 85 out of 544 rooms) included exotica
F 37 out of the 287 burials known to predate the Classic period (including vaguely-dated examples not reflected elsewhere in this table) were accompanied by exotica

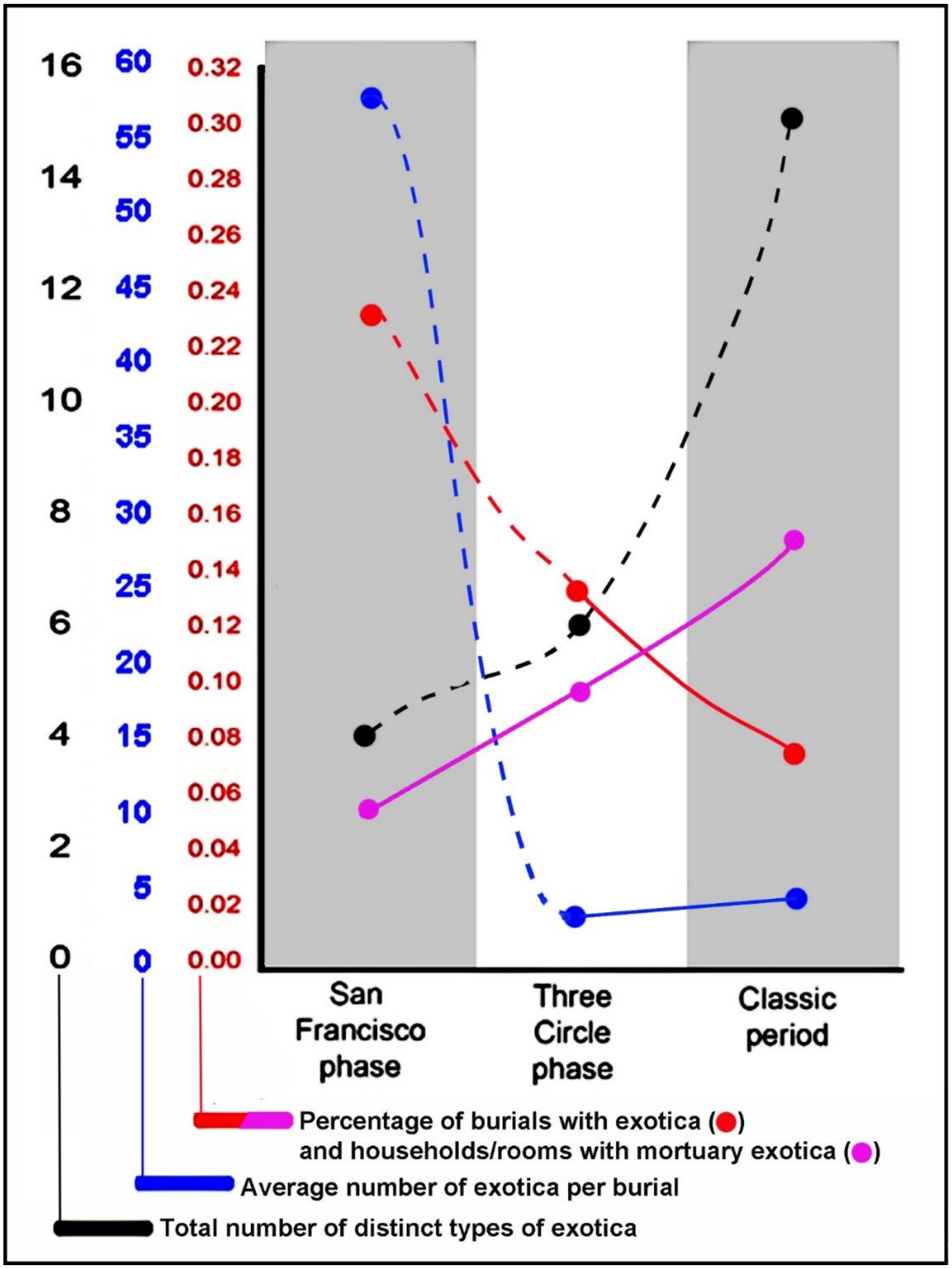

Figure 6.18. Changes in the diversity, prevalence, and distribution of exotica over time. (Dots represent data points, connected by best-fit lines. Solid lines indicate difference between adjacent dots has a low probability of resulting from chance.)

It is evident that within Mimbres society, some people and groups of people had greater access to exotica than others. This is manifest at each socio-spatial scale, but is especially apparent at the scales of individual and village. At least by the Classic period, exotica in general were preferentially interred with males, and children were buried with marine shell artifacts and palettes more often than others. However, there is nothing to indicate that certain groups were prohibited from possessing, or patently unable to access, these things.

The precise nature of inequality in this domain remains elusive and is unlikely to have been uniform across Mimbres society. In retrospect, the domain of exotica may be too broad to afford analytical value in archaeological contexts. That is, exotica, as an archaeological convention, comprises a diversity of objects, symbols, materials, and influences that are sure to have cross-cut a number of more finite domains, including several that are considered in the present dissertation. Some forms of exotica, such as scarlet macaws and copper bells, are likely more telling of ritual access than of access to faraway places, and these were analyzed in Chapter 5. Other forms, such as shell jewelry, may speak more to wealth than to interaction, and these are analyzed in Chapter 7. In short, the social inequalities evidenced by the analyses in this chapter are likely to reside in a number of distinct domains.

CHAPTER 7: MATERIAL WEALTH INEQUALITY

> "Those who have the most wealth and the most property, their children have the first, the best, and the most." – Jesse Jackson

> "I get really excited about jewelry." – Jenna Fischer

In this chapter, I examine Mimbres burial assemblages for differences in evidence of wealth. As defined in Chapter 2, wealth includes socially-recognized currency, non-utilitarian items of arbitrary value, and utilitarian items beyond what is needed or useable. The data used here are obtained from the excavation of 3,143 burials at seven sites: Cameron Creek, Galaz, Harris, Mattocks, NAN Ranch, Swarts, and Wind Mountain (see Chapter 3). The remainder of the chapter is divided into four parts. I begin with a discussion of potential indications of Mimbres wealth and past research addressing it. The remaining sections combine methodological and analytical elements.

In previous chapters, analyses were presented in the order of ascending social scale (i.e., individual, household, locus, village). In this chapter, however, several new methods are introduced in order to compare indices of wealth and to assess differences therein. Given the complicated nature of these methods, this chapter is arranged primarily by analytical approach. The first approach, presented in Part II, examines categorical variables. The second approach, in Part III, is concerned with continuous variables. Within these sections, analyses are presented by social scale and over time. Throughout the chapter, I also compare evidence of wealth asymmetry on one hand to evidence of primacy and antecedence on the other, as developed in Chapter 3. To reiterate, primacy refers to the empirical order in which persons arrived in a given place, whereas antecedence is the social recognition of and status associated with primacy.

Concepts of wealth, and of differences in the accrual of wealth, have been documented among many cultures, including small-scale, traditional societies (see Bowles et al., 2010). Within the ethnographic literature, however, there are no consistent patterns concerning the association of wealth, primacy, and/or antecedence, thus precluding any grounded expectations. As described in Part I, a limited amount of past Mimbres research suggests that wealth played little or no role in social inequality.

Part I: Mimbres Wealth

Research on differences in wealth, within the Mimbres region, have focused primarily on the presence and abundance of jewelry and pottery in burials. Several authors have noted the possibility of wealth-based inequality within Mimbres society. Bray (1982:146-147) suggested that exceptionally well-painted vessels might have been status symbols, although Gilman (1990:461) had doubts, given that some of the finest Mimbres bowls still show use wear. Creel (1989) studied cremations, which make up less than 2 percent of Mimbres burials. He found that when compared to inhumations, these were more likely to be found in special rooms and to include multiple vessels, jewelry, and projectile points. He concluded that these differences in cremation placement and offerings "are perhaps most easily attributed to unusual conditions of death, although some cremations may represent individuals with higher status" (1989:309). Gilman (1990:458) acknowledged that exceptionally well-provisioned cremations might represent a “higher or different status,” but questioned “the lack of elite insignia” (see below). At Galaz, Anyon and LeBlanc (1984:173-186) looked for but found no compelling evidence of wealth-based inequality among burial assemblages. Shafer (1987, 1988) and Ham (1989), working at NAN Ranch, identified differences in mortuary assemblages that they interpreted as evidence of horizontal differentiation within a matrilineal society.

Relying primarily on data from Mattocks Ruin, Gilman (1990) examined the distribution of jewelry and pottery in Classic period burials. Following Saxe (1970) and Braun (1979), she proposed that if present, “elites should be set off from nonelites by the presence of certain emblems or badges which, while varying in form among societies, should be recognizable by their exotic materials, labor input, or visual distinctiveness” (1990:461). Gilman considered the classes of artifacts recovered in Classic Mimbres burials but found none that satisfied these criteria. She noted in particular that “neither the jewelry nor the copper bells required relatively great amounts of labor, nor were they large enough to be visually distinctive as one would expect of elite insignia” (1990:460; although see Hosler 1994; Trubitt 2003).

The lack of elite insignia aside, Gilman (1990:460-461) surmised that the inclusion of multiple ceramic vessels in graves “may indicate nonhereditary wealth distinctions rather than hereditary vertical differentiation.” Based on the diversity and number of both ceramic and non-ceramic artifacts, she identified several “relatively rich individual burials as well as a cluster of rich burials” (1990:462-463). She described, for example, a number of unusually well-provisioned graves in Room 435 (at Mattocks), but noted that if “Room 435 was the burial area for a relatively wealthy or important social unit, then it is surprising that adjoining rooms 433 and 438 did not have similar burial patterns" (1990:464). Thus, Gilman (1990:464) resolved that:

> "Unlike other measures of possible social differentiation, relatively rich burials or clusters of such burials do seem to denote social distinctions. Because they do not contain emblems or badges denoting vertical differentiation, the rich burials are interpreted as indicating horizontal distinctions, meaning that the distinctions were probably not hereditary and were achieved during the lifetime of an individual or a social unit. The marks of distinction may indicate relative wealth or some other factor of social importance."

In her conclusion, Gilman (1990:466-467) wrote that the "lack of identifiable elite insignia in burials from any Classic period site implies that there are no obvious vertical distinctions in Classic Mimbres society." She explained the small number of "rich burials" as representing individuals who "accrued wealth or social importance during their lifetimes." A cluster of such burials was interpreted as possibly representing "a relatively wealthy or socially important group." Nevertheless, and because these burials contained no elite insignia, Gilman did not infer social inequality.

Gilman (2006) later published a similar analysis that included several important differences. Most significantly, she argued that the "distribution of burials with unusual items or unusual numbers of artifacts may help us recognize the presence of wealthier *and perhaps more powerful* families or individuals" (2006:72; emphasis added). Gilman identified 16 "rich burials" that could be assigned to known, Classic period rooms at Mattocks. These were encountered in the 100s Roomblock (n = 5), 200s Roomblock (n = 2), 300s Roomblock (n = 3; all in one room), 400s Roomblock (n = 5; four in one room, the other next door), and Southeast Roomblock (n = 1). She argued that each roomblock represented a single lineage (Gilman 2001, 2006; Gilman and LeBlanc 2005) and that because each roomblock included at least one anomalous burial, none of the families at Mattocks were more powerful than the others. Rather, she interpreted the variation in mortuary investment as representative of status differences within lineages.

Gilman (2006:78-79) also examined non-mortuary artifact assemblages excavated by the Mimbres Foundation from the 100s, 200s, 300s, and 400s roomblocks at Mattocks, tallying numbers of marine shell, turquoise, "hoes", tabular knives, and axe heads (2006:Table 5.3). She concluded that these data "do not support the idea that one family at the Mattocks site was wealthier or more important in leading communal activities than the other families, or that one family was trying to out-compete the others" (2006:79). Instead, she hypothesized that "because each Mattocks site family had them, rich burials … denote important or specific roles within families, either roles that people had already filled or that they would have filled had they lived into adulthood" (2006:79-80), thus amending her earlier assumptions of achieved status (1990).

Gilman's (2006) interpretation relies on her understanding of roomblock expansion at Mattocks. According to her model, each roomblock represents a single lineage and grew accretionally as their respective lineages built and occupied new rooms as old ones were abandoned (Gilman 2001; Gilman and LeBlanc 2005). According to Gilman's hypothesis, based on her work at Mattocks, evidence of wealth in some rooms but not others is an indication of inequality within lineages, not between them. Shafer (2003, 2006), based on his work at NAN Ranch, proposed an alternative model of roomblock expansion, one involving accretional growth from aggregation and other demographic processes. This model allows for the simultaneous occupation of roomblocks by multiple households and/or corporate groups. In such a scenario, evidence of disparate wealth within roomblocks would suggest wealth inequality both within and across lineages.

Building on the work of Gilman (1990, 2006), Shafer (1987, 1988), Creel (1989), Anyon and LeBlanc (1984), and Ham (1989), I examine differences in the presence and abundance of jewelry and the abundance or pottery vessels in burials as evidence of wealth differentiation. I avoid making assumptions about the composition of families or lineages and restrict my analysis to identifying differences at the individual, household, locus, and site scales that may be indicative of inequality. Additionally, changes in these differences are tracked over time. As data permit, differences in wealth distribution are also compared to evidence of primacy and antecedence, as established in Chapter 3.

Part II: Categorical Variables and Evidence of Inequality

Analyses presented in this section employ a series of categorical frequency measures. These involve pottery vessels and items of jewelry that were recovered from 3,143 Mimbres burials, excavated at the sites of Cameron Creek, Galaz, Harris Village, Mattocks, NAN Ranch, Swarts, and Wind Mountain. Analyses are limited to mortuary contexts because burials are the only consistently-recorded unit of excavation, thus permitting relative standardization across different sites, extents of excavation, and recording protocols. Below, I begin with the introduction of analytical methods designed to examine categorical differences in wealth. For the purpose of this project, categorical evidence of wealth comprises either (A) two or more vessels or (B) any amount of jewelry in a burial. Burials meeting either of these criteria are referred to as *wealthy.* Differences in the relative frequency of wealthy burials are examined at several socio-spatial scales and over the course of time.

Categorical Measures of Wealth

Categorical Measure of Ceramic Wealth. Each of the sample's 3,143 burials is classified as either having (n = 421) or not having (n = 2,722) ceramic wealth (i.e., more than one vessel). Given that a large proportion of all Mimbres burials contain at least one vessel, it is assumed that the inclusion of at least one vessel was seen as a standard or necessary component of mortuary ritual. Thus, the rare inclusion of two or more vessels is interpreted as an indicator of wealth; those with one or no vessels are, classified as not.

Categorical Measure of Wealth in Jewelry. An examination of the sample's 3,143 burial assemblages shows that 304 were accompanied by some form and amount of jewelry (9.7 percent) and that 2,839 were not. Because most Mimbres burials did not include jewelry, it is assumed that its inclusion was not considered a requisite element of mortuary ritual. Thus, the rare inclusion of jewelry is interpreted as evidence of wealth. Burials with any amount of jewelry are classified as having *wealth in jewelry*.

Scalar Comparison of Wealth Measures. Individual burials can be compared to one another based on the presence or absence of wealth in the form of either pottery (i.e., two or more vessels) or jewelry. At scales above that of the individual, frequencies of burials that were and were not accompanied by wealth (i.e., two or more vessels, or jewelry) are compared in pairwise fashion. For each pairwise comparison, differences in frequency are assessed using a two-tailed Fisher's exact test. For example, Table 7.1 provides vessel counts for 12 hypothetical burials, divided between two roomblocks. Of the five burials in Roomblock A, three have two or more vessels and two do not. Thus, the relative frequency of multi-vessel burials in Roomblock A is 60 percent. Roomblock B also has three multi-vessel burials, but a larger burial population, resulting in a relative frequency of 43 percent. To statistically assess the difference in proportions, a Fisher's exact test is used to compare the frequencies of burials with and without ceramic wealth (see Chapter 4, Part III). In this case, test results indicate there is a high probability that the difference in proportions is attributable to chance ($p = 1.00$). Thus, data suggest that neither roomblock had significantly more multi-vessel burials than the other, relative to the number of burials per locus. This process is repeated for every pairwise combination of roomblocks, and statistical results are presented in matrix form, such as Table 7.2. In this example, all differences have a high probability of resulting from chance ($p \geq 0.30$), suggesting no significant differences in ceramic wealth in burials at the locus-scale. A parallel analysis would consider differences in the relative frequencies of burials with wealth in jewelry. This procedure is not described for each of the analyses to follow. Rather, reference is made to differences in, and the comparison of, relative frequencies. Statistical data and results are provided in the form of appendices that resemble Table 7.2.

Table 7.1. Exemplar data from a hypothetical set of Classic period roomblocks

Roomblock	Burial	N Vessels	Ceramic Wealth
Roomblock A	A-1	1	Absent
	A-2	2	**Present**
	A-3	3	**Present**
	A-4	2	**Present**
	A-5	1	Absent
Roomblock B	B-1	1	Absent
	B-2	1	Absent
	B-3	3	**Present**
	B-4	2	**Present**
	B-5	2	**Present**
	B-6	1	Absent
	B-7	0	Absent
Roomblock C	C-1	1	Absent
	C-2	1	Absent
	C-3	0	Absent
	C-4	1	Absent
	C-5	2	**Present**
Roomblock D	D-1	1	Absent
	D-2	1	Absent
	D-3	0	Absent
	D-4	0	Absent
	D-5	5	**Present**
	D-6	2	**Present**
	D-7	1	Absent
	D-8	1	Absent
	D-9	0	Absent
	D-10	3	**Present**
	D-11	1	Absent

Table 7.2. Statistical comparison of multi-vessel burial proportions, derived from Table 7.1. (Probability values in shaded cells are obtained from two-tailed Fisher's exact tests).

		Locus			
		Roomblock A	**Roomblock B**	**Roomblock C**	**Roomblock D**
Locus	**Roomblock A**				
	Roomblock B	p = 1.00			
	Roomblock C	p = 0.52	p = 0.58		
	Roomblock D	p = 0.30	p = 0.63	p = 1.00	

Wealth Inequality at the Individual Scale

In this section, differences in ceramic wealth and wealth in jewelry are examined at the individual scale and in chronological order. Specifically, I look at the relative frequencies with which individuals were buried with jewelry or multiple vessels. To the extent possible, differences in distribution across categories of age and sex are examined. A summary of results is presented at the end of this section (Tables 7.3 – 7.5).

Cumbre phase. The sample includes only three burials that date solidly to the Cumbre phase, a paucity which precludes any substantive conclusions regarding unequal access to material wealth. All are from Wind Mountain, which is the only site in the sample known to include an Early Pithouse period component. Only one of the three Cumbre phase burials – an adult of indeterminate sex – contained pottery (a single, unpainted vessel), and none of the three were accompanied by jewelry. Provenience and demographic data for these burials are presented in Appendix CXVIII.

Georgetown phase. Data from six Georgetown phase burials are available, and these are presented in Appendix CXIX. These six burials were distributed among three sites: Harris Village (n = 2), Mattocks (n = 1), and Wind Mountain (n = 3). None were accompanied by pottery or jewelry.

San Francisco phase. Twenty-four of the burials in the overall sample date to the San Francisco phase (see Appendix CXX). These came from the sites of Galaz (n = 1), Harris (n = 3), and Wind Mountain (n = 20). Eight of the 24 burials were accompanied by two or more vessels (33.3 percent). Jewelry was likewise found with eight out of 24 burials (33.3 percent). Four individuals were buried with both multiple vessels and jewelry.

Although approximate age had been recorded for each of the San Francisco phase burials, age categories were not defined uniformly across various projects. Here, they are separated into three classes: adults ($\geq$ 18 years of age; n = 14), children (1-17 years of age; n = 6), and infants (< 1 year of age; n = 4). For analytical purposes, the latter two classes are also combined into a sub-adult category (< 18 years of age; n = 10). To determine whether items of wealth were preferentially deposited with persons of a particular age, the relative frequencies of wealthy burials are compared across age classes (see Table 7.4, Rows 1 – 4 [on page 405]). Results, which are presented in Appendix CXXI, give no indication that wealth inequality was associated with one age class or another ($p \geq 0.61$).

Biological sex had been recorded for five of the San Francisco phase burials, all adults. These include three females and two males. Two additional individuals are tentatively recorded as male. To determine whether material wealth was interred with one sex more often than another, I compare relative frequencies of wealthy burials, across categories (see Table 7.5, Rows 1 – 3). Statistical results indicate that differences all have a high probability of resulting from chance ($p \geq 0.14$; see Appendix CXXII), suggesting that during the San Francisco phase, males and females were equally as likely to be interred with jewelry or multiple vessels.

Three Circle Phase. The sample includes 219 Three Circle phase burials, including two Mangas phase and 24 Transitional phase graves. Of these, 45 were accompanied by two or more vessels (20.5 percent). Statistically, this does not evidence a change in relative frequency from the preceding phase ($p = 0.35$, Fisher's exact test, two-tailed). Jewelry accompanied 33 of the Three Circle phase burials (15.1 percent), likewise not amounting to a substantial change over time ($p = 0.12$; Fisher's exact test, two-tailed). General data pertaining to Three Circle phase burials are presented in Appendix CXXIII.

Approximate age had been recorded for 182 of the Three Circle phase burials: 102 adults, 41 children, and 39 infants. A general sub-adult class is also included in the analysis, encompassing both children and infants ($n = 80$). To examine whether material wealth was interred with one age group more often than another, I compare frequencies of wealthy burials across categories (see Table 7.4, Rows 5 – 8). Differences in frequency are statistically assessed, and results indicate that each has a high likelihood of occurring by chance ($p \geq 0.24$; see Appendix CXXIV). This, in turn, suggests that items of wealth were being interred with persons of all ages at comparable rates.

Biological sex had been recorded for 27 of the Three Circle phase burials, all adults (see Table 7.5, Rows 4 – 7). These include 12 females and 15 males. In addition, there are three persons tentatively identified as female and two who were tentatively recorded as male. Relative frequencies of wealthy burials are compared across categories (see Appendix CXXIV) and results indicate that all differences have a high probability of attribution to chance ($p \geq 0.66$). As was the case during the San Francisco phase, items of wealth were buried with males and females at roughly the same rate.

Classic Period. Within the sample, 2,184 burials date to the Classic period (see Appendix CXXVI), and of these, 321 have two or more vessels (14.7 percent). This represents a 5 percent decrease in prevalence from the Three Circle phase, a difference with a low probability of resulting from chance ($p = 0.06$; Fisher's exact test, two-tailed).

Jewelry accompanied 211 of the Classic period burials (9.7 percent), marking another significant decrease – about 6 percent – from the Three Circle phase ($p = 0.03$; Fisher's exact test, two-tailed).

Approximate age had been recorded for 1,825 of the Classic period burials; 928 adults, 483 children, and 414 infants (see Table 7.4, Rows 9 – 12). For analytical purposes, the latter two classes are also combined into a general sub-adult category (n = 897). To determine whether items of wealth were preferentially associated with a particular age class, relative frequencies are compared across classes. The statistical assessment of differences in relative frequency is presented in Appendix CXXVII. Results identify several significant differences, each with a low probability of attribution to chance. The relative frequency with which two or more vessels appear in adult and child burials is about 5 percent higher than with infants ($p \leq 0.05$). Differences in the mortuary distribution of jewelry are more striking. Jewelry accompanied child burials about twice as often as it did those of adults ($p < 0.01$). Sub-adults also had jewelry more often than adults ($p < 0.01$), and children had jewelry more often than infants ($p = 0.01$).

Biological sex had been reported for 247 of the Classic period burials: 114 females and 133 males (see Table 7.5, Rows 8 – 11). In addition, 16 individuals were tentatively identified as female and 12 were tentatively identified as male. The vast majority of sexed and tentatively-sexed burials were adults. To determine whether material wealth was preferentially interred with a particular sex, relative frequencies of wealth inclusion are compared across the two categories. Differences in relative frequency are statistically assessed (see Appendix CXXVIII), and all are found to have a high probability of resulting from chance ($p \geq 0.21$), whether tentatively-sexed individuals are included or not.

Summary data for the above analyses are presented in Tables 7.3 through 7.5. Evidence of wealth-based inequality is potentially present in data derived from the San Francisco phase, and it seems definitely to have been present by the Three Circle phase. The pithouse-to-pueblo transition corresponded with a decrease in the relative frequency of wealthy burials, but an overall increase in the volume of Mimbres wealth, thus suggesting that the change was not due to a reduction in supply. An alternate explanation is that the distribution of wealth was becoming increasingly restricted. We also see, during the Classic period, that jewelry was interred with children more often than with other age grades, and that multiple vessels accompanied children and adults more often than infants.

Table 7.3. Summary of individual-scale data with regard to the proportion of wealthy burials

			N Burials			**Proportion of Burials**	
Time	**Inequality**	**Notes**	**In Sample**	**w/2+ Vessels**	**w/Jewelry**	**w/2+ Vessels**	**w/Jewelry**
Classic	**Present** [A]	Significant decrease in frequencies. Multiple vessels buried w/adults and children more frequently than with infants. Jewelry buried w/children more frequently than with infants. Wealth in general buried with adults and children more frequently than with infants.	2,184	321	211	14.7%	9.7%
Three Circle	**Present** [A]	Jewelry buried w/sub-adults more frequently than w/adults	219	45	33	20.5%	15.1%
San Francisco	**Possible** [A]	Wealth possibly buried w/males more frequently than w/females	24	8	8	33.3%	33.3%
Georgetown	**n.d.**	Insufficient data	6	0	0	0.0%	0.0%
Cumbre	**n.d.**	Insufficient data	3	0	0	0.0%	0.0%

[A] Inference based on proportion of sample

Table 7.4. Summary of individual-scale data with regard to the proportion of wealthy burials and decedent age

		Multiple Vessels		Jewelry	
Time	**Age Class**	**N With**	**Proportion**	**N With**	**Proportion**
Classic period	Adult	147	15.8%	74	8.0%
	Child	75	15.5%	77	15.9%
	Infant	45	10.9%	40	9.7%
	Sub-adult [A]	120	13.4%	117	13.0%
Three Circle phase	Adult	22	21.6%	11	10.8%
	Child	6	14.6%	9	22.0%
	Infant	5	12.8%	9	23.1%
	Sub-adult [A]	11	13.8%	18	22.5%
San Francisco phase	Adult	5	35.7%	5	35.7%
	Child	1	16.7%	2	33.3%
	Infant	1	25.0%	1	25.0%
	Sub-adult [A]	2	20.0%	3	30.0%

[A] Combination of child and infant classes

Table 7.5. Summary of individual-scale data with regard to the proportion of wealthy burials and decedent sex

		Multiple Vessels		Jewelry	
Time	**Age Class**	**N With**	**Proportion**	**N With**	**Proportion**
Classic period	Female	21	18.4%	9	7.9%
	Female + Female?	23	17.7%	10	7.7%
	Male	20	15.0%	15	11.3%
	Male + Male?	20	13.8%	17	11.7%
Three Circle phase	Female	2	16.7%	3	25.0%
	Female + Female?	3	20.0%	3	20.0%
	Male	3	18.8%	3	18.8%
	Male + Male?	3	16.7%	3	16.7%
San Francisco phase	Female	0	0.0%	0	0.0%
	Male	1	50.0%	2	100.0%
	Male + Male?	2	50.0%	3	75.0%

Wealth Inequality at the Household Scale

In this section, the social scale of analysis is expanded to that of the household. For analytical purposes, and prior to the Classic period, domestic pithouses are used as proxies for households, whereas during the Classic period, wealth distribution is examined at the scale of the domestic room. In some cases, this is likely to approximate households, while at other times and places only portions thereof. Within the sample, 495 domestic spaces are found to have burials within them – generally beneath the floor – and all but six of these yield sufficient data for analysis. Analyses are presented below, in chronological order, and statistical data are provided in accompanying appendices.

Cumbre Phase. Eleven Cumbre phase households, all at Wind Mountain, are identified within the sample, but only two of these have associated burials. None of the Cumbre phase burials were accompanied by multiple vessels or jewelry.

Georgetown Phase. The sample includes 17 Georgetown phase households, at four sites: Galaz (n = 1), Harris Village (n = 6), Mattocks (n = 1), NAN Ranch (n = 1), and Wind Mountain (n = 8). Only three of these had contemporaneous and clearly-associated burials (one each), none of which were accompanied by pottery or jewelry.

San Francisco Phase. Data from 21 San Francisco phase households are included in the present analysis (see Appendix CXXIX). These were located at the sites of Harris Village (n = 8), NAN Ranch (n = 2), and Wind Mountain (n = 11). Ten of the 21 households had clearly-associated burials, some with higher relative frequencies of wealthy burials, and some with none at all. Three of the 21 had multi-vessel burials (14.29 percent), and four had burials with jewelry (19.05 percent). The association of multi-vessel burials and/or mortuary jewelry with some households and not others may indicate asymmetric access to wealth at the household scale. However, no San Francisco phase pithouse contained more than a single wealthy burial; these burials are more likely to indicate asymmetry at the individual, rather than household, scale. This conclusion is supported by a series of two-tailed Fisher's exact tests (see Appendices CXXX – CXXXIII), the results of which indicate that all differences in relative frequency have a high probability of resulting from chance ($p \geq 0.33$). Thus, there is no evidence to suggest that some San Francisco phase households had more burials with wealth than others, relative to total burials.

Three Circle Phase. The sample includes 125 households which date to the Three Circle phase. These came from the sites of Cameron Creek (n = 8), Galaz (n = 14), Harris Village (n = 29), NAN Ranch (n = 36), Swarts (n = 18), and Wind Mountain (n = 20). Seventy-one of these have associated burials, all of which are listed in Appendix CXXXIV. Twenty-five of the Three Circle phase households had at least one burial with two or more vessels (20 percent), and 18 households had at least one burial with jewelry (14.4 percent). These figures do not represent significant changes from the preceding phase ($p \geq 0.45$; Fisher's exact test, two-tailed). To determine whether certain households had relatively more wealthy burials than others, the relative frequencies of wealthy burials, per household, are compared. Differences in household-scale, relative frequency are assessed for all seven sites, and this process is detailed in Appendices CXXXV through CXLVIII. In most comparisons, differences are found to be negligible. In a handful of cases, however, differences have a low probability of resulting from chance, thus suggesting that select households did have relatively more wealthy burials than one or more others. These anomalies are detailed in Table 7.6. and illustrated in Figures 7.1 and 7.2. Findings suggest wealth inequality at the household scale, although generally low sample sizes prevent an assessment of how widespread such inequality may have been.

Table 7.6. Significant differences in the relative frequency of burials with two or more vessels and/or jewelry, per household, during the Three Circle phase

Site [A]	Appendix	Observation	Probability [B]
Galaz	CXXXVII, CXXXVIII	Pithouse 5 had a higher relative frequency of multi-vessel burials than Pithouse 26	0.05
		Pithouse 5 had a higher relative frequency of burials with jewelry than Pithouses 26 and 129	0.06, 0.02
		Pithouse 130 had a higher relative frequency of multi-vessel burials than Pithouses 26 and 134	0.02, 0.05
		Pithouse 11 had a higher relative frequency of multi-vessel burials than Pithouse 26	0.05
NAN Ranch	CXLIII	Pithouse 14 had a higher relative frequency of multi-vessel burials than Pithouse 52	0.05
Swarts	CXLV	Pithouse 80A had a higher relative frequency of multi-vessel burials than Pithouses J, K, and V	0.04 – 0.05

[A] No meaningful differences were identified at Cameron Creek, Harris, Mattocks, or Wind Mountain.
[B] Probability of difference being attributable to chance. Obtained from two-tailed Fisher's exact test

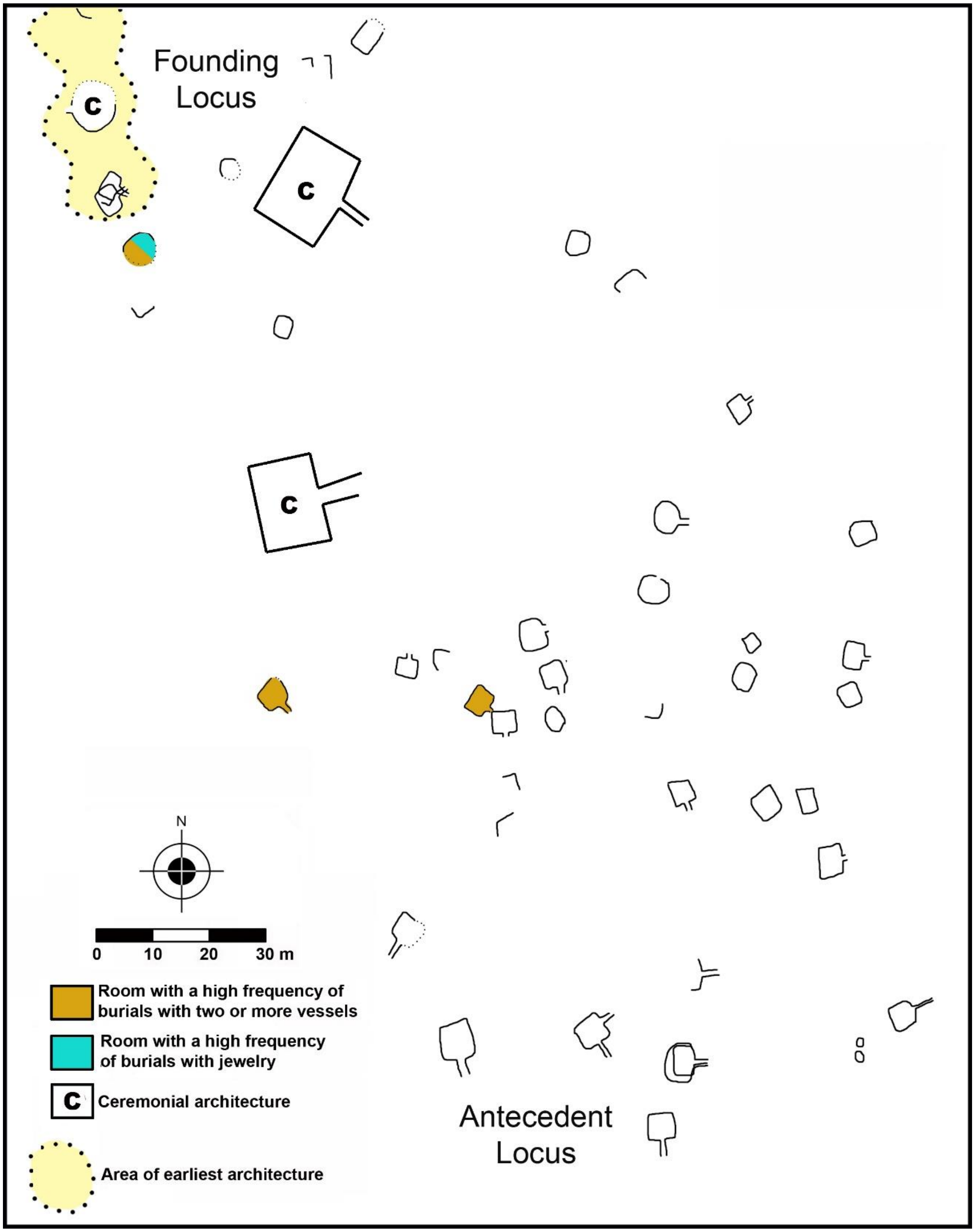

Figure 7.1. Distribution of Three Circle phase households at Galaz with wealthy burials. (Architecture after maps in Anyon and LeBlanc 1984).

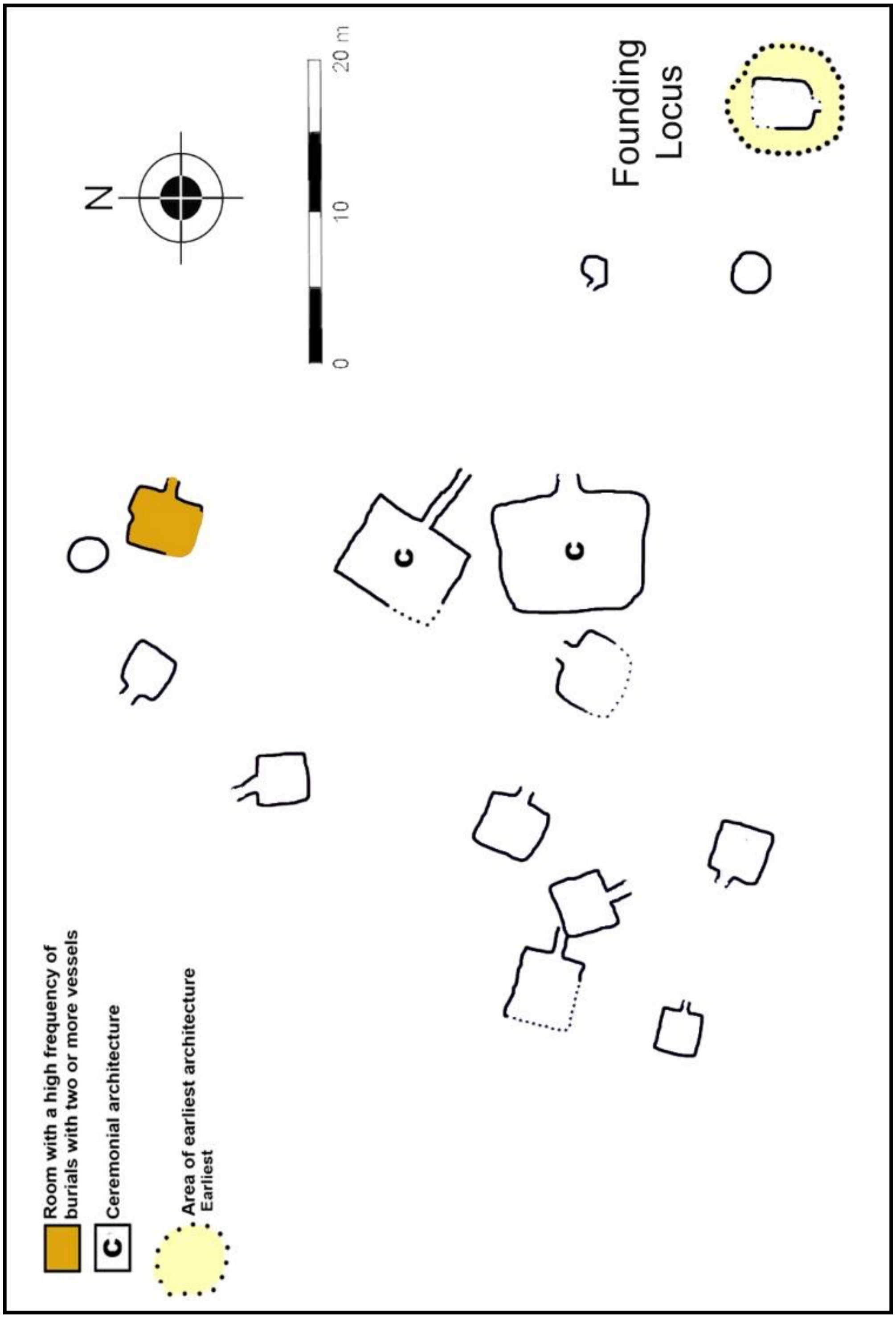

Figure 7.2. Distribution of Three Circle phase households with wealthy burials at NAN Ranch. (Architecture after Shafer 2003:Figure 3.2).

Classic Period. To reiterate, households cannot be consistently recognized across all excavated areas for the Classic period. Thus, the present analysis is undertaken at the scale of the domestic pueblo room. In some cases, this approach is likely to separate into distinct analytical units what would otherwise be related household burial populations. The sample includes 547 Classic period, domestic rooms, spread across six sites (Harris Village was depopulated prior to the Classic period). Of these, 280 included burials, all of which are listed in Appendix CXLIX. Of the 547 Classic period rooms in the sample, 19.01 percent included at least one burial with multiple vessels (n = 104), and 17.18 percent had at least one burial with jewelry (n = 94). These proportions do not differ meaningfully from those of the preceding phase ($p \geq 0.51$; Fisher's exact test, two-tailed).

The similarity in Classic period relative proportions – multi-vessel burials (17.18 percent) and those with jewelry (19.01 percent) – suggests comparable access, at the household level, to wealth in the form of either pottery or jewelry. Interestingly, however, this pattern is not uniformly represented across the study sites. At Cameron Creek, for example, eight rooms had multi-vessel burials and eight rooms had burials with jewelry. At Galaz, 28 rooms had multi-vessel burials and 24 rooms had burials with jewelry. In contrast, at NAN Ranch, six rooms had multi-vessel burials and 17 rooms – nearly three times as many – had burials with jewelry, potentially indicating that households at NAN Ranch had better access to jewelry than they did to pottery.

Among the Classic period rooms that did have wealthy burials, some had higher relative frequencies than others. These differences are statistically assessed (see Appendices CL – CLXI), and results indicate that in some cases, differences are likely to be meaningful. These are detailed in Appendix CLXII and synopsized in Table 7.7.

Table 7.7. Significant differences in the relative frequency of burials with two or more vessels and/or jewelry, per room, during the Classic period

Site	Appendix	Observation	Probability [A]
Cameron Creek	CXLX	Rooms 56 and 57 have a higher relative frequency of multi-vessel burials than Rooms 7 and 71	0.02 – 0.08
Galaz	CLII	Room 52 has a higher relative frequency of multi-vessel burials than Rooms 36, 44, 19/19B, 27A, 70/70A	0.01 – 0.07
		Room 47 has a higher relative frequency of multi-vessel burials than Rooms 27A, 41A	0.07, 0.05
		Room 32D has a higher relative frequency of multi-vessel burials than Rooms 36, 19/19B, 27A, 41A, 70/70A	0.01 – 0.08
		Room 49/49A has a higher relative frequency of multi-vessel burials than Rooms 36, 19/19B, 27A, 41A	0.02 – 0.06
	CLIII	Room 47 has a higher relative frequency of burials with jewelry than Rooms 109/109A, 32D, 41A, 49/49A, 70/70A	0.04 – 0.08
		Room 95 has a higher relative frequency of burials with jewelry than Rooms 32D and 41A	0.06 – 0.07
		Room 110 has a higher relative frequency of burials with jewelry than Rooms 109/109A, 32D, 41A, and 49/49A	0.04 – 0.07
		Room 122 has a higher relative frequency of burials with jewelry than Rooms 32D and 41A	0.06 – 0.07
		Room 19/19B has a higher relative frequency of burials with jewelry than Room 41A	0.06
Mattocks	CLIV	Rooms 77, 115a/b, and 435a/b have a higher relative frequency of multi-vessel burials than Rooms 50, 56, 126, 127, and 426	0.04 – 0.05
		Room 117 has a higher relative frequency of multi-vessel burials than Rooms 50, 56, 126, 127, 426, 106, 49, and 431	0.02 – 0.07
	CLV	Rooms 325, 55, and 441 have a higher relative frequency of burials with jewelry than Room 53	0.07 – 0.08
		Room 64 has a higher relative frequency of burials with jewelry than Rooms 50, 106, 63, 45, 49, 431, 80b, 59, 438b, and 53	0.01 – 0.07
NAN Ranch	CLVI	Room 12 has a higher relative frequency of multi-vessel burials than Rooms 84/84B and 28	0.07 – 0.08
	CLVII	Room 98 has a higher relative frequency of burials with jewelry than Rooms 22 and 40	0.07, 0.02
		Room 8 has a higher relative frequency of burials with jewelry than Room 40	0.05
		Room 50 has a higher relative frequency of burials with jewelry than Rooms 22, 40, and 28	0.01 – 0.06
Swarts	CLVIII	Room 34 has a higher relative frequency of multi-vessel burials than Rooms 5, 68/68A, 10	0.04 – 0.05
		Room 63 has a higher relative frequency of multi-vessel burials than Rooms 87, 96, 5	0.04 – 0.05
		Room 108 has a higher relative frequency of multi-vessel burials than Rooms 87, 96, 5	0.01 – 0.07
		Room 100 has a higher relative frequency of multi-vessel burials than Rooms 32, 11, 3, 55, 12, 1	0.03 – 0.06
		Room 93 has a higher relative frequency of multi-vessel burials than Rooms 98, 3, 55, 12, 1	0.03 – 0.07
		Room 63 has a higher relative frequency of multi-vessel burials than Rooms 11, 3, 55	0.03 – 0.08

Site	Appendix	Observation	Probability [A]
		Room 73 has a higher relative frequency of multi-vessel burials than Rooms 98, 55	0.08
		Room 108 has a higher relative frequency of multi-vessel burials than Rooms 11, 3, 55, 12, 1	0.02 – 0.07
	CLIX	Rooms 106, 118, 90, and AG have a higher relative frequency of burials with jewelry than Rooms 107, 2/2A, 9, 8, 55, 12, B, 83, 93, and 63	0.04 – 0.08
		Room 40 has a higher relative frequency of burials with jewelry than Rooms 87, 96, 107, 2/2A, 9, 8, 3, 55, 12, 39, B, 83, 100, 93, 63, 73	0.01 – 0.08
		Rooms 5 and 24 have a higher relative frequency of burials with jewelry than Room 55	0.06, 0.08
		Room 19 has a higher relative frequency of burials with jewelry than Rooms 2/2A, 9, 8, 55, B, 63	0.03 – 0.08
		Room 31 has a higher relative frequency of burials with jewelry than Room 63	0.08

[A] Probability values obtained from two-tailed Fisher's exact tests

Analyses strongly suggest that wealth inequality existed at the household scale during the Classic period. Most Classic period rooms had no wealthy burials, but some did, and among those, some had far more than at least one other. The manner in which rooms with wealthy burials were distributed varied by site, but four patterns emerge. First, rooms with higher relative frequencies of wealthy burials were often clustered spatially, and even contiguous at times (see Figure 7.3). In some cases, this proximity likely corresponds with multi-room households, which, in turn, suggests that some households had greater access to material wealth than some others. In other cases, adjacent rooms with elevated levels of mortuary wealth may represent distinct, yet socially-connected households.

