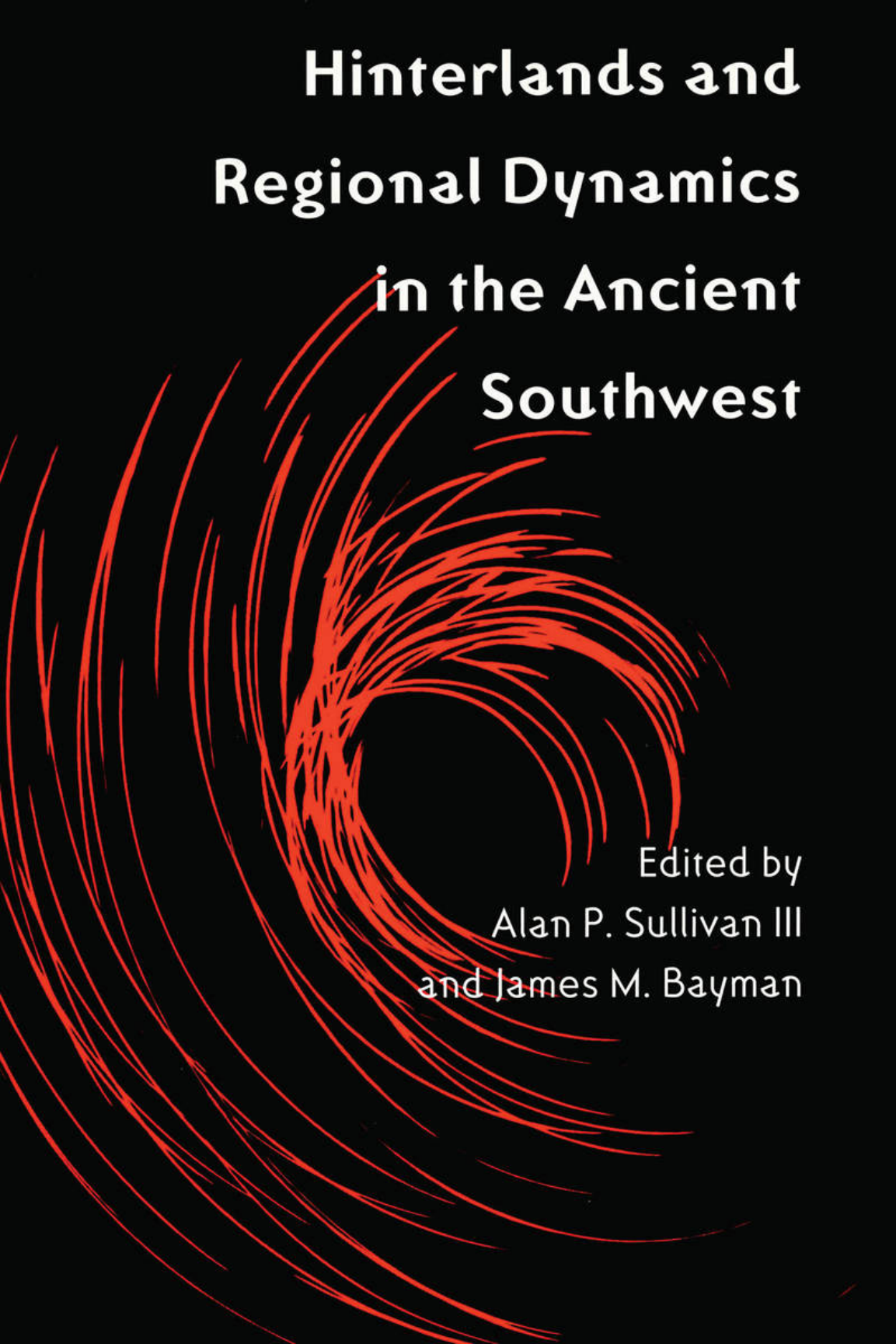
Hinterlands and Regional Dynamics in the Ancient Southwest



Edited by
Alan P. Sullivan III
and James M. Bayman

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HINTERLANDS and Regional Dynamics in the Ancient Southwest

1

Conceptualizing Regional Dynamics in the Ancient Southwest

Alan P. Sullivan III and James M. Bayman

Since the latter part of the nineteenth century, investigators of the Greater Southwest's archaeological wonders have employed a variety of lexicons and systematics to organize the region's rich and extensive variability (Schwartz 2000). Many such schemes have been advanced (among others, Colton 1939; Daifuku 1952; W. Gladwin and Gladwin 1934; Martin and Rinaldo 1951; F. Roberts 1937), and several of them, such as the Pecos Classification (Kidder 1927), continue to prosper because they succinctly synthesize vast amounts of regional information (e.g., E. Adams and Duff 2004; Adler 1996; Reed 2000; Spielmann 1998a).

Interpreting the origins and evolutionary significance of regional patterns of variability has been another matter, however. Nels C. Nelson (1919:117), to cite one early key example, expressed the idea that the "geographic distribution of Pueblo traits takes the form of a *center* of high and unalloyed development and a *marginal zone*, different segments of which have been more or less affected by influences from other adjacent culture centers" (italics original; fig. 1.1). In contrast, Harold S. Gladwin (1965:359) asserted that ancient Plateau peoples "showed no disposition to expand, to subjugate other people, or to submit to the domination of any individual, clique, or dynasty." The regional data entailed in both cases, distributions of large and small archaeological sites, are consistent with each interpretation, yet exclusive to neither—a common problem of archaeological research that contributes to the flux of the Southwest's literature and, simultaneously, revitalizes its research agendas (e.g., D. Fowler and Wilcox 1999:211–223). In many respects, therefore, the history of Southwestern archaeology can be considered a chronicle of this perennial struggle to secure strong inferences about the behavioral and organizational significance of heterogeneous regional patterns of architecture and ceramics (Longacre 2000; Tainter and Plog 1994). For our purposes, at least

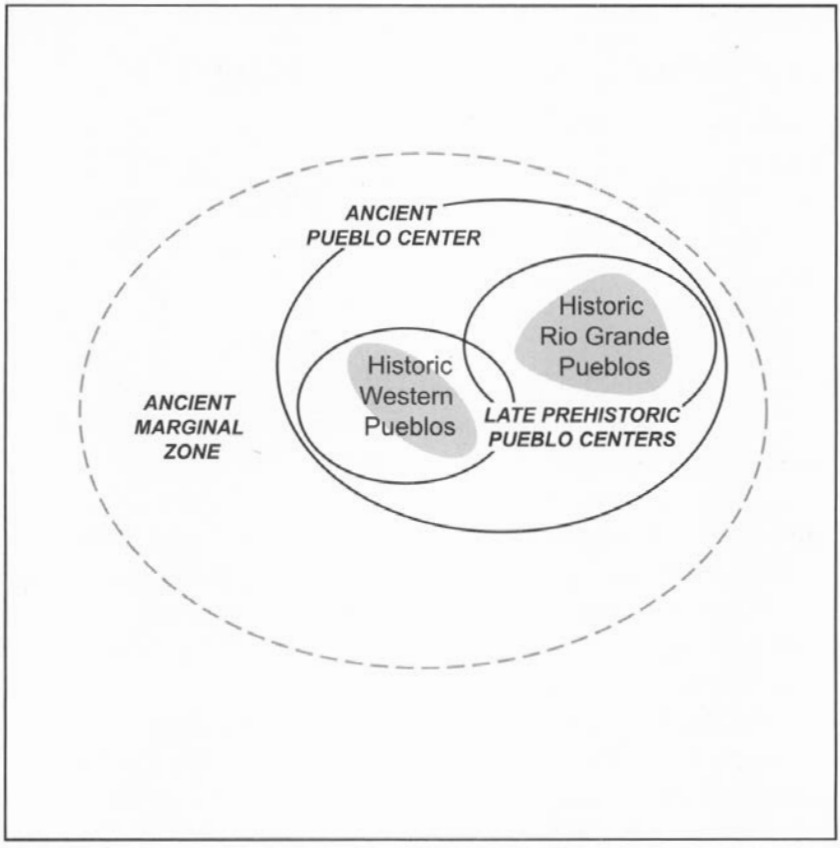

Figure 1.1 A redrawn version of Nels C. Nelson's (1919) cultural geography of the Southwest showing the spatial distribution of ancient and modern Pueblo "centers" and a perennial "marginal zone" of non-Puebloan territory.

two major conceptual frameworks can be distinguished that pertain to these issues (see also Reid et al. 1989).

One framework, which persists to this day (e.g., Elson et al. 2000), attributes regional variation in patterns of ceramics and architecture to the consequences of local decision making (Douglas 1995; Gumerman and Dean 1989). Gladwin, like many of his predecessors and contemporaries, such as Harold S. Colton (1946) and Emil W. Haury (1962), imagined that the ancient Southwest was composed of relatively economically independent and largely egalitarian social formations that, under various "influences," periodi-

cally coalesced into bigger but, nonetheless, still largely autonomous communities (Chang 1958; Hagstrum 2001; also E. Morris 1921:21–22). In this view, the ancient Southwest was populated by hinterlands—areas whose socioeconomic formations were not subordinate to, or dependent on, others for resources or information (cf. Gills and Frank 1993).

The other framework, analogous to Nelson's, interprets patterns of regional variability, especially spatial distributions of key ceramic types, as consequences of alliance interactions (*sensu* F. Plog 1984) that were established to strengthen economic linkages between centers and their sustaining areas in order to manage social stress (e.g., warfare) or buffer environmental risk (e.g., drought; S. Plog 1984). These systems are commonly thought to have been politically centralized, "regionally integrated" (Cordell 1997:305), socioeconomic networks that involved significant investments in monumental architecture and technology (Bayman 2002; Wilcox 1979). In this view, the ancient Southwest was populated by heartlands—areas with long, continuous developmental histories, whose socioeconomic formations concentrated and controlled (if not monopolized) the distribution of information and resources, which were often secured from nearby hinterlands and upon which they may have been or became dependent (e.g., R. Adams 1981; see also DeBoer 1996; Kowalewski et al. 1989; C. Morris and Thompson 1985).

Since the late 1970s no fewer than three regional systems, patterns, macro-regional systems, or worlds—Hohokam (Crown 1991a; Wilcox 1979), Chaco (Dean 1989; Doyel [ed.] 1992; Judge 1991), and Casas Grandes (C. Schaasfsma and Riley 1999; Whalen and Minnis 1999, 2001)—have been defined for the Greater Southwest (F. Plog 1984:218; see also Doyel and Lekson 1992) (fig. 1.2). The regional systems differ with respect to their origins, their attributes, and the amount of discussion they have generated since they were first proposed (McGuire et al. 1994). For the Hohokam regional system, its principal diagnostic attributes—ballcourts, buff-ware pottery, and glycymeris shell bracelets—have been known for at least a century (Crown 1991a; Wilcox and Sternberg 1983). Interestingly, the Hohokam regional system was widely adopted with little ensuing controversy, until recently (Neitzel 2000; chapter 2, this volume). In contrast, several of the defining attributes for the Chacoan regional system (Judge 1991)—such as roads (R. Gwinn Vivian 1983, 1997a), earthen berms (Cameron 2002), and "Great House" outliers (Kantner and Mahoney 2000; M. Marshall et al. 1979)—are fairly recent discoveries whose organizational and integrative implications,

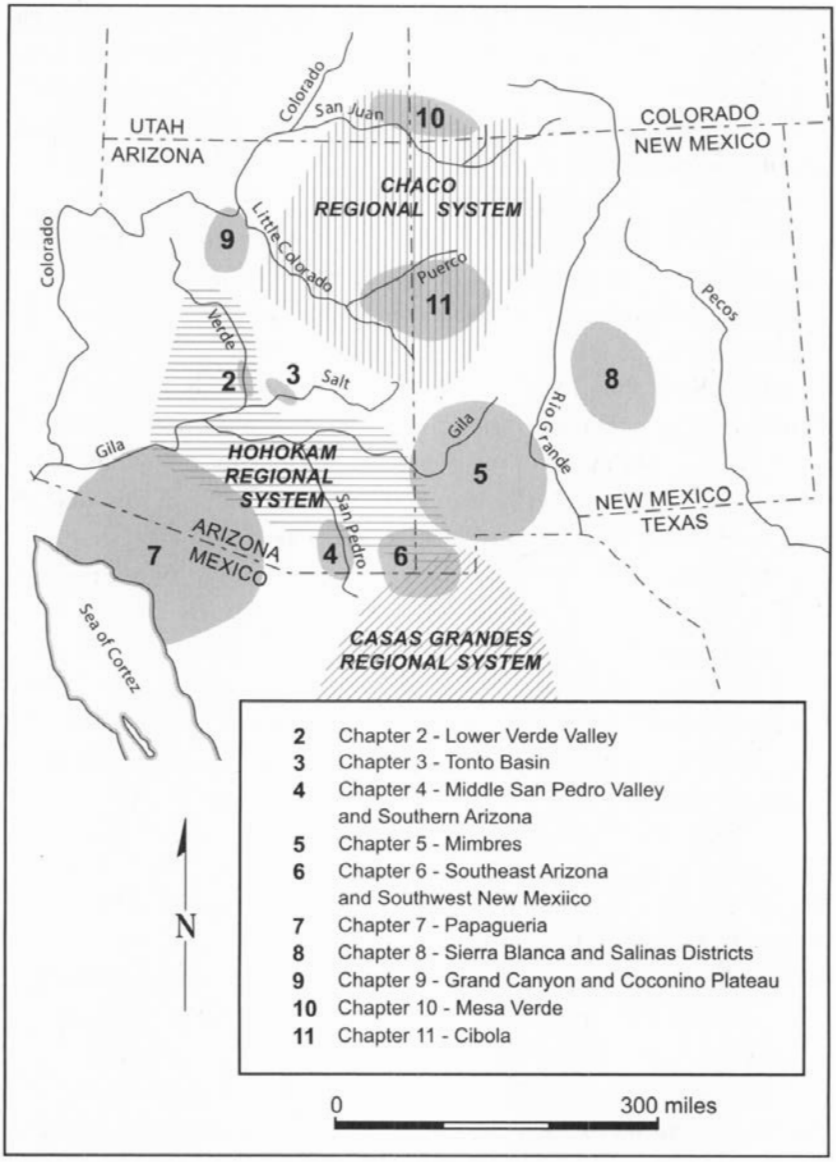

Figure 1.2 The Greater Southwest showing the extent of the Chaco, Hohokam, and Casas Grandes regional systems, as well as the study areas in this volume, identified by chapter number.

particularly their effects on local populations, have sparked considerable discussion and debate (e.g., Kantner 2003a; Van Dyke 1999; R. Gwinn Vivian 1997b:59–61; also B. Mills 2002). For the comparatively new Casas Grandes regional system (P. Fish and Fish 1999), originally considered a periphery of Mesoamerica (Di Peso 1974), variation in ballcourt attributes and macaw-breeding technology is believed to differentiate three interaction zones and the character of economic and political relations among them (Whalen and Minnis 2001). The Casas Grandes regional system has yet to generate much controversy, although it is implicated in models of pan-regional Southwestern political systems (Lekson 1999; see also Carpenter 2002). In various renditions of the distribution and scale of these systems (e.g., Wilcox 1996, 1999), it is important to note that they are unified by the assumption that the autonomy of outlying communities was surrendered, to varying degrees, as relations of social and economic dependency and inequality emerged (see especially S. Plog 1980; Kendrick and Judge 2000; also Urban and Schortman 1999).