Second, at Galaz and NAN Ranch, rooms with high relative frequencies of wealthy burials were adjacent to or clustered around ceremonial facilities, suggesting a possible association between the domains of ritual knowledge and material wealth (see Figures 7.4 and 7.5). Working in the Hohokam region to the west, Rice (2016) has documented greater amounts of wealth in the burials of what he believes to be shamans, interpreting this wealth as payment from clientele.

Third, rooms with high relative frequencies of wealthy burials were at times arranged along the outer edges of roomblocks, including some at NAN Ranch. Working with data from this site, Shafer (2003) has argued that outer rooms – some of which I find to have higher frequencies of wealthy burials (see Figure 7.5) – were occupied by late-comers. Using data from Mattocks, however, Gilman (1990) sees such rooms as those occupied by the descendants of founding households. Thus, it is interesting to note that all of the rooms at Mattocks that have a high relative frequency of burials with jewelry are physically detached from the larger roomblocks (see Figure 7.6), perhaps indicating social distance from the village's core households or lineages. At both NAN Ranch and Mattocks, as well as at Swarts (see Figure 7.3), the spatial distribution of wealthy rooms may evidence a correlation between late immigration and more evidence of wealth. This, in turn, could suggest that late-coming, land-poor immigrants used the distribution of desired items to compensate for shortcomings in the domains of antecedence (see Chapter 3) and productive resources (see Chapter 4).

Fourth, relationships between wealthy rooms and evidence of either primacy or antecedence vary considerably. At Cameron Creek, each of the especially-wealthy rooms was situated next to the site's most antecedent pithouse cluster (see Figure 7.7). At Galaz, the wealthiest rooms were spread throughout the site, yet may have been most dense in the Southeast Locus (see Figure 7.4). At Mattocks, the densest concentration of rooms with a high relative frequency of multi-vessel burials was in the site's founding locus (see

Figure 7.6). In contrast, no wealthy rooms were associated with the founding locus at NAN Ranch (see Figure 7.5).

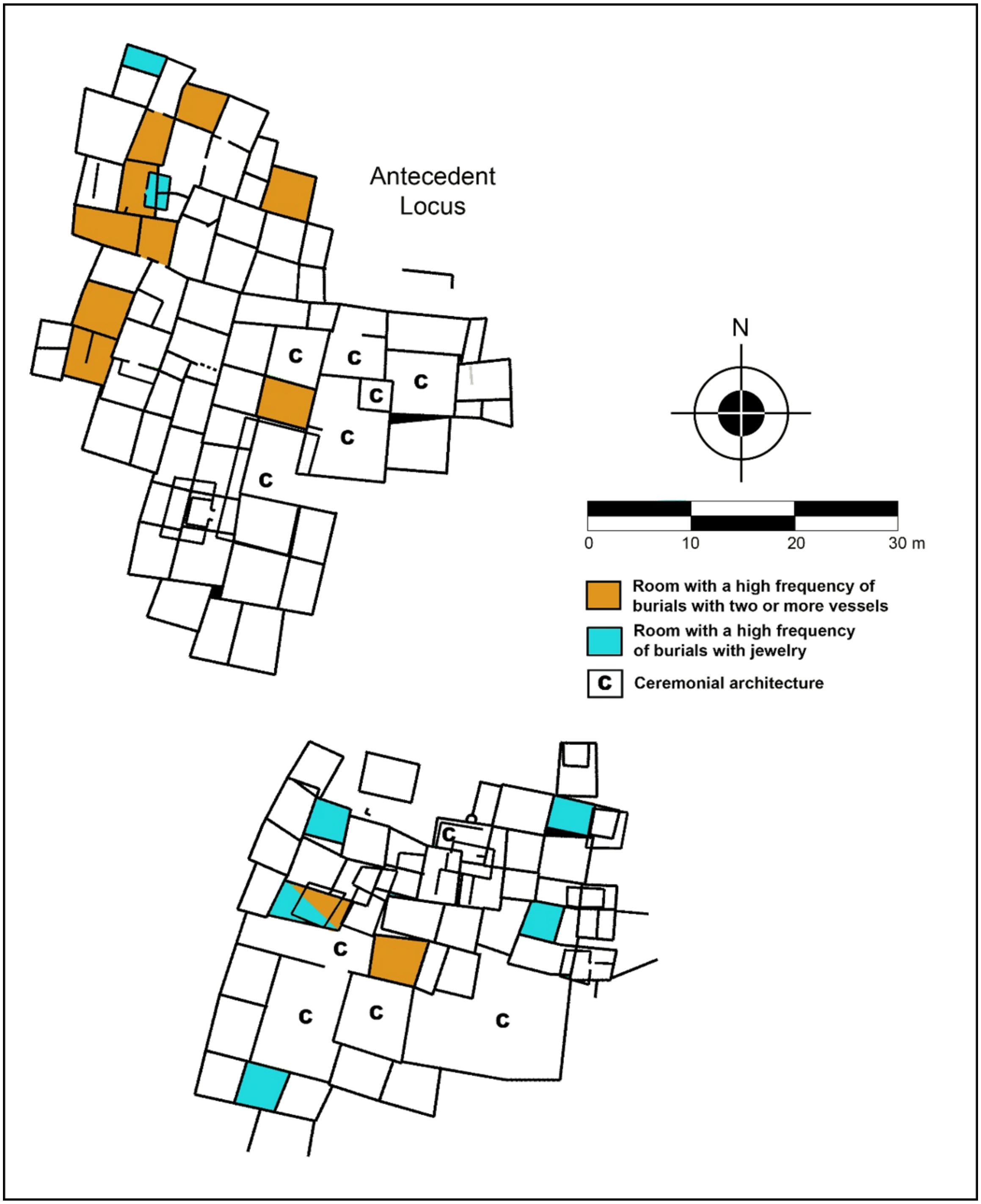

Figure 7.3. Classic period rooms at Swarts that have significantly higher relative frequencies of wealthy burials. (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

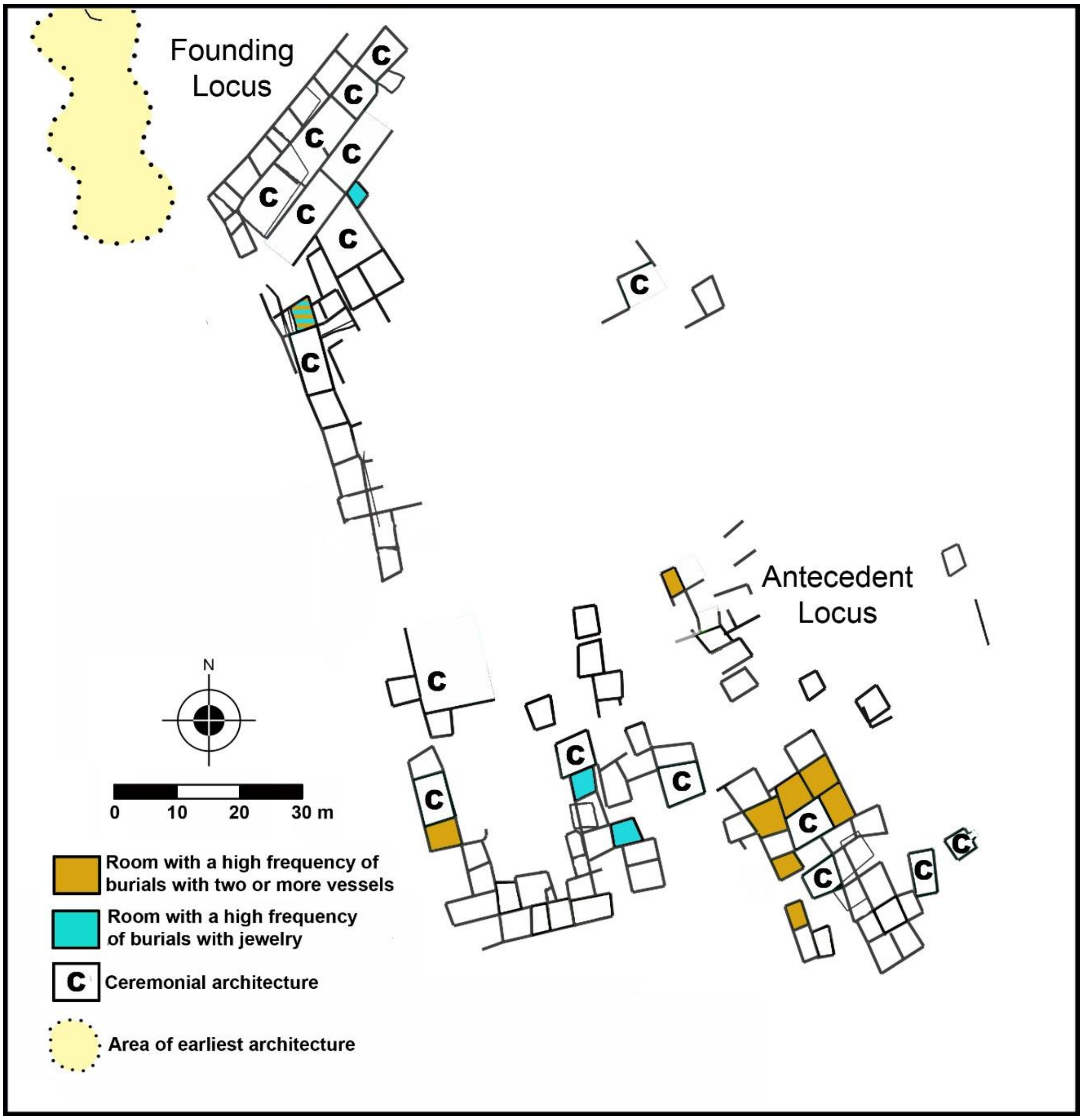

Figure 7.4. Classic period rooms at Galaz that have significantly higher relative frequencies of wealthy burials. (Architecture after maps in Anyon and LeBlanc 1984).

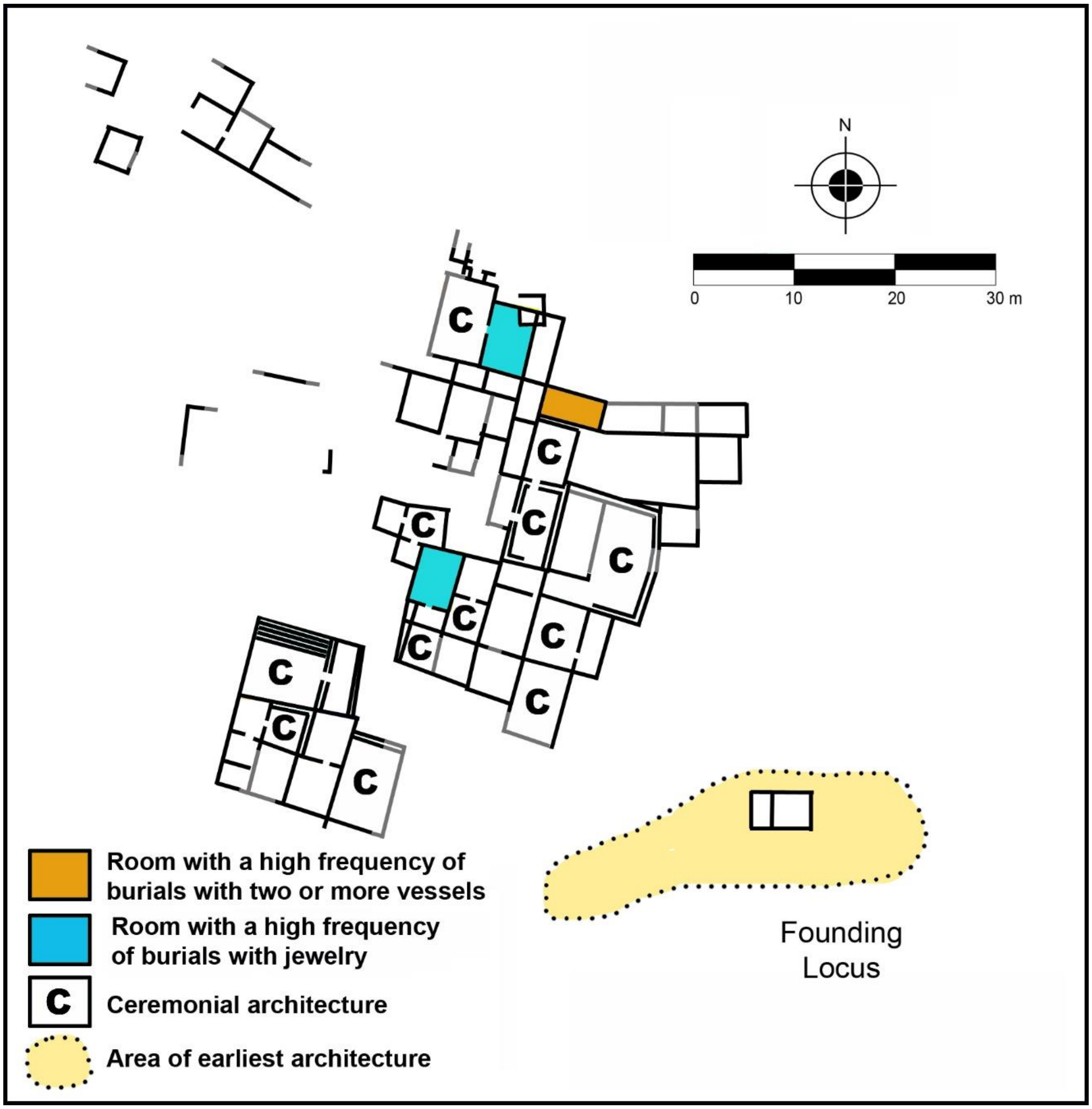

Figure 7.5. Classic period rooms at NAN Ranch that have significantly higher relative frequencies of wealthy burials. (Architecture after Shafer 2003:Figure P.2).

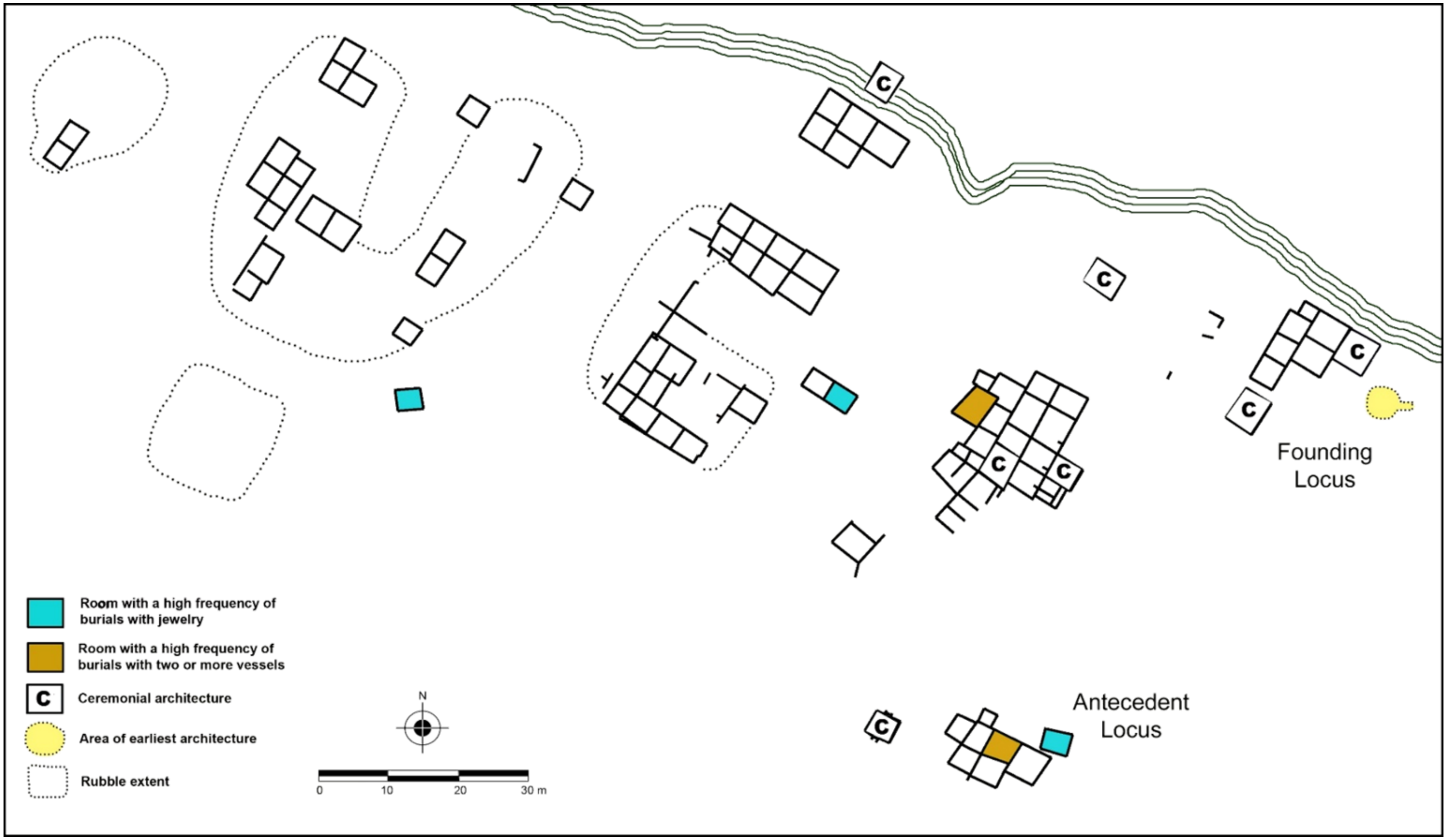

Figure 7.6. Classic period rooms at Mattocks that have significantly higher relative frequencies of wealthy burials. (Architecture after maps shared by Patricia Gilman).

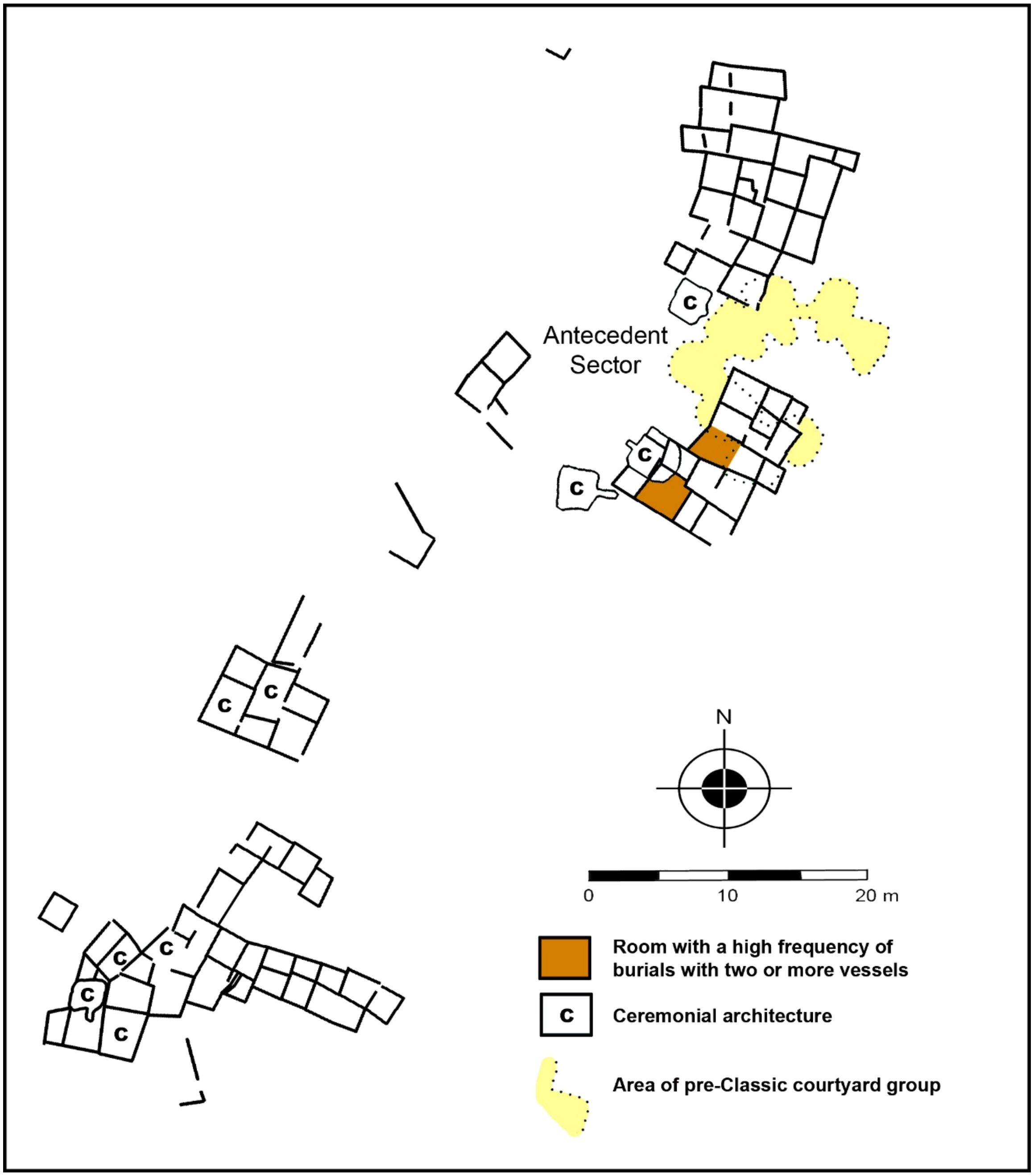

Figure 7.7. Classic period rooms at Cameron Creek that have significantly higher relative frequencies of wealthy burials. (Architecture after map in Bradfield 1931).

The above analyses examined differences in the relative frequency of multi-vessel burials and burials with jewelry at the scales of household (pre-Classic) and room (Classic). Evidence, which is summarized in Table 7.8, suggests that inter-household differences may not have emerged until the Three Circle phase. This corresponds with other evidence indicating that during and after the tenth century, Mimbres society underwent a fundamental shift in the primary locus of social organization (see Chapters 5, 6, and 8). That is, the burning of the region's great kivas signaled a move away from communal foci and toward an emphasis on smaller social collectives.

Table 7.8. Summary of household-scale data with regard to the relative frequency of wealthy burials

			N Households [A]			**Proportion of Households**	
Time	**Inequality**	**Notes**	**In Sample**	**w/2+ Vessels**	**w/ Jewelry**	**w/2+ Vessels**	**w/ Jewelry**
Classic [A]	**Present [B, C]**		547	104	94	19.0%	17.2%
Three Circle	**Present [C, D]**		125	25	18	20.0%	14.4%
San Francisco	**Absent**	No household had >1 wealthy burial	21	3	4	14.3%	19.0%
Georgetown	**Indeterminate**	Insufficient data	17	0	0	0.0%	0.0%
Cumbre	**Indeterminate**	Insufficient data	11	0	0	0.0%	0.0%

[A] Or rooms, during the Classic period

[B] Based on differences in relative frequency involving two households that both have multi-vessel burials, and these differences have a statistically low probability of resulting from chance

[C] Based on differences in relative frequency involving two households that both have burials with jewelry, and these differences have a statistically low probability of resulting from chance

[D] Based on statistically compelling differences in relative frequency of multi-vessel burials, although all such differences involve one household with no such burials.

Wealth Inequality at the Locus Scale

As shown above, access to mortuary wealth varied among individuals and households, late in the temporal sequence. In this section, I seek to understand whether such asymmetry extended to the scale of locus. The analyses presented below are similar to those introduced above; for each contemporaneous locus, the relative frequency of multi-vessel burials and those with jewelry are compared. In pre-Classic contexts, pithouse clusters are equated with loci, whereas during the Classic period, the term references pueblo roomblocks.

Cumbre and Georgetown Phases. Sample sizes and the resulting paucity of data prevent meaningful, locus-scale comparisons prior to the San Francisco phase. The sample does include two Cumbre phase loci and three Cumbre phase burials, all at Wind Mountain. None of the burials, however, were accompanied by jewelry or multiple vessels. Six loci date to the Georgetown phase, as do six burials. None, however, were accompanied by pottery or jewelry.

San Francisco Phase. Within the sample, nine residential loci dating to the San Francisco phase have been identified. Of these, six had multi-vessel burials (66.7 percent) and six had burials with jewelry (66.7 percent), all coming from either Galaz, Harris, or Wind Mountain. At Galaz and Harris, however, wealthy burials were encountered in only one locus. Inter-locus comparison is limited to Wind Mountain, where San Francisco phase burials were excavated in the Central (n = 8), North (n = 5), and Ridout (n = 2) loci, each of which contained at least one wealthy burial. The relative frequencies of wealthy burials, per locus, are compared, and differences assessed statistically (see Appendices CLXIII and CLXIV). Results provide no indication that differences in relative frequency are meaningful; there is no evidence to suggest that during the San Francisco phase, either of the two loci at Wind Mountain had more wealthy burials than the other, relative to the size of burial samples.

Three Circle Phase. The sample includes 22 loci that date to the Three Circle phase and which are distributed among all seven sites (see Appendix CLXV). Eleven of these had multi-vessel burials (50 percent) and 11 had burials with jewelry (50 percent).

The difference in proportions, from those of the San Francisco phase, are not statistically significant (p = 0.46; Fisher's exact test, two-tailed). Only one Three Circle phase locus has been identified at Swarts, thus precluding inter-locus comparison there. Such comparisons are possible at the six remaining sites. Differences in relative frequency are assessed statistically (see Appendices CLXVI – CLXXVII), and although most differences have a high probability of resulting from chance, Galaz' founding (Northwest) locus had a higher relative frequency of wealthy burials than one or more contemporaneous loci ($p \leq 0.06$; see Appendices CLXVIII and CLXIX).

Classic Period. Twenty Classic period loci are represented within the sample (see Appendix CLXXVIII), located at each of the study sites, save Harris Village, which was depopulated during the Three Circle phase. Seventy-five percent of the 20 loci (15 of 20) had multi-vessel burials and 60 percent (n = 12) had burials with jewelry, proportions that are largely comparable to those of the preceding phase (p = 0.12, 0.55, respectively; Fisher's exact test, two-tailed). Inter-locus comparison is not possible at Wind Mountain because the site had contracted into a single roomblock by the Classic period. Thus, this analysis is limited to the sites of Cameron Creek, Galaz, Mattocks, NAN Ranch, and Swarts. At each site, inter-locus differences in the relative frequency of wealthy burials are examined (see Appendices CLXXIX – CLXXXVIII). Results suggest that locus-scale wealth inequality continued after 1000 C.E., albeit in limited fashion; that is, some loci had wealthy burials and others had none. In a handful of such cases, differences have a low probability of occurring by chance. In other cases, significant differences exist between loci that both had wealthy burials. Inequality was distributed differently within and across sites, and varied according to artifact type. Almost all of the significant, locus-scale differences involved multi-vessel burials rather than burials with jewelry. In fact, only one instance of the latter type was identified (at Mattocks).

In cases where specific loci stand out as having more wealthy burials than others, I ask whether these correspond with evidence of primacy and/or antecedence (see Chapter 3). As shown in Table 7.9, there is some degree of association. At nearly every site where one locus stands out as having a higher relative frequency of wealthy burials, the preeminent locus also has the most evidence of antecedence. The one exception, at Galaz, involves the Southeast Locus, which was adjacent to the antecedent locus.

Table 7.9. Comparison of Classic period, locus-scale wealth inequality to primacy and antecedence. Orange cells indicate correspondence with most antecedent loci.

Site	Founding Locus	Most Antecedent Locus [A]	Locus w/Highest Relative Frequency of Burials with	
			Multiple Vessels	Jewelry
Cameron Creek	Unknown	North, East	East	n/a [B]
Galaz	Northwest	East	Southeast	n/a [C]
Mattocks	Southeast	400s	n/a [C]	400s
NAN Ranch	Southeast	None preeminent	n/a [C]	n/a [C]
Swarts	n/a [D]	North	North	n/a [C]

[A] During the Classic period
[B] No intramural, Classic period burials at Cameron Creek were accompanied by jewelry
[C] No statistically compelling differences were identified
[D] Only one pre-Classic locus has been identified at Swarts

The above analyses examined differences in the relative frequency of wealthy burials per residential locus, and differences are summarized in Table 7.10. Significant differences did not emerge until the Three Circle phase. After 750 C.E., and continuing through the Classic period, some loci had significantly higher relative frequencies of wealthy burials. Specific to multi-vessel burials, some significant differences involved two loci wherein both had wealthy burials. In contrast, all significant differences involving mortuary jewelry were limited to pairings in which one locus had burials with jewelry and the other did not. Of great interest is the apparent association of antecedence with wealthy burials in general and multi-vessel burials in particular. This is the first indication of any nexus between the two domains.

Table 7.10. Summary of locus-scale data with regard to the relative frequency of wealthy burials

Time	Inequality	Notes	Number of Loci			Proportion of Loci	
			In Sample	w/Multi-Vessel Burials	w/ Mortuary Jewelry	w/Multi-Vessel Burials	w/ Mortuary Jewelry
Classic	**Present** [A, B]	Assn. w/antecedence	20	15	12	75.0%	60.0%
Three Circle	**Present** [A, B]		22	11	11	50.0%	50.0%
San Francisco	**Absent**	Limited data	9	6	6	33.3%	33.3%
Georgetown	**Indeterminate**	Insufficient data	6	0	0	0.0%	0.0%
Cumbre	**Indeterminate**	Insufficient data	2	0	0	0.0%	0.0%

[A] Based on differences in relative frequency involving two households that both have multi-vessel burials, and these differences have a statistically low probability of resulting from chance
[B] Based on statistically compelling differences in relative frequency of burials with jewelry, although all such differences involve one household with no such burials.

Wealth Inequality at the Village Scale

This set of analyses examines differences in mortuary wealth at the village scale. Cumbre-phase data are available from only one site, thereby preventing inter-village comparison. Georgetown-phase data came from three sites, but none of the burials were accompanied by pottery or jewelry. Thus, analyses at this scale are limited to the San Francisco phase and later. For each temporal range, relative frequencies of multi-vessel burials and burials with jewelry are compared.

San Francisco Phase. Site-scale, San Francisco phase data are obtained from Galaz, Harris Village, and Wind Mountain (see Appendix CLXXXVIII). Harris and Wind Mountain both have wealthy burials during this time, but Galaz does not. Analysis indicates that all differences in relative frequency have a high probability of resulting from chance ($p \geq 0.50$; see Appendices CLXXXIX and CXC); there is nothing to indicate that during the San Francisco phase, any particular village had a higher relative frequency of wealthy burials.

Three Circle Phase. Three Circle phase burials were encountered at all seven sites (see Appendix CXCI), and it is during this phase that evidence of wealth inequality at the site scale is first apparent. Mattocks emerges as having a far higher relative frequency of multi-vessel burials (57.1 percent), nearly twice that of any other site (see Appendix CXCII). Mattocks was also the only site not to have mortuary jewelry during the Three Circle phase (see Appendix CXCIII). Mattocks had an extraordinarily small pre-Classic component, potentially marking the site as having developed relatively late in time. Were this the case, residents here may have had less access to productive resources than those living in other communities along the middle Mimbres River. A number of ethnographic studies, in various parts of the world, have demonstrated an association between agricultural marginalization on one hand and ceramic specialization on the other (e.g., Allen 1984; Arnold 1985, 1993; Deal 1998; Filipovic 1951; Foster 1965; Graves 1991; Murray 1972; Nash 1961; Papousek 1974; Reina 1960, 1969; Stark 1991, 1993). This association is not absolute (Cook 1984; Hunt 1962; Valdez 1997), and Harry (2005) recently found no evidence of such a pattern in several parts of the Southwest, though not including the Mimbres region. Thus, a potential explanation for the strikingly high proportion of ceramic wealth at Mattocks may involve the manufacture and exchange of pottery as a means to mitigate other forms of inequality between the residents of Mattocks and those of other Three Circle phase settlements.

Differences in the relative frequency of burials with jewelry were negligible across sites, with all differences having a high probability of resulting from chance ($p \geq 0.11$; see Appendix CXCIII). Thus, evidence of site-scale wealth inequality first appears during the Three Circle phase, but is limited largely to differences in pottery distribution.

Classic Period. During the Classic period, evidence of asymmetry in the site-level prevalence of wealthy burials became more pronounced, with few changes to inter-site relationships (see Appendix CXCIV). Wind Mountain emerged as having the highest relative frequency of multi-vessel burials (33.3 percent), but the site's burial population is quite low, resulting in no significant differences in comparison to contemporaneous villages. The next-highest proportion is at Mattocks (25.3 percent), which had significantly more multi-vessel burials than all other sites, relative to the size of burial samples ($p \leq 0.04$; see Appendix CXCV). Other than Wind Mountain, each site had mortuary jewelry, although Cameron Creek had very little (see Appendix CXCIV). For the first time, evidence of ranking with regard to jewelry is evident. That is, the sites can be ranked in order of proportions, with interstitial differences having a low probability of resulting from chance ($p \leq 0.04$; see Appendix CXCVI). NAN Ranch has the highest relative frequency of burials with jewelry (27 percent), over twice that of any other site. Given that much of the jewelry recovered from Mimbres deposits is made of nonlocal materials, this relates directly to NAN Ranch's dominance in the domain of access to exotica (see Chapter 6).

The above analyses suggest that unequal access to material wealth, at the village scale, may not have developed until relatively late (see Table 7.11). Differences in the relative frequency of burials with jewelry, in fact, do not appear until the Classic period. During the Three Circle phase, Mattocks dominated with regard to multi-vessel burials, with a higher relative frequency than Galaz, NAN Ranch, and Swarts, and it retained this position after 1000 C.E. NAN Ranch emerged in the Classic period as having a far higher relative frequency of burials with jewelry. It is particularly interesting that differences in the relative frequency of burials with jewelry went from *absent* during the Three Circle phase to *ranked* after 1000 C.E. That this dramatic change parallels the pithouse-to-pueblo transition may suggest that differences in how jewelry was used – in life and/or the afterlife – correspond with contemporaneous religious change (see Chapters 5 and 8).

Table 7.11. Summary of village-scale, mortuary wealth data

Time	Inequality	Notes	Number of Sites			Proportion of Sites	
			In Sample	w/Multi-Vessel Burials	w/Mortuary Jewelry	w/Multi-Vessel Burials	w/Mortuary Jewelry
Classic	**Ranked** [A, B]	NAN Ranch dominating *in re* mortuary jewelry; Mattocks *in re* multi-vessel burials	6	6	5	100.0%	83.3%
Three Circle	**Marked** [A, C]	Mattocks dominating *in re* multi-vessel burials	7	7	6	100.0%	85.7%
San Francisco	**Absent**	Limited sample size	3	2	2	66.7%	66.7%
Georgetown	**Indeterminate**	Insufficient data	3	0	0	0.0%	0.0%
Cumbre	**Indeterminate**	Insufficient data	1	0	0	0.0%	0.0%

[A] Based on differences in relative frequency involving two households that both have multi-vessel burials, and these differences have a statistically low probability of resulting from chance

[B] Based on differences in relative frequency involving two households that both have burials with jewelry, and these differences have a statistically low probability of resulting from chance

[C] Differences in relative frequency of burials with jewelry have a high probability of resulting from chance

Part II Conclusion

Evidence of differential wealth was examined, via the analyses above, by looking at the relative frequencies of multi-vessel burials and burials with jewelry. This was undertaken at four socio-spatial scales, using data from seven different sites. General trends in the degree of demonstrable inequality are shown below in Figure 7.8. Although specific results vary across space and time, four general observations can be made.

First, evidence of asymmetric wealth (at any social scale) that predates the San Francisco phase has not been identified. This may suggest relative equality during the Cumbre and Georgetown phases, but is just as likely to be the result of small sample sizes. For this reason, no inferences are made in this chapter with regard to deposits before 650 C.E. Once meaningful differences in mortuary wealth emerged, they rarely lessened and never disappeared. At all scales above that of the individual, evidence of inequality became increasingly prominent through time (see Figure 7.8).

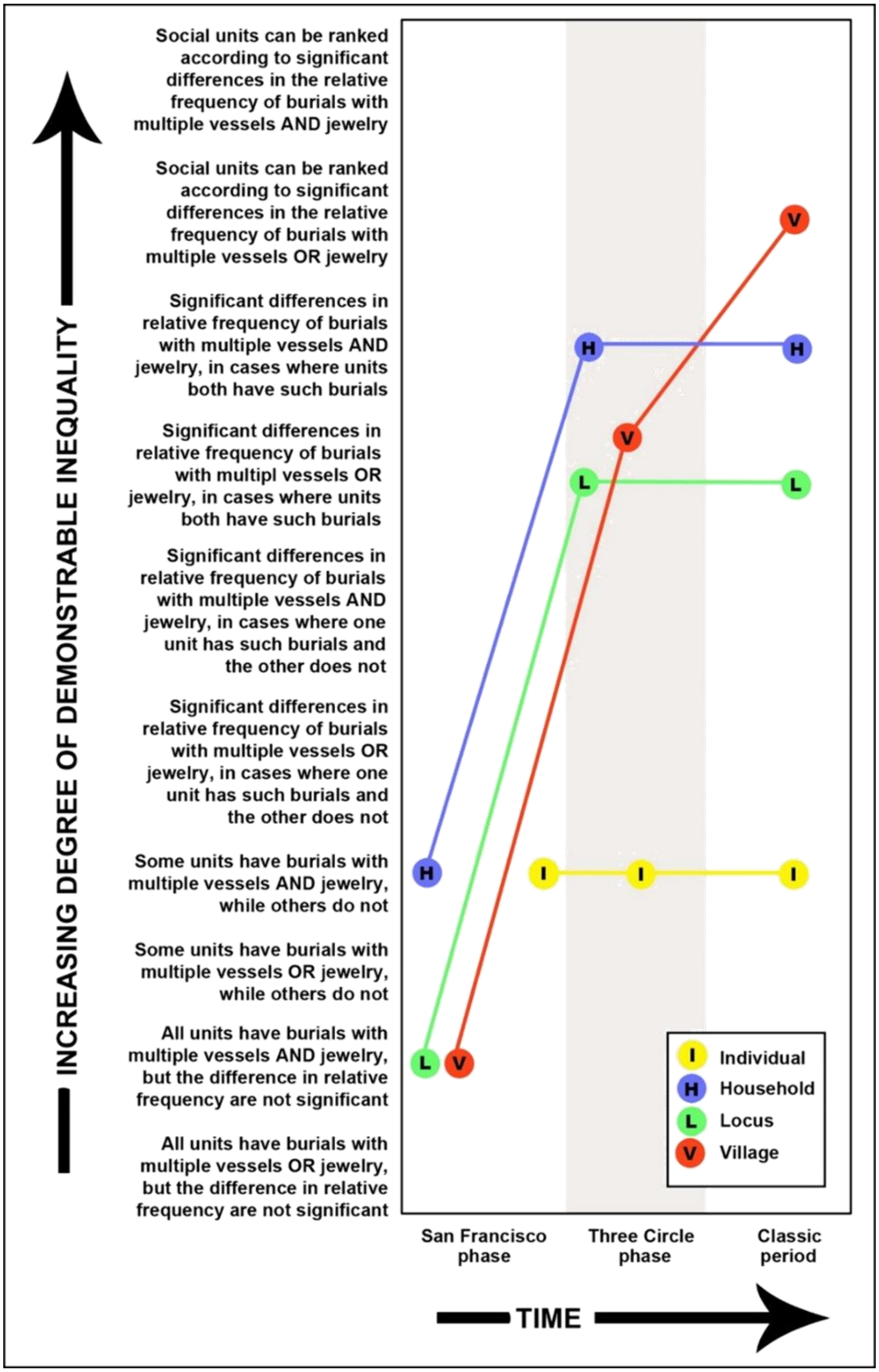

Figure 7.8. Diachronic changes in the degree of demonstrable evidence to suggest meaningful differences in the relative frequencies of wealthy burials

Second, several significant differences in wealth distribution correspond with age (see Table 7.4). Specifically, and beginning in the Three Circle phase, sub-adults in general and children in particular were far more likely to be buried with jewelry than were adults and infants. In Chapter 6, a similar pattern was observed with regard to exotica, much of which appears in the form of jewelry.

Third, households (or rooms, during the Classic period) with wealthy burials tend to be clustered spatially (see Figures 7.3 and 7.7, for example). During the pre-Classic era, this may indicate close, inter-household association and cooperative efforts to access wealth. The same could be true during the Classic period, but an alternate interpretation would be that the adjacent, wealthy rooms were part of the same household. Classic period rooms with wealthy burials were frequently positioned along the perimeter of – or even detached from – roomblocks, perhaps identifying residents as relative latecomers (see Figure 7.6, for example). Elevated levels of wealth in the rooms of late arrivals could indicate that migrants were compensating for a lack of productive resources through investment in the exchange of goods. Some rooms with wealthy burials were adjacent to ceremonial facilities (see Figures 7.4 and 7.5, for example), perhaps suggesting a nexus between the domains of wealth and ritual knowledge (see Rice 2016).

Finally, in several cases where one locus is identifiable as having a higher relative frequency of wealthy burials than others, the preeminent locus is also the site's most antecedent locus (see Table 7.9). This association is consistent with some ethnographic cases, wherein antecedent parties define the parameters of wealth and control access to it as a means of solidifying or expanding extant inequalities. There were no instances of association between high relative frequencies of wealthy burials on one hand and founding loci on the other.

Part III: Continuous Variables and Evidence of Ceramic Wealth Inequality

In this section, I develop and present a method for quantifying ceramic value as a continuous variable in mortuary assemblages and comparing differences therein. Data derive from 3,143 burials at seven Mimbres sites: Cameron Creek, Galaz, Harris Village, Mattocks, NAN Ranch, Swarts, and Wind Mountain. Again, analyses are limited to mortuary contexts for purposes of standardization. Following the presentation of methods, this section is arranged primarily by socio-spatial scale (i.e., individual, household, locus, village) and secondarily by time.

Quantifying Ceramic Wealth by Way of Relative Value

Not all pottery vessels were conceptualized or valued the same. For example, I assume that a finely-painted bowl was more highly valued than a plainware jar. To take this kind of value into consideration, rather than simply comparing numbers of objects, pottery scores are calculated for each burial assemblage, a process that is outlined below. Once pottery scores are calculated, they can be compared directly at the individual scale. When individual pottery scores are grouped together (by room or roomblock, for instance), Gini coefficients can be calculated for each subset (see Chapter 4, Part III). These coefficients are then used to infer degrees of inequality at the individual scale. At scales above that of the individual, and in order to mitigate the effect of statistical outliers, paired distributions are compared, rather than means. Because these distributions are seldom normal, I employ two-tailed Mann-Whitney tests, which are non-parametric in nature (see Chapter 4, Part III).

To compare the relative values of pottery in mortuary assemblages, each burial is assigned a calculated *pottery score* based on the number and type of vessels included. Plainware pottery (including red-slipped, corrugated, and smudged) receives 1 point per whole vessel and 0.5 points per partial vessel.[25] Painted pottery receives 3 points per whole vessel and 1.5 points per partial vessel. In rare cases of a single grave containing two or more individuals, along with pottery that cannot be assigned to one person in particular, pottery scores are equally apportioned among the interred. For analyses above the scale of the individual, pottery score distributions are compared across like units of analysis. As described in Chapter 4, Part III, distributional differences are assessed using pairwise, two-tailed Mann-Whitney tests. An example of this process is provided below, using mortuary data from two Three Circle phase pithouses at Galaz to compare assemblages at the household scale (see Table 7.12).

[25] For the purpose of this study, partial vessels are defined as more than 25 percent of a vessel but less than 90 percent. Whole vessels are defined as 90 percent or greater.

Table 7.12. Comparison of mortuary ceramic assemblages at two Three Circle phase households. (Data from Anyon and LeBlanc 1984:Appendix II).

Household	Burial No.	Ceramic Assemblage	Pottery Score
Pithouse 134	15-392	1 decorated vessel	3
	15-394	1 plainware vessel	1
	15-408	1 decorated vessel	3
	15-416	1 decorated vessel	3
	15-427	No pottery	0
Pithouse 26	2-178	1 decorated vessel	3
	2-189	1 plainware vessel	1
	2-195	No pottery	0
	2-210	No pottery	0
	26-7-14 [1]	1 plainware vessel	1
	26-7-14 [2]	1 plainware vessel	1
	26-7-22	No pottery	0
	26-8-12	1 plainware vessel	1

In this example, mean pottery scores differ across households: 2.00 for Pithouse 134 and 0.88 for Pithouse 26 ($s = 1.41$ and 0.99, respectively). This difference reflects the presence of three decorated vessels in one room and only one in the other, even though the latter had more burials. To determine whether Pithouse 134 actually had greater ceramic wealth than Pithouse 126, the two distributions are subjected to a two-tailed Mann-Whitney test. Results indicate that the difference in score distributions has a relatively high probability of resulting from chance ($U = 29$, $p = 0.22$).[26] Thus, evidence does not suggest that either of the two pithouses had greater mortuary wealth in pottery than the other. Similar analyses, presented at several scales, are presented below.

[26] For the remainder of the chapter, the majority of Mann-Whitney U-scores are provided in appendices but not in textual descriptions.

Ceramic Wealth Inequality at the Individual Scale

For this section, a total of 3,143 burial assemblages are considered, spanning the Early Pithouse, Late Pithouse, and Classic periods. Of these, 1,265 (40.25 percent), many of them in extramural graves, had no pottery. Among the remaining 1,878 burials, the volume and variety of pottery were highly variable. Overall, data suggest substantially unequal access to wealth in pottery at the individual scale. Ninety percent of all vessels came from only half the burials. In this section, I look for patterns in these data at the individual scale, organizing the discussion chronologically.

Cumbre and Georgetown Phases. The sample includes three Cumbre-phase burials, all at Wind Mountain (see Appendix CXVIII). One adult – sex indeterminate – had a single plainware vessel, resulting in a pottery score of 1. Given the very small sample size available, no meaningful conclusions can be drawn. Six of the sample's burials are dated to the Georgetown phase (see Appendix CXIX). These came from the sites of Harris Village, Mattocks, and Wind Mountain. None were accompanied by pottery, thus precluding comparison.

San Francisco Phase. Twenty-four of the sample burials have been dated to the San Francisco phase (see Appendix CXX). Of these, 20 were accompanied by pottery (83.33 percent), with pottery scores ranging from 1 to 8 ($\bar{x}$ = 2, s = 1.79). With regard to pottery score distribution, the San Francisco phase population has a Gini coefficient (G_p) of 0.51. The subset of burials with pottery has a Gini coefficient (G_s) of 0.46. These figures suggest wealth inequality at the individual scale, although the sample size is too low to permit strong inference.

Differences across age categories are also examined through a series of pairwise comparisons of pottery score distributions, divided according to age class. Non-parametric testing requires sample sizes of five or more, thus excluding the infant class (n = 4). The adult class (n = 14) can be compared to the child class (n = 6), as well as to a combined sub-adult class (n = 10; see Appendix CXCVII). Results indicate that all tested differences have a high probability of resulting from chance ($p \geq 0.60$). Thus, there is no evidence to suggest that during the San Francisco phase, any particular age group was interred with more ceramic wealth than another.

To assess whether one sex was buried with more ceramic wealth than another, pottery score distributions are also compared across subsets of males and females. Sample sizes prevent the application of Mann-Whitney tests, but descriptive statistics are provided in Appendix CXCVIII. Differences are generally small and there is nothing to indicate that during the San Francisco phase, amounts of wealth differed significantly by sex.

Three Circle Phase. There are 219 burials in the sample that date to the Three Circle phase (see Appendix CLXV). This includes two Mangas and 24 Transitional phase individuals. Of these, 134 were accompanied by pottery (61.19 percent). This represents a substantial decrease in prevalence from the San Francisco phase (22.14 percent reduction), and this change has a low probability of resulting from chance ($p = 0.04$; Fisher's exact test, two-tailed). This shift coincides with an overall increase in the amount of pottery at Mimbres sites. Thus, the reduction in relative frequency is consistent with increasing control over ceramic wealth (i.e., greater inequality).

Three Circle phase pottery scores range from 0.5 to 15 ($\bar{x}$ = 3.90, s = 2.77). Gini coefficients are calculated for both the Three Circle phase burial population (G_p = 0.57) and the subset of Three Circle phase burials that had pottery (G_s = 0.30), figures which both suggest asymmetric access to ceramic wealth, at the individual scale.

To determine whether the age at which people died had a consistent effect on the amount of ceramic wealth included in their burial, the distribution of pottery scores is examined across age categories (see Appendix CXCIX). Results indicate that on average, adults had higher pottery scores than sub-adults in general and children in particular (p = 0.03 and 0.04, respectively). A comparison of ceramic wealth distribution across categories of biological sex indicates that pottery score differences between males (n = 16) and females (n = 12) have a high probability of resulting from chance ($p \geq 0.23$), regardless of whether tentatively-sexed individuals (three female, two male) are included (see Appendix CXCIX).

Classic Period. Within the sample, 2,184 burials date to the Classic period (see Appendix CXXVI). Of these, 1,467 were accompanied by pottery (67.2 percent), which may represent a modest increase (6.01 percent) in the prevalence, as compared to the Three Circle phase (p = 0.08; Fisher's exact test, two-tailed). Pottery scores range from 0.5 to 66 ($\bar{x}$ = 3.66, s = 3.15) and Gini coefficients suggest inequality at the individual scale (G_p = 0.54, G_s = 0.32).

Pottery score distributions differ somewhat across age grades (see Appendix CC) and results suggest that among burials with pottery, both adults and children had slightly higher scores than infants (p = 0.03 and 0.04, respectively). Score distributions were also compared across sex-based categories (see Appendix CCI). All differences have a high probability of resulting from chance ($p \geq 0.35$), suggesting parity between males and females.

At the individual scale, differences in ceramic wealth appeared at least by the San Francisco phase and persisted throughout the remainder of the Mimbres sequence (see Table 7.13). Perhaps not surprisingly, pottery scores rose sharply during the Three Circle phase, likely corresponding with increased ceramic production in general and the introduction of early Mimbres Black-on-white types in particular. Gini coefficients decreased in the Three Circle phase and thereafter remained relatively unchanged, suggesting that the level of ceramic wealth inequality, at the individual level, remained constant across the pithouse-to-pueblo transition, even though there was a slight increase in the relative frequency of burials with pottery.

Table 7.13. Summary data on distribution of pottery scores at the individual scale

			Entire Burial Population		Subset of Burials with Pottery	
Time	**Inequality**	**Notes**	**N Burials**	**Gini**	**N Burials**	**Gini**
Classic	**Present** [A]	Adults and children had higher scores than infants	2,184	0.54	1,467	0.32
Three Circle	**Present** [A]	Adults have higher pottery scores than children and sub-adults	219	0.57	134	0.30
San Francisco	**Present** [A]	Limited data	24	0.51	19	0.46
Georgetown	**Indeterminate**	Insufficient data	6	n/a	0	n/a
Cumbre	**Indeterminate**	Insufficient data	3	0.67	1	n/a

[A] Inference based on Gini coefficients

Ceramic Wealth Inequality at the Household Scale

The analyses above suggest markedly unequal access to ceramic wealth at the individual scale. Forty percent of the sample population had pottery scores of 0, and one individual had a score of 66. Analyses in this section seek to determine whether such differences in wealth extended to the scale of household. For analyses concerning the Early Pithouse and Late Pithouse periods, domestic pithouses are equated with households. During the Classic period, when households cannot be consistently identified, domestic pueblo rooms are employed as the domestic unit of analysis.

Cumbre and Georgetown Phases. The sample includes 11 Cumbre phase households, all at Wind Mountain. Only one of these has an associated burial that was accompanied by pottery. The mortuary association of pottery – a single, plainware vessel in this case – with only one of 11 households could indicate asymmetric access, but this is most likely an issue of sampling error. Non-parametric procedures, such as the Mann-Whitney test, require sample sizes of 5 or more. Thus, statistical comparison is not made at the household scale, during the Cumbre phase. Seventeen Georgetown-phase households were identified, but none had burials with associated pottery, thus precluding inter-household comparison.

San Francisco Phase. The sample contains 21 San Francisco phase households, only seven of which have burials that include pottery (33.33 percent). These households are located at Harris Village (n = 1) and Wind Mountain (n = 6). Each of the seven households has but one associated burial, with pottery scores that range from 1 to 8 ($\bar{x}$ = 2.57, s = 2.64). Because no San Francisco phase household has more than a single burial with pottery, statistical comparison at this scale is not possible.

Three Circle Phase. The sample includes 125 households dating to the Three Circle phase. Of these 61 are associated with burials having pottery (48.8 percent). This does not represent a meaningful change in prevalence, as compared to the San Francisco phase (p = 0.24; Fisher's exact test, two-tailed). Only nine of the 61 households with mortuary pottery have five or more burials, and these are located at the sites of Galaz, NAN Ranch, and Swarts. Pottery score distributions are compared across these households, by site (see Appendices CCII – CCIV). At Swarts, Pithouse AB is found to have had greater ceramic wealth than Pithouses J, K, and V, with all differences having a low probability of resulting from chance ($p \leq 0.07$; see Appendix CCIV and Figure 7.9). Thus, the Three Circle phase marks the earliest point at which one household had greater ceramic wealth than another.

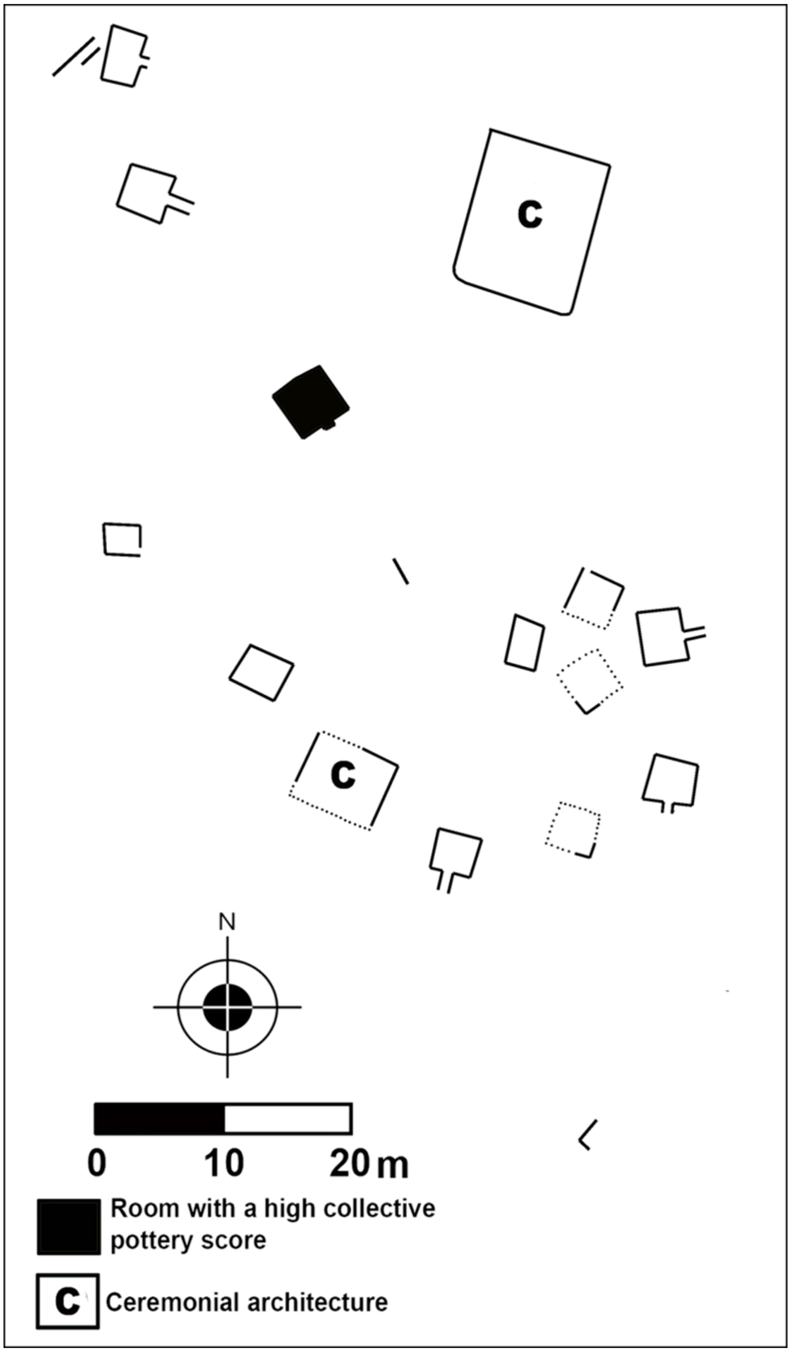

Figure 7.9. Three Circle phase pithouse (AB) at Swarts with higher pottery scores than other households. (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

Classic Period. Pottery score distributions are also examined relative to domestic pueblo rooms, of which the sample includes 547. Of these, 280 included mortuary pottery

(51.19 percent). This relative frequency is not directly comparable to that of the Three Circle phase because of changes in household architecture. Because non-parametric assessment requires sample sizes of five or more, the pairwise comparison of Classic period, room-scale distributions is limited to the 116 rooms that satisfy this criterion (Appendices CCV – CCIX). Some rooms had significantly more ceramic wealth than others, relative to the number of burials per room. Such instances are detailed in Appendix CLXI and summarized in Table 7.14.

Table 7.14. Significant differences in room pottery scores during the Classic period

Site	Appendix	Observation	Probability
Cameron Creek	CCV	Rooms 52 and 57 had higher pottery scores than Room 69	0.03, 0.04
Galaz	CCVI	Room 36 had higher pottery scores than Rooms 41/41A, 19/19B, 117A, 99, 119, 123, 29/29A	0.01 – 0.08
		Room 49/49A had higher pottery scores than Rooms 36, 84, 10/70A, 44, 114, 117A, 99, 55, 119, 123, 29/29A	0.01 – 0.07
		Room 52 had higher pottery scores than Rooms 41/41A, 19/19B, 84, 70/70A, 117A, 99, 55, 119, 123, 29A	<0.01 – 0.08
		Room 83 had higher pottery scores than Rooms 19/19B, 84, 70/70A, 117A, 99, 119, 123, 29/29A	0.01 – 0.07
		Room 32D had higher pottery scores than Rooms 19/19B, 84, 70/70A, 117A, 99, 119, 123, 29A	0.01 – 0.06
		Room 87 had higher pottery scores than Rooms 19/19B, 99, 119, 29/29A	0.02 – 0.06
		Room 109/109A had higher pottery scores than Rooms 19/19B, 99, 119, 29A	0.01 – 0.07
		Room 32C had higher pottery scores than Rooms 99 and 29/29A	0.05
		Room 21A had higher pottery scores than Rooms 70/70A, 117A, 99, 119, 123, 29/29A	0.01 – 0.05
		Room 108/108A had higher pottery scores than Rooms 117A, 99, 119, 123, 29/29A	0.01 – 0.03
		Room 81 had higher pottery scores than Room 70/70A, 117A, 99, 119, 123, 29/29A	0.01 – 0.08
		Room 70/70A had higher pottery scores than Rooms 99, 29/29A	0.05
		Room 11A had higher pottery scores than Rooms 99, 119, 29/29A	0.03 – 0.07
		Rooms 44, 30/30A, and 96 had higher pottery scores than Rooms 99, 29/29A	0.05
		Room 31 had higher pottery scores than Rooms 99, 29/29A and 119	0.05 – 0.07
Mattocks	CCVII		

Site	Appendix	Observation	Probability
		Room 50 had higher pottery scores than Rooms 45, 49, 53, 55, 59, 431, 433, 114a/114b, 115a/115b, 435a/435b, 438b, 80b, 63	<0.01 – 0.06
		Room 53 had higher pottery scores than Room 45	0.05
		Room 435a/435b had higher pottery scores than Room 45	0.08
		Room 80b had higher pottery scores than Room 45	0.08
NAN Ranch	CCVIII	Room 12 had higher pottery scores than Rooms 40, 65, 84/84B	<0.01 – 0.01
		Room 28 had higher pottery scores than Rooms 40, 65, 84/84B	<0.01
Swarts	CCIX	Room 100 had higher pottery scores than Rooms 107, 109, 11, 12, 16, 19, 20, 21, 28, 29, 2/2A, 3, 32, 4, 40, 42, 5, 51, 55, 57, 59, 62, 64A, 68/68A, 7, 76, 8, 80A, 83, 86, 87, 9, 96, 97, 98, B, D, H	<0.01 – 0.08
		Room 105 had higher pottery scores than Rooms 29, 76, 87, 9	0.04 – 0.06
		Room 108 had higher pottery scores than Rooms 107, 10, 1	<0.01 – 0.01
		Room 107 had higher pottery scores than Rooms 29, 76, 87	0.04 – 0.06
		Room 108 had higher pottery scores than Rooms 109, 11, 12, 16, 19, 20, 21, 28, 29, 2/2A, 3, 32, 4, 40, 42, 5, 51, 54, 55, 57, 59, 62, 64A, 68/68A, 7, 73, 76, 8, 80A, 83, 86, 87, 9, 96, 97, B, D, H	<0.01 – 0.08
		Room 31 had higher pottery scores than Rooms 11, 2/2A, 3	<0.01 – 0.05
		Room 11 had higher pottery scores than Rooms 76	0.05
		Room 12 had higher pottery scores than Rooms 87	0.03
		Room 19 had higher pottery scores than Rooms 76	0.08
		Room 20 had higher pottery scores than Rooms 29, 3, 68/68A, 76, 8, 9, H	0.01 – 0.08
		Room 21 had higher pottery scores than Rooms 29, 76, 87	0.03 – 0.06
		Room 28 had higher pottery scores than Rooms 29, 76, 87, 9	0.02 – 0.06
		Room 39 had higher pottery scores than Rooms 2/2A, 3	0.01, 0.03
		Room 64A had higher pottery scores than Rooms 2/2A	0.08
		Room 2/2A had higher pottery scores than Rooms 76, 87	0.01, 0.05
		Room 99 had higher pottery scores than Rooms 2/2A	0.02
		Room 31 had higher pottery scores than Rooms 40, 5, 51, 55, 68/68A, 7, 76, 8, 87, 9, 96, 97, B, D, H	<0.01 – 0.08
		Room 32 had higher pottery scores than Rooms 68/68A, 76, 87	0.02 – 0.08
		Room 39 had higher pottery scores than Rooms 51, 55, 68/68A, 7, 76, 8, 87, 9, B, D, H	<0.01 – 0.06
		Room 4 had higher pottery scores than Rooms 68/68A, 7, 76, 8, 87, 9, D, H	<0.01 – 0.07
		Room 5 had higher pottery scores than Room 87	0.02
		Room 54 had higher pottery scores than Rooms 76 and 87	0.03, 0.05
		Room 93 had higher pottery scores than Room 55	0.07
		Room 63 had higher pottery scores than Rooms 55, 68/68A, 76, 8, 87, 9	0.02 – 0.07
		Room 64A had higher pottery scores than Rooms 68/68A, 7, 76, 8, 87, 9, D, H	<0.01 – 0.08
		Room 7 had higher pottery scores than Rooms 76, 87	0.02, 0.07

Site	Appendix	Observation	Probability
		Room 99 had higher pottery scores than Rooms 7, 8	0.01
		Room 84 had higher pottery scores than Rooms 8, 87, 9	0.01 – 0.05
		Room 93 had higher pottery scores than Rooms 8, 68A, 9, 97, b	0.08

Analyses strongly suggest that wealth inequality existed at the room (if not household) scale during the Classic period. Some rooms had far greater ceramic wealth than one or more others. The manner in which these rooms were distributed varied by site, but, as shown in Appendix CLXII and in Figures 7.10 through 7.13 (below), four general patterns emerge. First, rooms with greater ceramic wealth were often clustered and even contiguous (see Figure 7.10). In some cases, this proximity likely corresponds with multi-room households. This, in turn, suggests that some households had greater access to material wealth than others. In other cases, adjacent rooms with elevated levels of ceramic wealth may represent distinct, yet socially-connected households. Second, at sites such as Galaz and NAN Ranch, rooms with high pottery scores were clustered around ceremonial facilities (see Figures 7.11 and 7.11), possibly suggesting an association between the domains of ritual knowledge and material wealth (see Rice 2016). Third, such as at Swarts (see Figure 7.10), rooms with substantial pottery scores were at times arranged along the outer edges of roomblocks. As noted in Chapter 4 (Part IV), such placement may correlate with late arrival. Fourth, relationships between wealthy rooms and evidence of either primacy or antecedence are quite varied. At Swarts, four of the five rooms with exceptionally high pottery scores are located in the most antecedent roomblock (see Figure 7.10). At Galaz and NAN Ranch, such rooms are spread more evenly among loci (see

Figure 7.11 and 7.12). As shown in Figure 7.13, the only such rooms at Mattocks are situated in the founding and most antecedent loci.

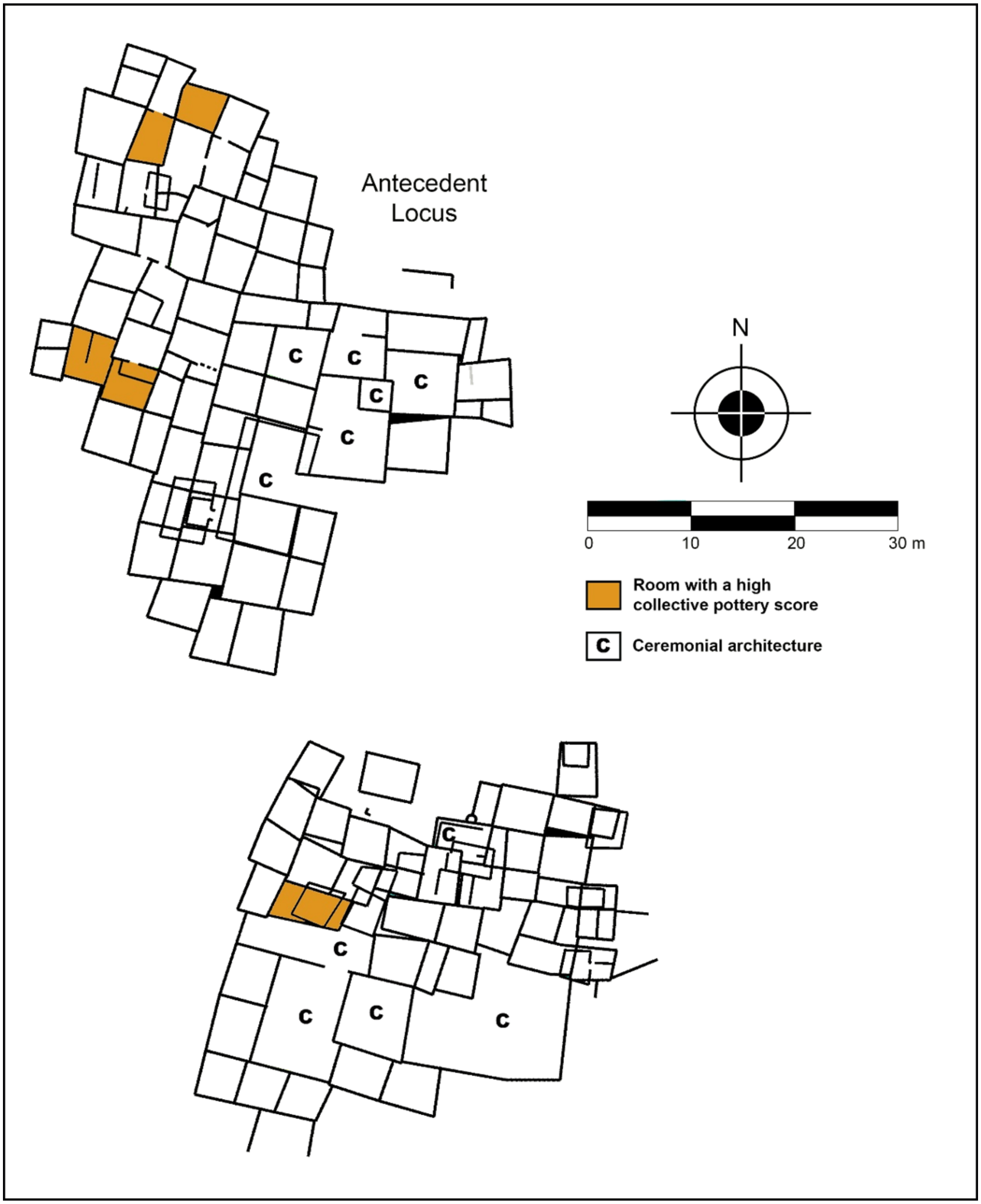

Figure 7.10. Classic period rooms at Swarts with far greater ceramic wealth than most other rooms. (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

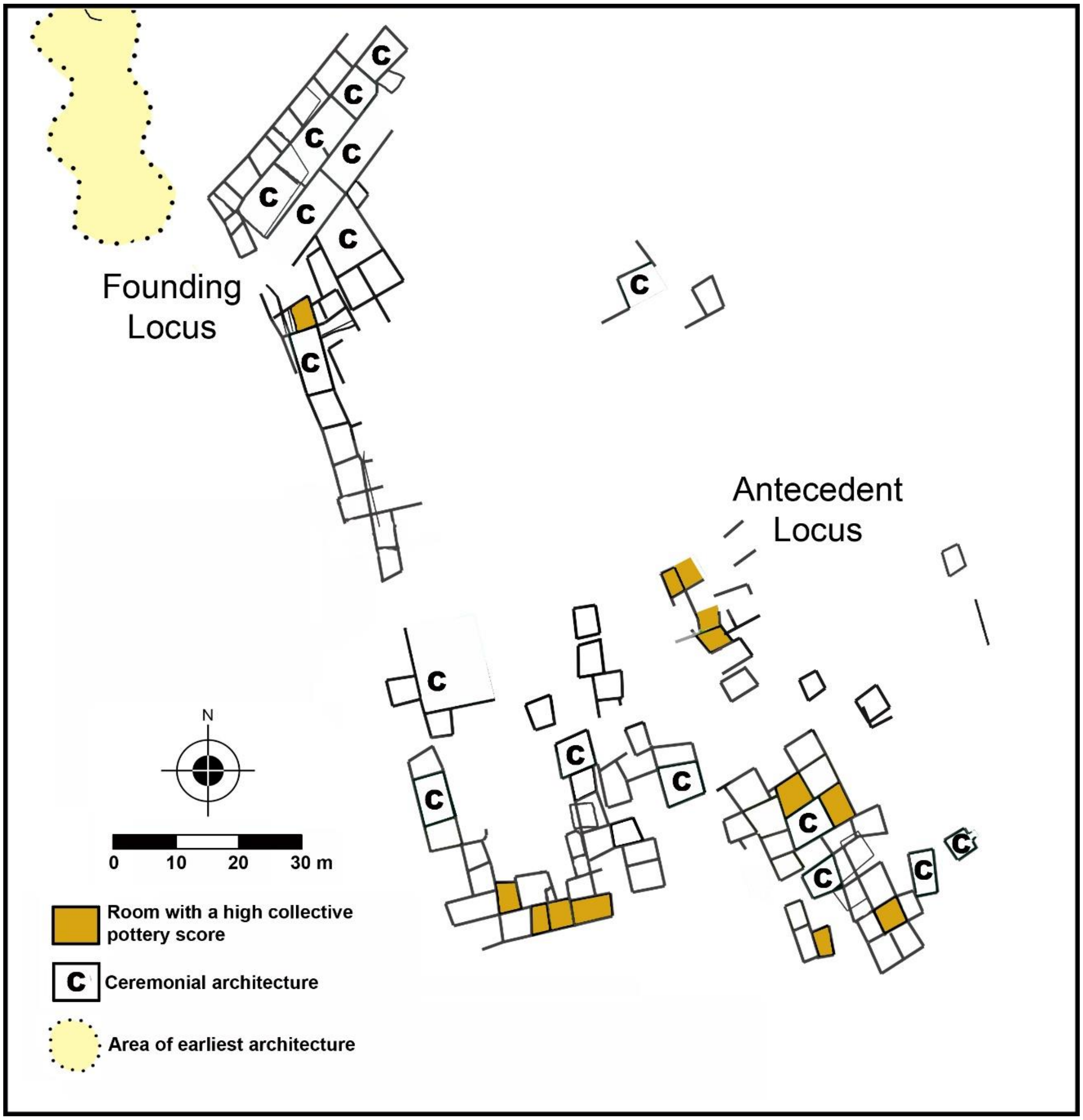

Figure 7.11. Classic period rooms at Galaz with far greater ceramic wealth than most other rooms. (Architecture after maps in Anyon and LeBlanc 1984).

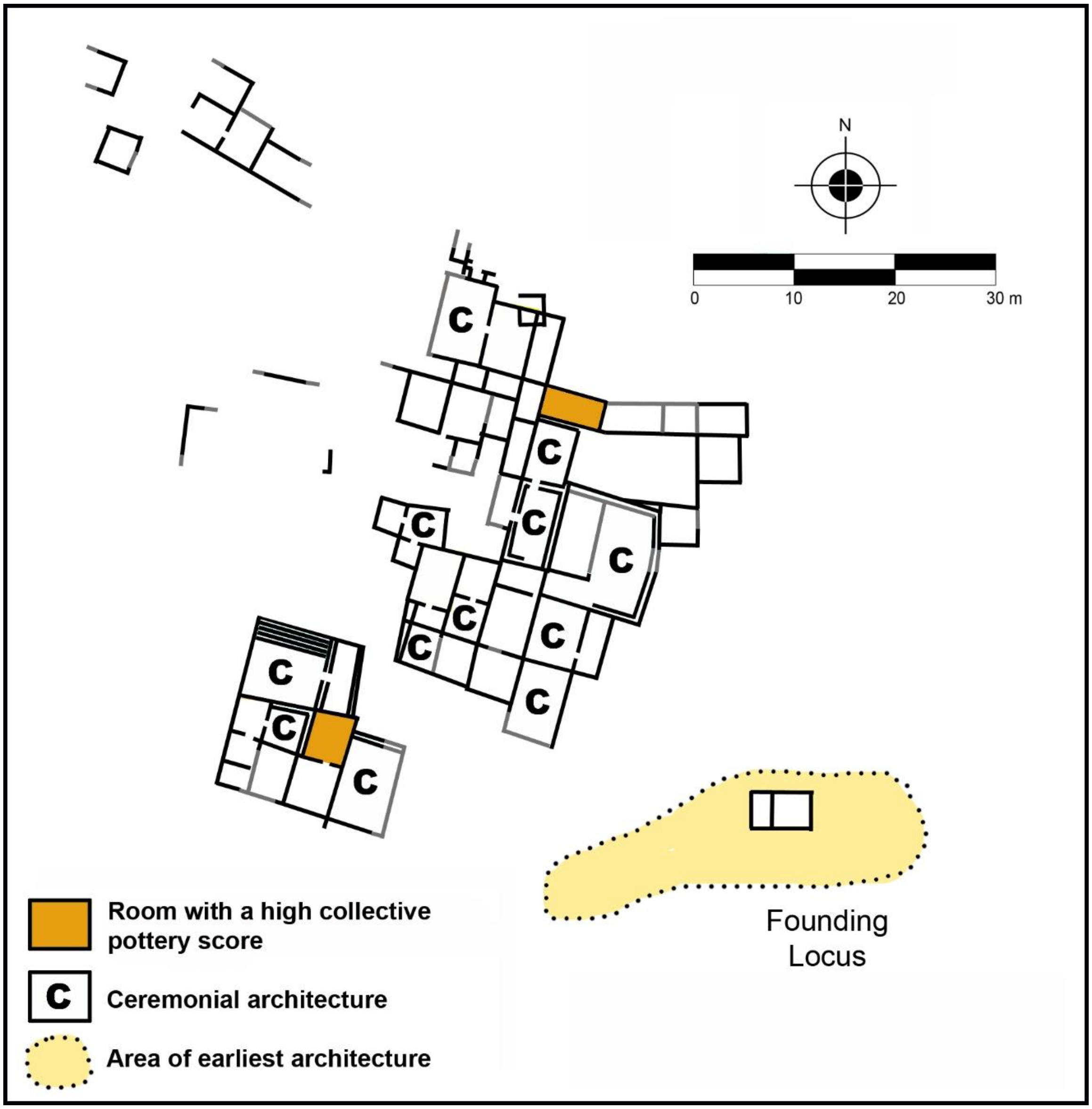

Figure 7.12. Classic period rooms at NAN Ranch with far greater ceramic wealth than most other rooms. (Architecture after Shafer 2003:Figure P.2).

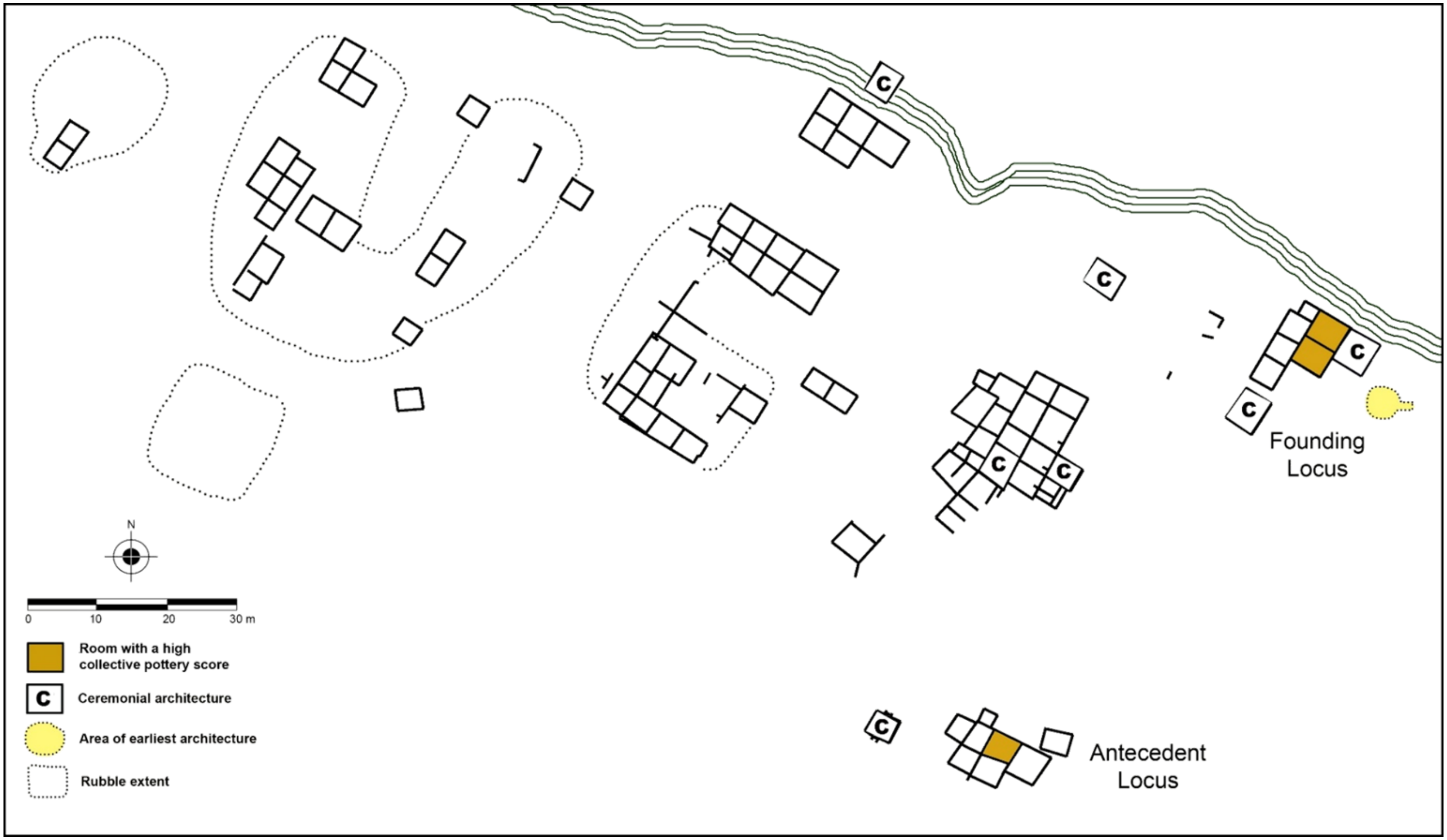

Figure 7.13. Classic period rooms at Mattocks with far greater ceramic wealth than most other rooms. (Architecture after maps shared by Patricia Gilman).

The above analyses used pottery score distributions to examine differences in mortuary wealth at the scale of household (pre-Classic era) and domestic room (Classic period). Results suggest that during the Classic period, some households did have greater access to wealth in pottery than others (see Table 7.15). This inequality may have begun in the Three Circle phase.

Table 7.15. Summary of household- and room-scale data on pottery scores

			Number of Households [A]		
Time	**Inequality**	**Notes**	**In Sample**	**w/Mortuary Pottery**	**In Analysis** [B]
Classic	**Present** [C]		547	280	112
Three Circle	**Possible** [C]		125	61	9
San Francisco	**Indeterminate**	Limited data	21	7	0
Georgetown	**Indeterminate**	Insufficient data	17	0	0
Cumbre	**Indeterminate**	Insufficient data	11	1	0

[A] Or domestic rooms, during the Classic period
[B] Based on sample size limitations imposed by non-parametric testing standards
[C] Based on differences in frequency involving two households that both have mortuary pottery, and these differences have a statistically low probability of resulting from chance

Ceramic Wealth Inequality at the Locus Scale

As shown above, access to ceramic wealth in some periods and phases varied among individuals and households. In this section, analyses ask whether such asymmetry extended to the scale of locus. Overall, data suggest that it did; although over three quarters of all loci had mortuary pottery (650 – 1130 C.E.), relative amounts were remarkably varied. The analyses to follow are similar to those introduced above, in that the distributions of pottery scores are compared across loci and presented in chronological order.

Cumbre and Georgetown Phases. Sample sizes and the resulting paucity of data prevent meaningful, locus-scale comparisons prior to the San Francisco phase. During the

Cumbre phase, mortuary pottery is limited to one locus, at one site, and comprises one plainware vessel. The sample includes six loci and six burials that date to the Georgetown phase. These are spread across three sites, but none have burials in more than a single locus, and none of the burials were accompanied by pottery.

San Francisco Phase. Data from nine San Francisco phase loci are included in the sample. Of these, four include burials with pottery (44.44 percent). Given the distribution of burials at this time, inter-locus comparisons are limited to Wind Mountain, where burials were encountered in the Central ($n = 8$), North ($n = 5$), and Ridout ($n = 2$) loci. The sample size at the Ridout Locus precludes non-parametric analysis, but comparisons of locus-scale distributions involving the North and Central loci are possible (see Appendix CCX). Results indicate that the inter-locus difference has a high probability of resulting from chance ($p = 0.94$), meaning there is no evidence to suggest that either of the two loci at Wind Mountain had greater ceramic wealth than the other, during the San Francisco phase.

Three Circle Phase. Twenty-two Three Circle phase loci are included in the sample, and 16 of these (72.73 percent) had burials with pottery. This does not represent a statistically significant change in prevalence from the San Francisco phase ($p = 0.22$; Fisher's exact test, two-tailed). Swarts is excluded from the analysis because it has only one locus during this phase. Given the requisite sample sizes for non-parametric analyses, inter-locus comparisons are limited to Cameron Creek, Galaz, and NAN Ranch (see Appendices CCXI – CCXIII). Only one significant difference is identified at the locus scale; at Galaz, the Southeast Locus has higher pottery scores than the South Locus ($p = 0.06$).

Classic Period. Data from five sites are used to examine Classic period differences in locus-scale ceramic wealth. Harris Village did not survive into the Classic period, and by 1000 C.E., Wind Mountain had contracted into a single roomblock. Twenty Classic period loci contribute to the analysis, and all 20 include mortuary pottery. This does not represent a statistically significant increase in prevalence from the Three Circle phase ($p = 0.12$; Fisher's exact test, two-tailed). Pottery score distributions from loci at Cameron Creek, Galaz, Mattocks, NAN Ranch, and Swarts are examined (see Appendices CCXIV through CCXVIII). Although results suggest that ceramic wealth inequality continued at the locus scale into the Classic period, it was distributed differently within and across sites. At Cameron Creek, three of four loci had associated mortuary pottery. The East Roomblock had higher relative scores than did the North Roomblock ($p = 0.01$; see Appendix CCXIV), both straddling the most antecedent sector of the village. At Galaz, the Southeast Locus had higher relative pottery scores than did the founding (Northwest) locus ($p < 0.01$; see Appendix CCXV). At Mattocks, the founding (Southeast) locus dominated among distributions, with significantly higher scores than all other loci, including the most antecedent (400s) roomblock ($p < 0.01$; see Appendix CCXVI). At NAN Ranch, the South Locus had more than the East ($p < 0.01$; see Appendix CCXVII), and at Swarts, there was no demonstrable difference ($p = 0.10$; see Appendix CCXVIII).

In cases where specific loci stand out as having greater ceramic wealth than others, I ask whether these correspond with evidence of primacy and/or antecedence. As shown by the orange and yellow cells in Table 7.16, there may have been some association. In half of the cases where one locus stands out as preeminent in terms of wealth measures, that locus is either the site's earliest or most antecedent.

Table 7.16. Locus-scale comparison of loci with evidence of primacy, antecedence, and ceramic wealth preeminence during the Classic period. Orange cell indicates association with antecedence; yellow cell indicates association with primacy.

Site	Founding Locus	Most Antecedent Locus	Most Advantaged
Cameron Creek	Unknown	North/East [A]	East
Galaz	Northwest	East [A]	Southeast
Mattocks	Southeast	400s [A]	Southeast
NAN Ranch	Southeast	n/a [B]	South
Swarts	n/a [C]	North	n/a [D]

[A] During the Classic period
[B] No Classic period roomblock emerged as having greater antecedence than another
[C] Only one pre-Classic locus has been documented at Swarts
[D] No statistically compelling differences were identified

The above analyses suggest that disparate access to wealth in pottery, as measured along a continuous variable and at the scale of locus, emerged during the Three Circle phase, coinciding with year-round residence, community growth, and reliance on irrigation systems (see Table 7.17). Evidence is especially striking after 1000 C.E., when the advantages of wealth inequality are often aligned with primacy and antecedence.