Broadening Archaeological Models of Ancient Regional Dynamics

One of the reasons archaeological research in the Greater Southwest continues to be practiced so vigorously is the near certainty that paradigm-shattering surprises, such as evidence of 3,000-year-old irrigation systems (Damp et al. 2002; Mabry 2002) and corn production (Davis et al. 2000), are close at hand. Even though such discoveries often entail expansion or modification of descriptive lexicons and explanatory models (Gumerman and Gell-Mann 1994), the last thing that contemporary Southwestern archaeology needs is another set of terms, such as hinterlands and heartlands, cluttering an already vast literature. Unquestionably, the usefulness of any concept ought to be measured by how well it serves the investigation of problems (e.g., Falconer and Savage 1995). For example, in applying the idea of a "rural-urban continuum" to explain differences in sociocultural integration across the northern Southwest, Gumerman (1973) used the term "hinterland" to contrast the archaeology of Black Mesa (synonymous with "rural") with that of the Rio Puerco (now known to have Chacoan great houses and road segments [Warburton and Graves 1992]) and Chaco Canyon (a near-"urban" center). Upham (1992) has argued for considering the importance of "hinterland areas and rural regions"

—so-called "empty spaces"—in understanding the emergence of population centers and the evolution of regional systems themselves.

Nevertheless, in view of the prominence of regional-system, world, or world-system studies in contemporary Southwestern archaeology (e.g., Hegmon et al. 2000; Peregrine 2001), resurrecting considerations of local systems, domestic autonomy, and economic independence seems unaccountably anachronistic. Even a cursory examination of the recent literature would support the observation that the investigation of regional variability has been dominated by a focus on large sites and big systems (e.g., Cordell 1996; Lekson 1999; Neitzel 1999; Upham et al. 1994; Wilcox 2005; cf. Hegmon and Plog 1996). "Big archaeology" has created, in our view, a situation where dialogues about local autonomy and livelihood have become comparatively inconspicuous—and if such processes are considered at all, the discussion is decidedly normative (e.g., Lekson 2002:608–609) rather than analytical (Douglas 1995). Yet it is a reasonable presumption that for any period in Southwestern prehistory, a considerable proportion of the Southwest's entire human population was never fully integrated into any regional system (Haas et al. 1994:220). In addition, significant developments in Southwestern prehistory, such as aggregation, depopulation, and territorial abandonment, often were unrelated to, or unaffected by, heartland or regional system perturbations (J. Hill et al. 2004; M. Nelson and Schachner 2002).

As we see it, a key problem confronting contemporary Southwestern archaeology is integrating the vast range of well-documented regional sequences of occupation and abandonment, many of which are neither long nor continuous (e.g., Matson et al. 1988; Sullivan et al. 2002), with the premises and consequences of regional-system models (McGuire 1996). For some places, such as the Papagueria and the Coconino Plateau, hinterlands always prevailed, whereas in other places, such as the Phoenix and Tucson basins, heartlands were in place seemingly eternally. During other times and in other places, such as east-central Arizona and west-central New Mexico, hinterland systems assumed the attributes of heartland systems. Whichever terms—empty spaces, marginal zones, weak patterns, hinterlands, peripheries, cores, centers, heartlands, regional systems, strong patterns, worlds—are adopted to theorize about regional variability across the Southwest, what ultimately is at stake is the veracity of inferences pertaining to the circumstances under which vast portions of the Southwest's archaeological landscape arose (Cordell et al. 1994).

Themes and Organization of the Volume

This volume is not a backlash to regional-system studies, an advocacy of "small sites" archaeology, or a special plea to incorporate what some might consider peripheral areas into models of Southwestern prehistory (e.g., F. Roberts 1935: 14–15). Importantly, the volume's contributors were not encouraged to adhere to any particular theoretical perspective or to subscribe to a programmatic agenda in order to create the appearance of interpretive unity. Instead, the volume's case studies explore the ways in which a consideration of the highly variable archaeological records of hinterlands, which may be underrepresented in the literature (Gumerman and Gell-Mann 1994:16), can be used to expose the assumptions and test the implications of heartlands and regional-system models, and evaluate the degree to which different areas of the prehistoric Southwest were influenced, or not, by the emergence, spread, and decline of any of the regional systems mentioned above.

With these thoughts in mind, chapters 2 (on the lower Verde Valley [central Arizona], by Stephanie M. Whittlesey), 3 (on the Tonto Basin [central Arizona], by Mark D. Elson and Jeffery J. Clark), and 4 (on Southern Arizona and the Middle San Pedro River valley, by Rein Vanderpot and Jeffrey H. Altschul) focus on areas, generally considered to be in or near the core of Hohokam country, that disclose little or no evidence of having been impinged on by the Hohokam regional system. Chapters 5 (on the Mimbres [southwest New Mexico], by Michelle Hegmon and Margaret C. Nelson), 6 (on southeast Arizona and southwest New Mexico, by John E. Douglas), and 7 (on the Papagueria [western Arizona], by James M. Bayman) discuss the nature of societies, economies, and patterns of interaction on the fringe of either the Hohokam or the Casas Grandes regional systems. Chapters 8 (on the Sierra Blanca and Salinas districts [south-central New Mexico], by Thomas R. Rocek and Alison E. Rautman) and 9 (on the Grand Canyon and Coconino Plateau [north-central Arizona], by Sidney W. Carter and Alan P. Sullivan III) focus on economic processes and patterns of resource procurement of two widely separated "persistent hinterlands." Chapters 10 (on Mesa Verde and the northern Southwest, by Sarah H. Schlanger) and 11 (on east-central Arizona and west-central New Mexico, by Andrew I. Duff and Gregson Schachner) illustrate how two hinterlands evolved in different directions—one (Mesa Verde) was eclipsed by the Chacoan regional system, whereas the other (Cibola) was

verging on becoming the next major regional system or world (Zuni) in the pre-Hispanic Southwest. Finally, chapter 12, by Ruth M. Van Dyke, explores how modes of inquiry that focus on "relational thinking" can profitably blend considerations of the origins and evolutionary histories of heartlands and hinterlands alike, thereby providing an integrated framework to appreciate the complex interactions among peoples' reactions to changing landscapes, identities, and power.

All of these efforts are intended to enhance our understanding of the ancient Southwest's highly variable demographic, occupational, settlement, and economic histories. We think that progress in Southwestern archaeology is not measured solely by the number of competing conceptual structures in service but, rather, by degrees of intelligibility that emerge from continually challenging orthodoxy, exposing questionable interpretive assumptions, and rethinking old concepts in light of new data.

More than 30 years ago, Walter W. Taylor—no stranger to hinterlands archaeology (Taylor 1958)—remarked that "only by constantly making more specific and more stringent theoretical demands upon our data can we realize their full potential" (Taylor 1972:30). By privileging neither hinterlands nor heartlands, strong nor weak patterns, big sites nor small sites, decorated nor undecorated ceramics, we believe that the interpretive potential of the Southwest's remarkable archaeological record can be realized and some genuine progress can be made in clarifying the Southwest's rich and complicated cultural past.

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Comments from Sissel Schroeder, University of Wisconsin, and Ruth M. Van Dyke, Colorado College, markedly improved the organization and content of this chapter.

2

Not the Northeastern Periphery

The Lower Verde Valley in Regional Context

Stephanie M. Whittlesey

Archaeologists have struggled to explain regional variability in Hohokam culture since it was first determined that Snaketown was only one of many Hohokam sites. As a consequence of cultural-resource-management archaeology in the late 1970s and 1980s, it was realized as well not only that Hohokam sites were distributed from the Papagueria to the San Pedro River valley and from the Flagstaff region to the middle Santa Cruz River valley but also that all of these areas were archaeologically heterogeneous. They differed in population density, agricultural technology, ceremonial organization, ceramic traditions, and other attributes. Models proposed to explain this variability—which included environmental variation, political factors, economy, and even militaristic expansion—expanded along with the number of excavated sites. One model that proved extremely popular was that of the core and periphery (Wilcox and Shenk 1977), which rapidly became the accepted explanation for regional variability in Hohokam culture and settlement for several decades.

A long-term research project funded by the U.S. Bureau of Reclamation and carried out by Statistical Research, Inc. (SRI), provided a laboratory for evaluating the core-periphery model and other models of Hohokam regional organization (Whittlesey, Ciolek-Torrello, et al. 1998). For many years, the lower Verde region, along with the Tonto Basin, was regarded as the "Northeastern Hohokam Periphery" (e.g., Wood and McAllister 1980, 1984). The Lower Verde Archaeological Project (LVAP) demonstrated not only that this designation was indefensible but also that the core-periphery model was not applicable in prehistory. The project also showed that, despite geographic proximity and environmental similarity, the archaeology of the lower Verde River region differed from the Hohokam heartland *and* from the Tonto Basin, its twin in the so-called "Northeastern Hohokam Periphery" (chapter 3, this volume). Moreover, the lower Verde region, like other areas of central Arizona,

was not uniformly Hohokam but rather hosted a multicultural population. Although connected socially and economically to populations in other areas, it was a phenomenon in its own right—a rich zone of interaction and use by multiple populations who forged unique cultural landscapes in the Sonoran Desert.

In this chapter, I explore the usefulness of a cultural-landscapes approach in explaining regional variability in Hohokam culture. A primary goal of archaeological landscape reconstruction is to read the history of human interactions with the environment through time (Whittlesey 1998a). By deconstructing the factors that contribute to regional variability, such as economy, religion, environment, and social organization, a cultural-landscapes approach can accommodate cultural and ethnic variability, as well as the effects of residential mobility, logistical mobility, and migration. Because cataloguing all of the elements that were "unpacked" and reconfigured in the LVAP study is far beyond the scope of this paper, one example, that of the religious basis of Hohokam culture, must suffice. Whereas the core-periphery model explains regional differences in ceremonial facilities, richness of ritual paraphernalia, and other aspects of religious life with reference to geographic distance from the core, the cultural-landscapes approach posits that populations living in different areas were integrated into Hohokam religious organization in various ways and varying degrees of intensity.

Rethinking Concepts of Core and Periphery

The original model of Hohokam regional variability was developed by archaeologists of the Gila Pueblo Archaeological Foundation (Whittlesey 1998b,c). They defined the Hohokam culture based on extensive survey, excavations at Snaketown in the middle Gila River valley (H. Gladwin et al. 1937), and investigations at Roosevelt 9:6, a Preclassic Hohokam colony in the Tonto Basin (Haury 1932). Gila Pueblo's understanding of the nature and distribution of Hohokam culture therefore was drawn from a large region, including areas that would later be defined as peripheral.

The Gila Pueblo, or "Gladwinian," model (Wilcox 1979; Wilcox and Shenk 1977) proposed that during the Colonial period, small groups of Hohokam expanded from the Salt River and Gila River valleys to colonize regions like the Tonto Basin, where the environment was similar and hence familiar agricultural technology could be used. As Winifred Gladwin and Harold S.

Gladwin (1933:5) wrote, "the tide of civilization flowed outward from the Hohokam to affect peripheral areas." The Gila Pueblo model was based on theoretical concepts of the times, in particular the culture-area notion (Wissler 1923, 1926), and it was congruent with the then-current emphasis on cultural classification. Subsequent models, such as Emil W. Haury's (1950) Desert and River Hohokam dichotomy and Charles C. Di Peso's (1956) O'otam-Hohokam construct, were derived largely from the Gila Pueblo model. They also employed concepts of migration and colonization and used environmental variables to explain differences between heartland and peripheral cultures (McGuire 1991; Whittlesey et al. 1994:33).

The first hints that the Gila Pueblo model was not as widely applicable as had been thought emerged in the 1970s when it was demonstrated that relatively large Hohokam settlements occurred outside the Hohokam heartland, many of which relied upon subsistence strategies other than irrigation agriculture, the traditional hallmark of the Hohokam (Lincoln 2000). Dissatisfied with the Gila Pueblo model, Wilcox and Shenk (1977) presented the core-periphery model as an alternative. Their model was derived from Wallerstein's (1974) study of the emergence of capitalist world-systems and proposed that Hohokam society was integrated differently in the core than it was in peripheral areas. Complex organization in the core was made possible by large-scale irrigation systems, which supported a dense population. In the peripheries, where irrigation agriculture was not practical, population was less dense and was supported by more diversified subsistence practices. Because of these economic and demographic differences, the core was characterized by more complex material culture and more differentiated social organization than the peripheries (Wilcox and Shenk 1977:184–187). The core-periphery model soon became widely accepted. It structured influential publications, such as the volume edited by Doyel and Plog (1980), in which the label "Northeastern Hohokam Periphery" was used first (Wood and McAllister 1980), and was applied in contract archaeology reports (e.g., Doyel and Elson 1985a, 1985b; Green 1989).

In her dissertation, Lerner (1984) tested the core-periphery model in the lower Verde region, using Central Arizona Project survey data, and concluded that "development in the Lower Verde was not dependent on the Hohokam for organization and interaction relationships" (Lerner 1984:iv). Until Lerner's work, most archaeologists who applied the core-periphery model to the Hohokam evidently were unaware of its derivation from Wallerstein's (1974) study

of modern European states and the rise of capitalist economies. Had they been aware, the model might have been applied less enthusiastically. Regardless of the degree of social and political complexity that is attributed to the Hohokam, the core-periphery model was not appropriate for preliterate, preindustrial cultures of the U.S. Southwest (Whittlesey 1998c).

Moreover, archaeologists apparently misinterpreted the characteristics defining core and periphery. According to Wallerstein (1974), core and periphery have explicit economic and organizational roles. Core, periphery, and semiperiphery exist, by definition, in a dependent relationship (Haas 1984). Economic, political, and social factors, underscored and legitimized by differential access to power, structure these relationships (Cressey and Stephens 1982:50). The periphery provides raw materials and goods to the core that the core subsequently processes; in this way, the periphery funds and supports the core (C. Smith 1976). The periphery is less organizationally complex, less densely populated, and less wealthy than the core. It is politically dependent upon the core, which controls the periphery.

Application of the model in Hohokam archaeology reversed these economic and organizational features. Hohokam peripheries were thought to have obtained goods—ceramic containers, ceremonial objects, and so on—from the core and were considered to be organizationally similar "at some level of hierarchy to the major (parent) pattern of the core area" (Wood and McAllister 1980:186). Because they were unable to define core and periphery using the appropriate economic and organizational criteria specified in Wallerstein's model, archaeologists found it necessary to fall back on simple geographic and material definitions. They defined core and periphery by distance (Lerner 1984:26; Wilcox and Shenk 1977:183), presence or absence of large-scale irrigation systems (Wilcox and Shenk 1977:186), and relative elaborateness and abundance of material culture (McGuire 1991:348; Wilcox and Shenk 1977:184–187). What was intended as a sophisticated economic, political, and organizational model devolved into little more than an old-fashioned trait list.

In addition, most archaeologists assumed that the Hohokam core and its peripheries shared similar developmental trajectories and culture histories (e.g., Wilcox and Shenk 1977:183). As Lerner (1985) pointed out, however, because core and periphery differ in political, social, and economic characteristics, their histories also must differ. Moreover, core and periphery relationships are dynamic and evolve constantly (Cressey et al. 1982:147; Pailes and White-

cotton 1979:111). Some archaeologists recognized this asymmetry, pointing out that some Hohokam peripheries could be considered regional centers (e.g., Doelle and Wallace 1991:279–280; McGuire 1991:347).

The Lower Verde Region: Not the Northeastern Periphery

The Verde River rises in the Chino Valley and flows through the rugged Transition Zone about 180 mi to join the Salt River across a physical landscape of great diversity (fig. 2.1). The lower Verde River extends from Fossil Creek to the Verde-Salt confluence; the Mazatzal Mountains separate the lower Verde region from the Tonto Basin. Although characterized by highly dissected terrain, the region is well watered. The valley is narrow, however, providing sizeable expanses of arable land only in the Horseshoe Basin and in the confluence region. This constraint was balanced by abundant mineral resources and diverse plant and animal resources (Homburg et al. 1998; Whittlesey and Ciolek-Torrello 1998). The resources, water, and arable land of the lower Verde drew people from the Colorado Plateau, the Transition Zone, and the Basin and Range province throughout history, and thus, it appears that the region was occupied from at least the Pioneer period through the Classic period (around AD 700 to 1400; Deaver 1998a).

Although the core-periphery model influenced the design of the LVAP, as directed by the Bureau of Reclamation, SRI's research revealed that the lower Verde region was not implicated in a simple periphery relationship with the Hohokam core and was distinctive archaeologically from the Tonto Basin (Whittlesey, Ciolek-Torrello, et al. 1998). For my purposes, I focus on the results of archaeological excavations at several Preclassic period pithouse settlements (Deaver 1998b; Neily et al. 1998) and dryland-farming complexes (Homburg and Ciolek-Torrello 1998) that were investigated by the LVAP in the vicinity of Horseshoe and Bartlett reservoirs (fig. 2.1), supplemented with regional survey data.

Settlement Patterns

Resemblances between the lower Verde region and the Hohokam core area were most pronounced in settlement pattern, site structure, and architecture (Ciolek-Torrello 1998a:555, 561, 590; Whittlesey 1998b). There was a core-like, hierarchical order of settlement pattern; recorded sites ranged from

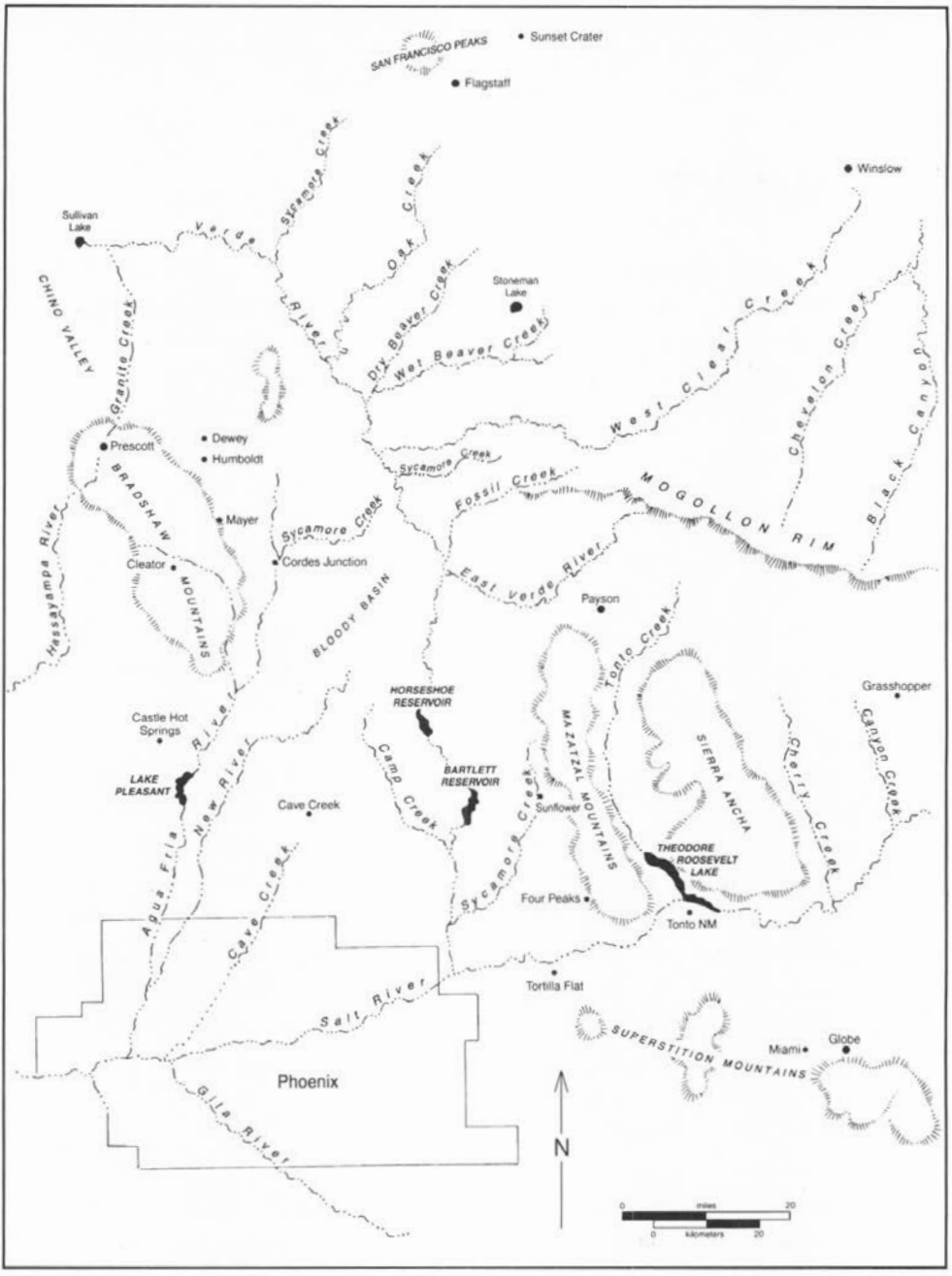

Figure 2.1 The Verde River valley in regional context.

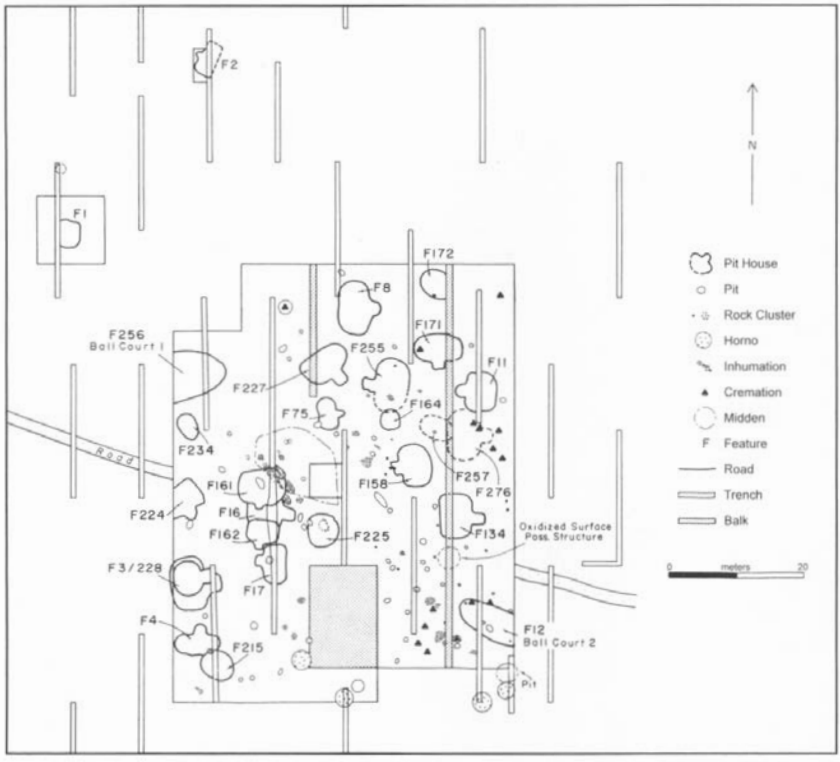

Figure 2.2 Map of Locus A at Scorpion Point Village (Horseshoe Reservoir Project area), showing pit structures and two ballcourts (F256 and F12).

ballcourt villages to small, special-purpose settlements. Larger hamlets and villages associated with clusters of farmsteads were distributed along the river at 2–5 km intervals. According to the core-periphery model, large, relatively long-term and permanent settlements should not be found in the region. Nevertheless, the scale of the settlement system was much smaller than in either the Phoenix core or the Verde–Salt River confluence area.

Individual settlements also were smaller than in the core area. Even at its maximum, Scorpion Point Village—the largest settlement SRI investigated, located in the Horseshoe Project area (fig. 2.2)—was probably no larger than a small village and for most of its occupation represented a hamlet-sized settlement with a population of 20 to 40 residents (Ciolek-Torrello 1998a:582–583).

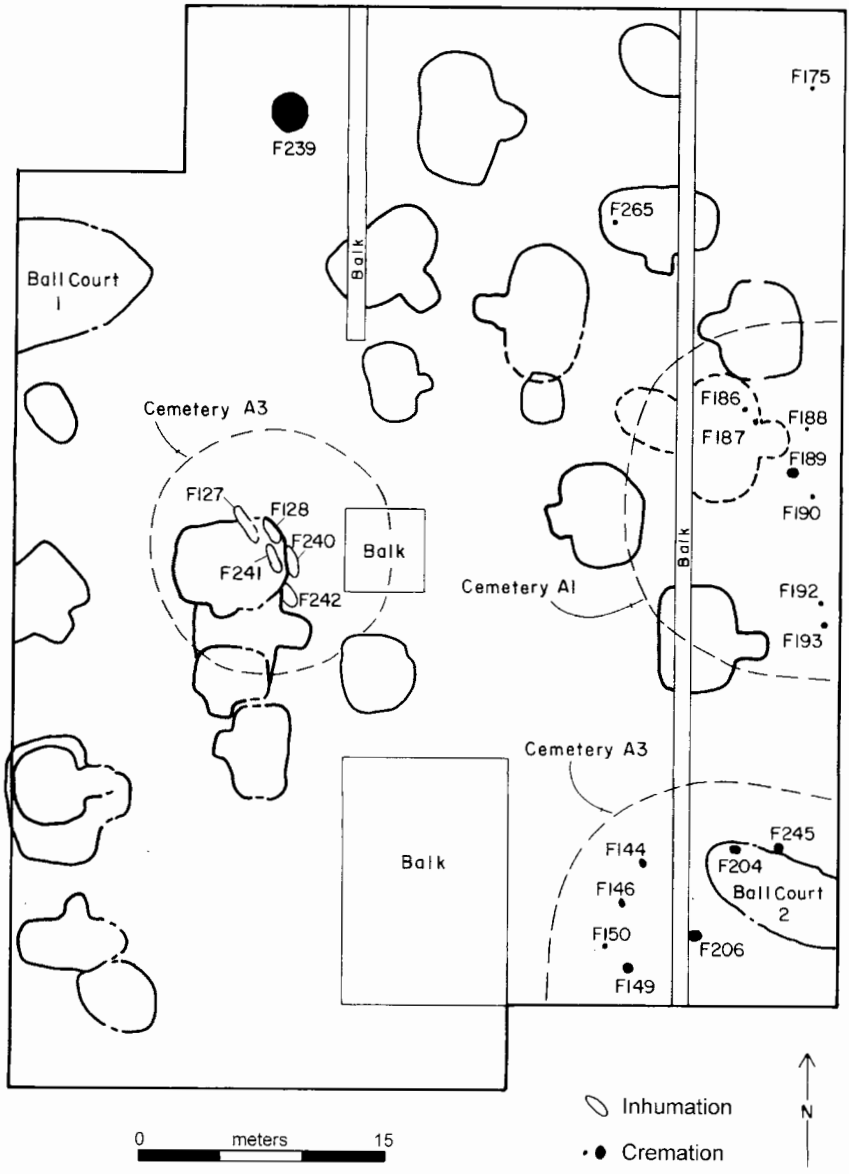

Figure 2.3 Courtyard groups and cemeteries at Locus A, Scorpion Point Village.

A core-like pattern of site structure, with courtyard groups composed of habitation structures facing a common outdoor area (J. Howard 1985; Huntington 1986; Mitchell 1988; Sires 1983; Wilcox et al. 1981), was well represented among the excavated settlements (Deaver 1998c, 1998d, 1998e; Klucas et al. 1998:527; Neily et al. 1998). Courtyard groups persisted over time, as indicated by superpositioned structures, and were associated with discrete trash deposits and cemeteries (fig. 2.3). These characteristics imply that courtyard groups were multigenerational, a notion of land tenure existed, and kinship and the ancestors were as important to the residents of the lower Verde Valley as to the Phoenix Basin Hohokam.

Architecture was similar to the core region as well, consisting of typical Hohokam houses-in-pits with basin hearths, entry vestibules, and floor grooves (Deaver 1998c) (fig. 2.4), which Haury (1976) regarded as the architectural idiom of the Hohokam. Several pit structures contained raised, wooden floors supported by notched-stone piers (Deaver 1998c; Klucas et al. 1998).

Although the lower Verde region was much like the core in architecture, site structure, and settlement pattern, comparisons with the Tonto Basin reveal a significantly different picture (chapter 3, this volume). The Preclassic occupation in the Tonto Basin was defined by relatively small, short-term hamlets that were smaller than those in the lower Verde region (Ciolek-Torrello 1998a, 1998b; Elson 1992:141; Wood 2000:119). Population density was also lower (Doelle 1995a). Moreover, although typical Hohokam architecture and site structure were found at some sites (e.g., Craig and Clark 1994; Elson and Lindeman 1994; Haury 1932; Swartz and Randolph 1994; Vanderpot et al. 1994), others differed considerably. Some Tonto Basin settlements exhibited a modified version of Mogollon-style architecture and site structure not found in the lower Verde Valley. Unusual, non-Hohokam features, such as earthen benches inside pit structures and alcove-like entrances, were found at other sites (chapter 3, this volume; also Ciolek-Torrello 1998a:588; Craig 1992a:217; Elson 1992:129, 149; Haas 1971; Swartz 1992).

Ceremonial Architecture and Ritual Organization

Against this background of extensive archaeological diversity, it is surprising that many archaeologists view Preclassic Hohokam religious organization as a uniform system characterized by the familiar elements of ballcourts, cremation mortuary rites, and ritual objects (e.g., Wilcox 1991b). The core-

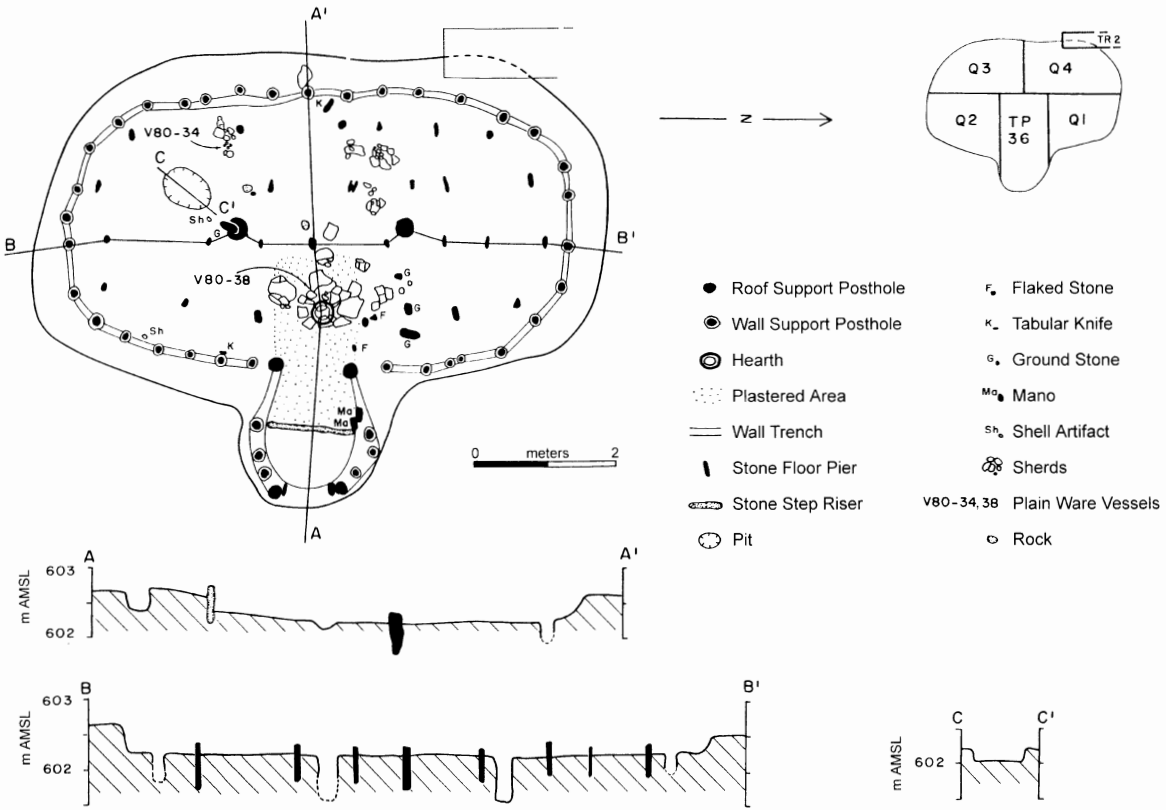

Figure 2.4 A typical Hohokam house-in-pit: Feature 8 at Scorpion Point Village (Horseshoe Reservoir Project area).

periphery model explains variability in religious facilities and paraphernalia in terms of distance from, and interaction with, the core, which posed a dilemma. Although it is classified as a periphery, Preclassic ceremonial architecture and ritual organization in the lower Verde Valley were similar to the core. According to the core-periphery model, Scorpion Point Village would be classified as a "major center" by virtue of its having more than one ballcourt (Wilcox and Sternberg 1983). During the late Colonial period when its ballcourts were in use, the settlement evidently served as a central place (Klucas et al. 1998:503, 527). These ballcourts were considerably smaller and less well constructed than their Phoenix Basin counterparts, however (Ciolek-Torrello 1998a: table 14.1) (see fig. 2.2).