Table 7.17. Summary of locus-scale data on pottery scores

			Number of Loci		
Time	**Inequality**	**Notes**	**In Sample**	**w/Pottery**	**In Analysis [A]**
Classic	**Marked [B]**	Associated w/primacy and antecedence	20	20	18
Three Circle	**Present [B]**		22	16	10
San Francisco	**Absent**	Limited sample	9	4	2
Georgetown	**Indeterminate**	Insufficient data	6	0	0
Cumbre	**Indeterminate**	Insufficient data	2	1	0

[A] Based on sample size limitations imposed by non-parametric testing standards
[B] Based on differences in frequency involving two households that both have mortuary pottery, and these differences have a statistically low probability of resulting from chance

Ceramic Wealth Inequality at the Village Scale

The analyses presented here examine village-scale differences in ceramic wealth. Overall, data suggest the emergence of such asymmetry during the Three Circle phase, at which time it was relatively striking. Cumbre-phase data are available from only one site, thereby preventing inter-village comparison. Georgetown-phase data came from the sites of Harris Village, Mattocks, and Wind Mountain, but none of the burials included pottery. Thus, analyses in this section are limited to the San Francisco phase and later.

San Francisco Phase. The sites of Galaz, Harris Village, and Wind Mountain contribute data from the San Francisco phase, and their pottery score distributions are compared in pairwise fashion (see Appendix CCXIX). All inter-site differences have a high probability of resulting from chance ($p \geq 0.19$).

Three Circle Phase. Three Circle phase burials were encountered at all seven sites, and it is during this phase that differences in pottery score distributions, at the site scale, are readily apparent (see Appendix CCXX). Villages cannot be neatly ranked according relative pottery scores, but they can be arranged in tiers. Mattocks has higher relative scores than every other site ($p \leq 0.05$). Cameron Creek has higher relative scores than all sites, save Mattocks ($p \leq 0.06$). The third tier is occupied by Galaz, NAN Ranch, Harris Village, and Swarts. Differences in pottery scores among these four sites are negligible. The lowest tier comprises Wind Mountain, whose relative pottery scores are significantly lower than those of every other site ($p \leq 0.08$).

Classic Period. Pottery score distributions were compared across all six sites with Classic period components (see Appendix CCXXI). Evidence of inter-locus inequality continued, although evidence is less pronounced and not as well-patterned. Swarts had remarkably low pottery scores relative to at least half the sample ($p < 0.01$). Wind Mountain's scores rose to the point where they were not significantly lower than those of other sites. Mattocks continued to have the highest relative pottery scores, but these were significantly higher than only three other sites ($p < 0.01$).

Although differences in village-scale ceramic wealth (as measured by pottery scores) are not apparent until the Three Circle phase, their appearance after 750 C.E. was surprisingly well-developed (see Table 7.18). The seven sites can be arranged into four tiers, which might be described as not wealthy (Wind Mountain), average (Galaz, Harris, NAN Ranch, and Swarts), wealthy (Cameron Creek), and very wealthy (Mattocks). This patterning did not continue beyond the pithouse-to-pueblo transition. That is, inequality is still evident during the Classic period, and Mattocks continued to have higher scores than other villages, but differences in general were less pronounced. This represents one of the few examples, in this chapter, of a potential decrease in asymmetry.

Table 7.18. Summary of village-scale data on pottery scores

			Number of Sites		
Time	**Inequality**	**Notes**	**In Sample**	**w/Mortuary Pottery**	**In Analysis** [A]
Classic	**Present** [B]	Led by Mattocks	6	6	6
Three Circle	**Tiered** [B]	Dominated by Mattocks	7	7	7
San Francisco	**Absent**		3	3	3
Georgetown	**Indeterminate**	Insufficient data	3	3	0
Cumbre	**Indeterminate**	Insufficient data	1	1	0

[A] Based on sample size limitations imposed by non-parametric testing standards
[B] Based on differences in frequency involving two households that both have mortuary pottery, and these differences have a statistically low probability of resulting from chance

Part III Conclusion

The analyses described above compared evidence of differences in the amount of ceramic wealth that accompanied Mimbres burials. They were implemented at four socio-spatial scales, using data from seven different sites. A means for scoring and comparing pottery assemblages was developed in order to quantify and systematically compare differences. Although analytical results vary, three general observations can be made, some of which parallel the conclusions reached in Part II.

First, the earliest evidence of asymmetric access to ceramic wealth dates to the San Francisco phase. No inferences are made with regard to earlier times, as sample sizes simply do not permit adequate analysis. When such evidence did emerge, it was limited initially to the individual scale. It was not until the Three Circle phase that compelling differences at supra-individual scales became apparent. Thereafter, changes vary by scale. At the household scale, inequality is limited during the Three Circle phase but striking in the Classic. At the locus scale, it is likewise limited during the Three Circle phase and more prevalent (though not especially striking) during the Classic. In contrast, village-scale inequality was most pronounced during the Three Circle phase and less so after 1000 C.E. These changes are consistent with a larger shift in the scale at which Mimbres society was fundamentally situated. That is, this and other evidence suggest that the pithouse-to-pueblo transition involved societal refocusing from communal scales during the Late Pithouse period to smaller scales during the Classic period. This topic is revisited in depth in Chapter 8.

Second, the extent to which results from the analysis of pottery scores corresponds with the categorical analysis described in Part II varies by site. At some sites, such as Galaz (Figure 7.14) and Swarts (Figure 7.15), the rooms with high frequencies of multi-vessel burials (identified in Part II) also had high pottery scores. The two variables are of course intertwined, making such congruence unsurprising. What is surprising is that such overlap is not consistently manifest. That is, some households were wealthy in ceramics and others were wealthy in jewelry, but very few were wealthy in both. It is likewise interesting to note that high pottery scores almost never correspond spatially with high frequencies of burials accompanied by jewelry. In fact, only two such instances occurred, one at Galaz (Figure 7.14) and one at Swarts (Figure 7.15). In both cases, the room in question had a high frequency of both multi-vessel burials and burials with jewelry, along with high pottery scores. Both were in non-antecedent loci, and both shared walls with ceremonial facilities. Thus, the co-occurrence of wealth in multiple forms may be related to the ritual realm (see Rice 2016). Maps of Cameron Creek (Figure 7.16), Mattocks (Figure 7.17), and NAN Ranch (Figure 7.18) are also provided below in order to illustrate the diversity of relationships between wealth determined by pottery score (Part III) and wealth determined by the frequency of pottery and jewelry (Part II).

Third, association between concentrations of ceramic wealth and the attributes of primacy or antecedence also vary by site. At some sites, such as Galaz (see Figure 7.11) and NAN Ranch (see Figure 7.12), rooms with high collective pottery scores were evenly spread across the village. This, however, was not always the case. At Swarts, all but one of such rooms were located in the pueblo's most antecedent (North) roomblock (see

Figure 7.10). At Mattocks, all such rooms were divided between the founding (Southeast) and most antecedent (400s) loci (see Figure 7.13).

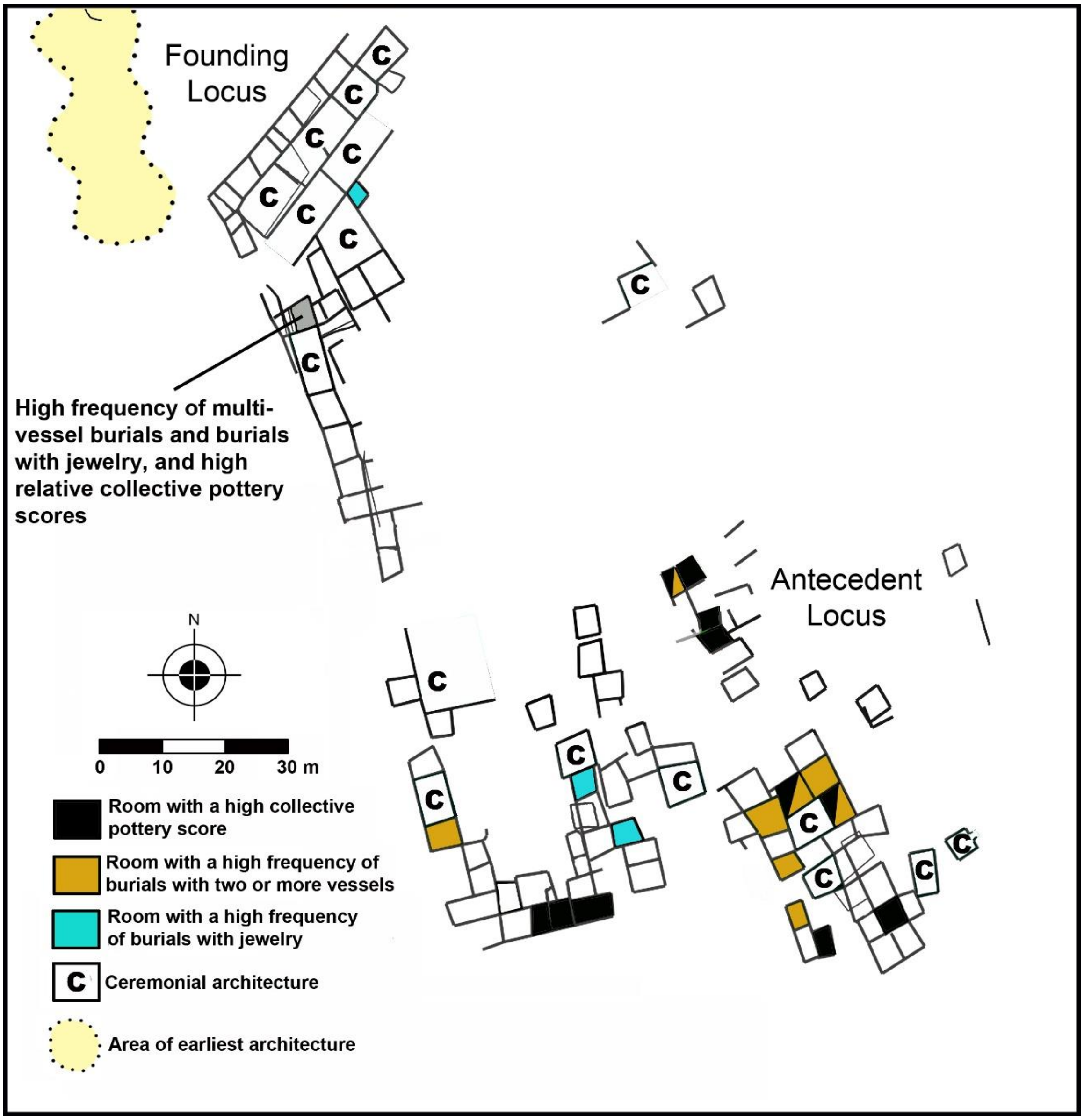

Figure 7.14. Domestic, Classic period rooms at Galaz with high pottery scores (black), high relative frequencies of multi-vessel burials (brown), high relative frequencies of burials with jewelry (blue), or a combination of all three attributes (grey). (Architecture after maps in Anyon and LeBlanc 1984).

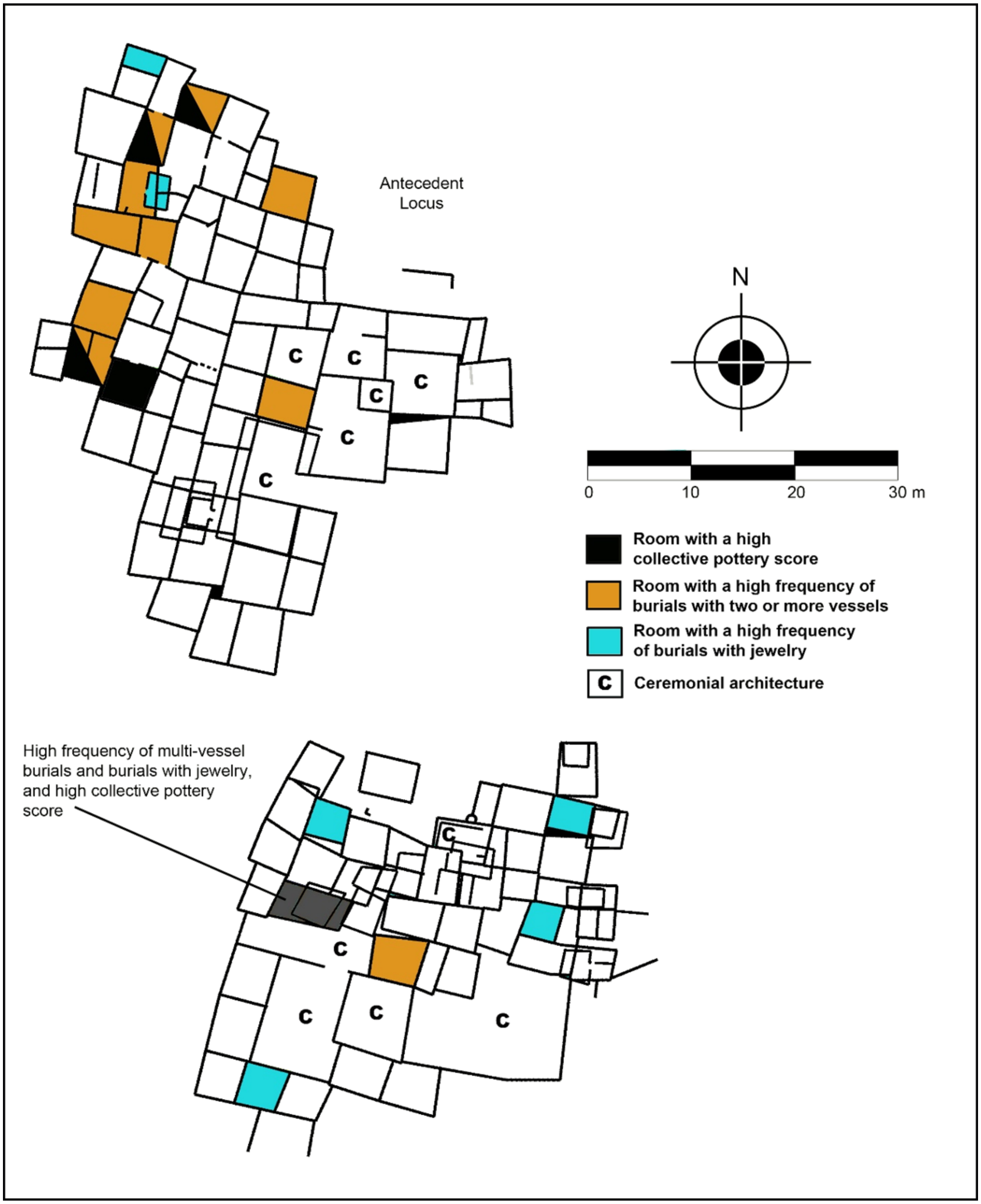

Figure 7.15. Domestic, Classic period rooms at Swarts with high pottery scores (black), high relative frequencies of multi-vessel burials (brown), high relative frequencies of burials with jewelry (blue), or a combination of all three attributes (grey). (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

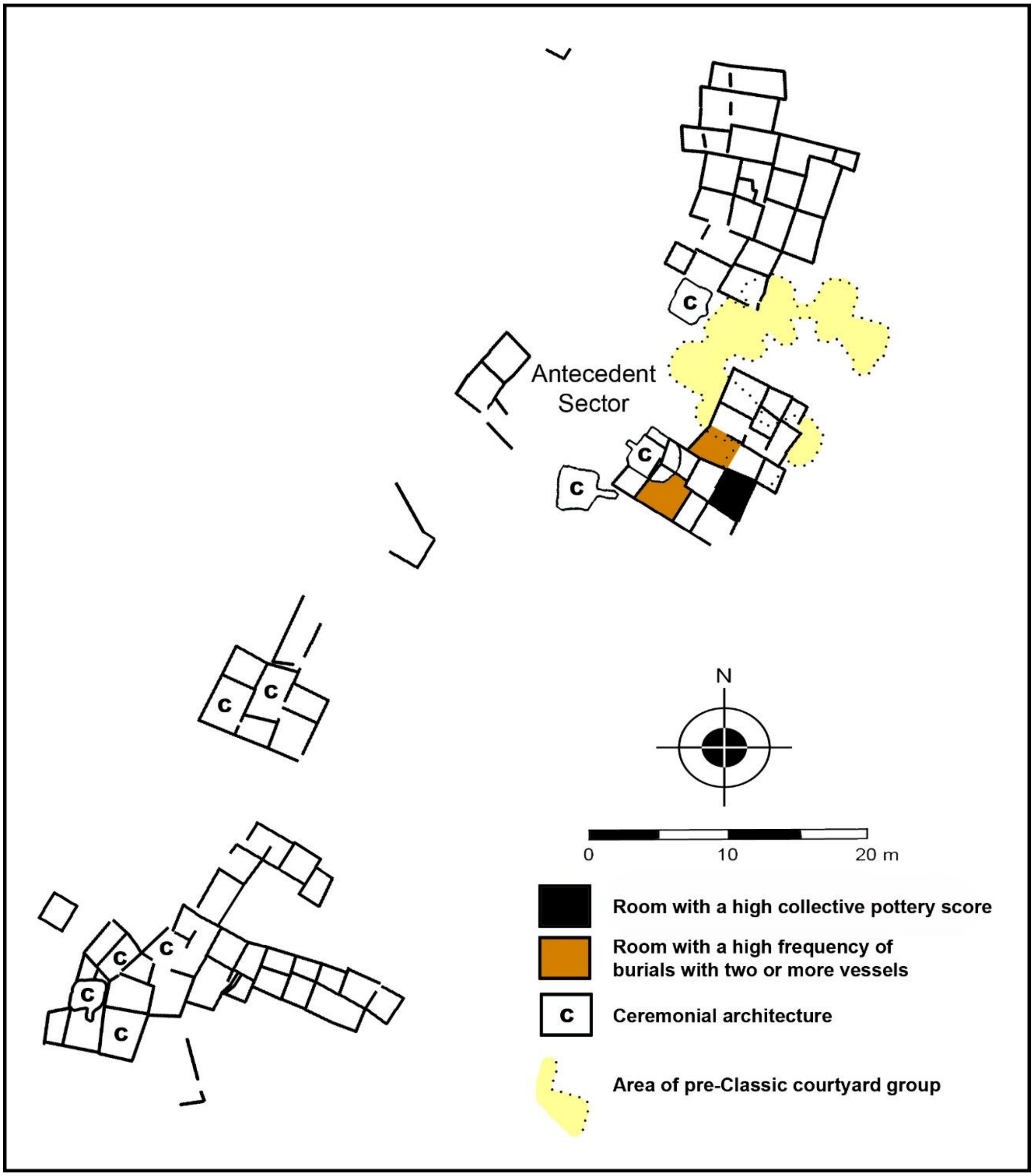

Figure 7.16. Domestic, Classic period rooms at Cameron Creek with high pottery scores (black) and high relative frequencies of multi-vessel burials (brown). (Architecture after map in Bradfield 1931).

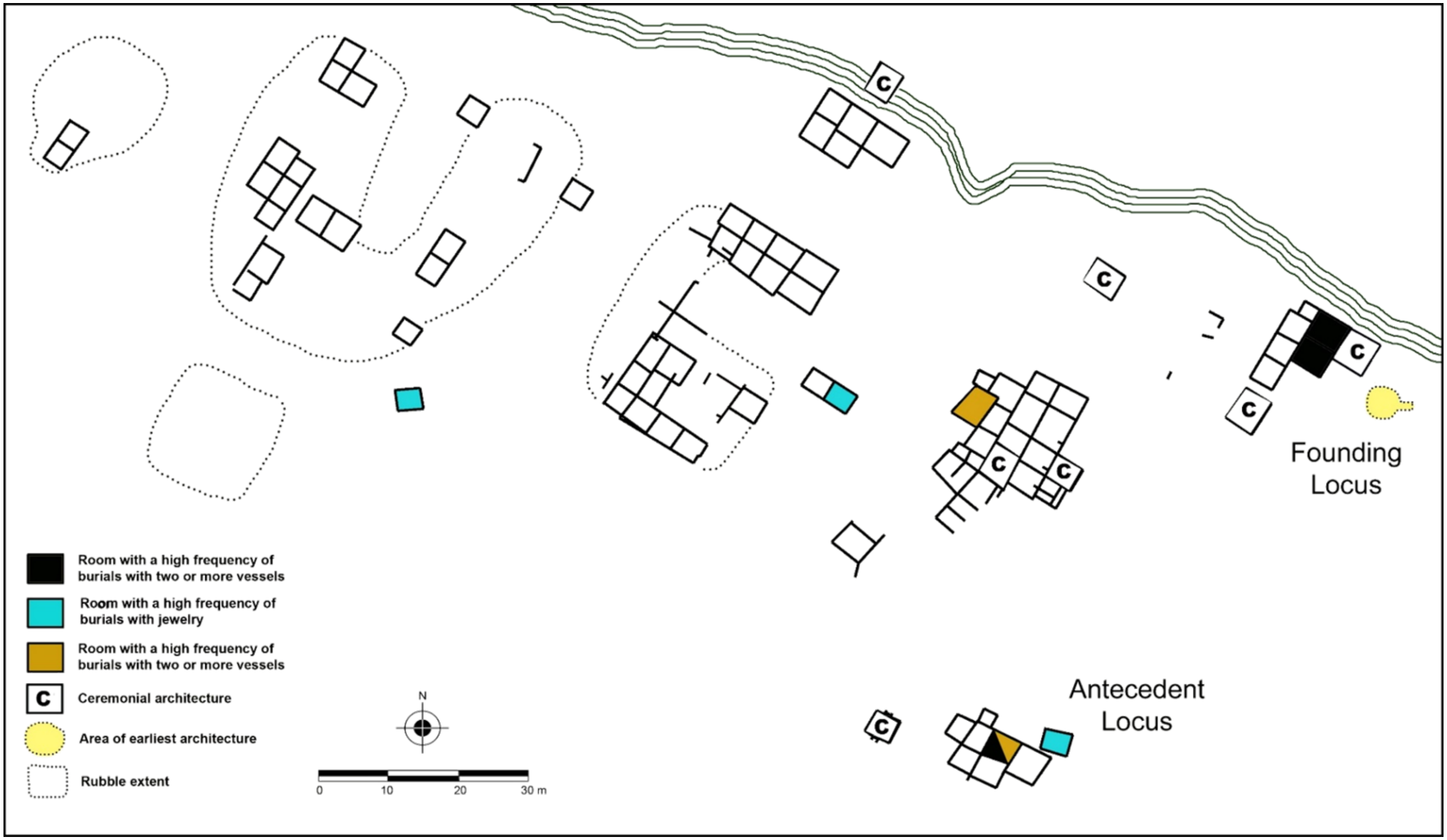

Figure 7.17. Domestic, Classic period rooms at Mattocks with high pottery scores (black), high relative frequencies of multi-vessel burials (brown), and high relative frequencies of burials with jewelry (blue). (Architecture after maps shared by Patricia Gilman).

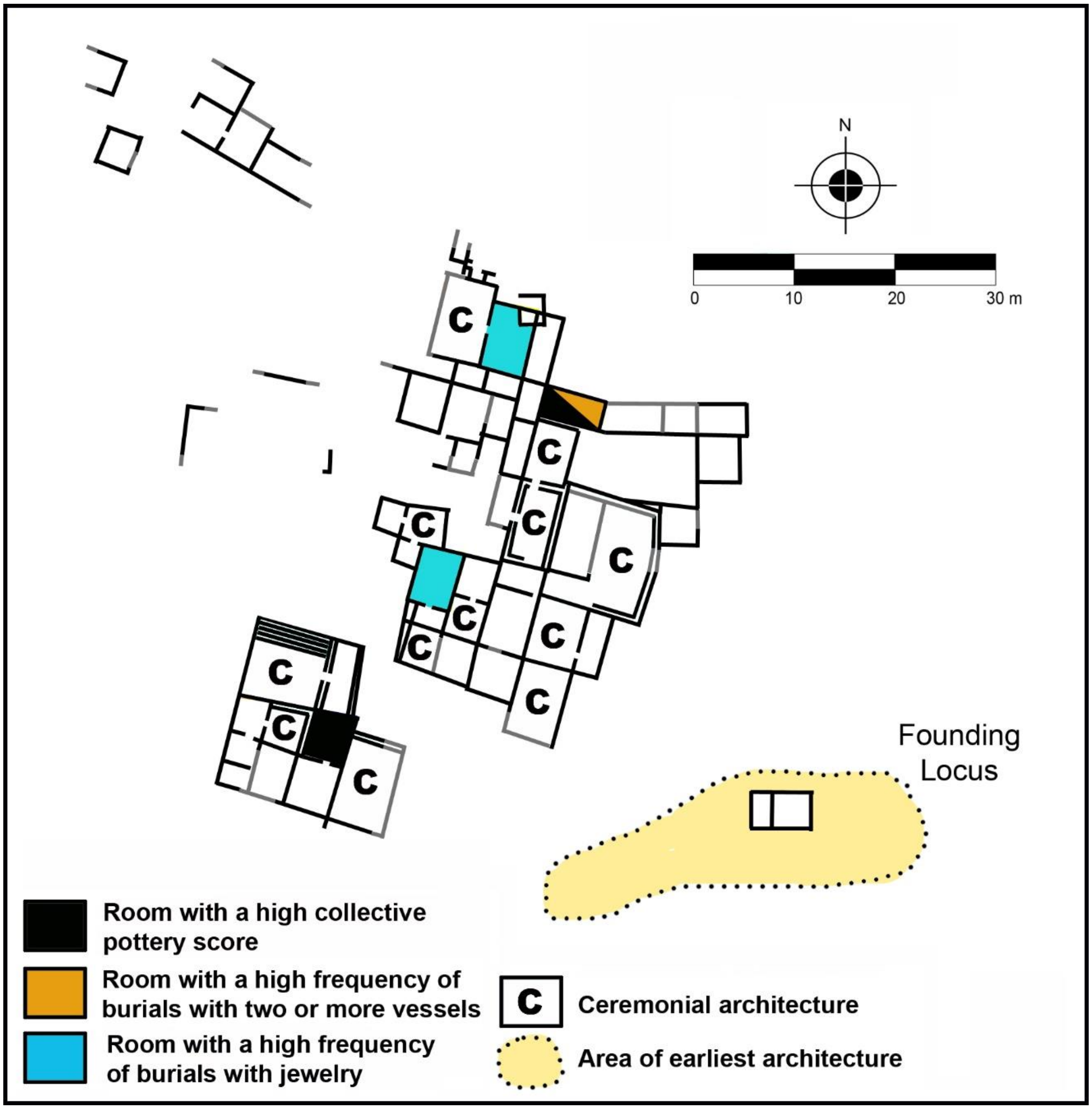

Figure 7.18. Domestic, Classic period rooms at NAN Ranch with high pottery scores (black), high relative frequencies of multi-vessel burials (brown), and high relative frequencies of burials with jewelry (blue). (Architecture after Shafer 2003:Figure P.2).

Part IV: Assessing the Value of Jewelry and its Distribution

In this section a method is developed for quantifying the value of jewelry in mortuary assemblages. Specifically, I develop a method for scoring jewelry assemblages and comparing scores at several socio-spatial scales. As with pottery, some jewelry may have have had greater value derived, for example, from the distance traveled to acquire materials. Data derive from 3,143 burials at seven Mimbres sites: Cameron Creek, Galaz, Harris Village, Mattocks, NAN Ranch, Swarts, and Wind Mountain. Again, analyses are limited to mortuary contexts for purposes of standardization. Following the presentation of methods, this section is arranged primarily by socio-spatial scale and secondarily by time.

Quantifying Wealth in Jewelry

Not all forms of jewelry, or the materials from which they were made, were conceptualized or valued the same. For this reason, I calculate jewelry scores by weighting artifacts according to a variety of characteristics, described below. At the individual scale, I compare jewelry scores, Gini coefficients (see Chapter 4, Part III), and qualitative aspects of burial assemblages. When a single grave was found to contain two or more individuals, as well as jewelry that cannot be assigned to one person in particular, jewelry scores are equally apportioned among the interred.

Unlike the pottery found in burials, almost all of which was locally-made, jewelry in mortuary contexts (and/or the materials from which it is made) often came from beyond the Mimbres region and included various material types and classes. Thus, the calculation of jewelry scores is more nuanced than the calculation of pottery scores. I develop a multi-stage process for scoring that takes into account differences in materials, styles, procurement costs, and the need for inter-regional relationships. These considerations allow for artifacts to be weighted, such that comparisons are not based on count alone. The process involves five steps:

Step 1: Raw Score Calculation. The weighting procedure begins with the calculation of raw scores (*RS*) for individual burial assemblages. Burials not accompanied by jewelry receive a score of 0. For each burial with jewelry, every identifiable piece of jewelry is assigned a predetermined number of points. Jewelry classes, materials, and corresponding point values are listed in Table 7.19. These point values are established relative to one another, and take into account the availability of materials, requisite manufacturing skills, and rarity in the archaeological record. For example, stone beads receive 1 point each, whereas marine shell beads are assigned 1.5 points apiece, given that they traveled a considerable distance before arriving in the Hohokam region. For each burial, the total number of artifact points is summed, resulting in a raw score (*RS*) for each individual burial. To illustrate the process, a single burial's jewelry assemblage is described in Table 7.20.

Table 7.19. Jewelry artifact types and points assigned thereto

Artifact Class	Material	Points [B]
Bead [A]	Marine shell	1.5 ea.
	Shell [C]	1 ea.
	Stone [D]	1 ea.
	Turquoise [E]	2 ea.
	Bone	1 ea.
	n.d.	1 ea.
Pendant, effigy	Marine shell	3 ea.
	Turquoise	4 ea.
Pendant (non-effigy)	Stone [D]	2 ea.
	Turquoise [E]	3 ea.
	Fossil	4 ea.
	Marine shell	3 ea.
	Shell [C]	2 ea.
	Bone	2 ea.
Bell	Copper	10 ea.
Bracelet	Marine shell	5 ea.
Ring	Marine shell	3 ea.
	Bone	2 ea.
Ear spool	Ceramic	4 ea.
Mosaic ornament [F]	Turquoise, shell	5 ea.
Tesserae	Turquoise, shell	2 ea., not to exceed 5 total
Hair pin	Bone	3 ea.

[A] Includes *Conus* "tinklers." Unless more detailed data were available, a "necklace" or "strand" of beads is estimated at 40 cm in length, with an estimate of two beads per linear centimeter (i.e., ~80 beads). Intricately-shaped beads are given an additional half point apiece. I treated "many" as 20, "many, many" as 40, and "some," "a few," similar descriptions, and pluralization as two.

[B] Artifact fragments and "blanks" are assigned half the point value of their finished, non-fragmentary counterparts

[C] Probably, though not definitely, marine shell

[D] Other than turquoise or fossil material

[E] As identified in the literature, but generally not chemically verified

[F] Generally inferred from concentration of tesserae, with an assumption of a perishable backing

Table 7.20. Calculating a raw jewelry score using an hypothetical jewelry assemblage

Jewelry Type	Count	x	Points per Count [A]	=	Product
Glycymeris shell bracelets	3	x	5	=	15
Nassarius shell beads	68	x	1.5	=	102
Turquoise beads	12	x	2	=	24
Talc beads	143	x	1	=	143
Turquoise pendants	2	x	3	=	6
Shell and turquoise mosaic	1	x	5	=	5
			Sum / Raw Score		**295**

[A] See Table 7.19

Because of differences in recording protocol by those reporting on burials and their contents, the calculation of jewelry scores involves a certain amount of inevitable error. Some authors were very specific with artifact descriptions, giving counts (at times in the thousands) of individual beads. Others were less descriptive, providing inventories such as “a strand of beads” or “some bracelets.” Not infrequently, counts are absent in the literature and I infer singularity or multiplicity based on noun form (e.g., “pendant” vs. “pendants”). In such cases, other evidence notwithstanding, pluralities are counted as two. Unless they were described as refitting, and in the absence of evidence to the contrary, artifact fragments are assumed to represent once-whole objects. At times, strands of beads were quantified by their length, in which case I estimate one bead per centimeter. Elsewhere, bead concentrations were quantified only as “strands” or “necklaces,” which I estimated at 40 cm in length. Preferring to err conservatively, I interpret “several” as three, “many” as five, “many, many” as 20, and “hundreds” as 200. Unfortunately, strikingly-different jewelry scores can be attributed to identical grave lots, depending on their original descriptions.

After raw jewelry scores (*RS*) are calculated for each individual (Step 1), assemblages are examined along three qualitative dimensions: *artifact richness*, *material richness*, and *procurement cost*. As described in Steps 2 through 4, attributes in these dimensions are used to weight raw scores (*RS*).

Step 2: Weighting for Artifact Richness. It is assumed that the overall value attached to a given assemblage is positively affected by its diversity. That is, more classes of jewelry are assumed to have increased the relative sum value of a given assemblage. Within the sample, each jewelry assemblage is assigned an *AR*-value based on its artifact richness. All of the jewelry classes encountered in this analysis are listed in Column 1 of Table 7.19, above. The *AR*-value for burials with just one class of jewelry is 1. For every additional class, an additional 20 percent is added to the *AR*-value. Thus, a burial with two classes of jewelry has an *AR*-value of 1.2. A burial with three classes of jewelry has an *AR*-value of 1.4, and so on. Within the present sample, *AR*-values range from 1.0 to 1.6.

Step 3: Weighting for Material Richness. Jewelry found in Mimbres burials was made of numerous material types, including stone, bone, antler, copper, and shell. All types represented in the sample are listed above, in Column 2 of Table 7.19. Because different materials require different sources and manufacturing skills, it is assumed that access to more materials, directly or indirectly, corresponds with differences in jewelry-based wealth. Each jewelry assemblage is assigned an *MR*-value based on its material richness. The *MR*-value for burials with jewelry made from just one material type is 1. For each additional material type, another 20 percent is added to the *MR*-value. For analytical purposes, turquoise is distinguished from other stones because of its relative rarity, ethnographically-documented significance, and difficult lapidary qualities. Within the present sample, *MR*-values range from 1.0 to 1.6.

Step 4: Weighting for Procurement Costs. Some jewelry, and/or the materials from which it was fashioned, were locally available. Many classes and materials, however, had to travel considerable distances in order to reach the Mimbres region. In some cases, nonlocal relationships were necessary for the procurement of these things. For example, steatite is readily available in the Mimbres region, could be picked up locally, and thus has a low procurement cost. *Pecten* shell, from the Gulf of California, is more difficult to obtain, but may have been picked up on the beach by a Mimbres traveler (see Jett and Moyle 1986). The movement of copper bells would require not only extensive travel, but also interaction with nonlocal manufacturers, as production technology is not known in the Mimbres region. It is assumed that items of jewelry with high procurement costs were valued more than those available locally. This is not to say that persons interred with jewelry necessarily manufactured or procured the items themselves. The value I assign is to the object and to the buried person by association, regardless of where and by whom it was manufactured. Each jewelry assemblage is assigned a *PC*-value based on inferred procurement costs. Assemblages comprising locally-available materials alone receive a *PC*-value of 1. This value is increased by 20 percent if extensive travel was required to obtain materials or artifacts found in the assemblage. An additional 20 percent is added to the *PC*-value if procurement must have involved the establishment or maintenance of nonlocal associations. Within the present sample, *PC*-values range from 1.0 to 1.4.

Step 5: Calculation of Final Jewelry Score. In this step, the weighting factors above (*AR*, *MR*, and *PC*) are applied to the raw jewelry score (*RS*) in series. That is, the raw score is first multiplied by the appropriate *AR*-value, resulting in a product of RS_1. This product (RS_1) is then multiplied by the appropriate *MR*-value, which results in a secondary product of RS_2. The RS_2 value is next multiplied by the appropriate *PC*-value, producing the final jewelry score. This process, shown also in Table 7.21, is performed in series in order to capture the compounding effects of the attributes in question. In Table 7.22, the five-step process is demonstrated using the hypothetical data from Table 7.20, above.

Table 7.21. Procedures for the calculation of final jewelry scores.

Stage	Process	Coefficients	
Begin with raw score (*RS*)			
Apply weight for artifact richness	Multiply (*RS*) by richness coefficient (*AR*), resulting in RS_1	**Condition:**	***AR***
		1 jewelry type:	1.0
		2 jewelry types:	1.2
		3 jewelry types:	1.4
		4 jewelry types:	1.6
Apply weight for material richness	Multiply RS_1 by material richness coefficient (*MR*), resulting in RS_2	**Condition:**	***MR***
		1 material class:	1.0
		2 material classes:	1.2
		3 material classes:	1.4
		4 material classes:	1.6
Apply weight for procurement costs	Multiply RS_2 by procurement cost coefficient (*PC*), resulting in final jewelry score	**Condition:**	***PC***
		Locally available	1.0
		Non-local, obtainable by end-user	1.2
		Non-local, social connections required	1.4

Table 7.22. Application of weighting procedure to hypothetical jewelry assemblage in Table 7.20

Step	**Stage**	**Description**	**Product**
Step 1	Calculation of raw score	Raw score was calculated in Table 7.20, based on type and volume of jewelry	*RS* = 295
Step 2	Weight for artifact richness	Raw score (295) is multiplied by *AR*-value of 1.6 because assemblage has four types of jewelry (bracelets, beads, pendants, and mosaic ornaments)	RS_1 = 472
Step 3	Weight for material richness	Multiply RS_1 (472) by *MR*-value of 1.4 because the assemblage includes three types of material (marine shell, turquoise, and stone)	RS_2 = 660.8
Step 4	Weight for procurement costs	Multiply RS_2 (660.8) by *PC*-value of 1.2 because the end-user could have procured all materials by themselves and made their own jewelry, but it would have required extensive travel	**Final score = 792.96**

Assessing Differences in Jewelry Scores

In the analyses that follow, two primary means are used to assess differences in jewelry scores. The degree of individual-scale inequality is determined using Gini coefficients, which must be calculated for specific supra-individual samples (see Chapter 4, Part III). At scales above that of the individual, collective jewelry score distributions are compared using two-tailed Mann-Whitney tests in pairwise fashion (see Chapter 4, Part III). To demonstrate these processes, hypothetical jewelry scores (for Classic period roomblocks) are presented in Table 7.23.

Table 7.23. Exemplar data from an hypothetical set of Classic period roomblocks

Roomblock	Burial	Jewelry Score
Roomblock A	A-1	0
	A-2	12.5
	A-3	311.26
	A-4	0
	A-5	0
Roomblock B	B-1	55.3
	B-2	0
	B-3	0
	B-4	1,789.1
	B-5	0
	B-6	665.23
	B-7	0
Roomblock C	C-1	0
	C-2	0
	C-3	0
	C-4	0
	C-5	0
Roomblock D	D-1	14.25
	D-2	8,654.88
	D-3	17.6
	D-4	0
	D-5	0
	D-6	0.5
	D-7	33.24
	D-8	0
	D-9	75.22
	D-10	0
	D-11	0

Clearly, some individuals were accompanied by far greater wealth in jewelry than were others. Burial D-2, for instance, has a jewelry score of over 8,600, whereas most of the others have scores of 0. To quantify this range of asymmetry, Gini coefficients can be calculated for various samples. At the village scale, a Gini coefficient of 0.86 supports an inference of substantial, individual-scale inequality. At the scale of locus, Gini coefficients are determinable for Roomblocks A (G = 0.78), B (G = 0.75), and D (0.86) (a

Gini coefficient cannot be calculated for Roomblock C because the sum of all constituent jewelry scores is 0). Each of these is indicative of individual-scale inequality, although one could argue that such inequality was more pronounced in Roomblock D than in others.

Roomblock D's extraordinarily high collective jewelry score is driven largely by one burial (D-2), thus making sample means an unreliable metric for wealth at scales above that of the individual. In this example, Roomblock D's mean jewelry score is 799.61, but the standard deviation is 2,484.15. To better understand the differences between roomblocks, each of the four jewelry score distributions can be subjected to a pairwise series of two-tailed Mann-Whitney tests. The results of this exercise, presented Table 7.24, indicate that all inter-locus differences have a high probability of resulting from chance. Thus, there is no statistically significant difference to suggest that Roomblock D (or any other roomblock) had more collective wealth in jewelry than others.

Non-parametric tests, including the Mann-Whitney test, are heavily affected by individual scores of 0, producing an elevated risk of false negatives. For this reason, my reporting of distributional comparisons does not eliminate mean values altogether. Rather, it provides Mann-Whitney U results, probability values, and mean scores, allowing the reader to make informed, case-by-case interpretations across several measures. The entire process is not described for each of the analyses to follow. Rather, reference is made to distributional differences, and statistical data are presented through appendices not unlike Table 7.24.

Table 7.24. Statistical comparison of jewelry score distributions derived from Table 7.23. (Values in shaded cells are obtained from two-tailed Mann-Whitney tests).

	Jewelry Score						
N Burials	$\bar{x}$	**s**	**Roomblock**	**A**	**B**	**C**	**D**
5	64.75	137.91	**A**				
7	358.52	676.60	**B**	U = 15 p = 0.75			
5	0	0	**C**	U = 10 p = 0.25	U = 10 p = 0.25		
11	799.61	2,605.40	**D**	U = 23.5 p = 0.69	U = 39 p = 1.00	U = 12.5 p = 0.10	

Differences in Wealth in Jewelry at the Individual Scale

For this section, a total of 3,143 burial assemblages are considered, spanning the entire Mimbres sequence. Of these, 2,839 (90.3 percent) were accompanied by no jewelry at all. Among the others, the volume and variety of jewelry are highly variable. Overall, the data suggest substantially unequal access to jewelry at the individual scale; 90 percent of all jewelry, in fact, came from less than 1 percent of all burials. In this section, I look for patterns in these data at the individual scale, organizing the discussion chronologically. Analyses begin with the San Francisco phase, as the sample includes no mortuary jewelry from earlier times (see Appendices CXIX and CXVX).

San Francisco Phase. Of the 24 burials in the sample which date to the San Francisco phase, eight (33.33 percent) were accompanied by jewelry (see Appendix CXX). Among these, jewelry scores range from 3 to 4,326.91 ($\bar{x}$ = 569.88, s = 1,420.91), with Gini coefficients that suggest marked inequality (G_p = 0.95, G_s = 0.85). This constitutes clear evidence of individual-scale asymmetry in access to wealth in jewelry.

Differences in jewelry scores are also examined across age categories. Because non-parametric testing requires sample sizes of five or more, the infant class (n = 4) is not included. However, the adult class (n = 14) can be compared to the child (n = 6) and sub-adult (n = 10) classes (see Appendix CXCVII). Results indicate that all tested differences have a high likelihood of attribution to chance ($p \geq 0.64$), suggesting that differences in jewelry scores were not driven by differences in age.

To assess whether differences in jewelry-based wealth correspond with biological sex, jewelry score distributions are also compared across sex categories. Sample sizes prevent the application of Mann-Whitney tests, but descriptive statistics are provided in Appendix CXCVIII. Differences are generally small and there is nothing to indicate that during the San Francisco phase, amounts of wealth differed significantly by sex.

Three Circle Phase. Of the 219 burials in the sample that date to the Three Circle phase, 33 were accompanied by jewelry (15.1 percent). This does not represent a statistically significant decline from the previous phase ($p = 0.10$; Fisher's exact test, two-tailed). Variance among scores remains high and indicative of individual-scale inequality ($G_p = 0.97$, $G_s = 0.78$). Among the 33 burials that were accompanied by jewelry, scores range from 0.50 to 1,570.46 ($\bar{x} = 151.12$, $s = 310.65$). The distribution does not differ significantly from that of the San Francisco phase ($U = 128.5$, $p = 0.92$; Mann-Whitney test, two-tailed), suggesting no change in the overall amount of wealth in jewelry.

To determine whether wealth in jewelry was associated with decedent age, distributions of jewelry scores are compared across age categories (see Appendix CXCIX). Results indicate that adults were buried with about twice as much wealth in jewelry as were infants, a difference that has a relatively low probability of resulting from chance ($p = 0.08$). Biological sex was determinable for 12 females and 16 males. Three additional persons were tentatively recorded as female, and two were tentatively recorded as male. Jewelry score distributions are compared across categories, and all are found to have a high probability of resulting from chance ($p \geq 0.70$; see Appendix CXCIX). Thus, it seems that biological sex had little or no bearing on the amount of jewelry interred with burials during the Three Circle phase.

Classic Period. Of the 2,184 burials that date to the Classic period, 211 were accompanied by jewelry (16.4 percent). Differences in distribution, as compared to the Three Circle phase, are not necessarily meaningful ($U = 3,720.5$, $p = 0.53$; Mann-Whitney test, two-tailed). Gini indices remain extraordinarily high, suggesting continued and substantive inequality at the individual scale ($G_p = 0.99$, $G_s = 0.88$).