Mortuary patterns in the lower Verde Valley duplicated those of the Hohokam core (Mitchell 1988). For instance, cremation cemeteries at Scorpion Point Village were located adjacent to habitation areas (Deaver 1998d, 1998e) (fig. 2.3), painted buff-ware ceramics were used as cremation urns and mortuary offerings (Montgomery and Heckman 1998; Whittlesey, Montgomery, et al. 1998), and typical Hohokam decorative and ritual objects—such as shell ornaments, palettes, carved censers, and effigy bowls, some of which were made with locally available materials—were common accompaniments (Towner et al. 1998; Vokes 1998).

The core-like ritual organization of the lower Verde Valley differed from the Tonto Basin, where ballcourts have yet to be identified, and ritual paraphernalia apparently was brought from the Phoenix Basin (Ciolek-Torrello 1994, 1998b:692; Stark et al. 1995). Because the presence of ballcourts is a key trait identifying participation in the Hohokam regional system (Crown 1991b:401; Wilcox 1991b), their absence should have eliminated the Tonto Basin as part of that system (cf. Elson et al. 2000:173).

Subsistence

Although considerably diversified, subsistence practices in the Hohokam core area focused on irrigation agriculture (S. Fish and Donaldson 1991; S. Fish and Nabhan 1991; Gasser and Kwiatkowski 1991). The consistent supply of abundant water provided by extensive canal systems allowed greater reliance on maize and water-dependent cultigens, such as cotton, in the Phoenix Basin than in the "peripheries" (S. Smith 2002). The lower Verde Valley exhibited core-like and non-core-like subsistence characteristics. Similarities

included an inferred emphasis on irrigated farming and the suite of standard Hohokam domesticated and managed crops (maize, common beans, squash, cotton, bottle gourds, jack beans, agave, cholla, and little barley). Cotton was sufficiently abundant to suggest that this crop was grown for exchange, as in the core (Van West and Altschul 1998). Also, as in the core, the residents used a variety of cheno-ams, mallow, and grass-family plants that flourished in fields and the margins of ditches. Wild-plant resources included the Hohokam triad of saguaro, mesquite, and *Opuntia* (K. Adams 1998; Bozarth 1998; Van West and Altschul 1998: table 9.3).

Although the extent to which the farmers of the lower Verde Valley relied on irrigation is unclear, agricultural technology apparently was more diverse than in the core region. Strategies included dryland farming and floodwater irrigation in addition to canal irrigation (Ciolek-Torrello 1998a:590, 1998b:692; Homburg 1998). Horseshoe Basin irrigation systems were much smaller than core systems, perhaps comparable in size to individual irrigation networks (Ciolek-Torrello 1998a:576; Gregory 1995). The narrow valley, scarcity of irrigable land, and topographic constraints limited the size of irrigation systems, unlike the Phoenix Basin (Wood 2000).

With respect to subsistence practices and agricultural technology, the Tonto Basin differed from the Phoenix core area and the lower Verde region. Throughout the Preclassic period, the small, scattered population relied on a broad spectrum of wild and domestic plants, emphasizing small-scale farming of the riverine zones where it was practical (Van West et al. 2000:41–42). Agave exploitation and possible cultivation appeared earlier in the Tonto Basin than in many parts of central Arizona (Elson 1992:124; Swartz 1992:164). Greater emphasis was given to hunting of large mammals than is typical for the Hohokam (Craig 1992b:297). It seems curious that the residents of the Tonto Basin evidently did not make full use of its agricultural possibilities, which included extensive arable alluvium and considerable irrigation potential (chapter 3, this volume). Ciolek-Torrello (1998a:591) suggests that Hohokam farmers may have encountered an indigenous population practicing a land-extensive agricultural strategy involving fallowing and settlement mobility similar to the historical-period Western Apache (Welch 1994). Opportunism, mobility, and low population densities enabled the Tonto Basin farmers to survive in an environment that was more varied and less predictable than the lower Verde region (Van West et al. 2000:47).

Ceramic Technology, Production, and Distribution

The lower Verde region, the Phoenix Basin, and the Tonto Basin differ with regard to ceramic technology and inferred systems of production and distribution. Shiny, micaceous, schist-tempered pottery, which may be one of many Hohokam water symbols, was curiously absent in the lower Verde Valley (Whittlesey 1998d:228). Instead, most of the plain-ware pottery contained sand inclusions or phyllite, materials not typically associated with the Hohokam ceramic tradition. In addition, the unpainted ceramics represented shapes that are atypical of Hohokam pottery (Whittlesey 2002, 2003). Petrographic analysis showed that little, if any, of the pottery was made locally. If the provenance of the unpainted pottery was identified accurately, virtually all domestic ceramic containers came from an unidentified, outside source (Heidke et al. 1998; Whittlesey 1998e), which is a phenomenon that would not be expected in a periphery that was dependent on the Hohokam core.

By contrast, painted buff-ware ceramics were indistinguishable from core-area painted pottery in technology, form, and design and likely were made in the Phoenix Basin (Whittlesey, Montgomery, et al. 1998). Interestingly, a small quantity of variant Hohokam Buff Ware pottery (less than 1 percent of the total pottery), which emulated core-area buff ware in design characteristics and vessel shapes, was made with a brown-ware paste. We were unable to discover the provenance of this ware. Such variants appear in similar low frequencies throughout the "peripheral" areas and also occur in the core (A. Howard 1989; Motsinger 1993; Weed 1972). The ceramic assemblages of the lower Verde Valley, therefore, could not be considered characteristic of either core or periphery.

Ceramic technology, production, and distribution in the lower Verde Valley differed from contemporaneous patterns in the Tonto Basin. At some lower Tonto Basin sites, the ceramic assemblage included schist-tempered plain ware, Hohokam Buff Ware, and vessel shapes that were typically Hohokam; there was little evidence for local manufacture (Stark et al. 1995). Other sites, such as the Riser site (Vanderpot et al. 1994), yielded evidence for non-local wares and locally made plain ware with sand temper and atypically Hohokam vessel shapes. The Upper Tonto Basin ceramic assemblages differed still more, with few, if any, Hohokam attributes (Stark and Heidke 1992:202).

Cultural Landscapes in the Lower Verde Valley

LVAP investigations revealed that if the lower Verde region was a Hohokam periphery, it was an unusual one, and it differed in many ways from the other half of the "Northeastern Hohokam Periphery," the Tonto Basin. A review of material culture, economy, social organization, and ritual activities showed that this situation is replicated elsewhere (Whittlesey 1998c). Differences can be noted, for example, between and within the Tucson Basin, Papagueria, and the Agua Fria regions with regard to settlement, subsistence, domestic organization, ceremonial organization, and material culture that cannot easily be explained by the core-periphery model (chapter 7, this volume). Moreover, geographic proximity to the Hohokam core was not responsible for the observed variability.

With no effective model to understand the archaeological record of the lower Verde Valley or to explain regional variability in Hohokam culture, it seemed necessary to rethink Hohokam culture. I chose to "unpack" the sources of Hohokam cultural variability and reorganize them from a cultural-landscapes perspective (Whittlesey 1998a). The approach posits that human beings do not passively "adapt" to their physical, natural, and social environments but actively shape them by means of cognition, perception, and behavior. As Knapp and Ashmore (1999:1) express it, "landscape is an entity that exists by virtue of its being perceived, experienced, and contextualized by people" (see also Greider and Garkovich 1994:1).

The study of cultural landscapes, which can be considered *a holistic anthropology of place* (Whittlesey 2003:13), consists of five domains or dimensions that can be conceptualized as ways to investigate archaeological landscapes (the cultural landscapes of the past). The cognitive dimension describes the ways in which people view the environment and the nature of their interactions with it. The formal dimension refers to the physical properties of the modified environment, which Marquardt and Crumley (1987:7) call "landscape signatures." Crumley (1994:6) defines landscape explicitly as "the material manifestation of the relations between humans and the environment." Because the meanings of landscape are grounded in material reality that archaeologists can decipher and interpret, the materiality of landscape (van Dommelen 1999:278) is its greatest asset. The historical dimension focuses on the life histories of cultural landscapes that embed layers of human interactions on the land. Through such

interactions, the land is transformed and becomes an architectural form itself (Tilley 1994:23). Not all of these modifications may be benign; some activities may have unintended, even harmful, consequences (Krech 1999; Redman 1999). Because landscapes represent multiple times as well as multiple places, they may embody change and transformation as much as continuity and sequence (Knapp and Ashmore 1999:18). Further, because landscape and memory are intertwined (Schama 1995), such transformations inevitably are encoded in the material world. The relational dimension focuses on organization, linking humans and environmental interactions at a variety of scales. The ideological dimension incorporates the ways in which people assign meaning to their environment and their interactions with it (Rapoport 1990:42).

Postmodernists visualize landscapes as cultural images that provide texts of meaning (Daniels and Cosgrove 1988; Head 1993; Knapp and Ashmore 1999; Tuan 1977); therefore, every landscape is a symbolic landscape (Cosgrove 1998:35). As the means by which social groups identify themselves, the built environment encodes messages about the correctness and inevitability of ideology, reinforcing the social order (Cosgrove 1998; Jackson 1984; Leone 1984), and it also provides a format in which power relations are negotiated. Power is expressed and manipulated through cultural categories and discourses, which may include those aspects of style and aesthetics in the built environment that Reese-Taylor and Koontz (2001) label "cultural poetics."

Cultural Landscapes and Regional Expressions of the Hohokam Cult

Because the Hohokam core-periphery model does not adequately explain variability in the distribution of ceremonial facilities and paraphernalia, I explore the possibility that the Hohokam religious system was a cult embracing groups of different cultural affiliations living in many areas.[1] Because of this geographic and cultural variability, one expectation is that cult membership would be integrated into cultural systems in diverse ways. For instance, by examining landscape modifications that resulted from ritual activities, participation in the cult may have varied in intensity. Like people of the Phoenix Basin core, people living in the lower Verde Valley built ballcourts, cremated their dead, and buried the deceased in discrete cemeteries. By contrast, the residents of the Tonto Basin did not build ballcourts. The presence of cremations and ritual objects indicated that they shared Hohokam religious beliefs to some extent, however. Occupational permanence, not distance from the core

area, appears to explain why ballcourts were constructed in the lower Verde Valley but not in the Tonto Basin. Moreover, differences between the Phoenix Basin and the lower Verde Valley in the construction and morphology of ballcourts imply that the Verde residents shared a template of how ritual facilities should look but were unfamiliar with the originals. This difference might suggest a population with a fairly lengthy occupational history in the lower Verde region.

Consideration of the relational dimension also suggests that cult participation varied in intensity. Although the lower Verde residents made many of their religious objects, such as censers, from local materials, they obtained other ritual paraphernalia, including the painted pottery used to inter the cremated dead, from the Phoenix Basin. By contrast, the Tonto Basin remained dependent on the core for all ceremonial paraphernalia.

Whatever we choose to call it (see Doyel 1992), the Hohokam cult resembled the Southern Cult, or Southeastern Ceremonial complex (Waring and Holder 1968). Both included a ball game, imagery and iconography crosscutting a suite of ritual objects, and elaborate mortuary ritual (Whittlesey 1998c). The cult was integrated with farming, and the major ceremonials were calibrated with the agricultural cycle (Waring 1968). Importantly, people of different cultures and tribes were affiliated with the Southern Cult, which was found across an enormous territory (Waring and Holder 1968). Although much smaller, the Hohokam cult nevertheless spread over a great deal of central and southern Arizona and, perhaps, farther still.

Origins of the Hohokam Cult

The cultural-landscapes approach also helps explain the derivation of the Hohokam cult by examining parallels in iconography, the built environment, and material metaphors. Numerous similarities with Mesoamerican ideology and iconography suggest that the Hohokam cult originated somewhere south of the international border. Parallels with the cults of the rain god Tlaloc and the culture hero-deity Quetzalcoatl are particularly obvious (Whittlesey 2003). The Hohokam cult was connected to water and precipitation and presumably also to irrigation, farming, and the agricultural year. Among other functions, ballcourts probably had a role in controlling and distributing irrigation water (Whittlesey 1998c). Hohokam iconography included pervasive symbols of water—shiny, reflective objects, such as palettes, mirrors, and schist-tempered pottery; water-creature imagery, such as water birds, frogs, and serpents; and

marine-shell ornaments (Whittlesey 1998a; see also Doyel 1992). Ceramic containers may have been viewed in part as iconographic representations of caves, thought in Mesoamerican ideology to be concealed in mountains, which are the sources of clouds, rain, and springs (Brady and Ashmore 1999:128; Markman and Markman 1992:413; P. Schaafsma 1999; Schele and Friedel 1990; Townsend 1992:178). Parallels to the Quetzalcoatl cult include cremation of the dead; destruction of pottery, figurines, and other items; caches; and ritual burning of dwellings. These acts suggest themes of ancestor veneration, death and rebirth, transformation, sacrifice, and calendrical renewals (Whittlesey 2003).

These beliefs and performances were translated to landscape metaphors and the built environment. In many Mesoamerican creation stories, the aesthetic trope of "Snake Mountain" plays a central role. The mythical mountain was surrounded by a lake that provided water for cultivation and sustenance (Schele and Kappelman 2001). A similar mountain metaphor also defined the Hohokam center place, Snaketown. The site was located 3 mi (5 km) from the twin-peaked Gila Butte, a topographic eminence standing 500 ft (152 m) above the Gila River. Remarkably, a major irrigation canal led from the foot of Gila Butte to Snaketown (Haury 1976:123, fig. 8.3). Water literally flowed from Gila Butte, as in the Snake Mountain legend. It may be no coincidence that Snaketown was founded near this topographic metaphor for Snake Mountain (the linguistic connection probably is completely fortuitous).

In Mesoamerica, mounds and pyramids were artificial sacred spaces that symbolized mountains and volcanoes, metaphors for water (Miller and Taube 1993:28). Architectural mimicry implies that mounds served the same iconographic function for the Hohokam (Bostwick 1992:81). Sixty trash mounds were built at Snaketown. Although some were used solely for trash disposal, others were artificially capped, and some, including Mound 16, were wholly artificial (Haury 1976:84–92). Mound 16 was refaced and resurfaced repeatedly, perhaps in renewal ceremonies. More humble aspects of the built environment also mimicked the mountain metaphor. Hohokam residential units typically were associated with uncapped trash mounds, which served to demarcate and separate precincts within larger villages.

As we have seen, most of these themes and metaphors were found in the lower Verde Valley, including trash mounds associated with residential units; cremation of the dead, discrete cemeteries, and burning of dwellings; ballcourts; and numerous iconographic representations of water. No doubt the

Hohokam of the lower Verde Valley mapped a system of landmarks upon the physical landscape that reflected myths and cosmology. It may not be coincidental that mountain peaks literally ringed the valley. Although they fashioned their own highly individualized sacred landscape, the residents employed iconography, ceremonies, and sacred facilities that were common to the Hohokam cult as a whole. By contrast, the Hohokam immigrants into the Tonto Basin participated in a religious and belief system that was borrowed wholesale from the Phoenix area (Ciolek-Torrello 1998a, 1998b; Stark et al. 1995). The lower Verde Valley represented a ritual landscape that was unique to the people who created it and that differed from the landscapes of the Phoenix region and the lower Tonto Basin.

Summary and Conclusions

The lower Verde region was not the "Northeastern Hohokam Periphery," a core, inner periphery, colony, intermediate periphery, boundary area, or frontier. Instead, it was at times a corridor for long-distance population movement, at other times the home of a distinctive local group, and always a zone of mixed and moving cultures. The cultural landscape resulting from each occupation was distinctive and defies classification into simple cultural and geographic categories.

A cultural-landscapes approach has two advantages in describing the nature of the relationship between the Hohokam heartland and the lower Verde region. First, it can account for populations of mixed cultural affiliation, which the core-periphery model, like other monothetic models of cultural development, cannot (Whittlesey and Reid 1982). One of our great difficulties in understanding the so-called Hohokam "peripheries" has stemmed from the fact that some of the people who occupied them were not Hohokam (Whittlesey 2002:217). Second, the approach can cope with population movement. Even relatively sedentary populations moved their residences and relocated from habitations to temporary camps as dictated by season, climate, economic variables, and social factors (Reid 1998).

Such settlement dynamics appear to have been the case for the lower Verde region, where there was considerable logistical mobility, seasonal movement to farmsteads and fieldhouses, and sequential, repeated occupation of villages for generations. The most parsimonious explanation for the absence of locally

made pottery is that different peoples regularly moved into the lower Verde region, bringing with them pottery obtained elsewhere (Whittlesey 1998e). In addition, evidence was found for long-distance migration into the lower Verde Valley during the Classic period, and we can assume that similar patterns may have existed during Preclassic times. One excavated site disclosed architecture and ceramics that are identical to those of the Sinagua (Whittlesey 1998g:677, 680). Perhaps the inability to identify the provenance of so much LVAP pottery is attributable to the fact that at least some of the ceramics or their materials originated in Sinagua regions that have not been sampled petrographically (chapter 9, this volume).

McGuire (1991:373–374) has reached similar conclusions regarding the core-periphery model. A single regional system or tradition is insufficient to account for the complex prehistory of southern Arizona and northern Sonora. He further urged us to shift perspective and view core and periphery from the outside (McGuire 1996; see also Chase-Dunn and Hall 1997; M. Smith and Berdan 2000). Moreover, SRI's findings have been repeated in recent research, as the volume edited by Hackbarth et al. (2002) on the "Northern Hohokam Periphery" demonstrates well. The region was a multicultural, dynamic place hosting mobile populations who used the area during different seasons and for varied purposes. Like the lower Verde region, the "Northern Hohokam Periphery" also was not uniformly Hohokam. It was "a central place in its own right, a region that was peripheral to nothing" (Whittlesey 2002:216).

Results of the LVAP demonstrate that archaeologists ought to consider adopting a cultural-landscapes approach, because it asserts the importance of recognizing culturally variable and mobile populations in explaining regional patterns of material, social, and cultural variability. The LVAP also showed that any culturally monothetic model, whether Hohokam or not, is inappropriate for the central-Arizona Transition Zone (J. Clark 2001; Whittlesey and Reid 1982; Whittlesey et al. 2000). Armed with a cultural-landscapes approach, archaeologists can better sort out complicated human relationships in the environmentally varied, dynamic zone of interaction and population movement that was central Arizona in prehistory.

Acknowledgment

I am grateful to Jon Czaplicki of the Bureau of Reclamation for his guidance and support during the duration of the LVAP.

Note

1. Although the cultural-landscapes approach used in the LVAP explored economy, environment, religious organization, ethnic variability, and social organization, space constraints in this chapter led me to focus only on the religious basis of Hohokam culture (see Whittlesey, Ciolek-Torrello, et al. 1998 for a discussion of the reconstructed cultural landscapes of the lower Verde region).

3

Rethinking the Hohokam Periphery

The Preclassic Period Tonto Basin

Mark D. Elson and Jeffery J. Clark

Situated between the desert-dwelling Hohokam to the south and Ancestral Puebloan groups of the plateau and mountain areas to the north and east, the Tonto Basin contains large and spectacular prehistoric ruins within a panoramic environmental setting (fig. 3.1). These ruins include pithouse villages, masonry pueblos, and platform mounds that are associated with a multiplicity of ceramic wares and types, mortuary practices, and architectural construction techniques. It is not surprising, then, that the Tonto Basin has been characterized at one time or another as being part of nearly every prehistoric culture that surrounds it, including the Hohokam, Mogollon, Anasazi, Salado, and Sinagua (Elson, Lekson, et al. 1992:33).

Traditionally, the Tonto Basin is perhaps most famous as being the "heartland" of the Salado culture associated with the post–AD 1250 Classic period inhabitants of the region. Recent research, however, suggests that the heartland designation, which was based on a subjective appraisal of the frequency of Salado Polychrome (Roosevelt Red Ware) ceramics, may be a misnomer because equal, if not higher, frequencies are found in other areas, such as the San Pedro River valley and the White Mountains of southeast and east-central Arizona, respectively. In fact, defining the Salado as a homogeneous prehistoric culture has been questioned in light of recent evidence (e.g., chapters in Dean [ed.] 2000). Many archaeologists now characterize Salado as a pan-southern-Southwest ceramic horizon or a religious or ideological system associated with numerous small-scale migrations of Ancestral Puebloan peoples who interacted with local Hohokam groups (J. Clark 2001; Crown 1994; Lyons 2003).

However, the focus of this chapter is not the Classic period Salado, but rather the preceding interval from AD 650–1150 (hereafter referred to as the Preclassic period). During this 500-year span, Hohokam influence waxed and waned in the Tonto Basin. Archaeologists have characterized the region

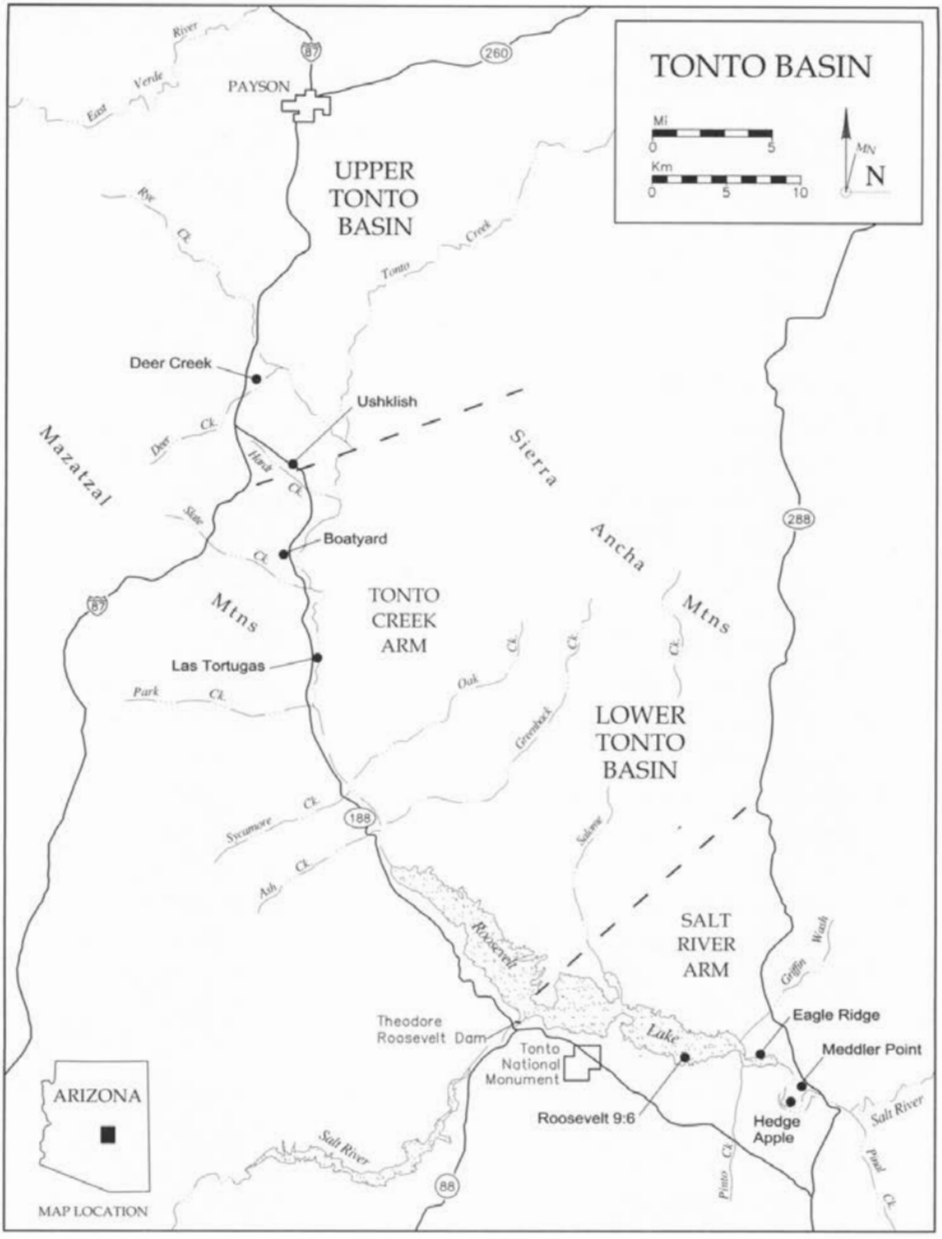

Figure 3.1 The Salt River arm of the Lower Tonto Basin, the Tonto Creek arm of the Lower Tonto Basin, and the Upper Tonto Basin, with archaeological sites discussed in the text.

throughout this period as a "hinterland" or "periphery" of the Hohokam core area along the Salt and Gila rivers in the Phoenix Basin. The most common appellation has been the "northeastern Hohokam periphery," although the Tonto Basin is also usually included in what has been called the "Hohokam culture area" or the "Hohokam regional system" (Hohmann and Kelley 1988; Rice 1990; Wilcox 1980; Wood 1985). Use of this terminology has several embedded assumptions. For one, it implies that the prehistoric inhabitants of the Tonto Basin were culturally or ethnically Hohokam, or at least under the control or cultural domination of the Phoenix Basin core area. For another, it suggests that processes occurring in the Tonto Basin were in some way dependent on core-area processes. As noted by McGuire (1991:373–374), peripheries have most commonly been interpreted from the inside (or core area) looking out, rather than from the outside (or periphery) looking in. This perspective emphasizes homogeneity rather than diversity, and stresses the dependent nature of the periphery. It also assumes that the periphery is essentially a scaled-down replica of the core area.

Much of the research in the Tonto Basin over the past 70 years has focused on understanding the intensity of external contacts. During the Preclassic period, the primary source of external influence was the Phoenix Basin Hohokam. However, as we discuss below, recent research suggests not only significant divergence from the Hohokam core area but also significant diversity within the Tonto Basin itself. These data indicate that the Tonto Basin can most productively be understood as containing an indigenous people who interacted and mixed with neighboring populations but who maintained a separate and distinct identity for most of the developmental sequence.

Environmental Considerations

As was apparent to the first explorers and scientists working in the area, the Tonto Basin is a small slice of the Sonoran Desert extending into the rugged mountains of central Arizona (Bandelier 1892; Bourke 1891). The mesquite-, paloverde-, and cactus-covered valley bottom is watered by the perennial Salt River, while the surrounding mountains reach heights of over 7,500 ft (2,285 m) and contain oak, juniper, and pine forests. Tonto Creek waters the northern end of the basin and, while significantly smaller than the Salt, may have contained water for all or most of the year. As discussed elsewhere, the relatively small size of the Tonto Basin, combined with its high ecological diversity,

provided local populations access to a wide variety of resources (Elson, Gregory, et al. 1995; Van West et al. 2000; Waters 1998).

From an environmental standpoint, the Tonto Basin is similar in a number of ways to the Phoenix Basin—both are very hot, semi-arid desert habitats, with flowing rivers and almost identical native plant and animal resources (Wood and McAllister 1980:183–185). In fact, the Tonto Basin is the first place before the Phoenix Basin that the Salt River opens into a large expanse of arable land as it flows west from the mountains of central Arizona. Perhaps more significantly, it is also the first place along the river where irrigation agriculture is possible. Irrigation agriculture is one of the defining attributes of Hohokam core-area settlement (Gregory 1991:170–174). Environmental similarities between the two regions have contributed to the formulation and perpetuation of the "Tonto Basin-as-Phoenix Basin-in-microcosm" model, as well as to the notion that the Tonto Basin is in some way subordinate to the Phoenix Basin.

When the environment is examined closely, however, these similarities appear superficial. The Phoenix Basin has much more available water and larger areas of irrigable land than the Tonto Basin, allowing for a greater investment in irrigation agriculture. Irrigation agriculture was undertaken in the Tonto Basin but on a much smaller scale because the large number of side drainages would have significantly limited the extent of individual canal systems (Waters 1998; Wood 2000). The Tonto Basin also contains a broader and more varied natural resource base; wild plants, such as saguaro, mesquite, and agave, and animal resources, such as deer, are much more common in the Tonto Basin. In terms of prehistoric settlement, Phoenix Basin groups would have been larger and probably more sedentary than Tonto Basin groups, due to the larger carrying capacity of the Salt and Gila rivers and the higher investment in canal systems (Elson, Gregory, et al. 1995:461–464; Gregory 1995).

The Tonto Basin can be internally partitioned into three environmentally distinct subareas: the Salt River arm of the Lower Tonto Basin; the Tonto Creek arm of the Lower Tonto Basin; and the Upper Tonto Basin (fig. 3.1). Streamflow and elevation differences between these areas are of sufficient magnitude that differing subsistence and settlement strategies were likely employed by the prehistoric inhabitants. While the Phoenix Basin can be divided into the Salt River and Gila River valleys, with the Salt having a wider floodplain and more water than the Gila, the effective resource base for both areas is similar. In the Tonto Basin, the Salt River is several orders of magnitude larger than Tonto Creek and therefore was a more reliable source of water for irrigation.

Streamflow reconstruction indicates that this was also true during the Prehistoric period (Waters 1998:23). Because of these factors, the Salt River arm of the Lower Tonto Basin is environmentally more similar to the Phoenix Basin core area than the Tonto Creek arm, although all are within the Sonoran Desert lifezone and differences are more of scale rather than type. This situation contrasts sharply with the higher, more rugged, and more heavily wooded Upper Tonto Basin. In fact, the Upper Tonto Basin, containing juniper-pinyon woodland/interior chaparral vegetation with little irrigable land, is extremely different from both the Phoenix Basin and the Lower Tonto Basin.