Jewelry score distributions were compared across age grades (see Appendix CC), and all differences have a relatively high probability of resulting from chance ($p \geq 0.09$). Distributions were also compared across categories of biological sex (see Appendix CCI), with similar results ($p \geq 0.32$). Thus, there is nothing to indicate that differences in the mortuary distribution of jewelry are related to the decedent's age or sex.

Overall, differences in the distribution of wealth in jewelry are, at the individual scale, striking (see Table 25). As early as the San Francisco phase, sample-wide Gini coefficients were consistently at or above 0.95. There is also some indication that during the San Francisco phase, adults had higher jewelry scores than sub-adults. During the subsequent Three Circle phase, they definitely had higher scores than did infants.

Table 7.25. Summary of individual-scale data on jewelry scores

			Entire Burial Population		Subset of Burials with Jewelry	
Time	**Inequality**	**Notes**	**N Burials**	**Gini**	**N Burials**	**Gini**
Classic	**Marked** [A]		2,184	0.99	211	0.88
Three Circle	**Marked** [A]	Adults had higher jewelry scores than infants	219	0.97	33	0.78
San Francisco	**Marked** [A]	Adults *may* have had higher jewelry scores than non-adults	24	0.95	8	0.85
Georgetown	**Indeterminate**	Insufficient data	6	0.00	0	0
Cumbre	**Indeterminate**	Insufficient data	3	0.00	0	0

[A] Inference based on Gini coefficients

Differences in Wealth in Jewelry at the Household Scale

Analyses in this section examine jewelry-based wealth at the household scale. For each domestic household in the sample, jewelry score distributions are compared. Unfortunately, household sample sizes are not amenable to non-parametric testing prior to the Three Circle phase. It is somewhat surprising that notable differences in household-scale access to jewelry are not evident until the Classic period.

Three Circle Phase. The sample includes data on 125 households that date to the Three Circle phase. Eighteen of these include mortuary jewelry (14.40 percent). Only nine Three Circle phase households had five or more associated burials, thus permitting non-parametric assessment of differences in jewelry score distributions (see Appendices CCXXII – CCXXIV). All tested, inter-household differences are found to have a high probability of resulting from chance ($p \geq 0.35$).

Classic Period. Jewelry score distributions are also examined at the room scale. Of the sample's 547 domestic pueblo rooms, 94 include mortuary jewelry (17.18

percent). This does not represent meaningful change in prevalence as compared to the preceding phase ($p = 0.51$; Fisher's exact test, two-tailed). The analysis is limited to 116 Classic period, domestic rooms that have five or more burial assemblages. Jewelry score distributions from these rooms are compared (see Appendices CCXXV – CCXXVIII), and results indicate that some rooms had significantly higher jewelry scores than one or more others, relative to the number of burials per room. These are detailed in Appendix CLXXIX and summarized here, in Table 7.26.

Table 7.26. Significant differences in room-scale jewelry score distributions during the Classic period.

Site	Appendix	Observation	Probability
Galaz	CCXXV	Room 19/19B had higher jewelry scores than Rooms 109/109A and 41/41A	0.04, 0.08
Mattocks	CCXXVI	Room 55 had higher jewelry scores than Rooms 50 and 53	0.04, 0.03
		Rooms 114a/114b and 435a/435b had higher jewelry scores than Room 53	0.07
		Room 55 had higher jewelry scores than Room 59	0.06
NAN Ranch	CCXXVII	Room 28 had higher jewelry scores than Room 40	0.08
Swarts	CCXXVIII	Rooms 4, 10, 51, 70, 84, and 108 had higher jewelry scores than Room 55	0.04 – 0.08
		Room 12 had higher jewelry scores than Rooms 19 and 40	0.03 – 0.05
		Room 19 had higher jewelry scores than Rooms 21, 2/2A, 3, 39, 55, 63, 71, 8, 80A, 83, 86, 87, 9, 93, 96, 98	<0.01 – 0.07
		Room B had higher jewelry scores than Rooms 19, 31, 40	0.02 – 0.08
		Room 40 had higher jewelry scores than Rooms, 21, 3, 39, 55, 63, 71, 8, 80A, 83, 86, 87, 9, 93, 96, 97, 98	<0.01 – 0.08
		Room 31 had higher jewelry scores than Rooms 2/2A, 55, 63, 8,	0.02 – 0.08
		Room 5 had higher jewelry scores than Rooms 55, 63	0.03 – 0.08

Analyses suggest unequal access to wealth in jewelry, at the room scale, during the Classic period. Some rooms had far higher jewelry scores than one or more others, and the manner in which these rooms were distributed varies by site. Nevertheless, and as illustrated in Figures 7.19 through 7.22, three patterns emerge. First, rooms with notably high jewelry scores (i.e., those with significantly higher scores than multiple other rooms) are relatively rare. In fact, the sites of Galaz, Mattocks, and NAN Ranch had only one or two apiece (see Figures 7.19 – 7.21). Second, rooms with high jewelry scores were often adjacent to ceremonial facilities. This was exclusively the case at Galaz, Mattocks, and NAN Ranch, where such rooms shared walls with ceremonial rooms. One of the three high-scoring rooms at Swarts abuts an enclosed plaza, and another makes contact with the site's corner-touching room (see Chapter 5). Third, there is no apparent relationship between rooms with high jewelry scores and either primacy or antecedence. The high-scoring room at Galaz is located in the site's founding locus, but there are no other similar cases.

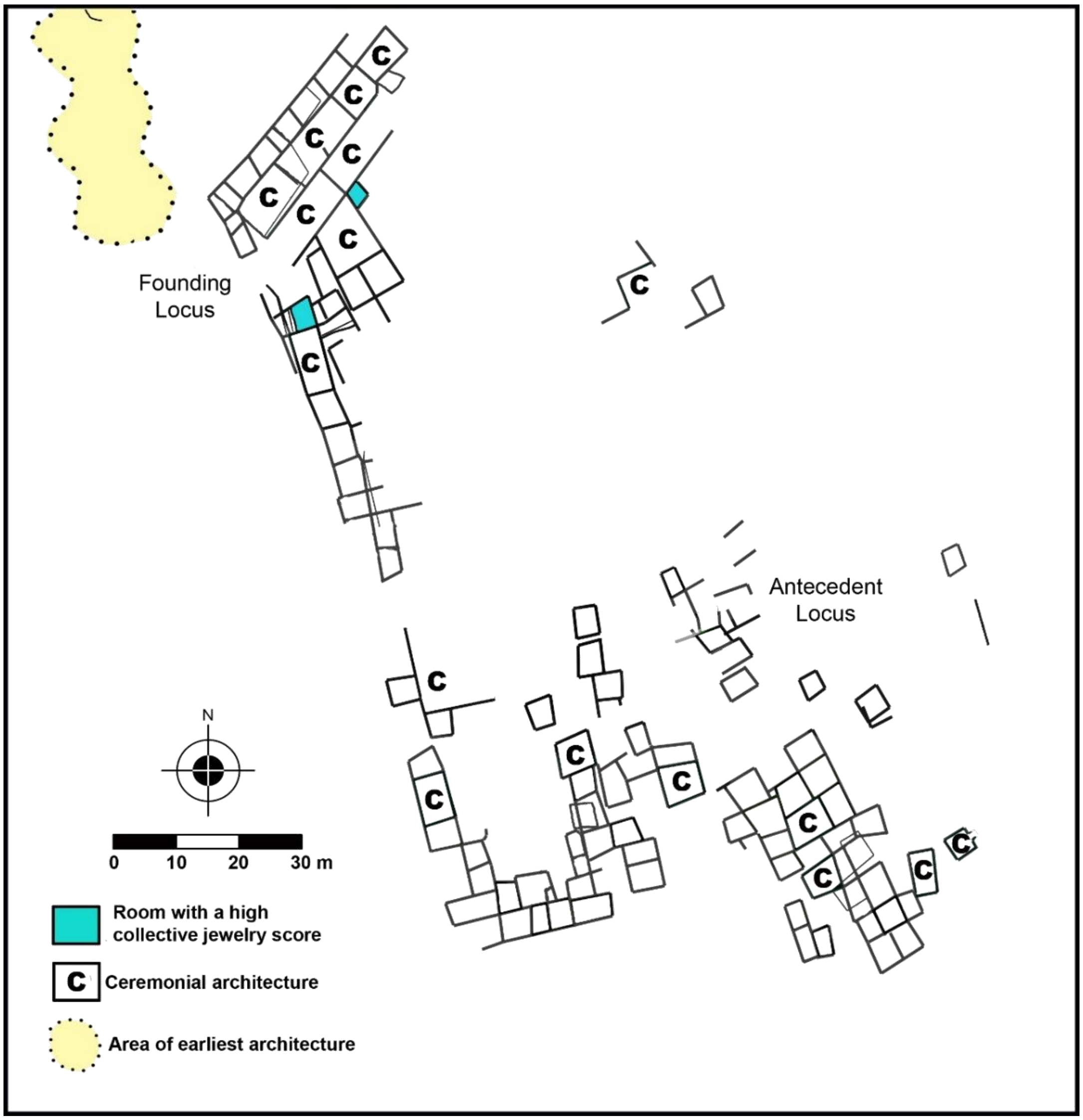

Figure 7.19. Spatial distribution of domestic rooms at Galaz with high jewelry scores. (Architecture after maps in Anyon and LeBlanc 1984).

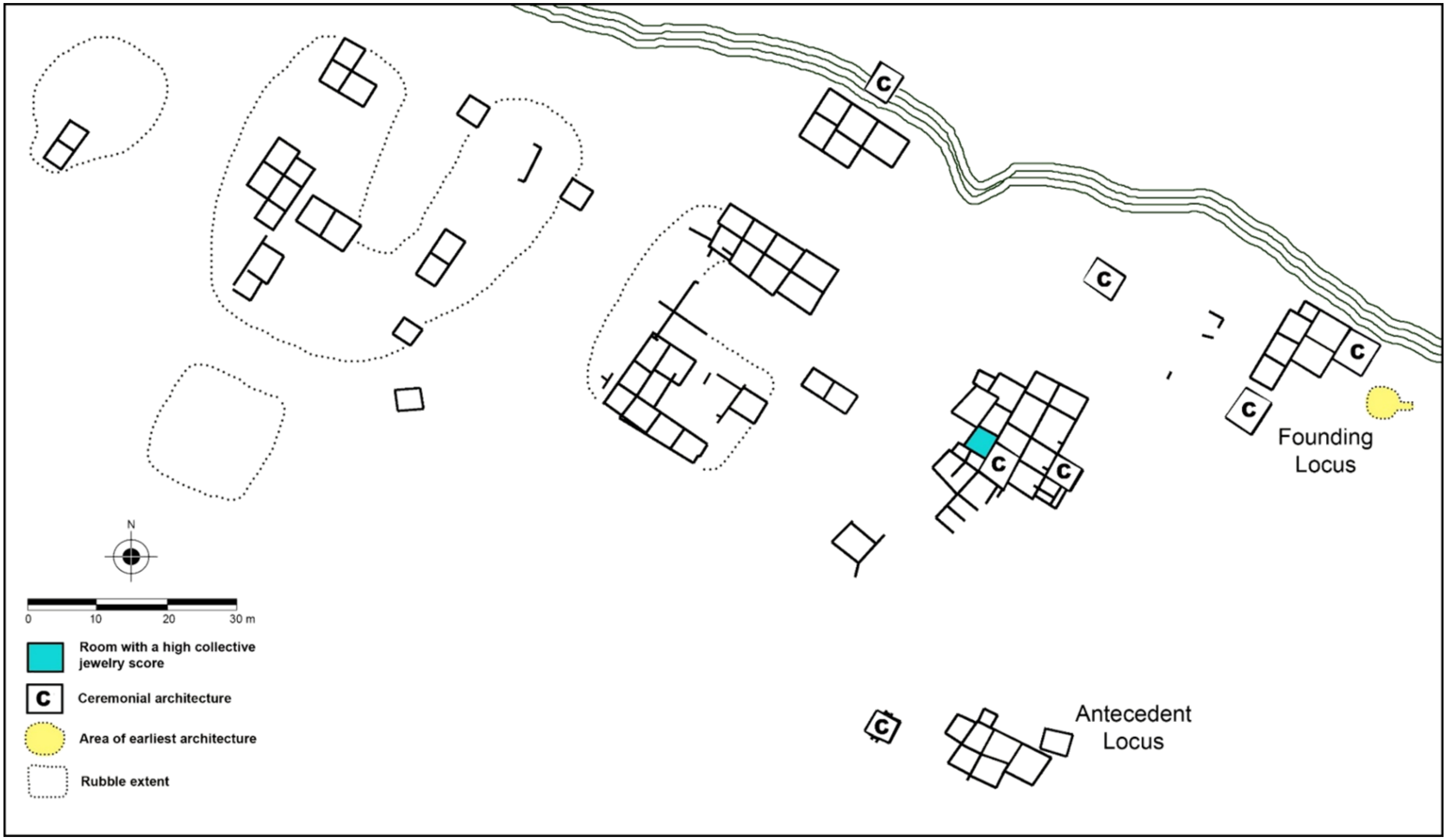

Figure 7.20. Spatial distribution of domestic rooms at Mattocks with high jewelry scores. (Architecture after maps shared by Patricia Gilman).

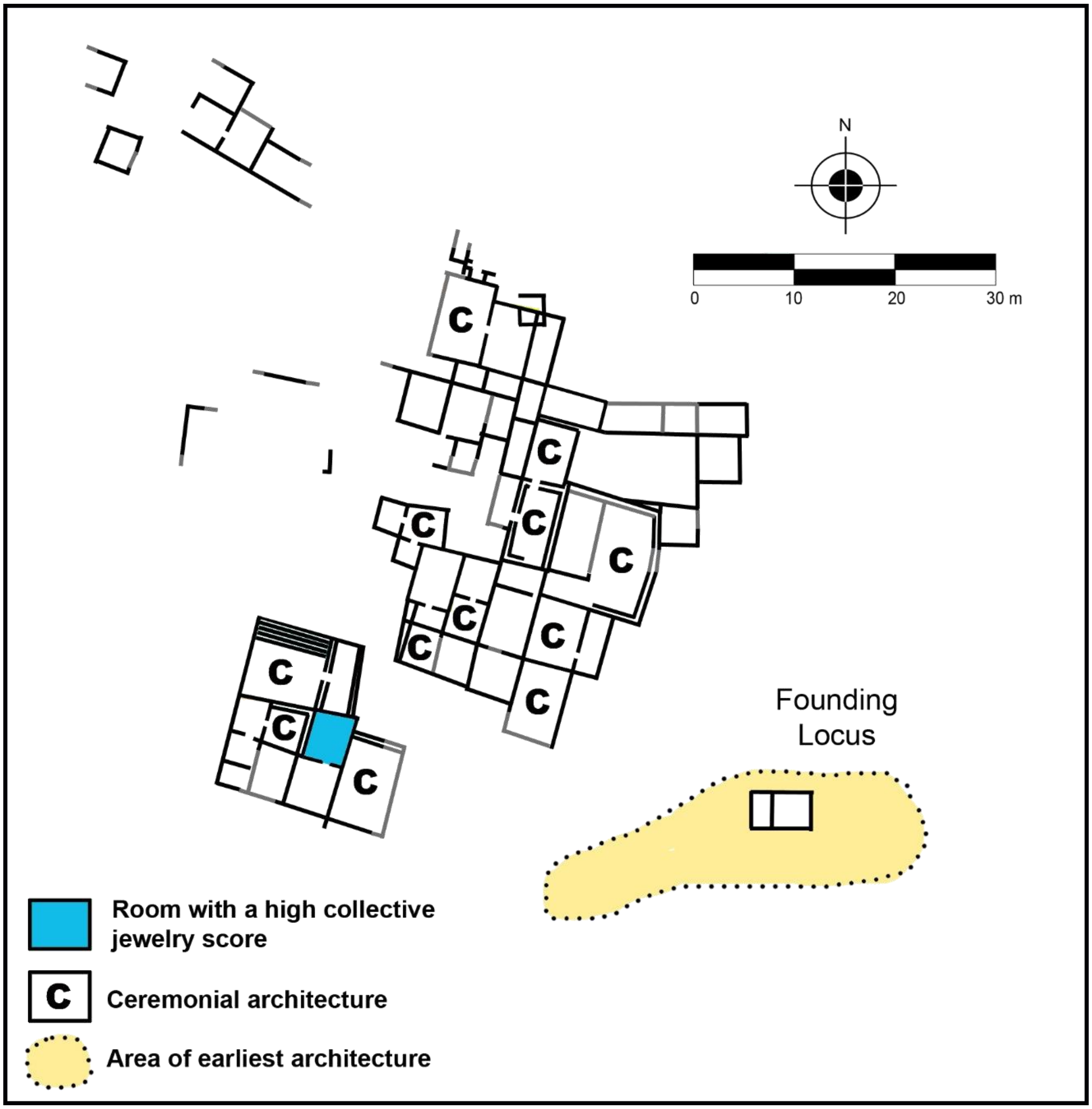

Figure 7.21. Spatial distribution of domestic rooms at NAN Ranch with high jewelry scores. (Architecture after Shafer 2003:Figure P.2).

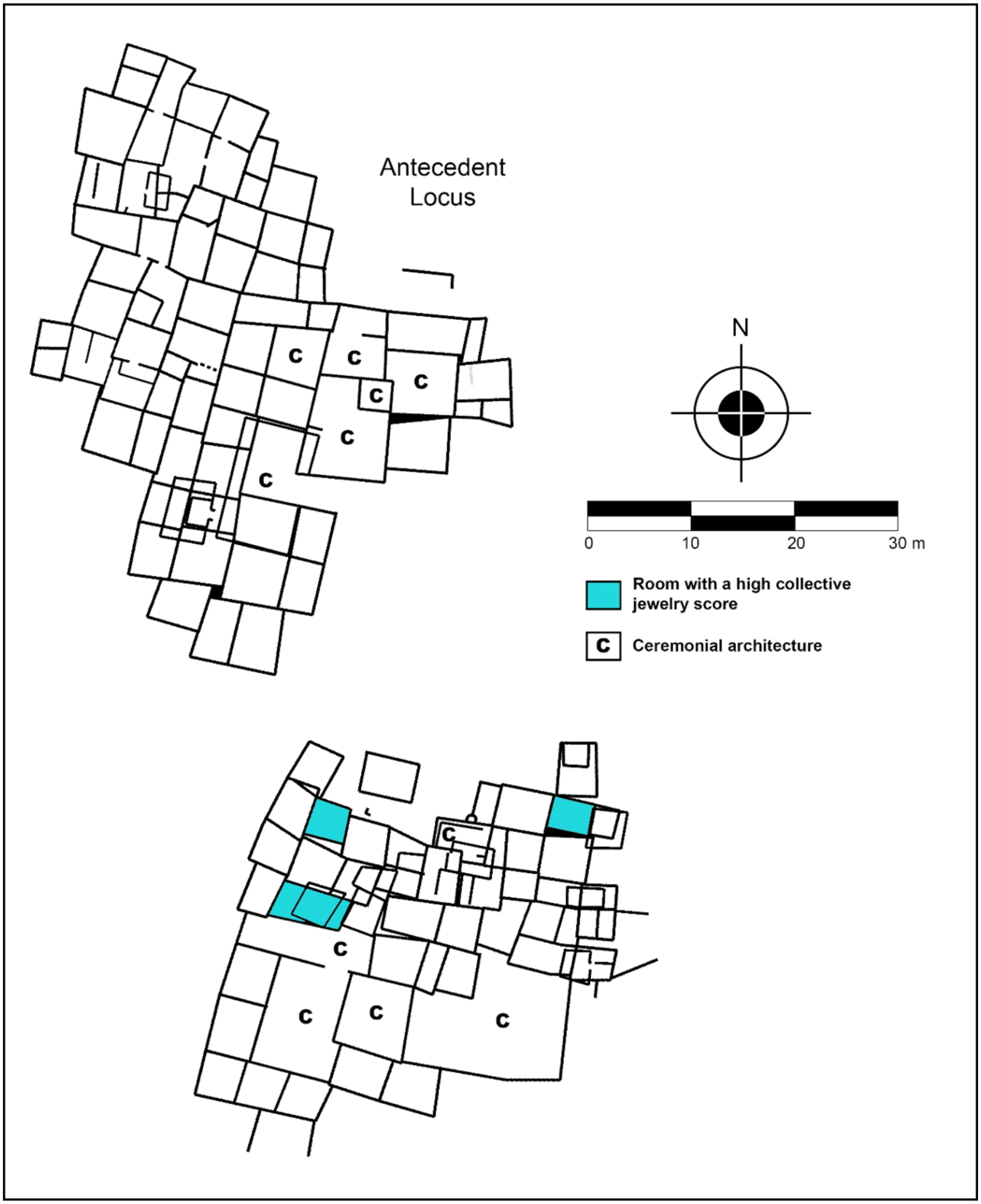

Figure 7.22. Spatial distribution of domestic rooms at Swarts with high jewelry scores. (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

Results from the above analyses of jewelry scores are consistent with wealth inequality at the scale of the domestic unit, during the Classic period (room), but not during the Three Circle phase (pithouse) (see Table 7.27). This contrast is interesting and serves as a reminder of the dramatic changes in household architecture ca. 1000 C.E. If Classic period households (some comprising multiple rooms) were consistently identifiable, it may well be that no evidence of inequality would be evident at this scale, during the Classic period.

Table 7.27. Summary of household- and room-scale data on jewelry scores

			N of Households [A]		
Time	**Inequality**	**Notes**	**In Sample**	**w/Jewelry**	**In Analysis [B]**
Classic	**Present [C]**		547	94	116
Three Circle	**Absent**		125	18	9
San Francisco	**Indeterminate**	No households had 5+ burials	21	4	0
Georgetown	**Indeterminate**	Insufficient data	17	0	0
Cumbre	**Indeterminate**	Insufficient data	11	0	0

[A] Or domestic rooms, during the Classic period
[B] Based on sample size limitations imposed by non-parametric testing standards
[C] Based on differences in frequency involving two rooms that both have mortuary pottery, and these differences have a statistically low probability of resulting from chance. Bear in mind that this result represents a comparison of domestic rooms rather than households. Were Classic period households readily identifiable, analytical results may encourage an alternate interpretation.

Differences in Wealth in Jewelry at the Locus Scale

The analyses above indicate that access to wealth in jewelry varied among individuals and households during some periods. Analyses in this section are designed to determine whether such asymmetry extended to the scale of locus. They begin with the San Francisco phase, which marks the earliest appearance of mortuary jewelry in the sample. Overall, results indicate that some villages had one locus with more jewelry than others, and that this distinction may have been associated with primacy and antecedence.

San Francisco Phase. Of the nine San Francisco phase loci, jewelry was recovered from burials in six (66.67 percent). However, Wind Mountain is the only San Francisco phase village in the sample with burials in more than one locus. Here, burials were encountered in the Central ($n = 8$), North ($n = 5$), and Ridout ($n = 2$) loci. The sample size at the Ridout Locus precludes non-parametric analysis, but comparisons of locus-scale distributions involving the other two are possible (see Appendix CCXXX). Results indicate that differences in jewelry score distributions have a high probability of resulting from chance ($p = 0.34$). Thus, there is no evidence to suggest that during the San Francisco phase, either of the two loci at Wind Mountain had wealthier burials than the other, in terms of jewelry.

Three Circle Phase. Mortuary jewelry was recovered from 11 of the 22 loci dating to the Three Circle phase (50.00 percent). This does not represent a statistically significant change in prevalence as compared to the preceding phase ($p = 0.46$; Fisher's exact test, two-tailed). Sample sizes dictate that locus-scale comparisons are limited to Cameron Creek, Galaz, and NAN Ranch (see Appendices CCXXXI – CCXXXIII). Inter-locus differences at Cameron Creek and NAN Ranch have a high probability of attribution to chance ($p \geq 0.96$; see Appendices CCXXXI and CCXXXIII, respectively). In contrast, there are several compelling differences at Galaz, where the two highest-scoring loci were those with primacy and the greatest assertion of antecedence (see Appendix CCXXXII). No mortuary jewelry was recovered from the Southwest or Southeast loci, producing some significant differences in scores as compared to other loci ($p \leq 0.08$). Compelling differences were not limited to instances of presence and absence however. The site's founding (Northwest) locus had the highest jewelry scores, significantly higher than those of the South (antecedent; $p = 0.04$) and East ($p = 0.07$) loci.

Classic Period. Twelve of the 20 Classic period loci included mortuary jewelry (60.00 percent), which does not represent a meaningful change in prevalence from the Three Circle phase ($p = 0.55$; Fisher's exact test, two-tailed). Jewelry score distributions are examined across loci at Galaz, Mattocks, NAN Ranch, and Swarts (see Appendices CCXXXIV – CCXXXVII). The only significant differences are at Mattocks ($p \leq 0.08$), and all involve the Southeast Roomblock, which had no mortuary jewelry. Twenty-nine burials were excavated in this locus, and the complete lack of jewelry is, in light of the statistical support, at least suggestive of asymmetric access. No Classic period locus, at any site, emerged as having higher collective jewelry scores than any other locus with mortuary jewelry.

The analyses above suggest locus-scale inequality with regard to wealth in jewelry, beginning in the Three Circle phase (see Table 7.28). This inequality was not especially widespread and in some cases hinged on loci that had little or no mortuary jewelry. The most convincing evidence comes from Galaz, where the founding locus had (by far) the highest jewelry scores, followed by the most antecedent loci, at a distant second. The evidence of statistically significant differences diminishes for the Classic period. This may indicate subsiding inequality, and is rare among results. However, it is worth noting that at the sites of Galaz, Mattocks, NAN Ranch, and Swarts, all high-scoring rooms were limited to just one locus (see Figures 7.19 through 7.22).

Table 7.28. Summary of locus-scale data on jewelry scores

Time	Inequality	Notes	Number of Loci In Sample	w/Mortuary Jewelry	In Analysis [A]
Classic	**Present [D]**	Just 1 high-scoring locus per village	20	12	15
Three Circle	**Present [C]**	Assoc'd w/primacy and antecedence	22	11	10
San Francisco	**Absent**	Limited data	9	5	2
Georgetown	**Indeterminate**	Insufficient data	6	0	0
Cumbre	**Indeterminate**	Insufficient data	2	0	0

[A] Based on sample size limitations imposed by non-parametric testing standards

[B] That portion of the sample that contains burials with pottery

[C] Based on differences in frequency involving two households that both have mortuary pottery, and these differences have a statistically low probability of resulting from chance

[D] Differences involving the Southeast Roomblock at Mattocks, which had no burials accompanied by jewelry, consistently had a low probability of resulting from chance. This is not especially strong evidence of inequality, but 29 burials were excavated in this locus; thus, the complete lack of jewelry may indeed be telling of locus-scale differences in access to material wealth.

Differences in Wealth in Jewelry at the Village Scale

This final set of analyses examines differences in the distribution of jewelry scores at the village scale. Cumbre-phase data are available from only one site, thereby preventing inter-village comparison. Georgetown-phase data came from the sites of Harris Village, Mattocks, and Wind Mountain, but none of the burials there were accompanied by jewelry. Thus, analyses focus on village occupations during the San Francisco phase and thereafter.

San Francisco Phase. Mortuary jewelry has been recovered from two of the three villages with San Francisco phase components (66.67 percent). Site-scale, San Francisco phase data are obtained from three sites: Galaz, Harris Village, and Wind Mountain. Site-scale distributions of jewelry scores are compared and reported in Appendix

CCXXXVIII. All differences have a high probability of resulting from chance ($p \geq 0.58$), suggesting that villages of this time had relatively equal access to jewelry.

Three Circle Phase. Three Circle phase, mortuary jewelry was recorded at each of the seven sample sites, representing little change in prevalence from the previous phase ($p = 0.30$; Fisher's exact test, two-tailed). Jewelry score distributions were compared across all sites (see Appendix CCXXXIX), and it is during this phase that evidence of asymmetric access to wealth in jewelry is first apparent at the site scale. Both Galaz and Harris Village have higher relative scores than Cameron Creek.[27]

Classic Period. Mortuary jewelry was encountered at five out of six Classic period pueblos (83.33 percent), which again does not represent a meaningful change in prevalence from the Three Circle phase ($p = 1.00$; Fisher's exact test, two-tailed). However, differences in village-scale jewelry score distributions became far more pronounced. The sites, in fact, can be largely ranked in order of lowest to highest jewelry scores, with interstitial differences having a low probability of attribution to chance ($p < 0.01$; see Appendix CCXL). With no mortuary jewelry, Wind Mountain occupies the lowest rung, along with Cameron Creek, which has only a small amount of jewelry. Mattocks ranks above Wind Mountain and Cameron Creek, and is followed, in turn, by Galaz. Galaz is bested by Swarts, and NAN Ranch sits at the top.

The analyses in this section suggest that access to wealth in jewelry varied considerably by site, although meaningful differences did not appear until the Three Circle phase (see Table 7.29). Inequality was most clearly developed during the Classic period, when sites could be ranked according to their wealth in jewelry.

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[27] Mattocks had no mortuary jewelry dating to the Three Circle phase, but there were only seven burials excavated at the site that date to this time.

Table 7.29. Summary of village-scale data on jewelry scores

			Number of Sites		
Time	**Inequality**	**Notes**	**In Sample**	**w/Mortuary Jewelry**	**In Analysis** [A]
Classic	**Ranked** [C]	NAN Ranch dominating	6	5	6
Three Circle	**Present** [B]	Cameron Cr. has lower scores than some	7	7	7
San Francisco	**Absent**	Limited data	3	2	3
Georgetown	**Indeterminate**	Insufficient data	3	0	0
Cumbre	**Indeterminate**	Insufficient data	1	0	0

[A] Based on sample size limitations imposed by non-parametric testing standards

[B] Based on differences in frequency involving two households that both have mortuary pottery, and these differences have a statistically low probability of resulting from chance

[C] Sites can be ranked from lowest to highest based on jewelry score distributions, with nearly all interstitial differences having a low probability of resulting from chance

Conclusion and Discussion

"And greed destroys worlds—ask any Pueblo Indian" (Todd 2008:472).

The preceding analyses compared evidence of differences in the mortuary distribution of jewelry by focusing on relative amounts and kinds of jewelry per social unit. This exercise was undertaken at four social scales, using data from seven Mimbres sites. A means for scoring and comparing jewelry assemblages was developed in order to quantify and systematically compare differences. Analytical results vary considerably across space and time and space. They are also less than robust, given small sample sizes. Nevertheless, the data do permit two general observations.

Meaningful differences in jewelry score distributions are not evident, at the individual scale, until the San Francisco phase. From that point forward, however, the degree of individual-scale inequality remained striking, as evidenced by population-wide Gini coefficients that range from 0.95 to 0.99. At the household scale, differences in jewelry scores were not apparent until the Classic period. This may correspond with a general increase – associated with the pithouse-to-pueblo transition – in the social importance of households (see Chapter 8). At the locus scale, meaningful differences in jewelry scores emerge during the Three Circle phase and may lessen after 1000 C.E. This pattern is reversed at the village scale, where limited evidence exists during the Three Circle phase, but increases substantially during the Classic period.

Three approaches were used to assess wealth differences at individual, household, locus, and site scales over time. These included frequencies of burials with multiple pots and/or jewelry, pottery value scores, and jewelry value scores. The results are striking with regard to patterns of value scores for pottery and jewelry (see Tables 7.30 and 7.31).

Table 7.30. Summary of wealth inequality evidence, compiled from Chapter 7 analyses

		Evidence of Inequality w/Regard to				
		Rel. Freq. of Burials w/		Scores		
Scale	**Time**	**2+ Vessels**	**Jewelry**	**Pottery**	**Jewelry**	**Interpretation**
Individual	Classic	Present	Present	Present	Marked	Four lines of evidence suggest wealth inequality, particularly with regard to jewelry
	Three Circle	Present	Present	Present	Marked	Four lines of evidence suggest wealth inequality, particularly with regard to jewelry
	San Francisco	Possible	Possible	Possible	Present	Four lines of evidence suggest potential wealth inequality
	Georgetown	n.d.	n.d.	n.d.	n.d.	
	Cumbre	n.d.	n.d.	n.d.	n.d.	
Household / Room	Classic	Present, at Cameron Cr., Galaz, Mattocks, NAN, and Swarts	Present, at Galaz, Mattocks, NAN, and Swarts	Present, at Cameron Cr., Galaz, Mattocks, NAN, and Swarts	Present, at Galaz, Mattocks, NAN, and Swarts	Four lines of evidence suggest widespread wealth inequality
	Three Circle	Present, at Galaz, NAN, and Swarts	Present, at Galaz	Present, at Swarts	Absent	Three lines of evidence suggest wealth inequality, limited in scope. Some households had higher frequencies of burials with jewelry, but differences in jewelry scores were negligible.
	San Francisco	Absent	Absent	n.d.	Absent	Villages were much alike
	Georgetown	n.d.	n.d.	n.d.	n.d.	
	Cumbre	n.d.	n.d.	n.d.	n.d.	
Locus	Classic	Present, at Cameron	Present, at Mattocks	Marked, at Cameron	Present, at Mattocks	Four lines of evidence suggest wealth inequality. Unequal

		Evidence of Inequality w/Regard to				
		Rel. Freq. of Burials w/		Scores		
Scale	**Time**	**2+ Vessels**	**Jewelry**	**Pottery**	**Jewelry**	**Interpretation**
		Cr., Galaz, and Swarts		Cr., Galaz, Mattocks, and NAN		access to jewelry was limited to Mattocks. Unequal access to pottery was more widespread and more pronounced.
	Three Circle	Yes, at Galaz	Yes, at Galaz	Yes, at Galaz	Yes, at Galaz	Four lines of evidence suggest wealth inequality, but only at Galaz
	San Francisco	Absent	Absent	Absent	Absent	Villages were much alike
	Georgetown	n.d.	n.d.	n.d.	n.d.	
	Cumbre	n.d.	n.d.	n.d.	n.d.	
Village	Classic	Marked, w/Mattocks at forefront	Ranked, w/NAN being preeminent	Present, w/Mattocks at forefront	Ranked, w/NAN being preeminent	Four lines of evidence suggest widespread and striking wealth inequality. Mattocks dominated *in re* pottery, and NAN *in re* jewelry
	Three Circle	Present	Absent	Tiered, w/Mattocks being preeminent	Present, with Cameron Cr. having low scores	Three lines of evidence suggest wealth inequality, mostly involving pottery, although Cameron Creek had low jewelry scores during the Three Circle phase.
	San Francisco	Absent	Absent	Absent	Absent	Villages were much alike
	Georgetown	n.d.	n.d.	n.d.	n.d.	
	Cumbre	n.d.	n.d.	n.d.	n.d.	

Figure 7.31. Summary of wealth inequality data as they pertain to decedent age and sex

	Age at Death				Biological Sex			
	Rel. Freq. of Burials w/		Scores		Rel. Freq. of Burials w/		Scores	
Time	**2+ Vessels**	**Jewelry**	**Pottery**	**Jewelry**	**2+ Vessels**	**Jewelry**	**Pottery**	**Jewelry**
Classic	Present Ad > Inf, Ch > Inf	Present Ch > Ad, Ch > Inf,	Present Ad > Inf Ch > Inf	Absent	Absent	Absent	Absent	Absent
Three Circle	Absent	Absent	Present Ad > Ch Ad > Sub	Present Ad > Inf	Absent	Absent	Absent	Absent
San Francisco	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Georgetown	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Cumbre	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.

Correspondence between patterns of jewelry scores and the frequencies of burials with multiple vessels and/or jewelry is surprisingly low; high jewelry scores very rarely coincided with high pottery scores or high frequencies of multi-vessel burials.

Correspondence between high jewelry scores and high frequencies of burials with jewelry was only slightly greater. This pattern suggests first that material wealth was manifest in at least two media: jewelry value and ceramic value. Wealth within these media was not mutually exclusive, but it was lower than might be expected. This, in turn, suggests that access to pottery and access to jewelry operated independently of one another. What is more, evidence suggests that by having elevated access to one form of wealth, certain persons and groups may have simultaneously had less access to the other, a pattern that is potentially consistent with social competition. It should be stressed that there is nothing to indicate that jewelry in general or particular classes of jewelry were limited to a particular group of people. That said, there is almost no association between high jewelry scores and either primacy or antecedence (see Figures 7.23 – 7.26).

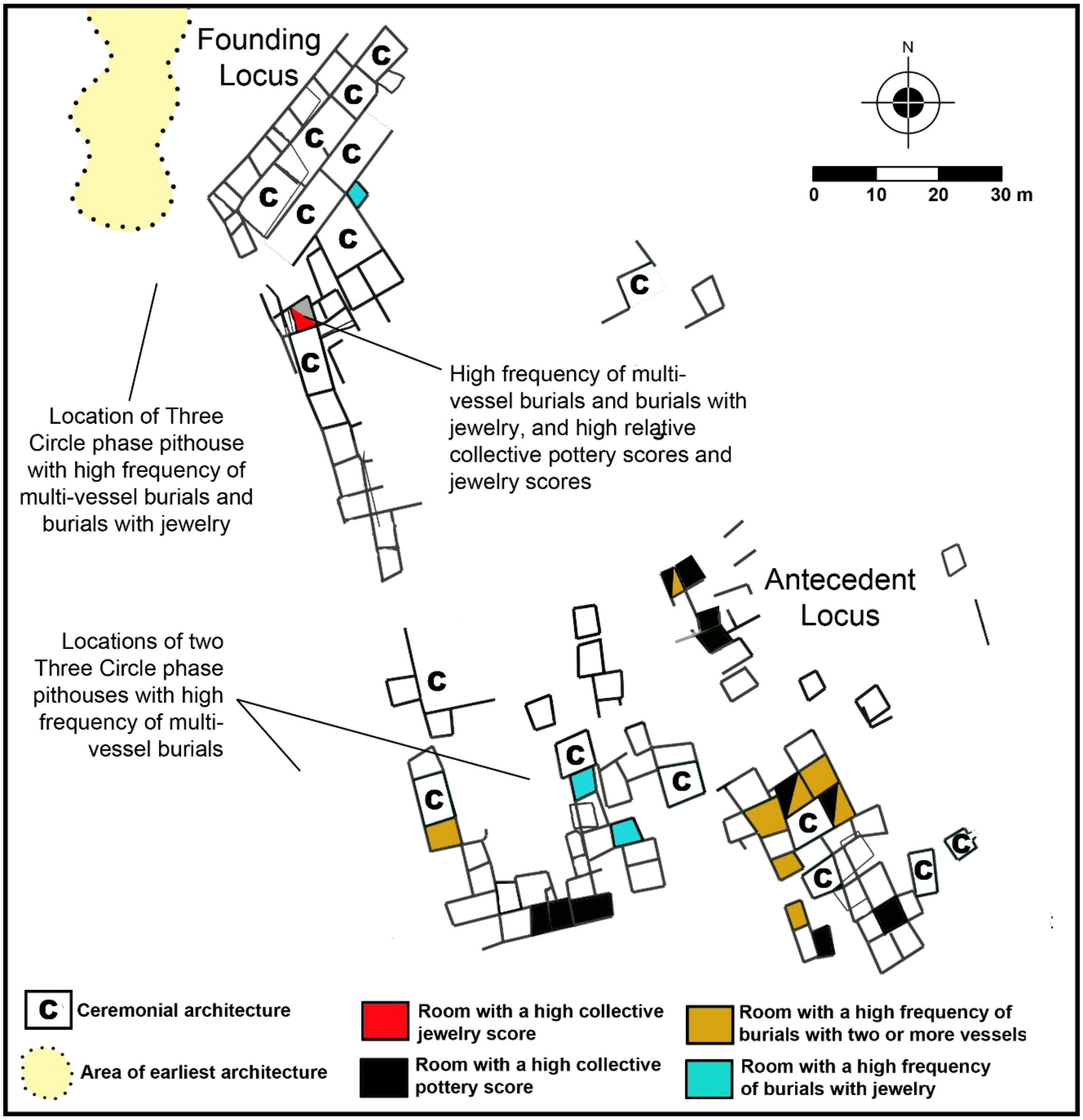

Figure 7.23. Classic period, domestic rooms at Galaz with high jewelry scores (red), high pottery scores (black), high relative frequencies of multi-vessel burials (brown), and high relative frequencies of burials with jewelry (blue). (Architecture after maps in Anyon and LeBlanc 1984).

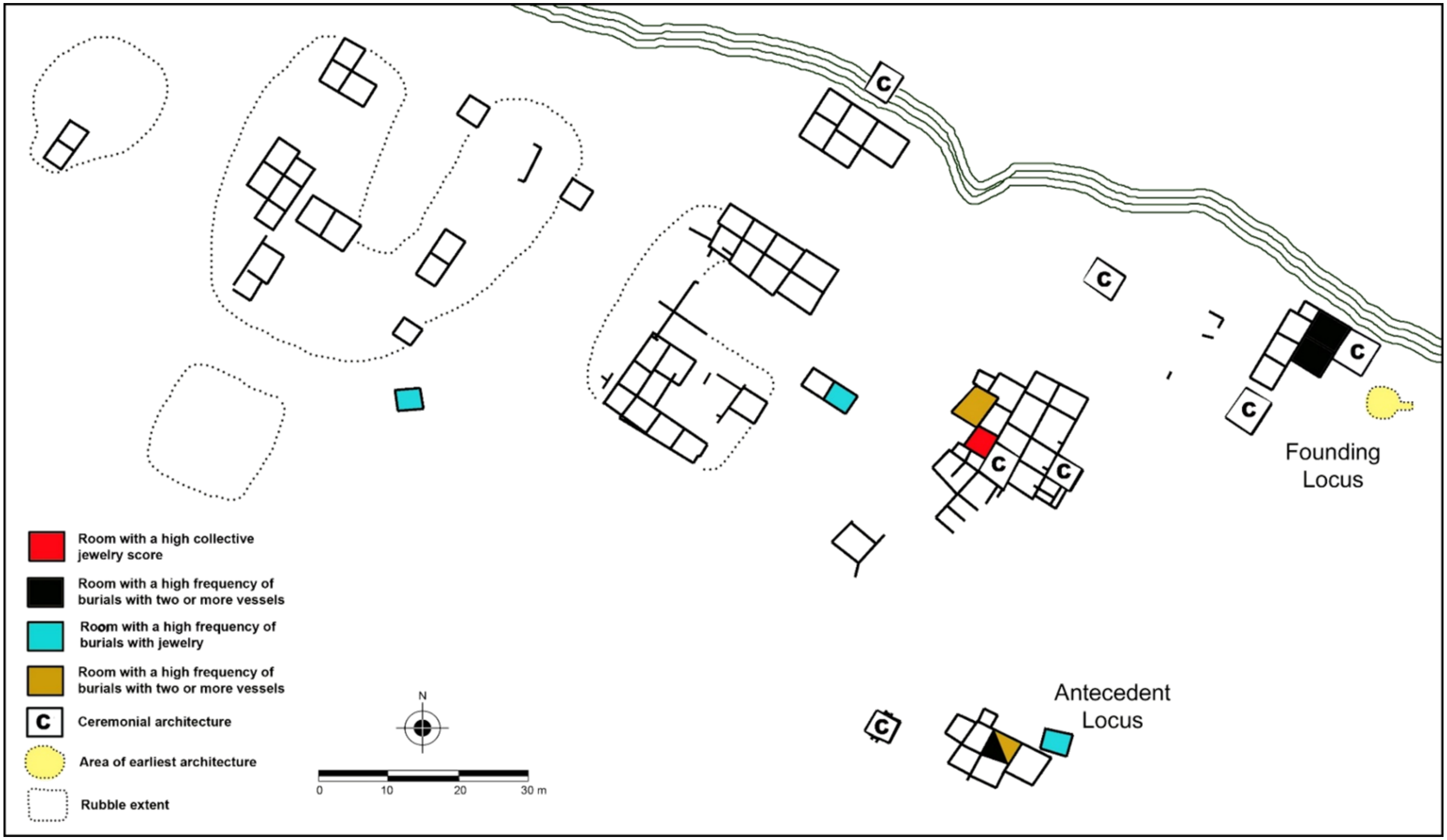

Figure 7.24. Classic period, domestic rooms at Mattocks with high jewelry scores (red), high pottery scores (black), high relative frequencies of multi-vessel burials (brown), and high relative frequencies of burials with jewelry (blue). (Architecture after maps shared by Patricia Gilman).