A Brief History of Tonto Basin Research

The history of Tonto Basin research has been described in detail elsewhere (e.g., J. Clark 2001; Elson 1998; Hohmann and Kelley 1988; Rice 1990), so only the points important to our argument are discussed below. Perhaps most significantly, the Tonto Basin has been included in the Hohokam culture area from the earliest days of formal archaeological research. In fact, the Hohokam culture and the mechanisms of Hohokam colonization were in part defined by the excavation of the site of Roosevelt 9:6, situated in the Lower Tonto Basin along the Salt River (Haury 1932) (fig. 3.1). The heart of the Phoenix Basin is located less than 90 km to the southwest, at most a two- to three-day trek, and it seemed clear to early researchers that the Tonto Basin was settled by Hohokam colonists.

According to the traditional scenario developed in the 1930s by Winifred Gladwin and Harold S. Gladwin (1935), Emil W. Haury (1932), and other Gila Pueblo researchers, Phoenix Basin groups moved into an unoccupied Tonto Basin during the Colonial period (AD 750–950), where they thrived by replicating core-area settlement and subsistence practices. After several centuries of continuous settlement, the Hohokam abandoned the Tonto Basin at the start of the Sedentary period (AD 950–1150), leaving the area once again uninhabited. Following a 200-year hiatus, Puebloan groups from the north moved into the basin around AD 1150, establishing the Salado culture. The Salado then used the Tonto Basin as a base to significantly influence Hohokam cultural development in the Phoenix Basin core area, the Tucson Basin, and elsewhere in the southern Southwest. Therefore, from the very first days of research, the Tonto Basin was viewed through a Phoenix Basin filter, which set the stage for all future interpretations (Elson, Lekson, et al. 1992:29).

The Gila Pueblo model of Hohokam and Salado colonization of the Tonto Basin was largely accepted by the Southwest archaeological community for the next 50 years, due primarily to the lack of research in the area. This situation changed with the advent of cultural-resource-management (CRM) archaeology in the 1970s, when for the first time funding was available for the excavation of multiple sites using modern methods. Doyel (1978) mounted the first challenge to the prevailing Salado theory, based on his excavation of eight sites along Miami Wash just south of the Lower Tonto Basin. Believing that he saw continuity between Hohokam and Salado settlements, Doyel formulated the Miami phase to serve as a temporal and cultural bridge between what had previously been considered to be two very distinct groups. According to Doyel, the Salado were not intrusive migrants from the northern pueblos but simply the Classic period (AD 1150–1450) manifestation of the Hohokam, and likely the descendants of the original Colonial period Hohokam settlers.

Doyel's interpretation fit nicely with the Hohokam regional-system model defined at about this same time (Wilcox 1980; Wilcox and Sternberg 1983) and quickly gained acceptance among Southwest archaeologists, including those working in the Tonto Basin (Hohmann and Kelley 1988; Rice 1985; Wood 1985; Wood and McAllister 1982). Although adoption of this view did not necessarily imply that all Preclassic inhabitants of the Tonto Basin were Hohokam, most researchers implicitly accepted that the vast majority were Phoenix Basin migrants who first entered the region during the Colonial period. This tacit acceptance was in part due to the lack of early sites in the Tonto Basin at this time, where the only excavated site pre-dating AD 950 was Roosevelt 9:6 (Haury 1932), by all appearances a Phoenix Basin Hohokam pithouse settlement. Consequently, models for Hohokam settlement in the Phoenix Basin core area were basically imprinted onto the Tonto Basin, even though differences between these areas were acknowledged and little data were available from the Tonto Basin itself.

Recent Tonto Basin Research

Research undertaken in the past 15 years provides evidence for a different interpretation of Tonto Basin prehistory. This view is based on the CRM-funded testing or excavation of approximately 200 sites in the Tonto Basin, providing one of the most comprehensive regional databases in the United

States (Dean [ed.] 2000). Sites investigated by these projects were located in both the Salt River and Tonto Creek arms of the Lower Tonto Basin, as well as in the Upper Tonto Basin, allowing, for the first time, comparative analyses among the three different subareas.

Much of the data presented below are derived from three projects undertaken by Desert Archaeology: the Roosevelt Community Development Study on the Salt River arm of the Lower Tonto Basin (Elson, Stark, et al. 1995); the Tonto Creek Archaeological Project on the Tonto Creek arm of the Lower Tonto Basin (J. Clark and Vint 2004a); and the Rye Creek Mitigation Project in the Upper Tonto Basin (Elson and Craig 1992). Although information from other Tonto Basin projects is used in this reconstruction, particularly Arizona State University's Roosevelt Platform Mound Study (Rice 1998), the majority of evidence in each subarea for the interval from AD 650–1150 is derived from these three projects. This sample includes 73 excavated or tested sites, ranging in time from the Middle Archaic period through the Early Classic period.

Middle Archaic and Early Agricultural Periods (ca. 3500 BC–AD 100)

The earliest documented occupation in the Tonto Basin is during the Middle Archaic and Early Agricultural (formerly Late Archaic) periods, where 13 sites have now been investigated (Huckell 2004: fig. 6.4; Huckell and Vint 2000) (see fig. 3.2 for Tonto Basin phase systematics). However, only the Boatyard site (AZ U:3:286) along middle Tonto Creek has been intensively excavated (fig. 3.1). This site contained a possible pithouse, an extramural activity area, and numerous pits dating to the Early Agricultural period Cienega phase (ca. 500 BC–AD 100). Maize remains, along with a suite of wild resources, were recovered, although Huckell and Vint (2000) believe the occupation was seasonal based on the lack of storage features.

Data from the investigation of other Middle Archaic or Early Agricultural period sites also indicate primarily seasonal or temporary use; to date, Preceramic period base-camps have not been excavated in the Tonto Basin, although survey data suggest that they are present. As noted by Huckell (2004: 249–256), a large population in the Tonto Basin at this time would not be surprising, given the favorable environment and particularly the high resource diversity within a relatively small area. However, the overall paucity of excavated remains makes it difficult to reconstruct these occupations. Still, the

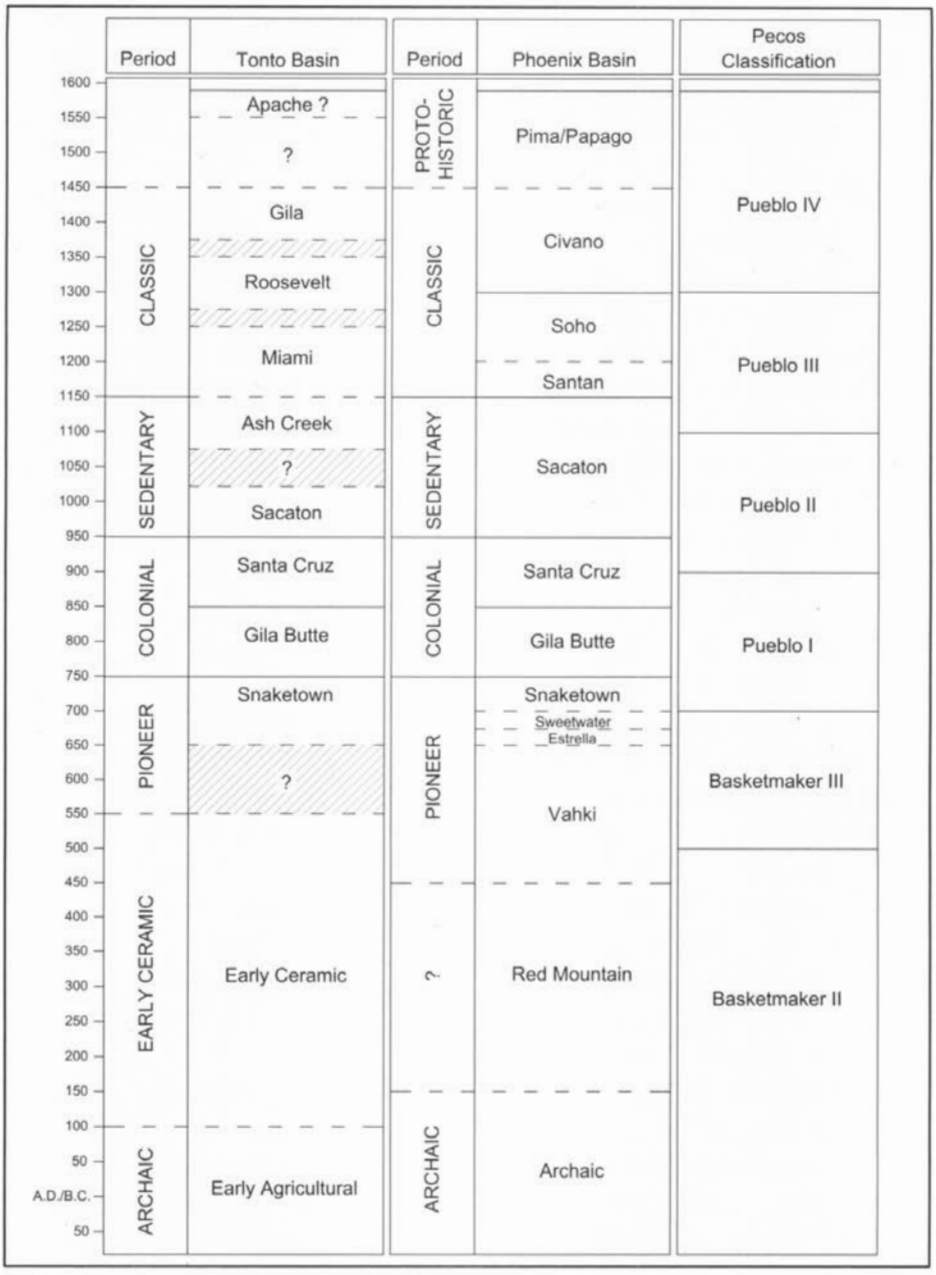

Figure 3.2 Phase systematics currently in use in the Tonto Basin (after Elson 1996).

important point is that the Tonto Basin was at least utilized and probably settled during the Archaic period and therefore cannot be perceived as an empty niche ripe for colonization.

Early Ceramic (ca. AD 100–550) and Pioneer (ca. AD 550–750) Periods

The earliest documented permanent occupation in the Tonto Basin is found on the Salt River arm at the Early Ceramic period component of the Eagle Ridge site (AZ V:5:104; fig. 3.1). The Eagle Ridge site was inhabited by a ceramic-using population that established an agricultural settlement containing between 30 and 50 pithouses on a ridge-finger overlooking the river (Elson 1996; Elson and Lindeman 1994). Thus far, large Early Ceramic period settlements similar to Eagle Ridge have not been discovered along the Tonto Creek arm or in the Upper Tonto Basin, although excavated structures from four sites have been identified as probably dating to this period (J. Clark and Vint 2004b; Gregory 1995).

Maize, cotton, and beans were recovered from the Eagle Ridge site, and maize pollen was recovered from the Tonto Creek and Upper Tonto Basin structures. Hunting and wild-plant gathering also played an important role in subsistence. The presence of cotton in particular indicates a significant agricultural investment at the Eagle Ridge site and raises the possibility of irrigation agriculture. Although Early Ceramic populations were probably related to local Early Agricultural period groups, immigration into the basin from surrounding areas cannot be discounted. However, petrographic data indicate that around 90 percent of the Eagle Ridge ceramic assemblage was manufactured in the Tonto Basin, suggesting the presence of a relatively stable local population (Stark 1995a). Based on architecture and site layout, Early Ceramic inhabitants had closest affinities with contemporaneous groups in the Mogollon Highlands, such as those that occupied the Bluff site and Bear Ruin, and were distinct from groups in the Phoenix and Tucson basins (J. Clark and Vint 2004b; Elson, Gregory, et al. 1995:444; Gregory 1995: fig. 5.6).

Even at this early date, possible differentiation is present between the Salt River arm and the Upper Tonto Basin and Tonto Creek areas. Whereas the Eagle Ridge site was almost certainly a permanently occupied settlement with significant investment in agriculture, Early Ceramic period sites in the other areas of the basin are small and appear to represent dispersed farmsteads. In fact, the Tonto Creek and Upper Tonto Basin sites are more similar to sites

occupied during the preceding Early Agricultural period, suggesting that populations outside of the Salt River area may have been small and transitory during this period.

The search for subsequent Pioneer period settlements in the Tonto Basin has yielded few potential candidates, and permanent habitations similar to the Eagle Ridge site have yet to be recorded. Along both the Salt River and Tonto Creek arms, and in the Upper Tonto Basin, there is only limited evidence for occupation at this time, almost all from the later half (ca. AD 650–750) of the period (J. Clark and Vint 2004b).

However, the scarcity of Pioneer period decorated ceramics in general, which are rare even in the Phoenix Basin core area, and the absence of artifacts uniquely diagnostic to the Early Ceramic period strongly suggest that both periods are underrepresented in the Tonto Basin archaeological record (J. Clark and Vint 2004b:266; Elson 1996:124). In fact, with the absence of decorated ceramics, unexcavated small- to medium-sized settlements from both periods would look very much like low-density plain ware and flaked stone scatters, similar to limited activity loci associated with later periods. Early Ceramic and Pioneer period remains would also be nearly invisible at sites with later components. For example, all of the few known Pioneer period sites became more substantial habitations during the following Colonial period (J. Clark and Vint 2004b; Elson et al. 2000:172–174), suggesting that these early components may have been more significant than the data currently indicate.

Colonial Period (ca. AD 750–950)

As originally proposed by Gila Pueblo researchers (W. Gladwin and Gladwin 1935; Haury 1932), significant numbers of Hohokam migrants from the Phoenix Basin entered the Tonto Basin during the Colonial period. The appearance of numerous material indicators of Hohokam culture coincides with a dramatic increase in the numbers of sites along the Salt River arm, the Tonto Creek arm, and in the Upper Tonto Basin. However, Hohokam influence along Tonto Creek and in the Upper Tonto Basin is considerably less intense than that observed along the Salt River, which appears to have been the primary destination for Phoenix Basin groups. In fact, excavation data suggest that neither Tonto Creek nor the Upper Tonto Basin was occupied by substantial migrant populations.

The Meddler Point site and Roosevelt 9:6, both on the Salt River arm, are the two largest Colonial period settlements investigated in the Tonto Basin to

date (Craig and Clark 1994; Haury 1932). Meddler Point was almost certainly a hamlet or village at this time and was surrounded by a number of small farmsteads, such as the nearby Hedge Apple site (fig. 3.1). By all appearances, Meddler Point resembles a typical Phoenix Basin Hohokam village, with a central plaza containing a cremation cemetery surrounded by trash mounds and pithouse courtyard groups (Gregory 1995). This layout, which was maintained throughout the nearly 600-year occupation, suggests an intimate knowledge of Hohokam site structure and what constituted a "proper" arrangement of domestic and ritual space (Wilcox 1991a:259–262). As noted above, because of visibility problems with Early Ceramic and Pioneer period settlements, the degree of interaction with the local population, or whether a local population was even present in the Lower Tonto Basin at this time, remains unknown.

In the Upper Tonto Basin, the sites of Deer Creek and Ushklish (AZ O:15:31) may also be small hamlets (Haas 1971; Swartz 1992), whereas the relatively numerous Colonial period sites on the Tonto Creek arm are all small and probably represent 1–3 family farmsteads or homesteads (J. Clark and Vint 2004b; Rice 1985). At these sites, a number of which have been intensively investigated, the cultural affiliation of the inhabitants is considerably more ambiguous than that at sites along the Salt River arm.

Ceramic data provide some of the best evidence for migration and also demonstrate that by the Colonial period, developments in the Salt River arm were clearly separate from the Tonto Creek arm and the Upper Tonto Basin. Hohokam Buff Ware, representing the earliest painted pottery in the region, dominates decorated assemblages throughout the basin during this interval. In the Tonto Creek area (Vint 2000a: table 1.3) and in the Upper Tonto Basin (V. Clark 1992; Haas 1971:44, table 8), Hohokam Buff Ware represents 4–6 percent of the total assemblage. This figure is substantially lower than that associated with the Salt River arm, where buff ware comprises around 20 percent of the assemblage (H. Wallace 1995a). In addition, Tusayan White Ware, manufactured by groups to the north, is found in small but significant quantities at Colonial and Early Sedentary period sites along Tonto Creek and in the Upper Tonto Basin (V. Clark 1992:81; Vint 2000b: fig. 2.33), while virtually absent along the Salt River. These data strongly suggest that groups residing along the Salt River arm had different interaction networks than groups living on the Tonto Creek arm and in the Upper Tonto Basin.

Perhaps more important for ascribing cultural affiliation are differences in

the utilitarian ceramic assemblage (Stark et al. 1995a; Stark et al. 1998). Approximately 75 percent of the Colonial period plain-ware assemblage along the Salt River arm was tempered with muscovite schist. Petrographic analyses indicate that this temper source occurs most likely in the Phoenix Basin and probably in the middle Gila River Valley (Stark et al. 1995). In addition, 14 percent of the Salt River arm bowls exhibited flared rims, a vessel form strongly associated with Preclassic Hohokam groups and commonly found in areas thought to be settled by core-area migrants (Stark 1995b:352–355). By contrast, local sands collected from the Tonto Basin were the dominant temper in Colonial period plain-ware collections from the Tonto Creek arm (97 percent) and the Upper Tonto Basin (96 percent), and not a single example of a flare-rimmed bowl was recovered from either area (Elson, Stark, et al. 1992; Heidke 2004; Stark and Heidke 1992). A similarly low proportion of schist-tempered sherds was identified in the Ushklish ceramic collection (Haas 1971: table 11). Hence, utilitarian ceramics along Tonto Creek and in the Upper Tonto Basin were produced by groups that probably did not originate in the Phoenix Basin. The scale of the ceramic differences between the Salt River arm and the other Tonto Basin areas suggests strong connections between the inhabitants of the Salt River and Phoenix Basin groups to the southwest that can be most parsimoniously explained by population movement between the two areas, rather than large-scale, inter-basin exchange in plain wares (J. Clark and Vint 2004b; Elson et al. 2000; Stark et al. 1995b).

Mortuary practices may also differentiate the Phoenix Basin and Salt River arm from the Tonto Creek arm and the Upper Tonto Basin. By the Colonial period, secondary cremation was by far the preferred method for treating the dead throughout the Tonto Basin (J. Clark and Minturn 2001; Swartz et al. 1995), mirroring practices occurring in the Phoenix Basin and suggesting a religious or ideological link with the Hohokam core area and southern Arizona in general. Secondary cremations in the Hohokam area involve a crematoria pit used multiple times, with the burned remains then placed in vessels and buried in a cremation cemetery (Haury 1976:166). Given the weight of recovered bone from each secondary cremation, it is likely that the remains of single individuals were partitioned into multiple secondary burials, some with vessels and some without (H. Wallace 1995b:830).

However, along the Tonto Creek arm and in the Upper Tonto Basin, distinctive Colonial period crematoria have been identified (Elson, Stark, et al. 1992: fig. 32.5; S. Hall et al. 2001; Swartz 1992). These features consisted of

rectangular, relatively deep pits, with the long axes oriented east-west. Many had postholes in the corners that held supports for the funerary pyres, and most contained either an internal pit or one nearby with a small quantity of bone. These features appear to have been used only once, or at most a few times. Comparable features have been excavated between Payson and the Mogollon Rim north of the Tonto Basin, along Pinal Creek south of the basin, and in the White Mountains east of the basin (Doyel and Hoffman 2003; Halbirt and Dosh 1991; Herr et al. 2000). Only secondary cremations have been identified along the Salt River arm, and no post-lined crematoria have been encountered. These features have also not been encountered in the Preclassic period Phoenix Basin core area.

To date, no ballcourts have been recorded in the Tonto Basin. Ballcourts have their greatest distribution in the Southwest during the Colonial period, where they are found in just about every region characterized as being part of the Hohokam culture area. In fact, they are considered by many researchers to be the primary indicator of participation in the Hohokam regional system (Crown 1991a:156; Wilcox 1991a:266). Although it is possible that ballcourts are present but unrecorded because they are now beneath Roosevelt Lake, they were not noted by pre-lake explorers and archaeologists, many of whom had recorded "large depressions" elsewhere in the Southwest.[1] Perhaps more telling is the observation that if ballcourts were part of Tonto Basin settlement, the Meddler Point site should have had one, given the large size of the Preclassic occupation, which almost certainly included Phoenix Basin migrants. Ballcourts are found at most major Preclassic period Hohokam sites, including areas outside of the Phoenix Basin core area such as the Tucson Basin, New River, and Verde River areas (Wilcox 1991a, 1991b). They have long been believed to be public integrative facilities, although whether a Mesoamerican-type ball game was actually played is debatable, and recent research also suggests that they were locales for feasting and possibly market-type activities (Abbott et al. 2003). The intensity of investigation at the Meddler Point site was sufficient to rule out the presence of a ballcourt (Craig and Clark 1994), however, and it appears more likely that the Lower Tonto Basin did not have a large-enough Hohokam population to support the construction and use of this type of integrative facility (Doelle 1995b; Elson et al. 2000). Tonto Basin inhabitants most likely participated in ballcourt activities at sites to the south (Ranch Creek) or on the eastern outskirts of the Phoenix Basin, both within a 1–2–day trek (see Wilcox 1991a: fig. 11.2).

Sedentary Period (AD 950–1150)

Patterns established during the Colonial period continued without much change during the first half of the Sedentary period. Along the Salt River arm, additional small farmsteads and resource procurement sites were established away from Meddler Point, but Meddler Point itself continued to grow and remained the only sizeable settlement in the eastern Tonto Basin (Craig and Clark 1994; Elson et al. 2000; Gregory 1995). It is likely that similar settlement patterns of small farmsteads and fieldhouses focused around a single village were present in other areas along the Salt River arm. With the possible exceptions of early components at Cline Terrace Mound and Rye Creek Ruin,[2] sites in both the Lower and Upper Tonto Basin areas were almost exclusively small pithouse farmsteads and homesteads, with little evidence for significantly larger settlements (J. Clark and Vint 2004b; Elson 1992).

During the second half of the Sedentary period, however, archaeological evidence suggests that intrabasin relationships became the primary focus for Tonto Basin inhabitants. At this time, influence from the Phoenix Basin core area decreased, concomitant with an increase in contact with groups to the north and east. This change in external orientation coincides with what has been characterized as the retraction and reorganization of the Hohokam regional system (Bayman 2001; Crown 1991a; Wilcox 1991a) and is first evident in the Tonto Basin in the more conspicuous forms of material culture, such as decorated ceramics and mortuary practices (Elson 1996). By AD 1050 or 1100, Hohokam Buff Ware ceramics were almost completely replaced by Cibola White Ware and limited quantities of Little Colorado White Ware in Tonto Basin assemblages. The relative proportions of muscovite-schist–tempered plain-ware pottery and flare-rimmed bowls also declined substantially, while local sand-tempered ceramic production increased, further suggesting weakening ties with Hohokam core-area groups.

In addition, extended supine inhumation became increasingly common during this interval and was by far the most prevalent mode of interment during the subsequent Classic period. Along Tonto Creek, cremation burial practices were abandoned in favor of extended supine inhumation near the beginning of the Sedentary period (S. Hall et al. 2001). Along the Salt River, the earliest supine inhumations date to the Middle or Late Sedentary period, but like the Phoenix Basin, secondary cremation burial was still most common, and, along with inhumation burial, continued into the Classic period (Loen-

dorf et al. 1995:403–414; Swartz et al. 1995:171–197). Mortuary practices in the Upper Tonto Basin at this time are unclear.

With the exception of burial practices and high-visibility material culture such as decorated ceramics, other classes of material culture, along with domestic architecture and spatial organization, exhibit continuity throughout this interval. This pattern suggests that at this time new trade relationships and the associated exchange of ideas with groups to the north and east played a greater role in the changes taking place than the actual migration of Ancestral Pueblo peoples into the Tonto Basin (J. Clark 2001; J. Clark and Vint 2004b; Elson et al. 2000). Perhaps more importantly, the data also suggest that the Sedentary period transition, although ceramically abrupt and therefore highly visible archaeologically, had little effect on local populations.

Discussion

Many of the material culture differences among the Salt River, Tonto Creek, and Upper Tonto Basin areas during the Preclassic period can be expressed in terms of the intensity of Phoenix Basin Hohokam influence and contact (see also Wood 2000). In fact, the patterning is so strong that the intensity of Hohokam interaction can be simply stated: the more similar the environment and the greater the irrigation potential, the more intense the interaction. The most significant difference between the Phoenix and Tonto basins is that the Salt and Gila rivers in the Phoenix Basin had much greater amounts of land and water available for irrigation. Within the Tonto Basin, the Tonto Creek floodplain actually contained more irrigable acreage than the Salt River, but the Salt River arm had more water, a more dependable flow, and a wider floodplain (Waters 1998:35–40). Irrigable acreage in the Upper Tonto Basin was limited to very small areas along Rye Creek and possibly Deer Creek.

Demographic estimates indicate that Tonto Basin populations never approached the maximum carrying capacity of the basin (Doelle 1995b; Waters 1998), meaning that arable land was probably available at all times. Therefore, water, rather than farmable acreage, was likely the most important variable in determining prehistoric settlement. In this sense, the strength of Hohokam interaction in the Tonto Basin can be viewed as a continuum, with the Salt River arm having the most intense interaction, including the presence of Hohokam migrants; the Tonto Creek arm having moderate interaction, but

little or no migration; and the Upper Tonto Basin, being the most environmentally dissimilar and farthest away from the Phoenix Basin, having only limited interaction. It is not surprising, then, that the earliest and largest Preclassic settlements, such as Roosevelt 9:6 and Meddler Point, are found along the Salt River arm. The inhabitants of these sites were closely connected with groups in the Phoenix Basin core area and probably migrated into the Tonto Basin during the Pioneer or early Colonial periods. Core-area migration during this time is also supported by Gregory and Huckleberry (1994) who suggest that long-term settlement and the infilling of available niches during the Phoenix Basin Colonial period may have forced new generations to move elsewhere to find open, habitable land.

Colonial period inhabitants of Tonto Creek and the Upper Tonto Basin followed a different trajectory than those along the Salt River. Both of these areas appear to include indigenous populations, likely descended from Middle Archaic, Early Agricultural, and Early Ceramic period settlers, and Hohokam migration was more limited than along the Salt River arm. Although the Phoenix Basin core area was still the primary source of exchange, interaction, and cultural and technological influence during the Colonial period, available evidence also suggests the persistence of indigenous traditions and contact with groups to the north and east of the basin. In fact, there is no archaeological evidence for Hohokam migrants in the Upper Tonto Basin, while evidence for Hohokam migrants in the Tonto Creek arm is ambiguous at best.

In all areas of the Tonto Basin, evidence for contact with the Phoenix Basin core area declined significantly by the middle of the Sedentary period. By this time, local communities had developed along internal lines for several hundred years and, although these communities forged new contacts with Ancestral Pueblo peoples to the north and east, little evidence for migration of Ancestral Pueblo groups is indicated. Perhaps most significantly, in all parts of the Tonto Basin the retraction or reorganization of Hohokam core-area groups apparently had little effect on the daily lives of local populations, outside of a change in decorated ceramic imports and the gradual adoption of new mortuary practices. The archaeological evidence at this time indicates a period of stability, with the same sites continuing to be occupied throughout this transition. In fact, this reorganization had so little visible effect that it is possible that the change was, at least in part, initiated by Tonto Basin groups, who may have found a better exchange market for cotton and other goods with Pueblo groups to the north and east. These data suggest that by the Sedentary period, identi-

fication with the Hohokam core area had diminished in importance to Tonto Basin inhabitants and that processes of local acculturation were well underway. This development is not surprising, given ethnographic data that indicate that migrants can, and often do, acculturate quickly, sometimes within one or two generations (Banton 1981; A. Wallace 1970).

The absence of ballcourts also implies that Tonto Basin inhabitants, including even those on the Salt River arm, were not as intimately tied into the Hohokam core area as previous researchers have suggested. This inference is supported by the lack of archaeological evidence for local community disruption during the Sedentary period reorganization discussed above. Recent research suggests that this transition was rapid and related to the general collapse of the ballcourt network throughout the southern Southwest (Abbott et al. 2003). Significant, or at least visible, impacts to Tonto Basin settlement would be expected if ballcourts were an important part of the local system.

Finally, the Sedentary period reorientation in exchange contacts set the stage for limited Ancestral Puebloan migration into the Tonto Basin during the following Classic period. Although the Classic period is beyond the scope of this paper, the data suggest that processes occurring in the Preclassic, such as migration and cultural mixing, also occurred during this interval. Considering the impressive number of Classic period sites excavated over the past 20 years, much of the recent literature has focused on this interval, and the reader is referred to other material for a thorough treatment of this period (J. Clark 1995, 2001; Dean [ed.] 2000; Elson 1998; Elson et al. 2000; Oliver 2001; Rice 1998; Simon and Gosser 2001).

Conclusion

The Preclassic period Tonto Basin is an excellent example of how models change with new data, sometimes resulting in discipline-wide paradigm shifts. It is also an excellent example of how complex culture history can be, even within a relatively small area. Haury and the Gladwins were absolutely correct in seeing both Hohokam and Ancestral Pueblo migration into the Tonto Basin. But they were incorrect in thinking that it happened evenly across the region in a social and economic vacuum. As recent research has shown, indigenous populations were present in the Tonto Basin starting with the Middle Archaic period. Although there are visibility problems with Early Ceramic and Pioneer period occupations, which are most likely underrepresented in the

archaeological record, all models of Tonto Basin prehistory must take the presence of local groups into account.

Throughout the 70 years of Tonto Basin research, an enormous amount of time and energy has been spent debating the cultural affiliation of the region's prehistoric inhabitants. In many ways, this emphasis reflects an unstated belief that if the culture of these people could just be correctly assigned, understanding would follow. These studies have resulted in theoretical models of Tonto Basin prehistory largely derived from research undertaken elsewhere, some of which are clearly inappropriate given the scale and complexity of the Tonto Basin record. As we have argued elsewhere, this line of investigation is limiting and explains little about the prehistoric occupation (Elson et al. 2000:191). Unfortunately, the search for cultural "connectivity," generally at the expense of understanding local variation, is very common in areas designated as "hinterlands" or "peripheries," and continues today to be a subject of much debate in Tonto Basin research.

We suggest that the Tonto Basin should not be uncritically labeled Hohokam, Mogollon, or any other cultural designation, although migrants from the Hohokam and Pueblo areas clearly moved into the Tonto Basin and mixed with local groups, and some portions of the basin were more closely affiliated with these external regions than others were. In fact, considering that these broad culture areas were defined more than 50 years ago and have no known ethnographic counterpart, we wonder about the utility of these terms in general (see Speth 1988; Tainter and Plog 1994:179). Previous classification of Tonto Basin groups as belonging to one of these broad culture areas in many ways has done more harm than good, leading to little understanding of local developmental processes. This is because cultural affiliation studies, by their very nature, search for similarities and in the process obscure differences between, and even within, areas. Labels are very powerful, and while they can be illuminating, they can unfortunately also be concealing. In this respect, we believe that it is more productive to view Tonto Basin prehistory along internal lines distinct from surrounding areas, even though these areas clearly played a role in, and at times strongly influenced, the basin's prehistory.