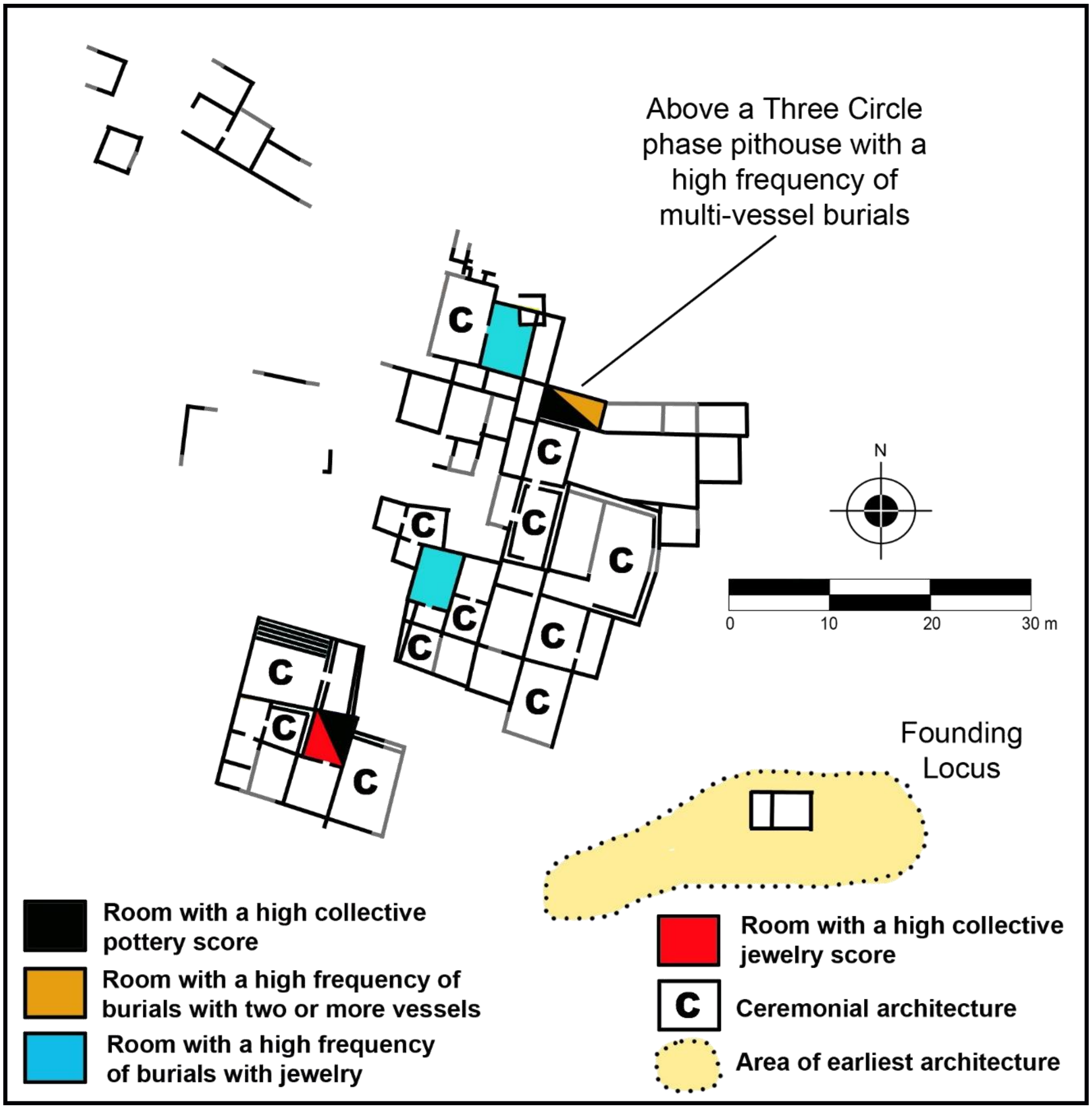

Figure 7.25. Classic period, domestic rooms at NAN Ranch with high jewelry scores (red), high pottery scores (black), high frequencies of multi-vessel burials (brown), and high frequencies of burials with jewelry (blue). (Architecture after Shafer 2003:Figure P.2).

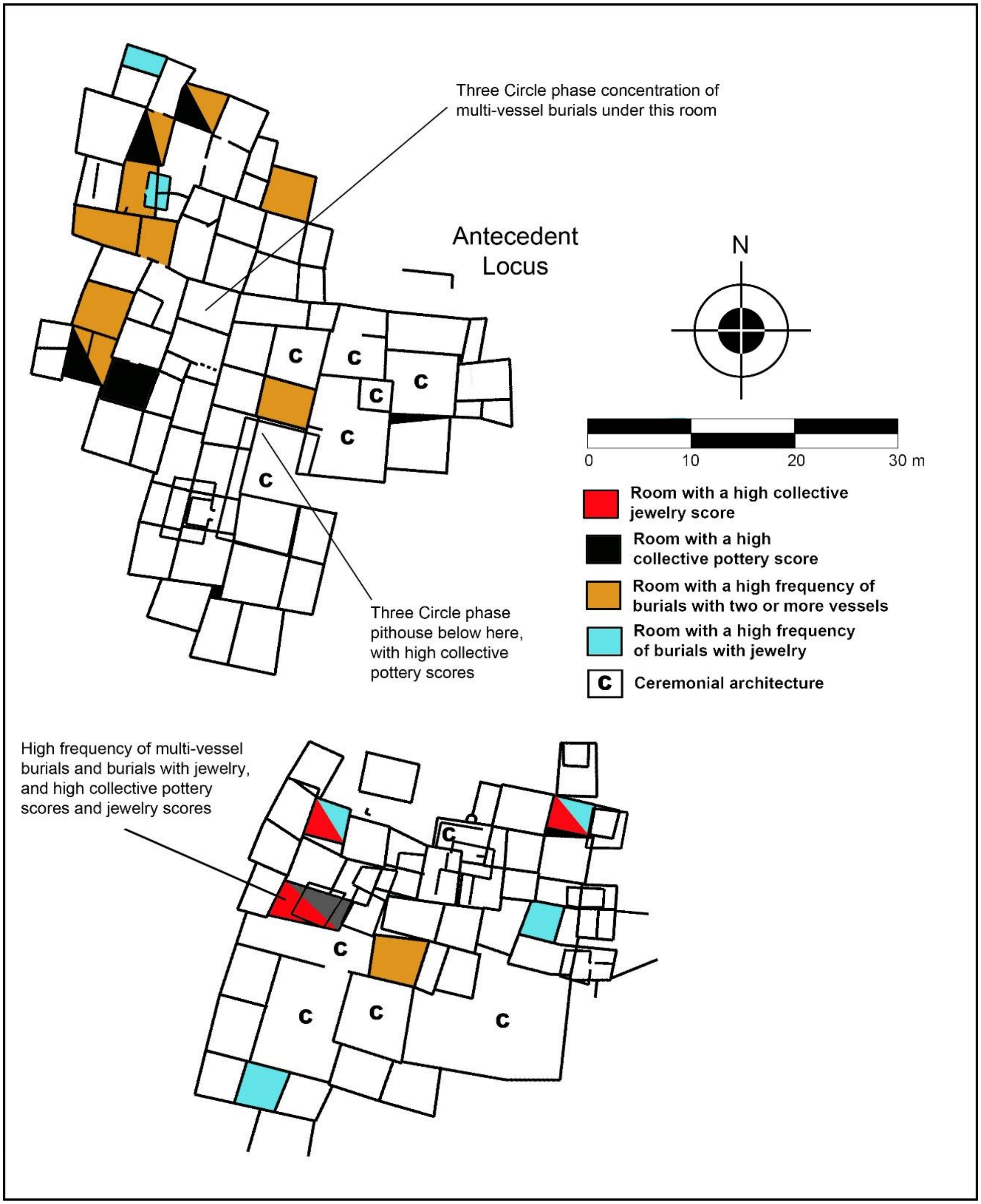

Figure 7.26. Classic period, domestic rooms at Swarts with high jewelry scores (red), high pottery scores (black), high frequencies of multi-vessel burials (brown), and high frequencies of burials with jewelry (blue). (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

The analyses presented in this chapter are unequivocal in suggesting that unequal access to material wealth was not only present, but prevalent within Mimbres society (see Tables 7.30 and 7.31). Meager sample sizes often prevent inferences of any kind prior to the San Francisco phase. From that point forward, however, wealth inequality was present at a number of scales and to varying degrees.

During the San Francisco phase, there may have been meaningful differences in the frequency with which individuals were buried with wealth, and in the amount of pottery placed with the deceased. It is clear that some people received more jewelry than others at the time of their death. None of these differences articulate with age or sex. Households, loci, and villages appear to have all had roughly equal access to items of wealth.

During the Three Circle phase, wealth was interred with some individuals but not others. Among those that did receive wealth, amounts were meaningfully different, especially with regard to jewelry. Wealth was placed with individuals of all ages and both sexes at comparable rates. However, adults with wealth tend to have more of it than sub-adults with wealth. Household-scale differences are present, but limited to a few sites. Locus-scale differences are present, but encountered only at Galaz. At the village scale, inequality is evident but distributed in different ways. That is, differences in pottery scores are striking and widespread, whereas those involving jewelry scores involve one site (Cameron Creek) with low scores.

Perhaps not surprisingly, the Classic period marks the culmination of wealth inequality. As was the case during the Three Circle phase, there are four lines of evidence that suggest inequality, at every socio-spatial scale. The most remarkable difference at the individual scale involves amounts of jewelry. It is also at this time that children were more likely to be buried with jewelry than were people of other ages. Infants, during the Classic period, were less often buried with multiple vessels, and had consistently lower pottery scores than others. Inequality was most widespread at the scale of the domestic room. At the locus scale, disparate access to jewelry was limited to Mattocks, whereas differences in the distribution of ceramic wealth was more pronounced and more widespread. Some of the most striking evidence of inequality is found at the site scale, during the Classic period. At this time, Mattocks emerged as preeminent with regard to pottery wealth, and NAN Ranch dominated sites in ranked comparisons of jewelry distribution.

The level of wealth inequality encountered during this study is anathema to historic and modern pueblo groups, but it is important to remember that ethnographically-documented efforts to curb accumulation are based on stories of earlier times, when wealth and greed emerged as corrupting forces that led to societal reorganization. Thus, the Mimbres evidence is inconsistent with ethnographic observations, yet wholly consistent with Native Southwestern histories.

CHAPTER 8: CONCLUSION

Questions of inequality have long held interest for social scientists and the general public alike. Generations of researchers have examined the issue, contributing to our understanding of the phenomenon and its role in human history, the experiences of people, and our quality of life today. Many of these examinations have focused on particular dimensions, domains, or scales, an approach that has produced fine-grained insights. At the same time, researchers are coming to recognize the multifaceted and dynamic nature of social inequality. It has been two decades since Ben Nelson (1995) illustrated the benefits of focusing not only on how complex past societies were, but also on the ways in which they were complex. Similarly, it is becoming increasingly clear that the interesting and pertinent questions surrounding social inequality are not whether a society had inequality or not – it is now clear that all societies have some kind of inequality (see Flanagan 1989) – but rather how inequalities were manifest, the effects they engendered, and how these factors intersected with various social collectives. In approaching such questions, my focus has been on the Mimbres region of the U.S. Southwest, where a number of researchers have shown that Mimbres society is uniquely positioned to contribute immensely (Anyon and LeBlanc 1984:183-186; Bray 1982; Clayton 2006; Creel 1989; Creel and Anyon 2001; Gilman 1989, 1990; Ham 1989; Hegmon 2002:336-337; Holliday 1996; LeBlanc 1983:147-148; Munson 2000; Neitzel 2000; Olive 1989; Parks-Barrett 2001; chapters in Powell-Martí and Gilman 2006; Shafer 1987, 1988, 1991d; see also Creel and McKusick 1994; Gilman et al. 2014; Hegmon et al. 1998:148-149). My research has drawn forth and emphasized six fundamental principles with regard to social inequality in small-scale societies:

I. Inequality may derive from differences in antecedence

II. Inequality can exist in the absence of surplus

III. Inequality can be manifest in subtle, non-ostentatious ways

IV. Inequality can appear in multiple domains, either simultaneously or sequentially

V. Inequality can engender multiple, potentially dispersed advantages

VI. Inequality exists and operates at multiple scales

A more complete, more accurate picture of inequality is painted by operating with these principles in mind, and by extending case studies to include lengthy spans of time, encompassing multiple episodes of change.

The attributes of primacy and antecedence were introduced in Chapter 3. Primacy is an empirical characteristic, referencing a community's earliest arrivals. The related condition of antecedence comprises status and moral authority, which are derived from primacy (either actual or alleged). Comparing evidence of primacy, antecedence, and inequality allows for a determination of which domains, if any, were connected to the order in which people either arrived (primacy) or were credited with having arrived (antecedence). The examination of evidence at several spatial, temporal, and social scales has allowed me to (A) investigate whether inequalities were concentrated in a group or groups, or if they were more dispersed across the social landscape, and (B) determine whether the domains and scales of inequalities changed over time.

In Chapters 4 through 7, differences in four domains of social inequality were examined: access to productive resources (Chapter 4), ritual knowledge and practice (Chapter 5), nonlocal objects, materials, and styles (Chapter 6), and material wealth (Chapter 7). As possible, differences in these domains were compared to evidence of primacy and antecedence (see Chapter 3).

Based on the ethnographic and theoretical literature, along with previous archaeological studies in the Mimbres region, this research was approached with a number of implicit expectations. First, evidence of antecedence was expected to correlate with primacy. Second, primacy-derived antecedence was expected to correspond with unequal access to productive resources (by right) and ritual knowledge (by necessity). Third, the introduction of exotica was expected to be preferentially associated with non-antecedent groups who would have used nonlocal connections and/or the exchange of rare goods to compensate for agricultural marginality. Fourth, and based on earlier Mimbres studies, evidence of asymmetric wealth was expected to be limited or absent. Few of these expectations were met. There were no instances of overlap between primacy and antecedence, exotica were generally spread evenly across loci, and substantial differences in wealth are evident at multiple scales, late in the Mimbres sequence. Results that best match expectations are those involving access to ritual knowledge and practice (see Chapter 5). Specifically, the advantages of ritual asymmetry were frequently associated with those living in either founding loci (those established first) or antecedent loci (those with the greatest evidence of antecedence). At Galaz, for example, the site's founding locus consistently had more ceremonial structures, more ceremonial space, and more people buried in ceremonial facilities than other loci, whereas the opposite end of the site consistently had more ritual paraphernalia and more innovation with regard to ceremonial architecture.

An overriding theme that emerges from this dissertation is that while there was social inequality in Mimbres society, it was highly fluid, shifting within and across domains, places, groups, degrees, and scales. A comprehensive illustration of Mimbres inequality would resemble a lava lamp more than a tiered chain of command. Despite this plasticity, a number of patterns do emerge.

The remainder of this chapter is divided into two parts. I begin with a discussion of the clearest patterns to emerge from results. Together, these suggest that there was a series of transformational cycles tied to factionalism and religious adjustment. The chapter concludes with a look at how this project intersects with a wider body of research on social inequality.

Part I: Strong Patterns

This section describes five relatively strong patterns that emerge from the Mimbres data. Many of these patterns are evident also in Hopi ethnography, and I draw on particular examples in order to elucidate social processes unpreserved in the archaeological record. Evidence for these patterns is illustrated in a series of maps, each discussed in turn (Figures 8.1 – 8.10, 8.12, and 8.13).

The Ubiquitous but Ever-Changing Nature of Mimbres Inequality

The findings presented in Chapters 3 through 7 strongly suggest that social inequality was, in fact, a formative and persistent element of Mimbres society. By the San Francisco phase, inequality is evident in at least one domain, and in time it is seen in each of the domains examined. In some cases, inequality takes the form of presence and absence. At Mattocks, for example, only four of the six Classic period roomblocks with extensive excavation data have spatially-associated ceremonial structures (Figure 8.1; see Clayton 2006). In other cases, inequality is evident in differences in relative frequency and proportion. At Galaz, for example, every Classic period locus had at least one burial with two or more vessels. However, the Northwest Locus had a significantly higher relative frequency of such burials, while that of the Southeast Locus was significantly lower.

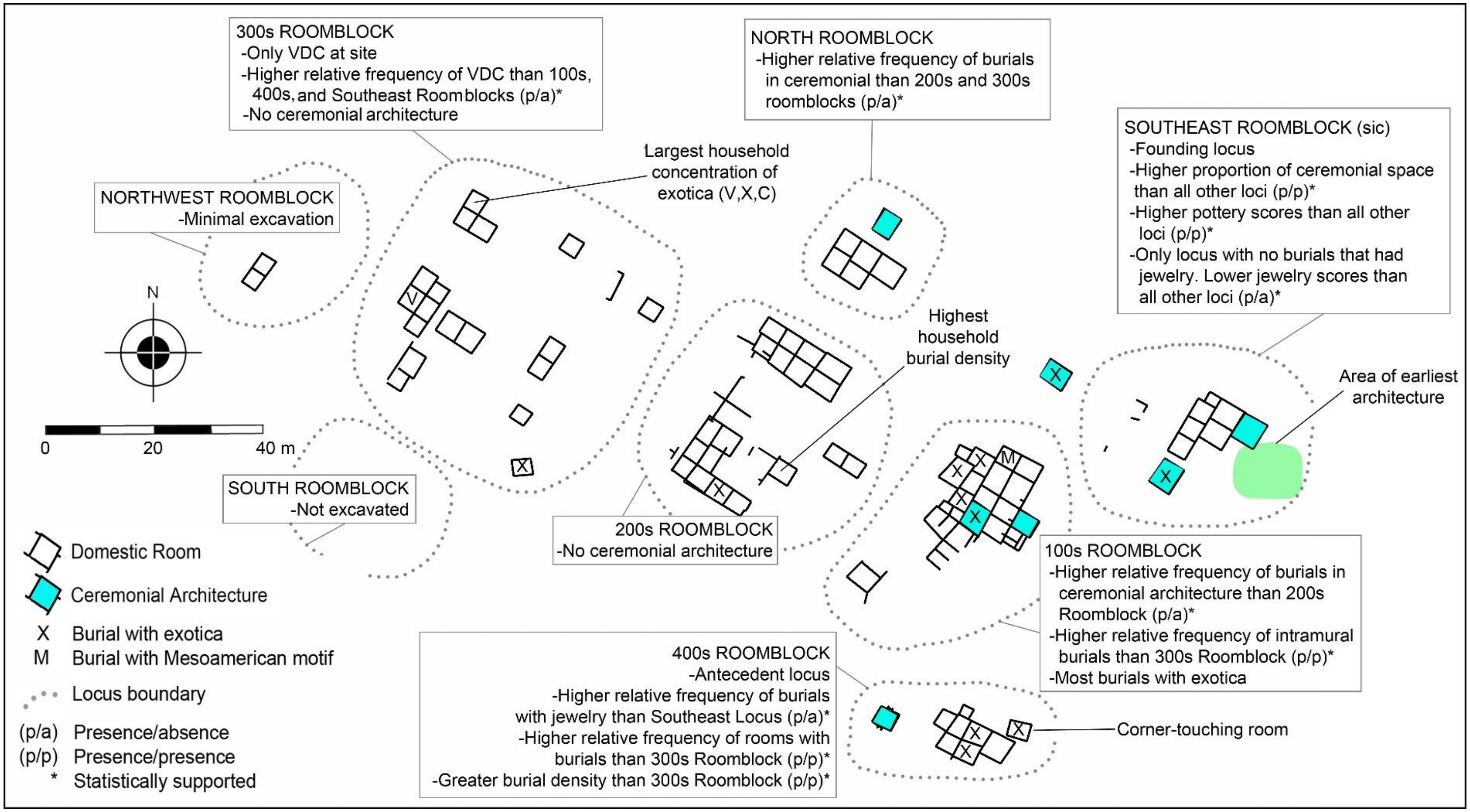

Figure 8.1. Evidence of Classic period inequality at Mattocks. (VDC = vessels depicting ceremonies; architecture after Maps shared by Patricia Gilman).

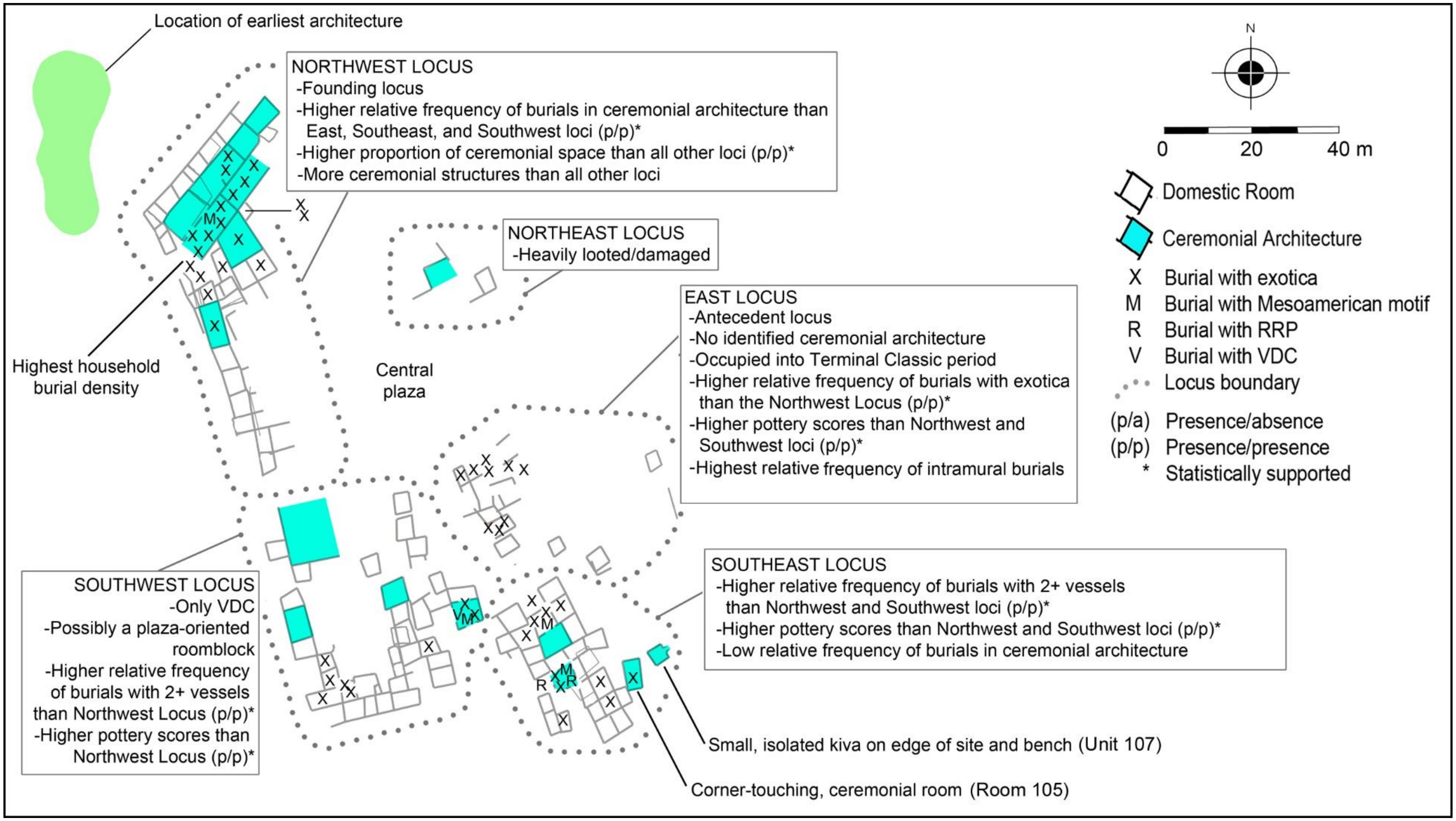

Figure 8.2. Evidence of Classic period inequality at Galaz. (RRP = restricted ritual paraphernalia; VDC = vessel depicting ceremony; architecture after Anyon and LeBlanc 1984)

Though ubiquitous, Mimbres inequality was in a constant state of flux, shifting and cycling across several dimensions. It was relatively rare for the benefits of inequality in a given domain to persist at a given place or social scale for more than a single temporal phase. At Harris Village, for example, the greatest proportion of ceremonial space shifted from one locus to the next over the course of the Late Pithouse period (see blue, green, and red zones in Figure 8.3). The near-constant turnover, seen at all seven sites, is suggestive of competition, wherein various factions developed and vied for the benefits (or sought to avoid the pitfalls) of inequality. The rapid changes were not always manifest uniformly across Mimbres region or sequence. Thus, research projects focused on different sites or time periods can reach seemingly contradictory, yet equally valid conclusions.

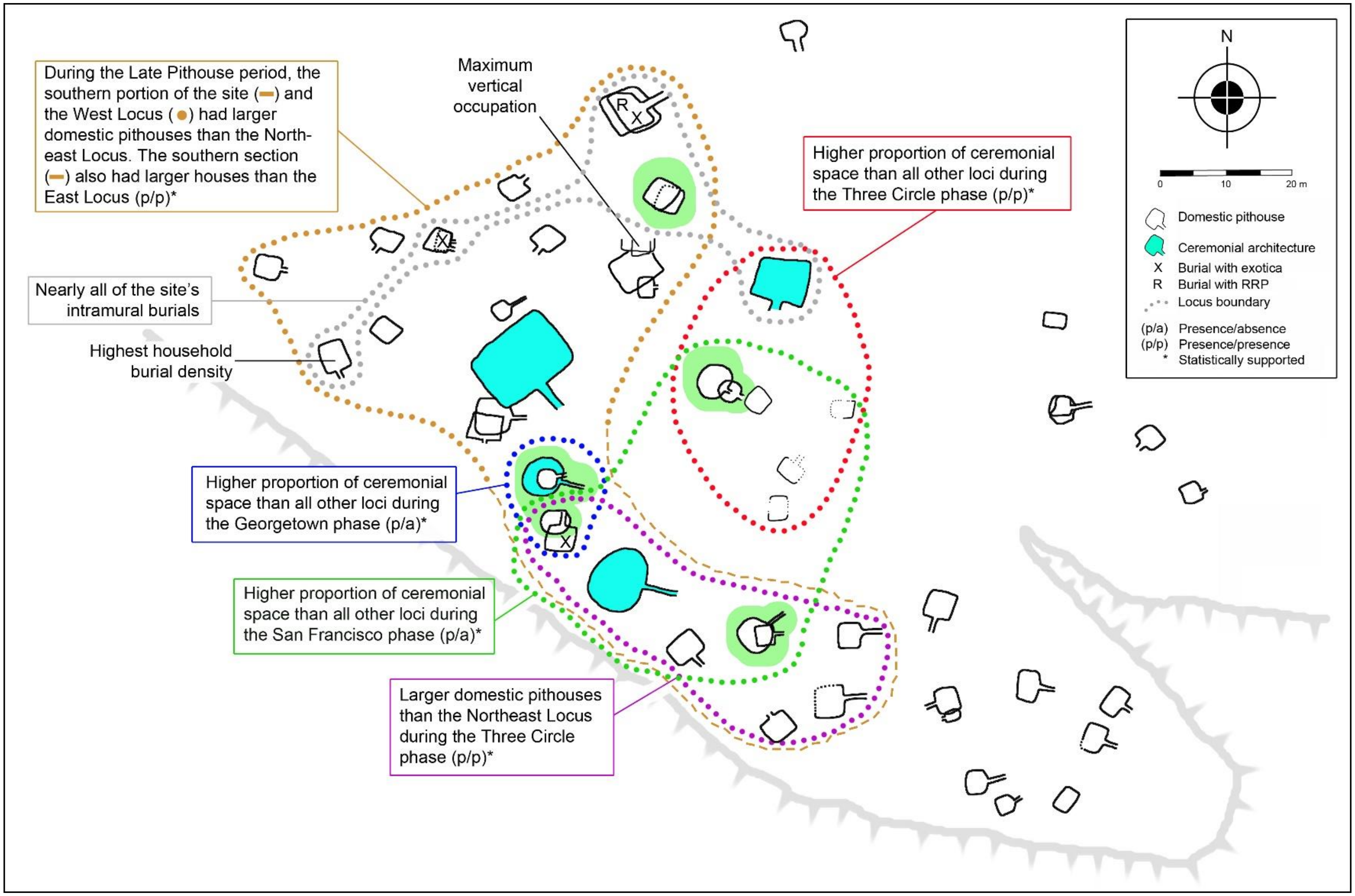

Figure 8.3. Evidence of pre-Classic inequality at Harris Village. (RRP = restricted ritual paraphernalia; architecture after Roth and Baustian 2015:Figures 2 and 3).

In a few cases, inequality in a certain domain and at a particular scale appeared once, but quickly went away. During the Cumbre phase, for example, Wind Mountain's Ridout Locus had significantly greater storage capacity than other loci, suggesting that people living there had access to more or better productive resources (see orange zone in Figure 8.4). However, this difference disappeared by or during the Georgetown phase and never resurfaced (at Wind Mountain). Thus, the site with the longest occupation (i.e., Cumbre to Classic) evidences an early but short-lived inequality in access to productive resources. In contrast, there is no evidence of productive resource inequality at Harris Village prior to the Three Circle phase. After 750 C.E., however, the site's South Locus emerged as having greater storage capacity than all others (see pink zone in Figure 8.3). Thus, the only site in the sample not to survive the pithouse-to-pueblo transition exhibited inequality in productive resources late in the Pithouse period. This correlation between relative equality in access to productive resources on one hand and community persistence on the other may be relevant to understanding later Mimbres reorganization, an idea worthy of future study.

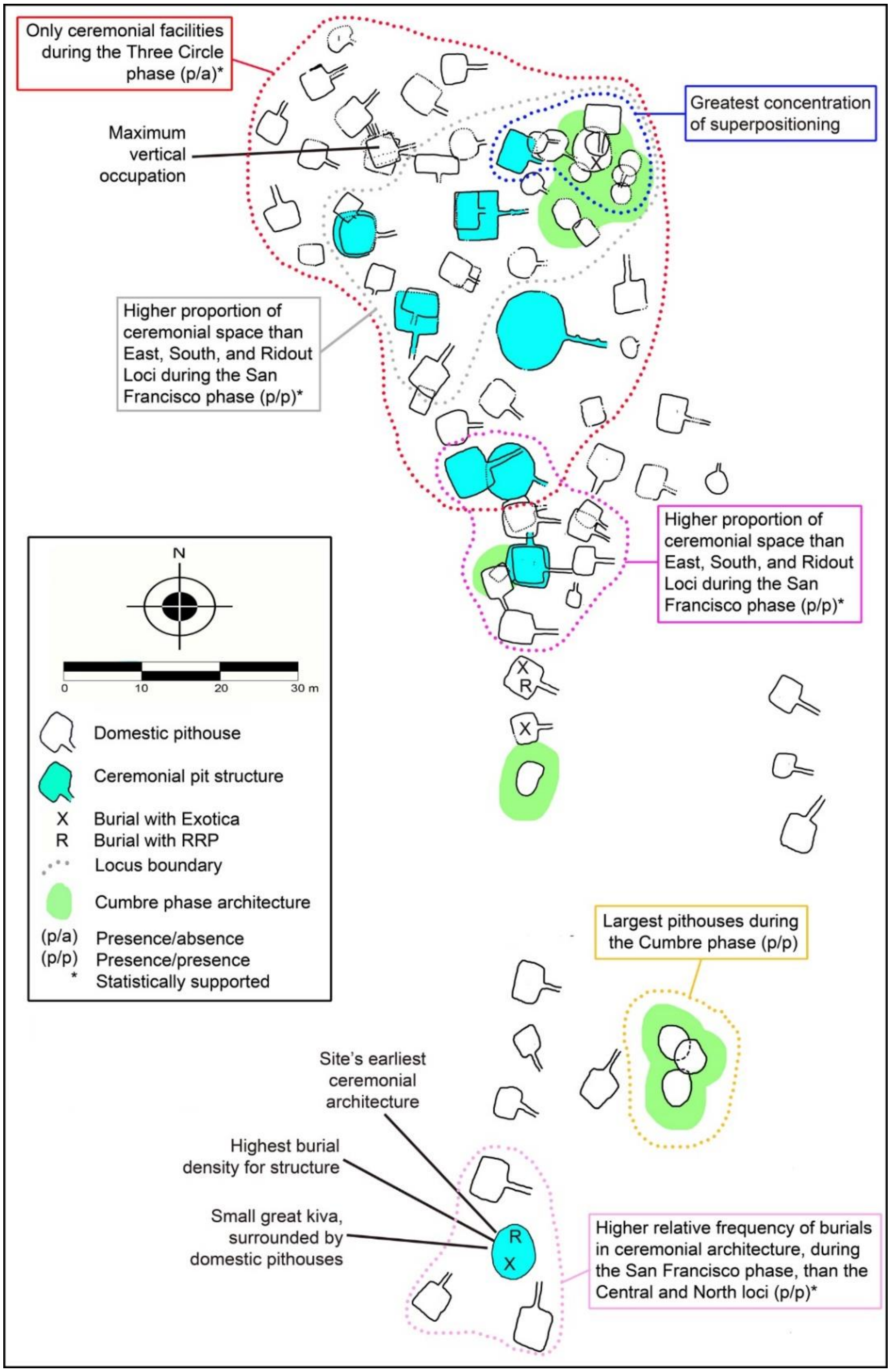

Figure 8.4. Evidence of pre-Classic inequality at Wind Mountain. (RRP = restricted ritual paraphernalia; architecture after maps shared by Patricia Gilman)

Ethnographic studies at Hopi provide valuable insight into processes of changing inequality (Levy 1992; Whitley 1988). Here, social status ebbed and flowed according to transient conditions. The arrival of Eastern Pueblo refugees at Hopi in the late seventeenth century serves as but one example to illustrate such fluctuation. At the time of the Pueblo Revolt (1680 C.E.), and subsequent Spanish *Reconquista*, the Hopi were faced with both European encroachment and raiding by other indigenous groups. At this time, several Puebloan groups arrived at Hopi, fleeing the northern Rio Grande. Their pledge to defend *Tuuwanasavi* (the Hopi Mesas) from attack was rewarded with farming allotments and permission to stay (Dozier 1956; Eggan 1979:231; Forde 1931:366; Stanislawski 1979:600). Regional hostilities eventually subsided, prompting a reevaluation of the need for immigrant defenders and their place in the social fabric of Hopi society. Migrants from some refugee villages, such as *Payupki* and *Tikuvi*, returned to the east (Mindeleff 1891:40-41). Those living at *Hano*, on First Mesa, successfully redefined their position within Hopi society by transforming their role as intermediaries between *Tuuwanasavi* and the outside world. That is, they transitioned from being warrior protectors to serving as translators and facilitators of commerce (Stanislawski 1979:587-588). By the late nineteenth and early twentieth centuries, however, many Hopis had learned to speak English, Spanish, and Navajo, again calling into question the value of the immigrants' roles. It was at this time that ethnographies recount instances of restricted sharing with Hopi-Tewas (Dozier 1956:177) and the repossession of Hopi-Tewa farmlands (Stephen, in V. Mindeleff 1891:37; see also Forde 1931:366-377). This was also a time when some Hopi-Tewa families invested heavily in ceramic specialization. Well-known among these was Nampeyo, who revived Sityatki

Polychrome (an ancestral Hopi type), thus engendering (and sharing) prestige and economic benefit, while using anachronistic styles to simultaneously strengthen ties between Hopi and the Hopi-Tewa (Kramer 1996; Tibbel 1994).

The Persistence and Centrality of Ritual Inequality, and its Association with Antecedence

Some of the most enduring forms of Mimbres inequality were those associated with ritual knowledge and practice (see Chapter 5). At Galaz, for example, the earliest ceremonial architecture was in the Northwest Locus, which continued to have more ceremonial facilities, more ceremonial space, and more ancestors interred in ceremonial structures than all other loci, throughout the Late Pithouse and Classic periods (see Figures 8.5 and 8.2). In contrast, the site's South and Southeast loci had the highest frequency of restricted ritual paraphernalia (in burials) prior to the Classic period and the only such items during the Classic. In other cases, ritual inequality persisted through time at a given scale, but advantages frequently shifted from one group to another. At Cameron Creek, for instance, the pre-Classic North Locus had the highest ratio of ceremonial-to-domestic space (see Figure 8.6). Differences at this scale persisted into the Classic period, although the advantage shifted from the North Locus to the West Roomblock (see Figure 8.7).

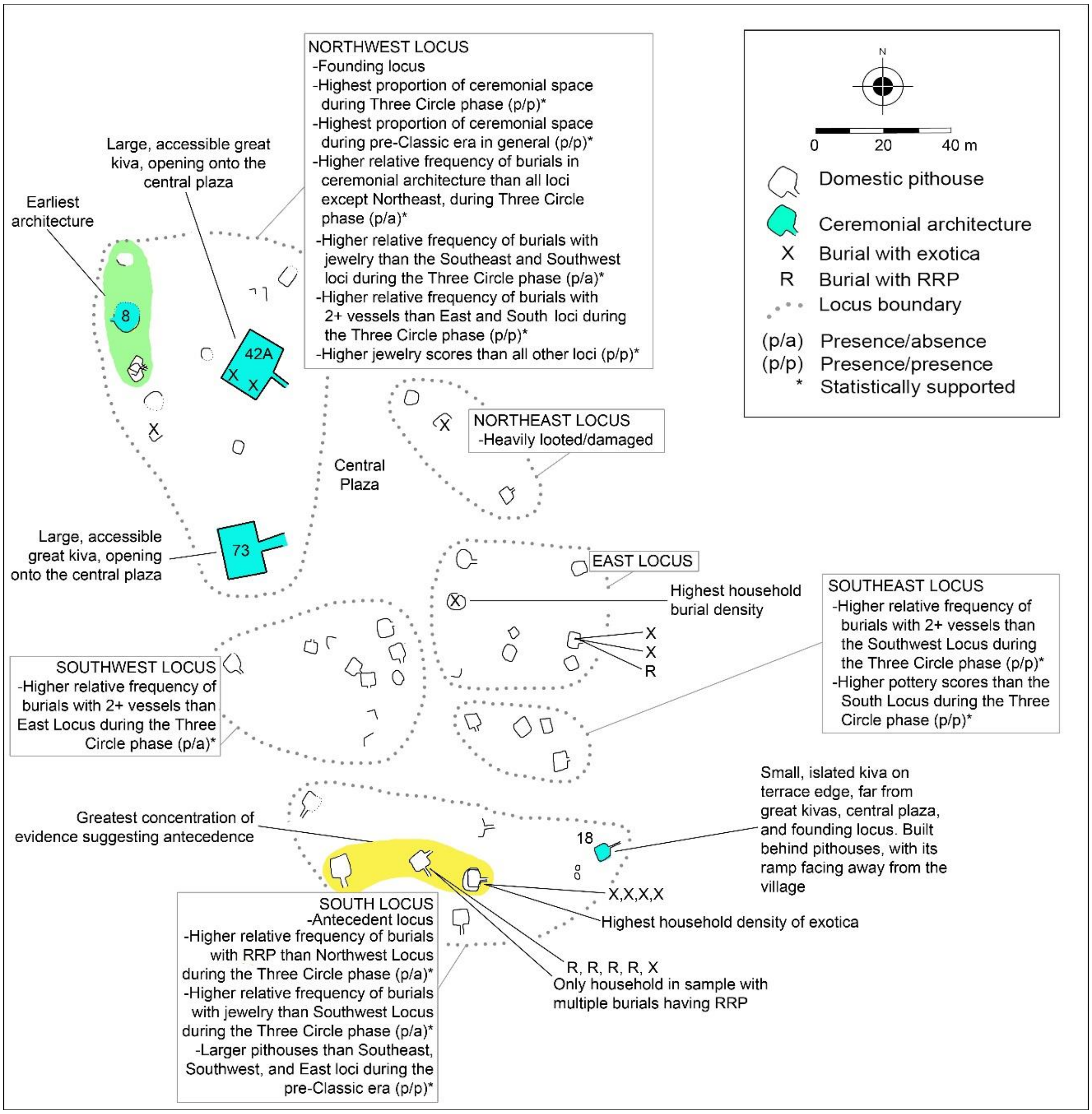

Figure 8.5. Evidence of pre-Classic inequality at Galaz. (RRP = restricted ritual paraphernalia; VDC = vessel depicting ceremony; architecture Anyon and LeBlanc 1984).

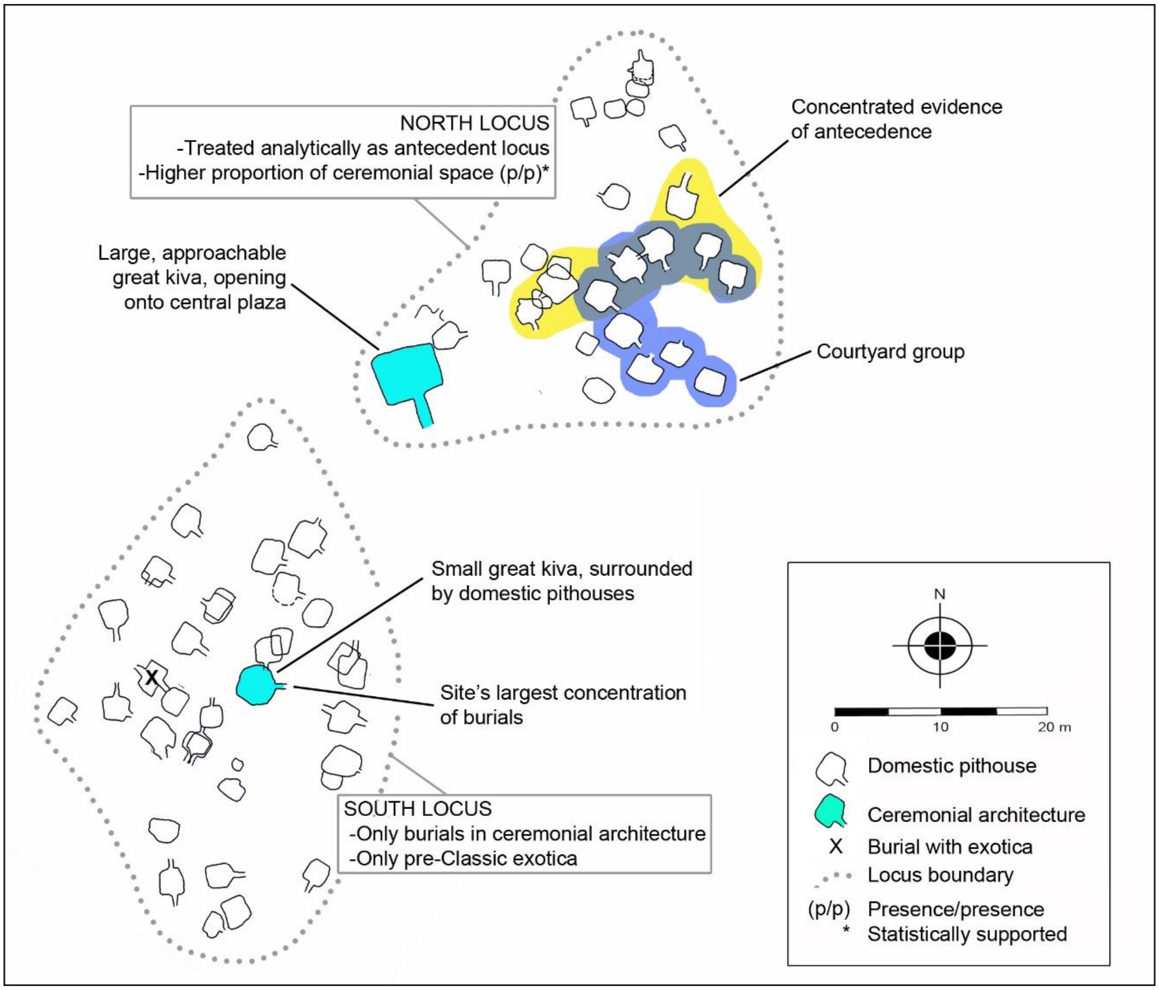

Figure 8.6. Evidence of pre-Classic inequality at Cameron Creek. (Architecture after Bradfield 1931).

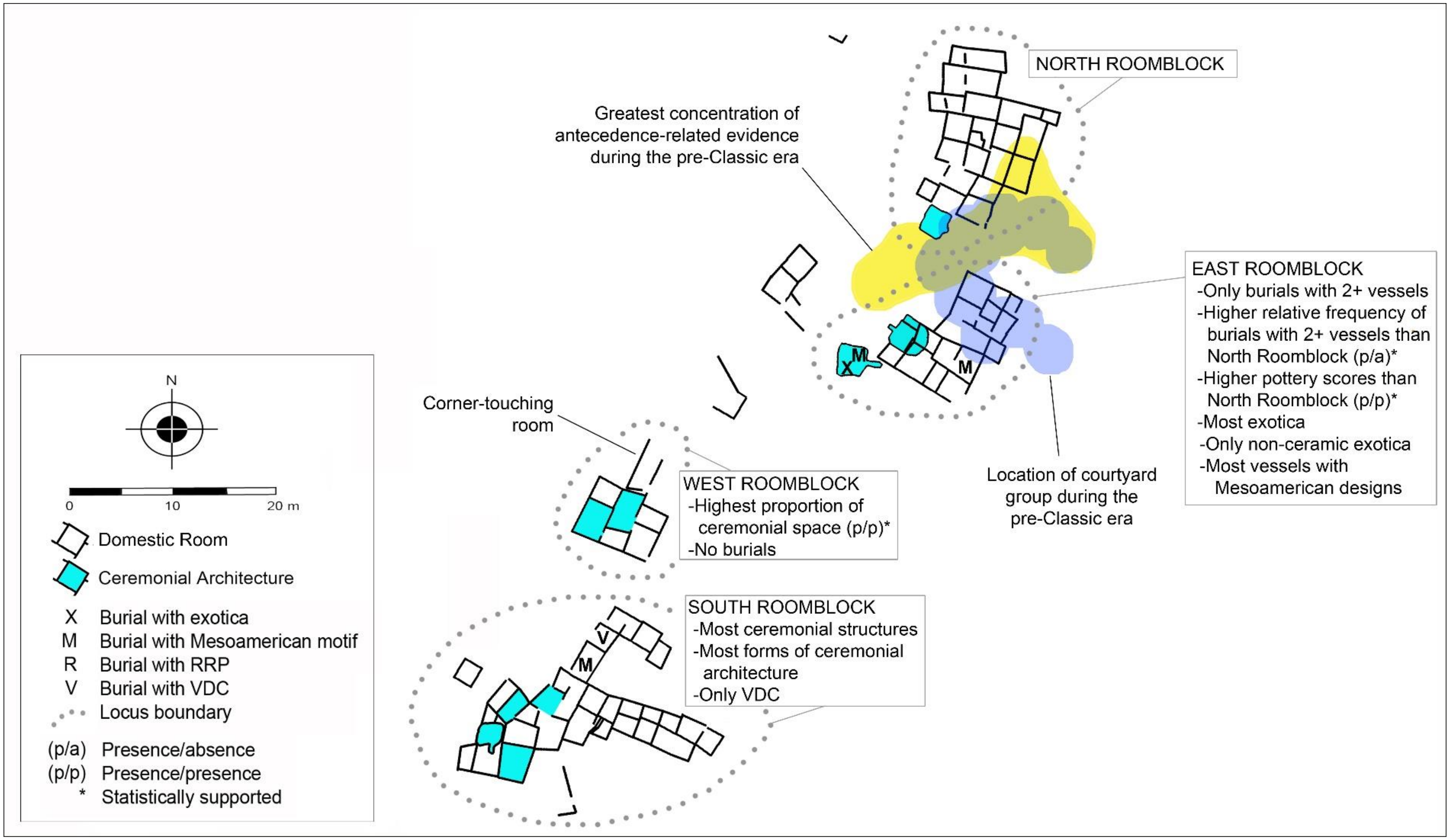

Figure 8.7. Evidence of Classic period inequality at Cameron Creek. (Architecture after Bradfield 1931).

Not only were differences involving Mimbres ritual more stable than those in other domains, they were more likely to coincide with evidence of primacy and antecedence; evidence for these correlations is summarized in Table 8.1. At Galaz, for example, people living in the founding locus invested heavily in ritual architecture and the placement of ancestors therein, while those living in the most antecedent locus consistently had the highest frequency of burials with restricted ritual paraphernalia (see Figures 8.2 and 8.5). At Cameron Creek and prior to the Classic period, the most antecedent locus had the most ceremonial space (see Figure 8.6) and at Mattocks, the founding locus held the same distinction after 1000 C.E (see Figure 8.1).

In most of the cases where founding loci held ritual advantage, such advantage was limited to large-scale, ceremonial architecture and associated attributes (see Figures 8.1, 8.2, and 8.5). In fact, only one burial with restricted ritual paraphernalia came from a founding locus (Burial 86 at NAN Ranch), and no burials with vessels depicting ceremonies were encountered in founding loci. These observations suggest a possible association between founding loci and communal-scale ceremonialism, which stands in contrast to a potential link between antecedent loci and a more individualistic approach to religious practice. This dichotomy and the ways in which it may have impacted Mimbres society are discussed in more detail below.

Table 8.1. Association between primacy, antecedence, and attributes of ritual inequality at the locus scale

Site	Locus-Scale Primacy: Locus	Time [A]	Attribute	Locus-Scale Antecedence: Locus	Time [A]	Attribute
Cameron Creek	No founding locus identified			North	Pre-CM	•Most ceremonial space
Galaz	Northwest	All	•Most ceremonial space •Most ceremonial structures •Most burials in ceremonial architecture	South	Pre-CM	•Most restricted ritual paraphernalia in burials •Only small kiva
Mattocks	Southeast	CM	•Most ceremonial space •Only roomblock w/attached *and* detached ceremonial architecture	400s Roomblock	CM	•Only corner-touching room [B]
NAN Ranch	Southeast	3C	•Only small kiva	No preeminently antecedent locus identified		
		SF-3C	•Only restricted ritual paraphernalia in burials	No preeminently antecedent locus identified		
Swarts	No founding locus identified			North	CM	•Most burials in ceremonial architecture

[A] Time during which observations in attribute column are evidenced; All = throughout site occupation; CM = Classic period; 3C = Three Circle phase; SF = San Francisco phase

[B] Discussed below

The persistent nature of ritual inequality, and the persistent link between this domain, primacy, and antecedence seems to also be present at Hopi. According to most Hopi ethnographies, primacy led directly to antecedence, wherein the Bear Clan and other early arrivals (*Núutungqwsinom*) enjoyed elevated status and concomitant benefits. This inequality was explained through genealogical reference and the apical importance of select, proprietary rituals. Late in prehistory, the Katsina movement was introduced at *Tuuwanasavi* and used by the non-antecedent subaltern (*Motisinom*) to mitigate inequality. The Katsina movement deemphasized genealogy by stripping ancestors of their earthly identities and transforming them into *Katsinam*, benevolent spirits and generalized ancestors, related equally to everyone. It also mitigated productive resource inequality through food redistribution and a focus on communal solidarity rather than household and clan connections.

At Hopi, traditional (i.e., pre-Katsina) religious approaches are championed by the earlier, and more antecedent clans (*Núutungqwsinom*), whereas Katsina ceremonialism is advocated by the later arrivals (*Motisinom*). Similarities between this Hopi narrative and the Mimbres evidence are summarized in Table 8.2. The importance of antecedence – not necessarily primacy – emerges from this comparison, suggesting that who actually arrived first matters far less than who argues most convincingly to have. This is a subtle but important distinction, and it points to the importance of who writes history.

Table 8.2. Comparison of antecedence-related social factions in Hopi (left) and Mimbres (right) society

Núutungqwsinom		**Mimbres Antecedent Loci**
Antecedence Obtained [A]	**=**	**Antecedence Obtained** [B]
Primacy Claimed but Contested	≈	Primacy Likely Claimed but Contested [C]
Secretive and Exclusive	=	Secretive and Exclusive
Sodality-Scale Ceremony	≈	Small-Scale Ceremony
Lineage Focus		?
Restricted Ritual Paraphernalia in Burials	=	Restricted Ritual Paraphernalia in Burials
Vertical Entry into Ceremonial Structures	=	Vertical Entry into Ceremonial Structures
Kivas	=	Kivas
Restricted Sharing		?

Motisinom		**Mimbres Founding Loci**
Non-Antecedent [A]	=	**Non-Antecedent**
Primacy Claimed but Contested	≈	Primacy Evident but Likely Contested [C]
Inclusive and Integrative	=	Inclusive and Integrative
Communal-Scale Ceremony	=	Communal-Scale Ceremony
De-Emphasis of Lineage		?
Restricted Ritual Paraphernalia in Structures	=	Restricted Ritual Paraphernalia in Structures
Horizontal Entry into Ceremonial Structures	=	Horizontal Entry into Ceremonial Structures
Plazas	=	Plazas, Great Kivas, Ceremonial Rooms
Food Redistribution		?

[A] During historic and modern times
[B] ca. 750-1150 C.E.
[C] Inference based on evidence of competing assertions of antecedence, preeminence in which does not coincide with primacy.

This long-term and cyclic competition for antecedence, moral authority, and derived forms of inequality is evident in many parts of the Southwest (Bunzel 1932; Dozier 1966a; Ortiz 1969; Titiev 1944; Ware 2014; White 1932). In almost every recorded case, here and around the world, competing groups defend their positions (if they possess antecedence) or machinations (if they seek it) on religious and cosmological grounds (Flannery and Marcus 2012). To effect change, those with ambition but no authority must replace or significantly alter the extant religious system (Aberle 1962; Linton 1943; Mooney 1896; Wallace 1956).

Changes in the Establishment and Maintenance of Antecedence

If antecedence served to legitimize inequality, then the establishment and convincing assertion of antecedence becomes paramount. Among other changes taking place around 1000 C.E., some Mimbres groups changed the ways in which antecedence was established and asserted (and perhaps perceived). This too suggests competition, not only for the advantages of inequality, but for the moral authority to reap them. During the pre-Classic era, those living in founding loci invested heavily in structural superpositioning, building houses atop one another, in precisely the same place, over the course of centuries. By doing so, they maintained and demonstrated architectural continuity between themselves, their place on the landscape, and their claims to antecedence. This was especially prevalent at NAN Ranch (see Figure 8.8, Southeast Locus) and Wind Mountain (see Figures 3.44 and 8.3, North Locus).[28]

[28] Wind Mountain's North Locus may have been the site's founding sector – a cluster of Cumbre phase pithouses was identified here – but extant temporal data fall short of confirming this, as Cumbre phase pithouses were excavated elsewhere on the site. The North Locus was the only portion of Wind Mountain occupied throughout the entire Mimbres sequence.

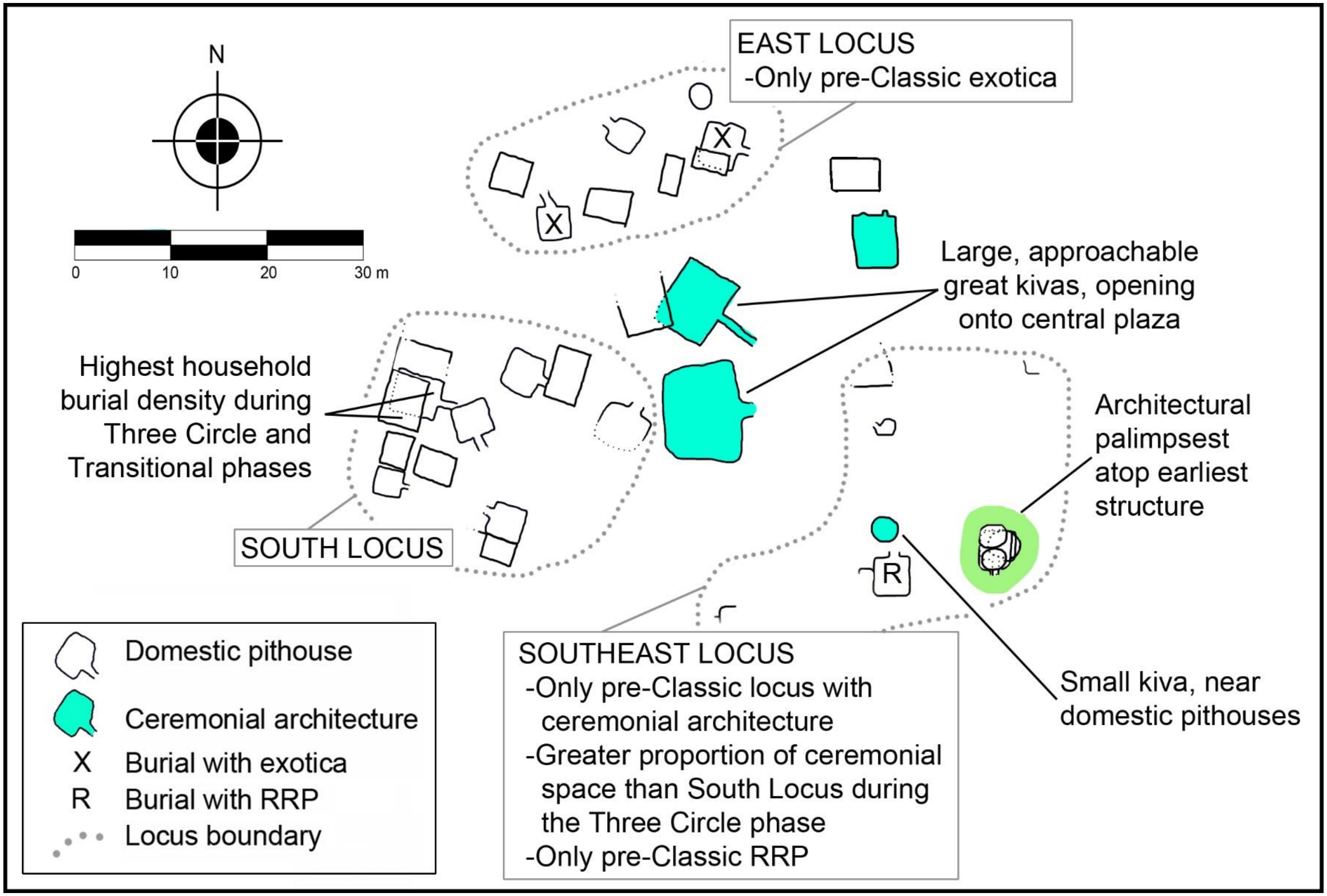

Figure 8.8. Evidence of pre-Classic inequality at NAN Ranch. (Architecture after Shafer 2003:Figure 3.2).

Intramural burials occurred as early as the Cumbre phase and became increasingly common over time. During the Classic period and possibly earlier, the placement of ancestors under house floors replaced structural superpositioning as the most common means of establishing and asserting antecedence. Evidence at several sites suggests there may have been a conscious effort to break from earlier, superpositioning-based claims of antecedence. At every settlement where a founding locus was identified, the longstanding tradition of superpositioning atop the site's earliest architecture ended before the Classic period, thus suggesting that the pithouse-to-pueblo transition corresponded with conscious efforts to break from earlier claims of antecedence (compare Figures 8.5 with 8.2, 8.8 with 8.9, and 8.3 with 8.10). As shown in Table 8.3 (Columns 3 and 6), superpositioning was almost always employed in those pre-Classic loci that had either primacy or antecedence. After 1000 C.E., however (Columns 4 and 7), the practice was far less common. [29]

[29] Both structural superpositioning and intramural burial contributed to inferences of differential antecedence (but not primacy), as described in Chapter 3. Thus, evidence of these practices in antecedent loci is not surprising. The present discussion does not pertain to the presence or magnitude of antecedence, but rather to a fundamental, diachronic shift in which means of assertion was more prevalent: superpositioning before 1000 C.E., and intramural burial thereafter.

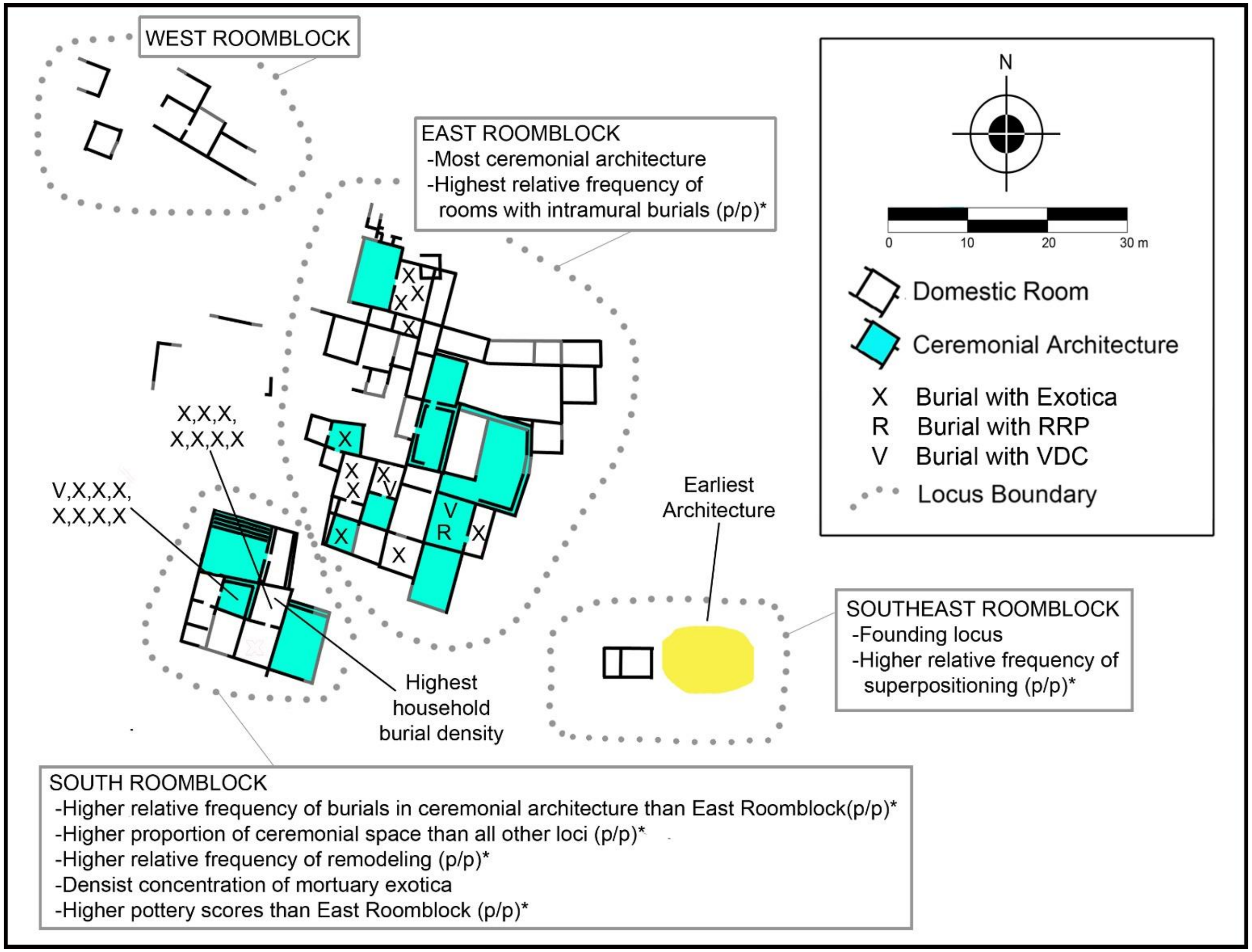

Figure 8.9. Evidence of Classic period inequality at NAN Ranch. (Architecture after Shafer 2003:Figure P.2).

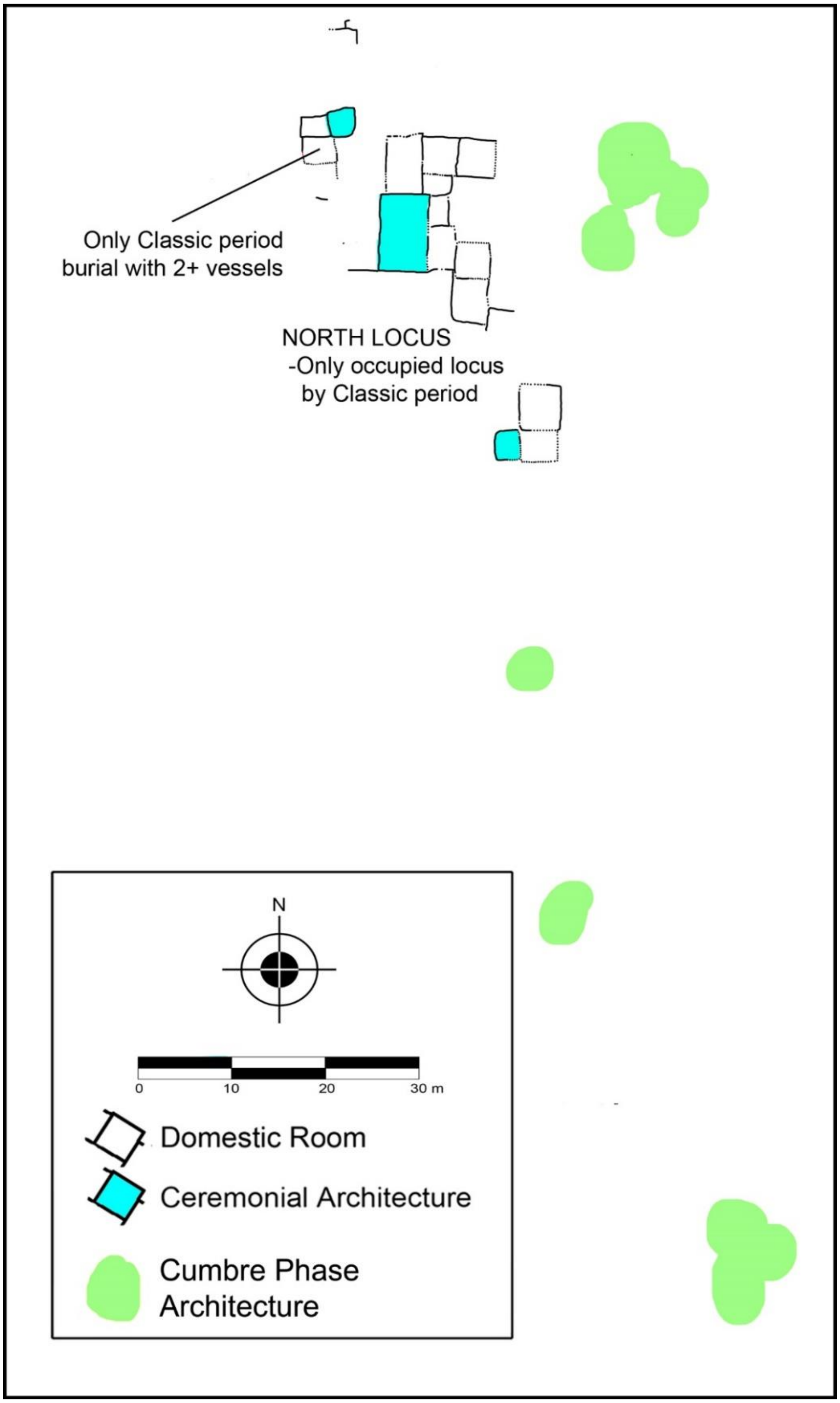

Figure 8.10. Evidence of Classic period inequality at Wind Mountain. (Architecture after maps shared by Patricia Gilman).

Although intramural burials became the preferred method of establishing antecedence during the Classic period, sites differed with regard to continuity of burial placement. In some villages, such as Cameron Creek, Classic period burials were almost never interred alongside pre-Classic graves (see Figure 3.12). Elsewhere, such as Mattocks, the practice of inter-generational burial accumulation continued through the pithouse-to-pueblo transition. While the shift in methods of establishing and asserting antecedence was manifest at a regional scale, continuity in which socio-spatial units employed these methods sometimes changed.

Table 8.3. Structural superpositioning compared to demonstrable primacy and antecedence, across the pithouse-to-pueblo transition

	Founding	Superpositioning during the		Antecedent	Superpositioning during the	
Site	**Locus**	**Pre-Classic?**	**Classic?**	**Locus** [A]	**Pre-Classic?**	**Classic?**
Cameron Cr.	No founding locus identified			North	**Yes**	Limited
Galaz	Northwest	**Yes**	**No**	South	**Yes**	**No**
Mattocks	Southeast	**No**	**No**	No antecedent locus identified prior to Classic		
NAN Ranch	Southeast	**Yes**	**No**	No antecedent locus identified prior to Classic		

[A] During the pre-Classic era

Cycles of Religious Transformation

One of the most striking patterns to emerge from the Mimbres data involves religious change during the Three Circle phase and Classic period. While this change has long been recognized (e.g., Anyon and LeBlanc 1980, 1984; Creel 1989; Creel and Anyon 2003; Gilman et al. 2014; Shafer 1995, 2003, 2010), my research is able to add details and nuance that contribute to understanding the social processes that contributed to this change. That is, this research suggests that during the late Three Circle phase, religious factions developed within Mimbres society and, to varying degrees, this division persisted throughout the remainder of the Mimbres sequence.

Between the third and the tenth centuries, there seems to have been little change in how Mimbres communities engaged their ritual landscapes. As villages grew, residents built great kivas that integrated populations that were growing in size and changing in terms of composition and inter-personal relatedness. Many villages also had open plazas, often adjacent to the great kivas. As villages expanded, they came to include multiple loci, some of which had ceremonial structures and others that did not. Some had far more ceremonial space, perhaps allowing them to host visitors. Differences like these may have marked the residents of such loci as somehow more ritually important, foreshadowing changes to come.

During the Three Circle phase, a new and different type of ceremonial facility was built: the small kiva. These were considerably smaller than great kivas, effectively limiting the number of ceremonial participants and observers. Small kivas were also placed along the outskirts of the village or encircled by domestic pithouses, thus separating them from village centers, open plazas, and great kivas (see Figures 8.5 and 8.8; also Creel 2003a:Figure 13). Small kivas were generally entered through roof hatches and supplied with fresh air from ventilator shafts when entrances were sealed. All of these attributes suggest secrecy and exclusion; small kivas were apparently intended for intimate ceremony rather than large-scale integration.

Small kivas were not simply diminutive versions of the familiar great kivas, and there is nothing to suggest that they were simply a new form of ceremonial architecture folded into the existing system. Their intrasite placement, positioning, construction, and size all served to limit access and participation, while simultaneously maintaining distance from earlier ceremonial spaces. The extent to which small kivas counterpose the attributes of great kivas is not likely coincidental. Rather, these facilities are the architectural signature of a new religious alternative, one which apparently emphasized ancestors, ancestral times, emergence, transformation, and limited access to proprietary ritual knowledge (see below).

Small kivas did not immediately replace great kivas, but rather coexisted in the same villages, throughout the remainder of the Late Pithouse period. In conjunction with their differing approaches to ceremony (inclusive vs. exclusive), great kivas and small kivas may represent cosmological and ideological differences or emphases. For example, great kivas were mostly above-ground and were entered through long, horizontal, cave-like passages (see Figure 5.6). In contrast, small kivas were largely subterranean and generally entered through a roof hatch (see Figure 5.5; Anyon and LeBlanc 1984:137).[30] An indication of the importance of vertical entry is seen in how kivas were refashioned from domestic pithouses; in these cases, rather than simply using extant (lateral) entries, ramps were converted into ventilator shafts and roof hatches were installed for access. Like kivas in other parts of the Southwest, those introduced in the Mimbres region during the Three Circle phase likely functioned as microcosms (Swentzel 1990:27-29). That is,

[30] As a kiva, Galaz's Unit 18 was rare in having retained a ramped entrance, and this may identify the structure as something of an interstitial link between domestic pithouses (with household rituals) and fully-developed, ritual kivas (for supra-household ceremonies). Unit 18 is included as a kiva in the present study for several reasons. The structure's ramp was unique among Galaz pit structures in that one of its walls was built of masonry rather than puddled adobe over B-horizon. Within the structure proper, a niche was built into the south wall. At the time of remodeling, the structure's central post was replaced, and a bird burial was interred along with the new post. The structure's floor also had a small, round, adobe-lined pit filled with fine sand and seeds, which Anyon and LeBlanc recognized as a possible *sipapu*. Unit 18 eventually burned (Anyon and LeBlanc 1984:53).

they probably represent one of the vertically-stacked worlds through which ancestors migrated (see Figure 8.11; Swentzell 1990:Figure 3-9). In the case of Mimbres small kivas (many of which had once been residential pithouses [Anyon and LeBlanc 1980:267]), a *sipapu* led downward, into an underworld where some ancestors literally resided in death. In the cribbed ceiling (sky) above, a ladder (reed) led through a hatch (*sipapuni*) to the exterior (next world) (see Shafer 1995, 2010). These concepts were likely present earlier,[31] but the introduction of small kivas suggests a new emphasis on or reinvigoration of these principles. This can also be seen iconographically, with the efflorescence of emergence-related imagery in pottery (see Trask and Russell 2011) and a substantial increase in the placement of "killed" bowls in burials, which Moulard (1984) has interpreted as facilitating symbolic emergence.

[31] Although Kidder and Guernsey (1919:203) did hypothesize the spread of a subterranean-focused "kiva cult" in the San Juan region, contemporaneous with the Mimbres horizon.

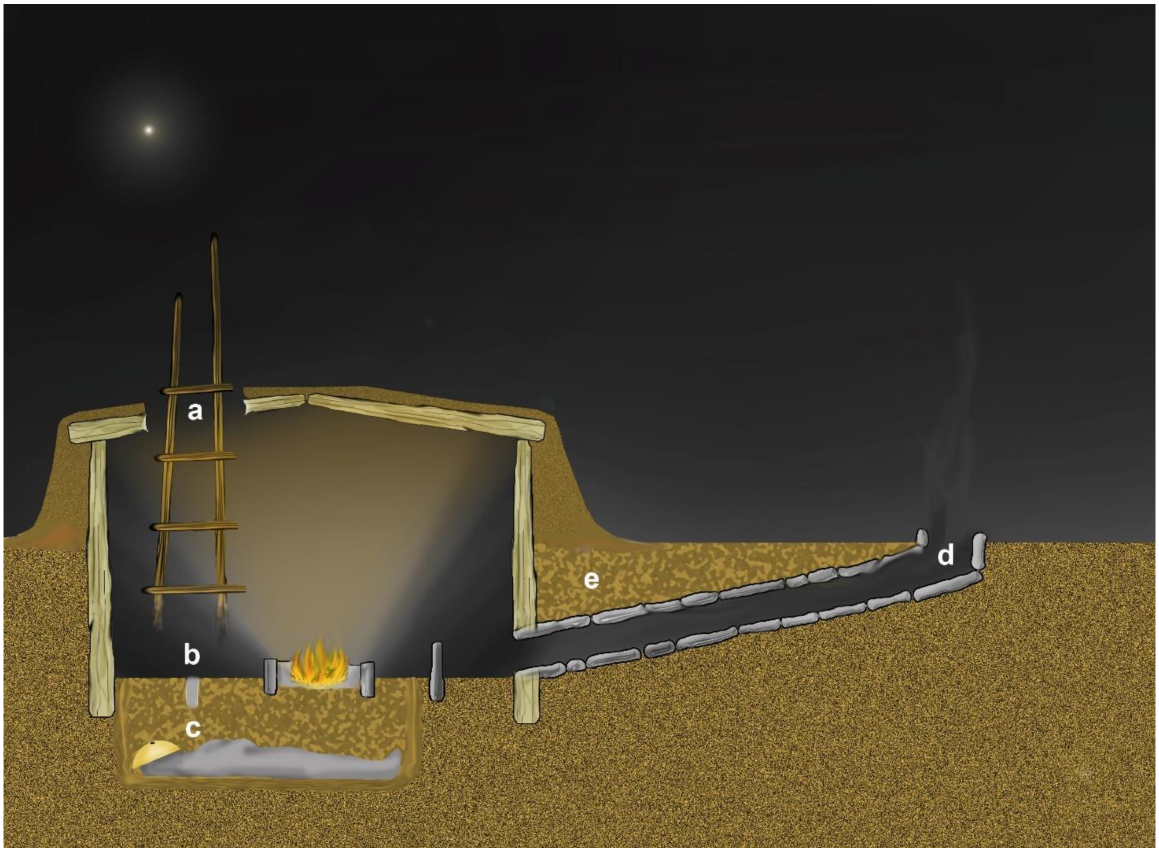

Figure 8.11. Elements of the Mimbres small kiva. (a) ceiling hatch, (b) *sipapu*, (c) subfloor burial with killed vessel, (d) ventilator shaft, (e) filled ramp entrance

This dichotomous pattern is evident at several of the sites in the sample, but most clearly developed at Galaz. The earliest architecture at Galaz was located in what would become the Northwest Locus, and included a modest great kiva (Communal Structure 8; see Figure 8.5). During the Three Circle phase, a massive great kiva was built here, in the founding locus (Communal Structure 42A). This was eventually replaced with a somewhat smaller, but more elaborate, version during the same phase (Communal Structure 73). By the Three Circle phase, Galaz had grown to include several loci. Although consistently situated in the founding locus, both Three Circle phase great kivas were (A) positioned relatively close to other loci, (B) had entrances facing other loci, and (C) opened onto an expansive plaza that likely facilitated community-wide events and daily interactions. Everything about these structures speaks to inclusion and communal integration.

At some point during the Three Circle phase, a pithouse at the opposite end of the site (Unit 18) was remodeled into a small, kiva-like structure. This was the farthest pithouse from the founding locus, the central plaza, and the contemporaneous great kiva. Unit 18 was decidedly smaller than other ceremonial venues, isolated by domestic pithouses, and perched on the terrace edge, its ramp facing away from the village. These characteristics stand in stark contrast to the receptive nature of the site's great kivas, and thus suggest restricted access. Throughout the remainder of the Late Pithouse and Classic periods, the greatest advantages and disadvantages of ritual inequality would cycle between these, the founding locus and opposite – generally more antecedent – side of the settlement (see Figures 8.5 and 8.2).

In a few cases, similar patterns are evident though somewhat more subtle. The pre-Classic component at Cameron Creek, for example, had two loci, each with its own great kiva (see Figure 8.6). Not unlike the situation at Galaz, the northern great kiva was large and approachable, whereas the southern "great kiva" was less than half the size and encircled by domestic pithouses. A similar layout is seen at Swarts. Although discrete, pre-Classic loci are not recognizable, the Three Circle phase component does include two great kivas (see Figure 8.12). The northernmost is considerably larger and set apart from residential structures while the southernmost is smaller and positioned amidst domestic pithouses. During the Classic period, the village was clearly divided into at least two roomblocks (see Figure 8.13) and ceremonial facilities in the North Roomblock consisted almost entirely of ceremonial rooms which were large but enclosed, offering more secrecy than the expansive, walled plazas incorporated into the South Roomblock.

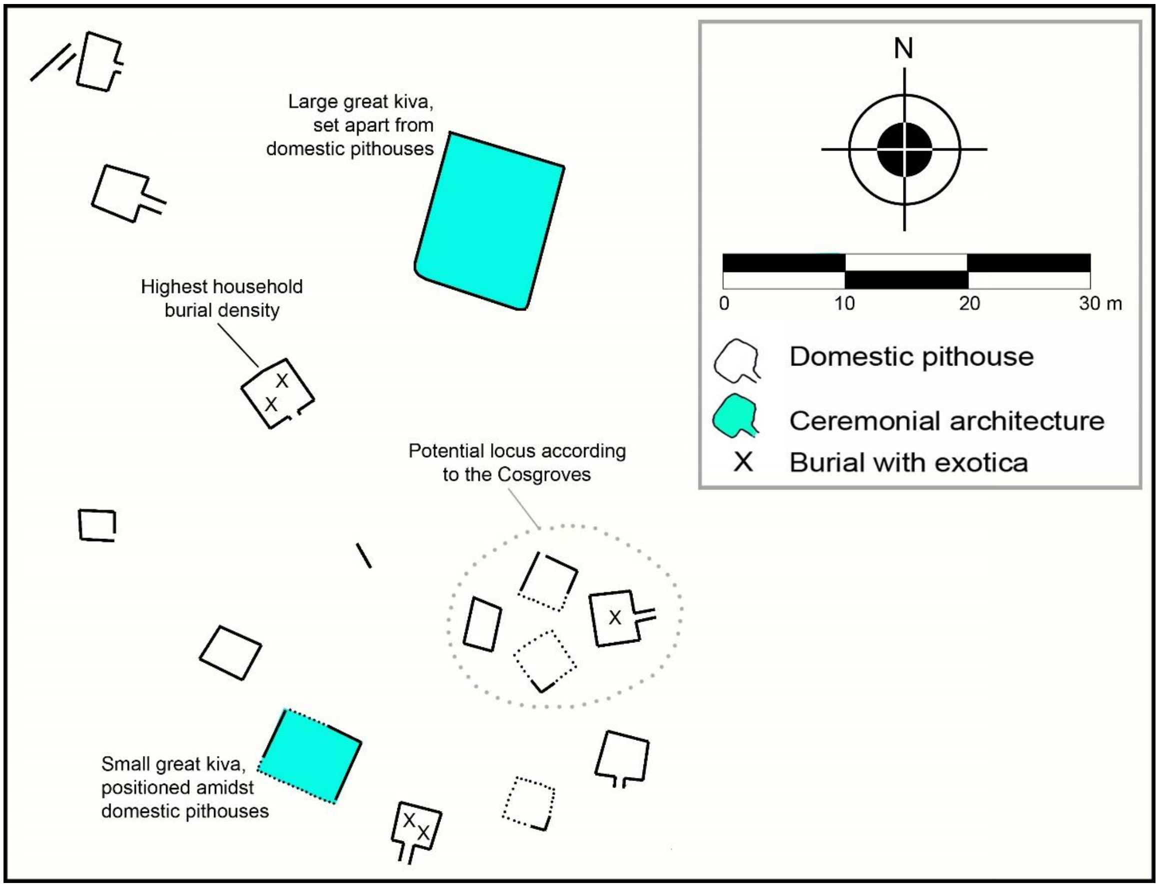

Figure 8.12. Evidence of pre-Classic inequality at Swarts. (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

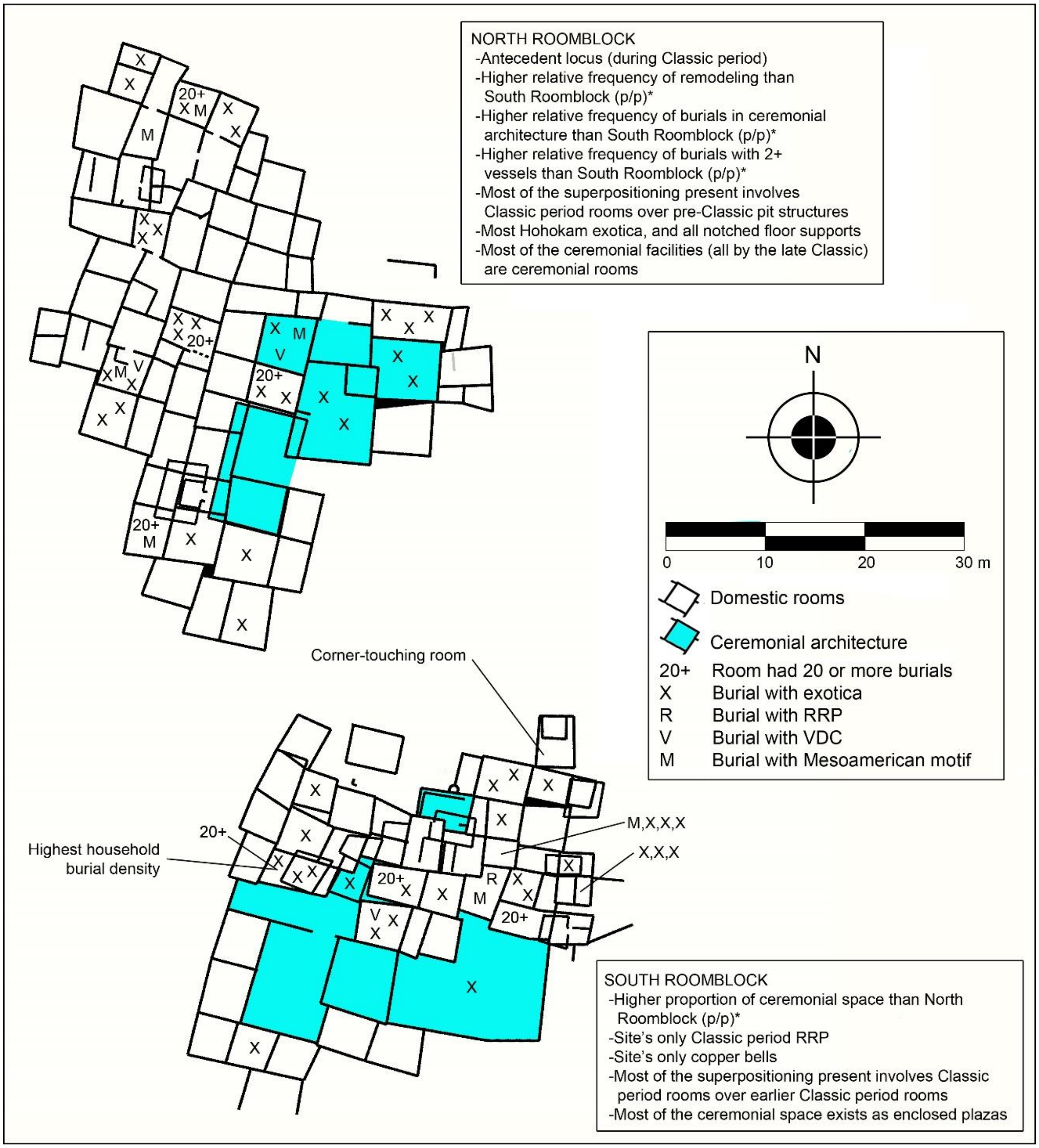

Figure 8.13. Evidence of Classic period inequality at Swarts. (Architecture after Cosgrove and Cosgrove 1932:Plate 238).

The most dramatic aspect of the religious transformation described above involves the burning of Mimbres great kivas during the tenth century (Creel and Anyon 2003). Evidence suggests, however, that this may not have been the end of one ritual movement or the beginning of another, but rather a conspicuous component within a larger cycle of transformation that continued into the Classic period. Before the pithouse-to-pueblo transition, new great kivas were built, albeit in small numbers, perhaps representing a resurgence of earlier practices. However, these were soon abandoned and left to deteriorate (Creel and Anyon 2003:87).

The use of small kivas continued during the Classic period, but not uniformly. Galaz continued to have just one small kiva at a time, located in roughly the same place (see Figure 8.2). At Cameron Creek, small kivas may have become essential components of residential loci, as nearly every roomblock included at least one (see Figure 8.7). They appeared at Mattocks, disappeared at NAN Ranch and Wind Mountain, and are unknown at Swarts (see Figures 8.1, 8.9, 8.10, and 8.13).

Following the pithouse-to-pueblo transition, new forms of ceremonial architecture were introduced (ceremonial rooms and enclosed plazas) and evidence of intra-site factionalism continued or resurfaced. Returning to Galaz as an example, the introduction and efflorescence of large ceremonial rooms and enclosed plazas was most closely associated with the site's founding locus, where no small kiva was ever built (see Figure 8.2). Ceremonial rooms spread eventually throughout the site, but were never commonplace at the far end of the site, where a new, small kiva (Unit 107) was constructed, replacing the nearby Unit 18. At Swarts, the two architectural types may have been associated with distinct residential groups (see Figure 8.13), while at NAN Ranch and Wind Mountain, ceremonial rooms were adopted as the only form of Classic period ceremonial architecture (see Figures 8.9 and 8.10).

There are at least four Classic period rooms that had one corner touching a roomblock but were otherwise not attached (see Table 8.4). These were present at Cameron Creek (Room 41), Galaz (Room 105), Mattocks (Unit 441), and Swarts (Room Q). Anyon and LeBlanc (1984:139-140) identified Room 105, at Galaz, as a possible replacement for Unit 107 (the small kiva), which was the only ceremonial structure at Galaz to be abandoned during the Classic period. Room 105 was large (20.6 m^2), but not above the 26 m^2 threshold for *a priori* assumption of ceremonial purpose. Two of the structure's four walls were built of adobe and faced with flat stones, which was unique at the time (Anyon and LeBlanc 1984:99-100). Room 41, at Cameron Creek was also fairly large (22.61 m^2). It was mapped but not described by Bradfield (1931). Also mapped but not described was Room Q, at Swarts Ruin. Room Q was eventually superimposed by Room N, which Hill (1997:99) suggested may have ultimately served as a ceremonial facility. The most intriguing of the four corner-touching rooms is Unit 441 at Mattocks. This was an unfinished, rectangular pit structure that Gilman and LeBlanc (2016:99) date to the Classic period. It had no lateral entry ramp, which would suggest an intended roof entrance. Unit 441's dating and characteristics beg comparison to Classic period small kivas. Gilman and LeBlanc (2016:228) suggest that Unit 441 may have been an intended replacement for Unit 410, a nearby, small kiva, also dating to the Classic period. However, Gilman and LeBlanc are not entirely convinced that Unit 410 was ceremonial in nature (see also Gilman 2007), suggesting that both pit structures may have been domestic winter retreats. Excavation in Unit 441 revealed no evidence of a ventilator, although there was an "alcove" in one wall. Gilman and LeBlanc note that this may have been due to rodent disturbance.

Each of the four corner-touching rooms is unique in its own way. There are indications of ceremonial function, but such an inference would be premature at this point. They are mentioned here only because their appearance may correspond with the Classic period increase in ceremonial architecture diversity and because at two of them are potentially related to the eventual retirement of known small kivas.

Table 8.4. Detached, Classic period surface rooms with one corner touching a roomblock.

Site	Feature	Adjacent Roomblock	Orientation	Area (m^2)	N Burials
Cameron Creek	Room 41	West Roomblock	~25 °	22.61	0
Galaz	Room 105	Southeast Locus	~370 °	20.6	4
Mattocks	Unit 441	400s Roomblock	~105 °	11.7	0
Swarts	Room Q	South Roomblock	~0 °	14	2

Change in Mimbres ritual practice is also evident in other media and venues. The practice of burying ancestors under house floors increased during the late Three Circle phase and became the standard after 1000 C.E. Along with the establishment and assertion of antecedence, the practice emphasizes a tripartite cosmos and container-like worlds (see Shafer 1995, 2010). Likewise, the tradition of "killing" bowls and inverting them over the face of the deceased became increasingly common. Moulard (1984) interpreted this as microcosm, wherein the upturned bowl represents the sky vault and the hole represents a *sipapuni*, through which the decedent's "spirit breath" emerges into the next world (see Bradfield 1973:41-42; Geertz 1984:228).

The introduction of kivas also corresponds with changes in the ultimate deposition of restricted ritual paraphernalia. Throughout much of the pre-Classic era, most of the restricted ritual paraphernalia that entered the archaeological record did so in non-mortuary contexts, which were not analyzed in this research. Specifically, these items (and a good deal of exotica) were most often associated with communal structures, serving as dedicatory and retirement offerings (Creel 2006a:Chapter 6; Creel and Anyon 2003; Russell 2014; Russell et al. 2013). Over time, however – and most notably during the Classic period – most restricted ritual paraphernalia were deposited in individual graves, most of which were in domestic settings (Russell 2014; see Appendix XXI). This may suggest a fundamental change in the scale at which ritual authority and power were understood to reside. Overall, these changes suggest tighter control over ritual knowledge, leading to greater inequality and (probably) specialization.

Religious change can be viewed as cyclic rather than linear: a recurring pattern of repeated (yet idiosyncratic) negotiations instead of a sequential progression of historical singularities (cf. Walsham 2014:261-265). Thus, in the context of Mimbres society, the thematic changes evident in Three Circle phase religious practice may not have been novel after all. Rather, they might represent an arc within a cycle of ritual change, last seen during the Cumbre phase, if not earlier. It is not uncommon for religious movements (within cycles) to employ anachronistic elements – often secular – as symbolic tethers to a bygone, nostalgic age. For example, the Tibetan *kīla* is a stylized, traditional tent peg, used in Buddhist, Bön, and Vedic traditions to symbolize stability and control (Boord 1993). Descriptions of past generations emphasize earnest work, core values, and deserved abundance (Aberle 1966; Mooney 1898; Wallace 1956).

In the Mimbres case, the Three Circle phase introduction of roof-entered, subterranean, ceremonial structures may have harkened back to the roof-entered, subterranean, domestic pithouses of Archaic and Cumbre times.[32] Symbolic anachronism may also be captured in the ceramic iconography of the late Three Circle phase and Classic period (examples are shown in Figure 8.14; cf. Cole 1994). Depictions of crook staffs (see Figure 8.14l) appear regularly in vessels depicting ceremonies (see Figures 5.4a, 5.4d, and 5.4f), and these may be stylized representations of Archaic planting sticks (Allen Denoyer, personal communication, 2015; see Figure 8.14m). A number of Mimbres vessels, including those depicting ceremonies, also show batons (see Figure 8.14i – l), shaped and decorated like Archaic artifacts recovered from cave deposits (e.g., Hamilton 2001:160-163; Heizer 1942:41-49; see Figures 8.14g – h). Many of the Mimbres baton depictions, in fact, include parallel grooves (see Figures 8.14k – l) and/or protruding bumps at one end (see Figures 8.14i – j). Likewise, several Mimbres vessels, including some depicting ceremonies, prominently display burden baskets like those found in Archaic deposits (see Figure 5.4a, d – e, and Figure 8.14b – d, and l). Many of the basket depictions are accompanied by parrot imagery (see Figure 8.14b – d), and others are anthropomorphized, perhaps representing non-human persons (see Trask and Russell 2011). In a previous study, I examined the efflorescence of goggle-eyed creatures in Mimbres ceramic designs (Trask and Russell 2010), and these may have been inspired by Archaic rock art (see Figure 8.14e – f). This appearance of potentially Archaic symbolism seems to indicate a renewed interest in the utilitarian (and perhaps ritual) particulars of ancestral times.[33]

[32] Similarly, Kluckhohn and colleagues (1971:144, 318, 320) explained that the Diné sweat lodge is built to resemble pre-hogan, forked-stick dwellings, thus referencing an earlier era.

[33] Some of the mentioned artifact classes, like grooved batons and burden baskets may have been used into Mimbres times, but evidence of such is lacking. See Boyd (2003) for examples and discussion of Archaic depictions of emergence.

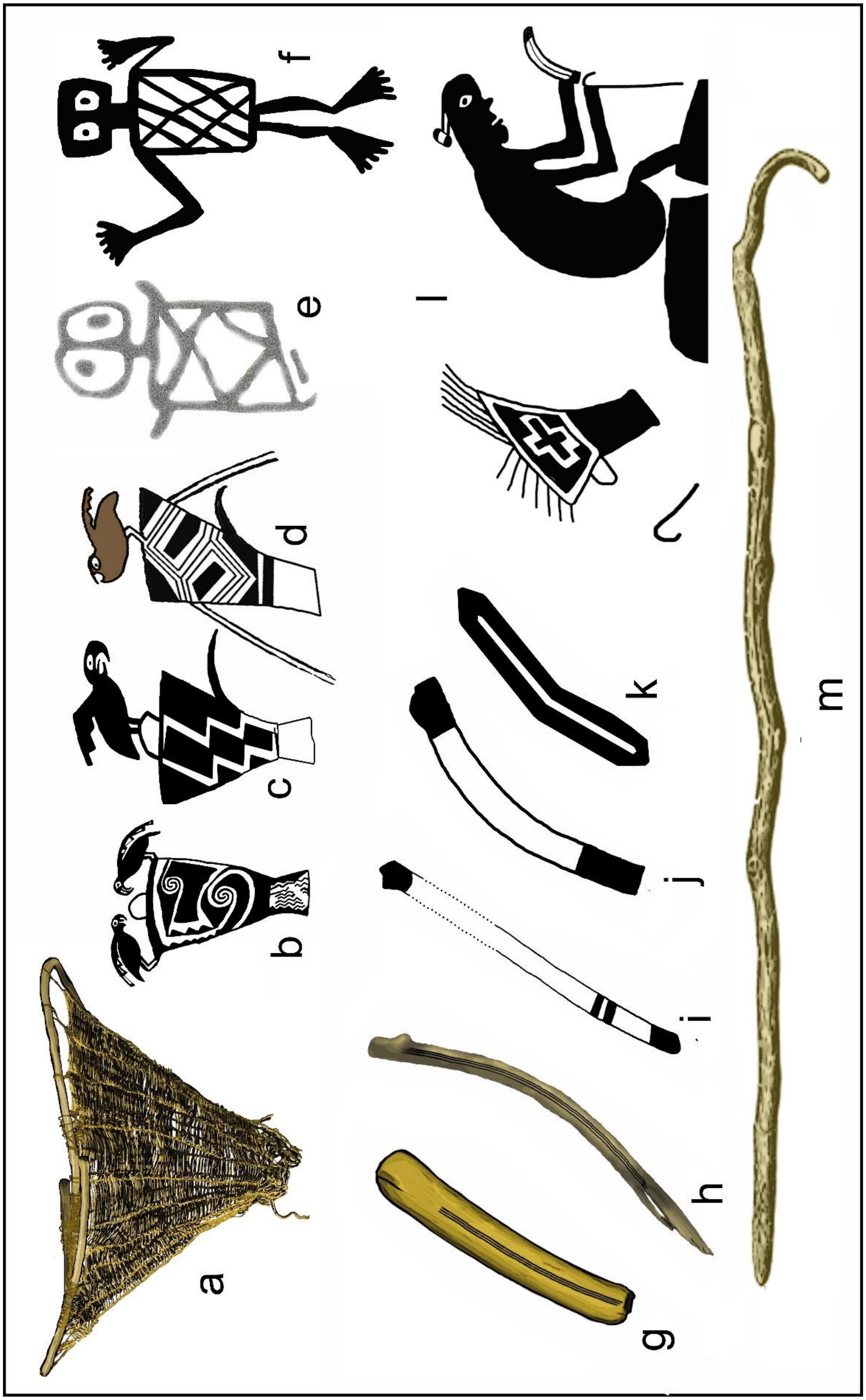
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Figure 8.14. Comparison of Archaic artifacts and Mimbres iconography. (a) Archaic burden basket from Granado Cave (after Hamilton 2002); (b) detail from late Style II-to-Style III Mimbres Black-on-white bowl (Galaz; MimPIDD 2878; University of Minnesota, no. 11B-515); (c) detail from middle Style III Mimbres Black-on-white bowl (unprovenienced; MimPIDD 5068; Millicent Rogers Museum, no. PO/111 MRM 1977-1-3); (d) detail from Mimbres Polychrome bowl (Mattocks; MimPIDD 3641; Logan Museum of Anthropology, no. 16123); (e) petroglyph motif from Archaic site of Indian Springs Canyon (LA 5225), after photograph by Margaret Berrier; (f) detail from early Style II Mimbres Black-on-white bowl (unprovenienced; MimPIDD 1731; Heye Foundation, no. 5/1350); (g) Archaic wooden baton from Granado Cave (note longitudinal grooves; after Hamilton 2002); (h) Archaic wooden baton fragment from Shelby Brooks Cave (note longitudinal grooves and protrusion at one end; after Hamilton 2001:Figure 9.4]; (i) detail of Mimbres baton motif (note protrusion at one end; Style III Mimbres Black-on-white bowl; Galaz; MimPIDD 2910; University of Minnesota, no. 11B-481); (j) detail of Mimbres baton motif (note protrusion at one end; middle Style III Mimbres Black-on-white bowl; Eby; MimPIDD 1604; University of Colorado, no. UC 3198); (k) detail of Mimbres baton motif (note longitudinal marking; middle Style III Mimbres Black-on-white bowl; Mattocks; MimPIDD 3671; Logan Museum of Anthropology, no. 16185); (l) detail of Mimbres vessel depicting ceremony, with combined motifs of burden basket, baton, and crooks (Style III Mimbres Black-on-white bowl; MimPIDD 2683; Swarts; Peabody Museum of Archaeology and Ethnology, no. 94717); (m) Archaic digging stick (White Dog Cave; after Guernsey and Kidder 1921:Plate 37a); not to scale).

Ambiguous Primacy, Religious Competition, and Societal Factionalism

Sweeping religious changes are often linked to other social issues. Thus, the religious dichotomy described above is likely indicative of a wider social schism, wherein constituent factions created and employed ritual differences to defend and advance alternative claims to power. Ethnographically, such competition often includes or engenders differing claims to primacy and antecedence (Flannery and Marcus 2012). This is consistent with the Mimbres evidence, where ritual differences correspond, at the locus scale, with evidence of primacy and the establishment of antecedence.

With adequate data, the empirical order in which Mimbres structures were built – that is, primacy – can be determined archaeologically and it is likely that residents of founding loci would have had both primacy and – at least initially – a legitimate claim to antecedence. From this perspective, challengers might be seen as working to usurp authority through the assertion of antecedence. Architectural units, however, are not rigidly attached to social identity or heredity. Over time, correspondence between architectural primacy and lineage primacy is likely to have weakened or disappeared altogether. That is, the empirical details of primacy are likely to fade with time, becoming increasingly susceptible to reinterpretation and change by residents (and vague to archaeologists). Additional ambiguity would be introduced through exogamous marriage and post-marital changes in residence (see Cameron 1992; Mindeleff 1891; Parsons 1940).[34]

Early in a settlement's history, when primacy was obvious to and known by everyone in a settlement, overt assertion of antecedence would have been unnecessary and perhaps pretentious. However, those with a personal recollection of primacy eventually die, forcing a transition from personal to collective memory. As ambiguity creeps in, the assertion of antecedence becomes increasingly critical for groups that feel entitled to the status. That is, some people living in non-founding loci could easily

[34] For example, if Mimbres society was matrilineal and, say, patrilocal, the nexus between residential primacy and lineage antecedence would steadily weaken with each new generation (see Fox 1967:109 ff.; Lévi-Strauss 1949; Murdock 1949:211, 1959a, 1959b). Many proto-historic Puebloan groups in the Southwest were matrilineal, and this system of descent has been suggested for Mimbres society (Ham 1989; Hill 1997; Shafer 2003:207-208, 220). Cross-culturally, small-scale, matrilineal societies are frequently patrilocal (see Murdock 1957; Kopytoff 1977:540; Lévi-Strauss 1949:149-152, 612), a residence pattern that has been documented in the ethnographic Southwest (e.g., Dutton 1983:26; Parsons 1939:947; Strong 1927:30) and which may have existed in ancient times (e.g., Martin and Akins 2001; Schillaci and Stojanaowski 2002).

become convinced of their inherent rights to antecedence, especially if socio-religious changes were introduced that allowed for reinterpretations of kinship and descent.

This scenario of increasing ambiguity and a growing need for the establishment and assertion of antecedence is largely consistent with Mimbres evidence. Simmering tensions, perhaps relating to population growth, deteriorating environmental conditions, and increasingly complex water-management systems, culminated during the Three Circle phase and are evident in the introduction of small kivas and eventual replacement of great kivas (see Creel and Anyon 2003; Nelson et al. 2012; Peeples and Schollmeyer 2007). Additional or continued changes are marked by the pithouse-to-pueblo transition and social insularity.

After 1000 C.E., evidence suggests efforts to solidify an overarching "Mimbres" identity that seems to have cross-cut disparate ritual approaches. It is during the Classic period that uniformity in burial practice, pottery decoration, and (intra-societal) ceramic exchange becomes widespread. Hegmon and colleagues (2016) have suggested that this regional network may have required and enabled the regular exchange of decorated ceramics, with designs or themes serving as evidence of particular relationships between origin and destination villages (see also Creel and Speakman 2016; Powell-Martí and James 2006). Whatever efforts were made to unite the region's residential communities, the unification did not last. Droughts, population-resource challenges, environmental depletion, and social issues probably all contributed to yet another significant transformation, marking the end of the Classic period, ca. 1130 C.E. (see Minnis 1985; Sandor 1992; Schollmeyer 2009).

Part II: Beyond Mimbres

Research on ancient inequality requires a comprehensive approach, recognizing that inequalities emerge in multiple domains (e.g., Bowles et al. 2010), some of which matter more than others, and some that matter not at all (e.g., Sen 1995). We know that competition exists between groups and across domains (e.g., Aldenderfer 1993; Boehm 1993; Mills 2004), and we know that some forms of inequality are subtle, yet carry incredible weight (e.g., Brandt 1994; Ware 2014). Research continues to address questions of universal foundations for inequality; some of the most impactful of these have shown that social inequality is not an epiphenomenon of elements such as agriculture, surplus, and self-aggrandizement (e.g., Levy 1992; Ortiz 1969; Testart et al.1982).

This dissertation accepts the challenge of a more holistic and nuanced approach, and builds upon the work of Flannery and Marcus (2012), who recognized the cross-cultural role of antecedence in the development of inequality and, implicitly, the distinction between primacy and antecedence. Insight from the Mimbres case complements and emphasizes this distinction. That is, antecedence is of critical importance, but its locus cannot be assumed by social actors or anthropologists. Rather, those within societies must continuously negotiate its presence and importance; those who study it must recognize that competition within this domain is to be expected, and evidence of this competition should be actively pursued.

This research demonstrates the importance of a multi-dimensional, multi-scalar, and diachronic approach to understanding inequality. Combined with good data and temporal control, it gives archaeological research a richness usually reserved for the ethnographer but with much greater time depth. In this case, it allowed for competition to be traced across social units, at a variety of social scales, and over the course of generations. Differences in social asymmetry were most consistently manifest and contested within the ritual domain, and these differences frequently aligned with evidence of primacy and antecedence. That is, opposing factions arose in villages, each claiming that their ancestors were the first to arrive. Over the span of centuries, these factions sought to establish and demonstrate their antecedence through a variety of methods. Disparate claims to antecedence were supported by alternative ritual approaches, which likely entailed differences in how descent was reckoned. This competition persisted for centuries, resulting in cycles of acute factionalization, marked by distinct ritual change.

Questions of how and why social inequalities develop and change have been asked in the social sciences for well over a century. Nearly a millennium before villages like Galaz and NAN Ranch were founded, Plutarch wrote that an "imbalance between rich and poor is the oldest and most fatal ailment of all republics." This has proven true throughout much of the human experience, regardless of how one defines rich and poor. In today's world of state fluidity and global resettlement, understanding the causes and effects of inequality have never been more important. We need look no farther than the evening news to see the conflation and contestation of primacy and antecedence, and the inequalities this engenders (e.g., Bishara 2003). Never before have societies engaged one another so rapidly and with such immediate consequences. In each new instance of multi-cultural congress there lies the inception of inequality: someone got there first and someone else will eventually claim to have done so. The research presented here and elsewhere suggests that social inequality cannot be prevented or eradicated, but can be channeled and mitigated in various ways. In some cases, and at some scales, these mechanisms allow societies to adapt in ways that permit or contribute to continuity. Examples include the Tewa moiety system and the Hopi ritual calendar. In archaeological contexts, it is difficult to recognize such mechanisms, much less assess their impact. The Mimbres case clearly involves elements similar to those of Tewa and Hopi societies – factionalism, competition for antecedence, inequality, and religious validation – but with a different outcome. The intersection of these elements, any mechanisms engendered to address them, and the end of the Mimbres tradition is not yet understood but is perhaps within reach. Likewise, the extent to which religious factionalism, social inequality, and mitigating efforts affect today's world is a matter left to future archaeologists.

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APPENDIX I

BURIALS FROM WHICH CONTRIBUTING DATA WERE DERIVED

[CONSULT ATTACHED FILES]

APPENDIX II

ARCHITECTURE FROM WHICH CONTRIBUTING DATA WERE DERIVED

[CONSULT ATTACHED FILES]

APPENDIX III

PRE-CLASSIC HOUSEHOLDS INCLUDED IN ANALYSES

[CONSULT ATTACHED FILES]

APPENDIX IV

STATISTICAL COMPARISON OF PITHOUSE SIZE DURING THE CUMBRE AND GEORGETOWN PHASES

[CONSULT ATTACHED FILES]

APPENDIX V

STATISTICAL COMPARISON OF PITHOUSE SIZE DURING THE GEORGETOWN AND SAN FRANCISCO PHASES

[CONSULT ATTACHED FILES]

APPENDIX VI

STATISTICAL COMPARISON OF PITHOUSE SIZE DURING THE SAN FRANCISCO AND THREE CIRCLE PHASES

[CONSULT ATTACHED FILES]

APPENDIX VII

STATISTICAL COMPARISON OF PITHOUSE SIZE DURING THE THREE CIRCLE, MANGAS, AND TRANSITIONAL PHASES

[CONSULT ATTACHED FILES]

APPENDIX VIII

PUEBLO STOREROOMS IDENTIFIED AT NAN RANCH AND SWARTS RUIN

[CONSULT ATTACHED FILES]

APPENDIX IX

LOCUS-SCALE COMPARISON OF STORAGE CAPACITY

[CONSULT ATTACHED FILES]

APPENDIX X

LOCUS-SCALE, PITHOUSE SIZE DATA FOR THE BROAD PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX XI

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA PRIOR TO THE CLASSIC PERIOD, AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX XII

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA PRIOR TO THE CLASSIC PERIOD, AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX XIII

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA PRIOR TO THE CLASSIC PERIOD, AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX XIV

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA PRIOR TO THE

CLASSIC PERIOD, AT HARRIS VILLAGE

[CONSULT ATTACHED FILES]

APPENDIX XV

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA PRIOR TO THE CLASSIC PERIOD, AT WIND MOUNTAIN

[CONSULT ATTACHED FILES]

APPENDIX XVI

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA AT NAN RANCH DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XVII

LOCUS-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA AT HARRIS VILLAGE DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XVIII

VILLAGE-SCALE STORAGE CAPACITY DATA

[CONSULT ATTACHED FILES]

APPENDIX XIX

SITE-SCALE DIFFERENCES IN PITHOUSE FLOOR AREA DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XX

CEREMONIAL STRUCTURES CONSIDERED IN THE PRESENT STUDY

[CONSULT ATTACHED FILES]

APPENDIX XXI

BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA

[CONSULT ATTACHED FILES]

APPENDIX XXII

MIMBRES VESSELS DEPICTING CEREMONIES

[CONSULT ATTACHED FILES]

APPENDIX XXIII

BIOLOGICAL SEX AND BURIAL IN CEREMONIAL ARCHITECTURE

[CONSULT ATTACHED FILES]

APPENDIX XXIV

AGE AND BURIAL IN CEREMONIAL ARCHITECTURE

[CONSULT ATTACHED FILES]

APPENDIX XXV

STATISTICAL COMPARISON OF CHANGES IN RELATIVE FREQUENCY OF

RESTRICTED RITUAL PARAPHERNALIA INCLUSION IN BURALS OVER TIME

[CONSULT ATTACHED FILES]

APPENDIX XXVI

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT WIND MOUNTAIN DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX XXVII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT WIND MOUNTAIN DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XXVIII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT GALAZ DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XXIX

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT HARRIS VILLAGE DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XXX

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT GALAZ DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXI

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT NAN RANCH DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AT SWARTS DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXIII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH VESSELS DEPICTING CEREMONIES AT MATTOCKS DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXIV

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH VESSELS DEPICTING CEREMONIES AT NAN RANCH DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXV

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH VESSELS DEPICTING CEREMONIES AT CAMERON CREEK DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXVI

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH VESSELS DEPICTING CEREMONIES AT GALAZ DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXVII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS WITH VESSELS DEPICTING CEREMONIES AT SWARTS DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XXXVIII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT HARRIS, DURING THE GEORGETOWN PHASE

[CONSULT ATTACHED FILES]

APPENDIX XXXIX

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT WIND MOUNTAIN, DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX XL

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT WIND MOUNTAIN, DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XLI

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT GALAZ, DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XLII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT CAMERON CREEK, DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX XLIII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT CAMERON CREEK DURING THE PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX XLIV

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT GALAZ, DURING THE PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX XLV

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT CAMERON CREEK, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XLVI

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT GALAZ, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XLVII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT MATTOCKS, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XLVIII

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT NAN RANCH, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XLIX

STATISTICAL COMPARISON OF LOCUS-SCALE RELATIVE FREQUENCY OF BURIALS IN CEREMONIAL ARCHITECTURE AT SWARTS, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX L

RICHNESS OF CEREMONIAL ARCHITECTURAL FORM AT THE LOCUS SCALE

[CONSULT ATTACHED FILES]

APPENDIX LI

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG GEORGETOWN PHASE LOCI AT HARRIS VILLAGE

[CONSULT ATTACHED FILES]

APPENDIX LII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG SAN FRANCISCO PHASE LOCI AT WIND MOUNTAIN

[CONSULT ATTACHED FILES]

APPENDIX LIII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG SAN FRANCISCO PHASE LOCI AT HARRIS VILLAGE

[CONSULT ATTACHED FILES]

APPENDIX LIV

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG THREE CIRCLE PHASE LOCI AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX LV

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE

FREQUENCY AMONG THREE CIRCLE PHASE LOCI AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX LVI

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG THREE CIRCLE PHASE LOCI AT HARRIS VILLAGE

[CONSULT ATTACHED FILES]

APPENDIX LVII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG THREE CIRCLE PHASE LOCI AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX LVIII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE

FREQUENCY AMONG THREE CIRCLE PHASE LOCI AT WIND MOUNTAIN

[CONSULT ATTACHED FILES]

APPENDIX LIX

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG TRANSITIONAL PHASE LOCI AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX LX

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG PRE-CLASSIC LOCI AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX LXI

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG PRE-CLASSIC LOCI AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX LXII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG CLASSIC PERIOD LOCI AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX LXIII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE

FREQUENCY AMONG CLASSIC PERIOD LOCI AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX LXIV

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG CLASSIC PERIOD LOCI AT MATTOCKS

[CONSULT ATTACHED FILES]

APPENDIX LXV

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG CLASSIC PERIOD LOCI AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX LXVI

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE

FREQUENCY AMONG CLASSIC PERIOD LOCI AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX LXVII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT WIND MOUNTAIN DURING THE CUMBRE PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXVIII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA

DEDICATED TO CEREMONIAL ARCHITECTURE AT HARRIS VILLAGE

DURING THE GEORGETOWN PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXIX

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA

DEDICATED TO CEREMONIAL ARCHITECTURE AT HARRIS VILLAGE,

DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXX

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA

DEDICATED TO CEREMONIAL ARCHITECTURE AT WIND MOUNTAIN

DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXXI

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA

DEDICATED TO CEREMONIAL ARCHITECTURE AT CAMERON CREEK,

DURING THE PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX LXXII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT GALAZ, DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXXIII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT GALAZ, DURING THE PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX LXXIV

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA

DEDICATED TO CEREMONIAL ARCHITECTURE AT HARRIS VILLAGE,

DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXXV

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT NAN RANCH, DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXXVI

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA

DEDICATED TO CEREMONIAL ARCHITECTURE AT WIND MOUNTAIN,

DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXXVII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT NAN RANCH, DURING THE TRANSITIONAL PHASE

[CONSULT ATTACHED FILES]

APPENDIX LXXVIII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT CAMERON CREEK, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX LXXIX

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT GALAZ, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX LXXX

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT MATTOCKS, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX LXXXI

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT NAN RANCH, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX LXXXII

STATISTICAL COMPARISON OF PROPORTION OF LOCUS FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE AT SWARTS, DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX LXXXIII

NUMBER AND RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AND/OR VESSELS DEPICTING CEREMONIES AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX LXXXIV

STATISTICAL COMPARISON OF RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA DURING THE SAN FRANCISCO PHASE, AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX LXXXV

STATISTICAL COMPARISON OF RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA DURING THE THREE CIRCLE PHASE, AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX LXXXVI

STATISTICAL COMPARISON OF RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA DURING THE CLASSIC PERIOD, AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX LXXXVII

STATISTICAL COMPARISON OF RELATIVE FREQUENCY OF BURIALS WITH VESSELS DEPICTING CEREMONIES DURING THE CLASSIC PERIOD, AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX LXXXVIII

STATISTICAL COMPARISON OF RELATIVE FREQUENCY OF VESSELS

DEPICTING CEREMONIES WITHIN MORTUARY CERAMIC ASSEMBLAGES,

DURING THE CLASSIC PERIOD AND AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX LXXXIX

INTRA-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE CLASSIC PERIOD, WITH AND WITHOUT VESSELS DEPICTING CEREMONIES

[CONSULT ATTACHED FILES]

APPENDIX XC

STATISTICAL COMPARISON OF RELATIVE FREQUENCY OF BURIALS WITH RESTRICTED RITUAL PARAPHERNALIA AND/OR VESSELS DEPICTING CEREMONIES DURING THE CLASSIC PERIOD, AT THE SITE SCALE

[CONSULT ATTACHED FILES]

APPENDIX XCI

INTER-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE GEORGETOWN PHASE

[CONSULT ATTACHED FILES]

APPENDIX XCII

INTER-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX XCIII

INTER-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE THREE CIRCLE PHASE, INCLUDING TRANSITIONAL AND MANGAS PHASE BURIALS

[CONSULT ATTACHED FILES]

APPENDIX XCIV

INTER-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE TRANSITIONAL/MANGAS PHASE

[CONSULT ATTACHED FILES]

APPENDIX XCV

INTER-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX XCVI

INTER-SITE, STATISTICAL COMPARISON OF BURIAL PLACEMENT IN CEREMONIAL ARCHITECTURE DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX XCVII

CEREMONIAL ARCHITECTURE DATA AT THE SITE SCALE, RELATIVE TO

OVERALL ARCHITECTURAL DATA

[CONSULT ATTACHED FILES]

APPENDIX XCVIII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG GEORGETOWN PHASE SITES

[CONSULT ATTACHED FILES]

APPENDIX XCIX

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG SAN FRANCISCO PHASE SITES

[CONSULT ATTACHED FILES]

APPENDIX C

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE

FREQUENCY AMONG THREE CIRCLE PHASE SITES

[CONSULT ATTACHED FILES]

APPENDIX CI

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG MANGAS/TRANSITIONAL PHASE SITES

[CONSULT ATTACHED FILES]

APPENDIX CII

STATISTICAL COMPARISON OF CEREMONIAL STRUCTURE RELATIVE FREQUENCY AMONG CLASSIC PERIOD SITES

[CONSULT ATTACHED FILES]

APPENDIX CIII

SITE-SCALE, STATISTICAL COMPARISON OF PROPORTION OF FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE DURING THE GEORGETOWN PHASE

[CONSULT ATTACHED FILES]

APPENDIX CIV

SITE-SCALE, STATISTICAL COMPARISON OF PROPORTION OF FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX CV

SITE-SCALE, STATISTICAL COMPARISON OF PROPORTION OF FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX CVI

SITE-SCALE, STATISTICAL COMPARISON OF PROPORTION OF FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE DURING THE PRE-CLASSIC ERA

[CONSULT ATTACHED FILES]

APPENDIX CVII

SITE-SCALE, STATISTICAL COMPARISON OF PROPORTION OF FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE DURING THE TRANSITIONAL/MANGAS PHASE

[CONSULT ATTACHED FILES]

APPENDIX CVIII

SITE-SCALE, STATISTICAL COMPARISON OF PROPORTION OF FLOOR AREA DEDICATED TO CEREMONIAL ARCHITECTURE DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX CIX

MIMBRES VESSELS IN THE SAMPLE THAT INCLUDE FIGURATIVE MESOAMERICAN MOTIFS

[CONSULT ATTACHED FILES]

APPENDIX CX

SAN FRANCISCO PHASE BURIALS WITH EXOTICA

[CONSULT ATTACHED FILES]

APPENDIX CXI

THREE CIRCLE PHASE BURIALS WITH EXOTICA

[CONSULT ATTACHED FILES]

APPENDIX CXII

CLASSIC PERIOD BURIALS WITH EXOTICA

[CONSULT ATTACHED FILES]

APPENDIX CXIII

EXOTICA DISTRIBUTION AMONG BURIED INDIVIDUALS WITH DETERMINABLE SEX

[CONSULT ATTACHED FILES]

APPENDIX CXIV

EXOTICA DISTRIBUTION AMONG BURIED INDIVIDUALS WITH

DETERMINABLE AGE

[CONSULT ATTACHED FILES]

APPENDIX CXV

LOCUS-SCALE DATA ON ROOMS WITH MORTUARY EXOTICA DURING THE

THREE CIRCLE PHASE AND CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX CXVI

LOCUS-SCALE RELATIVE FREQUENCY DATA FOR SPECIFIC EXOTICA CLASSES

[CONSULT ATTACHED FILES]

APPENDIX CXVII

SITE-SCALE EXOTICA DATA

[CONSULT ATTACHED FILES]

APPENDIX CXVIII

INDIVIDUAL-SCALE, CUMBRE PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXIX

INDIVIDUAL-SCALE, GEORGETOWN PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXX

INDIVIDUAL-SCALE, SAN FRANCISCO PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXXI

RELATIVE FREQUENCY WITH WHICH WEALTH WAS PLACED WITH AGE CLASSES DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX CXXII

RELATIVE FREQUENCY WITH WHICH WEALTH WAS PLACED WITH

BIOLOGICAL SEXES DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX CXXIII

THREE CIRCLE PHASE BURIALS, WITH WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXXIV

RELATIVE FREQUENCY WITH WHICH WEALTH WAS PLACED WITH AGE AND SEX CLASSES DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX CXXV

COMPARISON OF POTTERY AND JEWELRY SCORES, BY SEX, DURING THE SAN FRANCISCO PHASE

[CONSULT ATTACHED FILES]

APPENDIX CXXVI

CLASSIC PERIOD BURIALS, WITH WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXXVII

RELATIVE FREQUENCY WITH WHICH WEALTH WAS PLACED WITH AGE

CLASSES DURING THE CLASSIC PERIOD

[CONSULT ATTACHED FILES]

APPENDIX CXXVIII

RELATIVE FREQUENCY OF CLASSIC PERIOD WEALTH INCLUSION, BY SEX

[CONSULT ATTACHED FILES]

APPENDIX CXXIX

HOUSEHOLD-SCALE, SAN FRANCISCO PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXXX

SAN FRANCISCO PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF HARRIS VILLAGE BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXXXI

SAN FRANCISCO PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE

RELATIVE FREQUENCY OF HARRIS VILLAGE BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXXXII

SAN FRANCISCO PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXXXIII

SAN FRANCISCO PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXXXIV

HOUSEHOLD-SCALE, THREE CIRCLE PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXXXV

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF CAMERON CREEK BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXXXVI

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF CAMERON CREEK BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXXXVII

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXXXVIII

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXXXIX

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF HARRIS VILLAGE BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXL

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF HARRIS VILLAGE BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXLI

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF MATTOCKS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXLII

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF MATTOCKS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXLIII

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE

FREQUENCY OF NAN RANCH BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXLIV

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE

FREQUENCY OF NAN RANCH BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXLV

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF SWARTS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXLVI

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF SWARTS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXLVII

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXLVIII

THREE CIRCLE PHASE DIFFERENCES IN THE HOUSEHOLD-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXLIX

CLASSIC PERIOD, DOMESTIC ROOMS WITH BURIALS

[CONSULT ATTACHED FILES]

APPENDIX CL

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE

FREQUENCY OF CAMERON CREEK BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLI

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE

FREQUENCY OF CAMERON CREEK BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLII

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLIII

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLIV

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF MATTOCKS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLV

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE

FREQUENCY OF MATTOCKS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLVI

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF NAN RANCH BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLVII

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE

FREQUENCY OF NAN RANCH BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLVIII

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF SWARTS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLIX

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF SWARTS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLX

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXI

CLASSIC PERIOD DIFFERENCES IN THE ROOM-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXII

CLASSIC PERIOD ROOMS WITH MORE EVIDENCE OF MORTUARY WEALTH THAN OTHERS

[CONSULT ATTACHED FILES]

APPENDIX CLXIII

SAN FRANCISCO PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXIV

SAN FRANCISCO PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXV

THREE CIRCLE PHASE, LOCUS-SCALE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CLXVI

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF CAMERON CREEK BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXVII

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF CAMERON CREEK BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXVIII

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE

FREQUENCY OF GALAZ BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXIX

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXX

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF HARRIS VILLAGE BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXI

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF HARRIS VILLAGE BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXII

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF MATTOCKS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXIII

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE

FREQUENCY OF MATTOCKS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXIV

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF NAN RANCH BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXV

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF NAN RANCH BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXVI

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF WIND MOUNTAIN BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXVII

THREE CIRCLE PHASE DIFFERENCES IN THE LOCUS-SCALE RELATIVE

FREQUENCY OF WIND MOUNTAIN BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXVIII

CLASSIC PERIOD, LOCUS-SCALE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CLXXIX

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF CAMERON CREEK BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXX

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXXI

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF GALAZ BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXXII

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF MATTOCKS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXXIII

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE

FREQUENCY OF MATTOCKS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXXIV

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF NAN RANCH BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXXV

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE

FREQUENCY OF NAN RANCH BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXXVI

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE FREQUENCY OF SWARTS BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CLXXXVII

CLASSIC PERIOD DIFFERENCES IN THE LOCUS-SCALE RELATIVE

FREQUENCY OF SWARTS BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CLXXXVIII

SITE-SCALE, SAN FRANCISCO PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CLXXXIX

SAN FRANCISCO PHASE DIFFERENCES IN THE SITE-SCALE RELATIVE FREQUENCY OF BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXC

SAN FRANCISCO PHASE DIFFERENCES IN THE SITE-SCALE RELATIVE FREQUENCY OF BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXCI

SITE-SCALE, THREE CIRCLE PHASE WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXCII

THREE CIRCLE PHASE DIFFERENCES IN THE SITE-SCALE RELATIVE FREQUENCY OF BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXCIII

THREE CIRCLE PHASE DIFFERENCES IN THE SITE-SCALE RELATIVE FREQUENCY OF BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXCIV

SITE-SCALE, CLASSIC PERIOD WEALTH DATA

[CONSULT ATTACHED FILES]

APPENDIX CXCV

CLASSIC PERIOD DIFFERENCES IN THE SITE-SCALE RELATIVE FREQUENCY

OF BURIALS WITH MULTIPLE VESSELS

[CONSULT ATTACHED FILES]

APPENDIX CXCVI

CLASSIC PERIOD DIFFERENCES IN THE SITE-SCALE RELATIVE FREQUENCY

OF BURIALS WITH JEWELRY

[CONSULT ATTACHED FILES]

APPENDIX CXCVII

STATISTICAL COMPARISON, AT THE INDIVIDUAL SCALE, OF SAN FRANCISCO PHASE WEALTH SCORES BY AGE CLASS

[CONSULT ATTACHED FILES]

APPENDIX CXCVIII

DESCRIPTIVE STATISTICS FOR SAN FRANCISCO PHASE POTTERY AND

JEWELRY SCORES BY SEX

[CONSULT ATTACHED FILES]

APPENDIX CXCIX

COMPARISON OF POTTERY AND JEWELRY SCORES, BY AGE AND SEX,

DURING THE THREE CIRCLE PHASE

[CONSULT ATTACHED FILES]

APPENDIX CC

COMPARISON OF CLASSIC PERIOD POTTERY AND JEWELRY SCORES, BY AGE

[CONSULT ATTACHED FILES]

APPENDIX CCI

COMPARISON OF CLASSIC PERIOD WEALTH SCORES BY SEX

[CONSULT ATTACHED FILES]

APPENDIX CCII

THREE CIRCLE PHASE DIFFERENCES IN HOUSEHOLD-SCALE POTTERY SCORE DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCIII

THREE CIRCLE PHASE DIFFERENCES IN HOUSEHOLD-SCALE POTTERY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCIV

THREE CIRCLE PHASE DIFFERENCES IN HOUSEHOLD-SCALE POTTERY SCORE DISTRIBUTIONS AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX CCV

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE POTTERY SCORE DISTRIBUTIONS AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX CCVI

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE POTTERY SCORE DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCVII

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE POTTERY SCORE

DISTRIBUTIONS AT MATTOCKS

[CONSULT ATTACHED FILES]

APPENDIX CCVIII

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE POTTERY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCIX

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE POTTERY SCORE DISTRIBUTIONS AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX CCX

SAN FRANCISCO PHASE DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT WIND MOUNTAIN

[CONSULT ATTACHED FILES]

APPENDIX CCXI

THREE CIRCLE PHASE DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX CCXII

THREE CIRCLE PHASE DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCXIII

THREE CIRCLE PHASE DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCXIV

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE POTTERY SCORE

DISTRIBUTIONS AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX CCXV

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCXVI

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT MATTOCKS

[CONSULT ATTACHED FILES]

APPENDIX CCXVII

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE POTTERY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCXVIII

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE POTTERY SCORE

DISTRIBUTIONS AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX CCXIX

SAN FRANCISCO PHASE DIFFERENCES IN SITE-SCALE POTTERY SCORE DISTRIBUTIONS

[CONSULT ATTACHED FILES]

APPENDIX CCXX

THREE CIRCLE PHASE DIFFERENCES IN SITE-SCALE POTTERY SCORE DISTRIBUTIONS

[CONSULT ATTACHED FILES]

APPENDIX CCXXI

CLASSIC PERIOD DIFFERENCES IN SITE-SCALE POTTERY SCORE DISTRIBUTIONS

[CONSULT ATTACHED FILES]

APPENDIX CCXXII

THREE CIRCLE PHASE DIFFERENCES IN HOUSEHOLD-SCALE JEWELRY SCORE DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCXXIII

THREE CIRCLE PHASE DIFFERENCES IN HOUSEHOLD-SCALE JEWELRY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCXXIV

THREE CIRCLE PHASE DIFFERENCES IN HOUSEHOLD-SCALE JEWELRY

SCORE DISTRIBUTIONS AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX CCXXV

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE JEWELRY SCORE

DISTRIBUTIONS AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX CCXXVI

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE JEWELRY SCORE

DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCXXVII

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE JEWELRY SCORE DISTRIBUTIONS AT MATTOCKS

[CONSULT ATTACHED FILES]

APPENDIX CCXXVIII

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE JEWELRY SCORE

DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCXXIX

CLASSIC PERIOD DIFFERENCES IN ROOM-SCALE JEWELRY SCORE

DISTRIBUTIONS AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX CCXXX

SAN FRANCISCO PHASE DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT WIND MOUNTAIN

[CONSULT ATTACHED FILES]

APPENDIX CCXXXI

THREE CIRCLE PHASE DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT CAMERON CREEK

[CONSULT ATTACHED FILES]

APPENDIX CCXXXII

THREE CIRCLE PHASE DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT GALAZ. (SAMPLE LIMITED TO ROOMS WITH FIVE OR MORE BURIALS

[CONSULT ATTACHED FILES]

APPENDIX CCXXXIII

THREE CIRCLE PHASE DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCXXXIV

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT GALAZ

[CONSULT ATTACHED FILES]

APPENDIX CCXXXV

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE

DISTRIBUTIONS AT MATTOCKS

[CONSULT ATTACHED FILES]

APPENDIX CCXXXVI

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT NAN RANCH

[CONSULT ATTACHED FILES]

APPENDIX CCXXXVII

CLASSIC PERIOD DIFFERENCES IN LOCUS-SCALE JEWELRY SCORE DISTRIBUTIONS AT SWARTS

[CONSULT ATTACHED FILES]

APPENDIX CCXXXVIII

SAN FRANCISCO PHASE DIFFERENCES IN SITE-SCALE JEWELRY SCORE DISTRIBUTIONS

[CONSULT ATTACHED FILES]

APPENDIX CCXXXIX

THREE CIRCLE PHASE DIFFERENCES IN SITE-SCALE JEWELRY SCORE DISTRIBUTIONS

[CONSULT ATTACHED FILES]

APPENDIX CCXL

CLASSIC PERIOD DIFFERENCES IN SITE-SCALE JEWELRY SCORE DISTRIBUTIONS

[CONSULT ATTACHED FILES]