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Notes

1. Theodore Roosevelt Lake began filling in the early 1900s before the area had been intensively examined by professional archaeologists. However, in the late 1800s, noted scientists and naturalists such as Adolph Bandelier (1892) and Lt. John G. Bourke (1891) covered much of the Salt River arm of the basin where ballcourts would be expected. Although both Bandelier and Bourke recorded platform mounds and other large features and sites in the Tonto Basin, they did not note any ballcourts, even though they had found "depressions" or "reservoirs" later determined to be ballcourts in other areas of the Southwest.

2. Both Cline Terrace Mound along Lower Tonto Creek and Rye Creek Ruin in the Upper Tonto Basin contain substantial Classic period components. Although excavation has demonstrated that Preclassic remains are also present, the nature and size of these occupations are currently unknown.

4

The Mescal Wash Site

A Persistent Place in Southeastern Arizona

Rein Vanderpot and Jeffrey H. Altschul

Southeastern Arizona remains one of the most archaeologically intriguing yet least understood regions of the U.S. Southwest. The region's prehistoric populations appear to have been overshadowed by major cultural developments elsewhere, notably those involving the Hohokam to the northwest, the Mogollon to the northeast, the Anasazi and Salado to the north, and Casas Grandes to the southeast. Within southeastern Arizona, settlement nodes established along the better-watered portions of the major drainage basins resembled a cultural quilt of loosely connected communities. Some of these communities were quite long-lived, as they were established sometime in the Archaic period and hosted repeated occupations throughout the Formative and Protohistoric periods. To varying degrees, these communities interacted with their better-known neighbors, often accommodating immigrants; at other times, they were outnumbered by colonists. It is notable that these communities persisted in the face of more-dominant neighbors, but more intriguingly, they seem to have retained their unique identity. We will examine the reasons and factors that made this possible through the prism of a recently excavated site representing one such community, the Mescal Wash site (AZ EE:2:51 [ASM]; fig. 4.1). In doing so, we will evaluate the prevalent concept of southeastern Arizona as a hinterland between heartlands.

Setting and Background

The Mescal Wash site, which is located on a broad, mesa-like terrace at the confluence of Mescal Wash and Cienega Creek, covers nearly a square kilometer in the vicinity of Interstate 10 and the Union Pacific Railroad (fig. 4.2). At this site, which has witnessed habitation spanning nearly 3,000 years, multiple discrete loci suggest an episodic rhythm to the occupation. Travelers, hunters,

gatherers, farmers, pioneers, and colonists—in different configurations and at different times—all made their mark and contributed to the local landscape in distinctive ways.

The site is well situated for studying the interplay of cultural-interaction patterns. It is located in a cultural, as well as ecological, transition zone. Approaching the site from Tucson—the location of the nearest ancient "heartland"—to the northwest, the landscape changes slowly but noticeably, as stands of yucca gradually replace the ubiquitous saguaro, and juniper and agave begin to speckle the rolling hills and ridges. Once one approaches Cienega Creek, the change is virtually complete, and the Sonoran Desert has given way to the Chihuahuan grasslands (D. Brown and Lowe 1994).

Cienega Creek flows north through a broad valley bordered on the east by the Whetstone Mountains and Mustang Hills, on the south by the Canelo Hills, and on the west by the Santa Rita Mountains and Empire Mountains (fig. 4.1). Perennial water flows through most of the lower half of the creek and, in particular, above the Narrows, a bedrock constriction about 5 km south of the site (Stevens 2001). Large areas of slow-moving, virtually ponded water flow lazily along much of its course. These lushly vegetated, riparian marshlands, or *cienegas*, have given the creek its name. An important feature of this valley is that three major plant communities—riparian, grassland, and oak woodland—are represented within a small area. Furthermore, conifer forest is present a few kilometers away higher up on the mountains, and Sonoran desertscrub is within easy reach to the northwest. An ephemeral drainage that holds water only during summer rainstorms, Mescal Wash is flanked by populations of agave. Different suites of economic plant species are present in each of these areas, together forming a year-round reserve of sustenance. This combination of resource diversity, abundance, and accessibility was probably a major factor contributing to the longevity of the Mescal Wash site.

Archaeology of a Persistent Place

From among an approximate 2,500 archaeological features identified at Mescal Wash, about 100 structures, 50 burials, and 300 extramural features were excavated (fig. 4.3). Preliminary indications are that the site was intermittently occupied between about 1200 BC and AD 1450, experiencing a noticeable hiatus between AD 1150 and 1300. Intermittent occupation or site use probably continued through the Protohistoric period, as represented by an

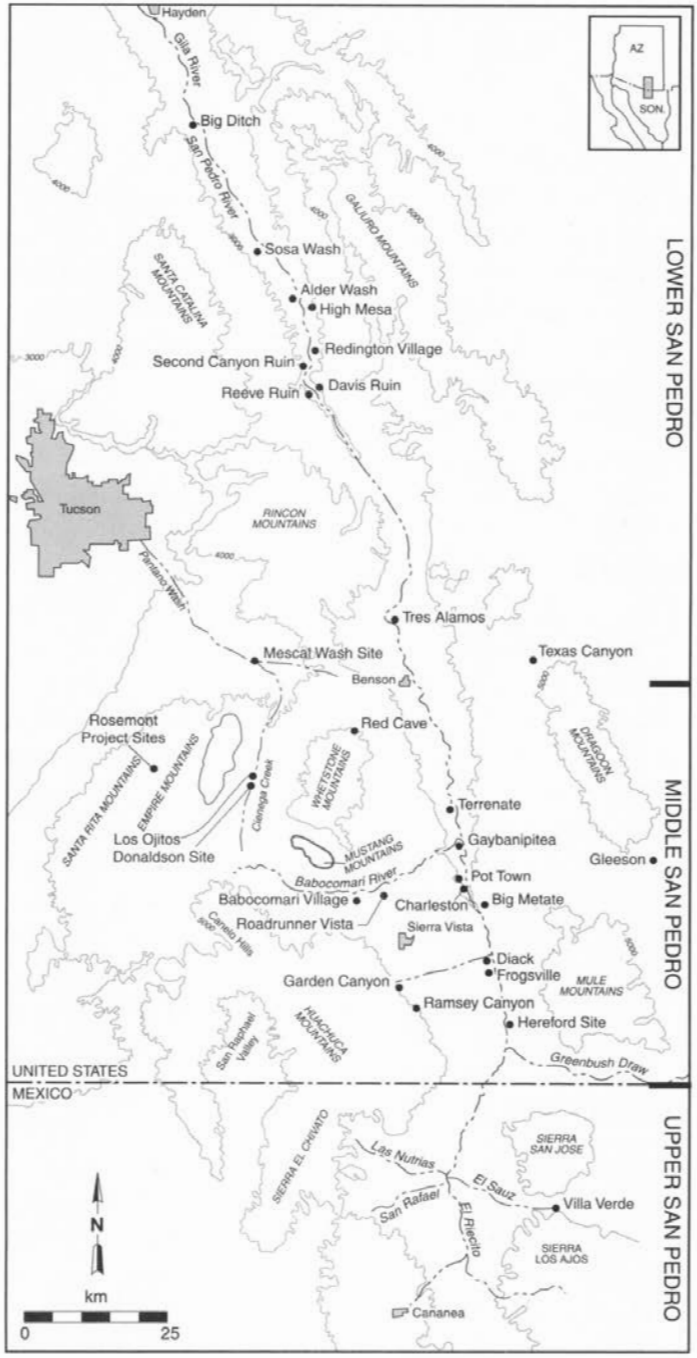
Hayden
Gila River
Big Ditch
San Pedro River
Sosa Wash
Alder Wash
High Mesa
Redington Village
Second Canyon Ruin
Davis Ruin
Reeve Ruin
Tucson
RINCON MOUNTAINS
SANTA CATALINA MOUNTAINS
GALIURO MOUNTAINS
Pantano Wash
Tres Alamos
Mescal Wash Site
Benson
Texas Canyon
DRAGOON MOUNTAINS
Rosemont Project Sites
Red Cave
WHETSTONE MOUNTAINS
SANTA RITA MOUNTAINS
EMPIRE MOUNTAINS
Cienega Creek
Terrenate
Los Ojitos
Donaldson Site
MUSTANG MOUNTAINS
Gaybanipitea
Gleeson
Babocomari River
Pot Town
Babocomari Village
Charleston
Big Metate
Roadrunner Vista
Canelo Hills
Sierra Vista
Diack
Frogsville
MULE MOUNTAINS
Garden Canyon
Ramsey Canyon
Hereford Site
HUACHUCA MOUNTAINS
San Rafael Valley
Greenbush Draw
UNITED STATES
MEXICO
SIERRA EL CHIVATO
Las Nutrias
SIERRA SAN JOSE
El Sauz
San Rafael
Villa Verde
El Rincito
SIERRA LOS AJOS
Cananea
N
km
0
25
AZ
SON.
LOWER SAN PEDRO
MIDDLE SAN PEDRO
UPPER SAN PEDRO

Figure 4.2 Aerial view of the Mescal Wash site (Interstate 10 is at bottom left).

occasional projectile point. Historic documents show that by the 1800s, the area was known as the "Ciénega de los Pimas" and was used regularly as a bivouac for Spanish soldiers moving from the Tucson Presidio to the Apacheria (Dobyns 1981:18).

Given its long history of occupation, we were not surprised to find a wide range of architectural styles. Early Agricultural period houses were pole-and-brush structures similar to those documented throughout southern Arizona (Gregory 2001; Mabry et al. 1997). Likewise, many of the pit structures from ca. AD 750 to 950 were typical Hohokam houses. By contrast, AD 950–1150 period pit structures included examples of a local style characterized by a recessed hearth. The site's adobe structures dating to AD 1350–1450 had raised floors and narrow, stepped entryways. The site layout always remained informal, however, and lacked a ballcourt or platform mound. Additionally,

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Figure 4.1 Map of southeastern Arizona showing sites mentioned in the text.

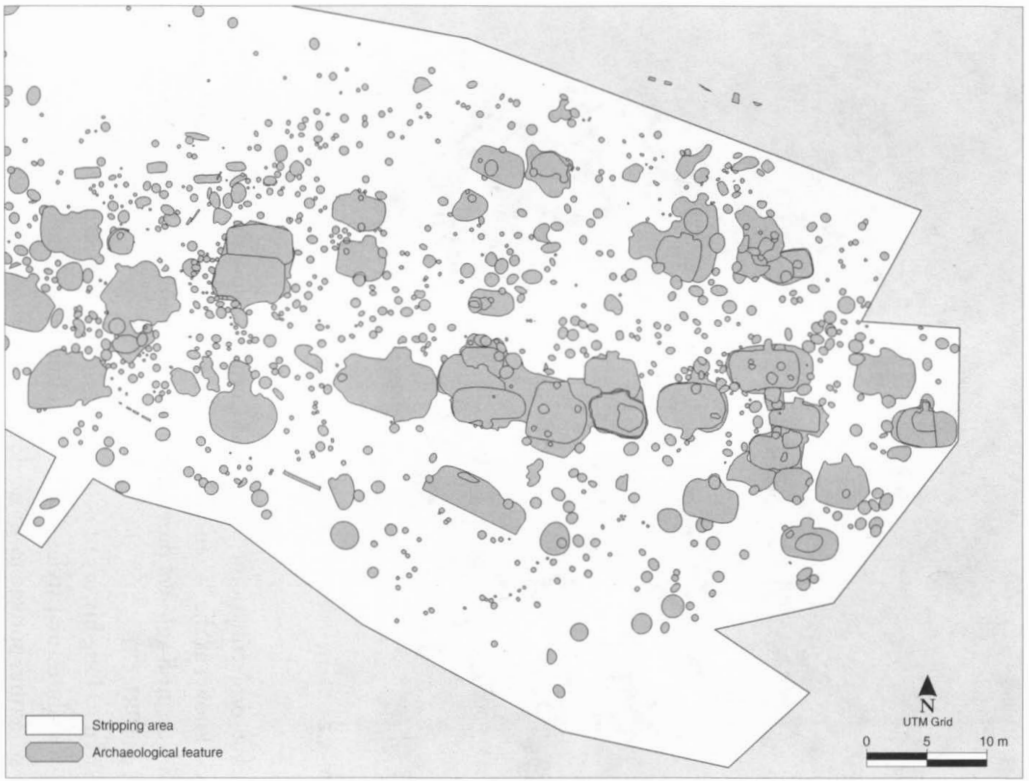


Figure 4.3 Detail of Locus D at the Mescal Wash site.

and importantly, not one of the structures was arranged into courtyards or enclosed by compound walls.

The key attribute of the Mescal Wash site is its longevity: a near-continuous occupation from the Early Agricultural period through the Formative period sequence, which was interrupted only for a century and a half in late prehistory. According to Schlanger (1992:97), a "persistent place" is marked by cultural features that attract and orient reoccupation. Artifacts and architectural styles indicate that over time the Mescal Wash site was indeed visited, settled, and influenced by people belonging to many surrounding cultures and groups. Some occupations were transient, such as those involving the hunter-gatherers of the Archaic period and, later, the equally mobile Apache or Sobaipuri. The Early Agricultural and Formative period occupations were more permanent, as indicated by architecture and storage pits and likely included an indigenous core population. Between AD 750 and 950, the site may have grown to village size on one or more occasions, possibly hosting as many as 100 permanent inhabitants. Thereafter, from AD 950 to 1150, the population decreased, and the site consisted of a series of dispersed farmsteads. This community endured through the AD 1150–1300 period, although people were moving several kilometers downstream during that time to what would later become the Old Pantano Railroad Stop. In the Late Prehistoric period, AD 1300–1450, a few farmers reoccupied the site, establishing a small number of widely spaced adobe houses among the earlier ruins.

In light of its persistent occupation over a long period, paired with the absence of ballcourts and platform mounds, how did the Mescal Wash site fit into the complex cultural mosaic of southeastern Arizona? How did its population interact with the larger, regional community? Was the site's steady balance between isolation and interaction unique within the region or was it repeated in other places? To answer these questions, we briefly review how the Mescal Wash site compares with others in the region.

Late Archaic/Early Agricultural Period (1500 BC–AD 1)

This period is represented at the Mescal Wash site by a loose cluster of small circular structures in Locus D. Only a small portion of this early component was excavated. The houses were simple pole-and-brush structures that were not built in a pit and had no evidence of formal entryways. Material

culture included projectile points that were predominantly San Pedro types, with Cortaro, Empire, and Cienega types less common.

During this period, the Mescal Wash site was probably much like other contemporaneous communities in the region. Two such early habitation sites, the Donaldson site and Los Ojitos, have been excavated nearby along Cienega Creek in Matty Canyon (Huckell 1995). Matty Canyon enters the creek upstream from the Narrows, creating a locale that is undoubtedly better watered than the Mescal Wash area. Extensive, thick middens, a substantial number of burials, and a series of domestic structures associated with storage pits and maize attest to an intensive and long-term occupation there (Huckell 1995:124–140).

Early Formative Period (AD 1–750)

This period is represented at the Mescal Wash site by several small, oval structures with large, bell-shaped storage pits in Locus D. Bell-shaped roasting pits containing early plain-ware and red-ware ceramics provide additional evidence linking these structures to this time period. Most of these pits were large and showed evidence of repeated use. They were similar in shape to the bell-shaped *hornos* documented by Fulton and Tuthill (1940) at Gleeson in the Sulphur Springs Valley and nearby in the same area by Trischka (1933). These features appear to be restricted to the Early Ceramic period horizons across southern Arizona and northern Mexico.

Middle Formative Period (AD 750–1150)

Most of the occupation of the Mescal Wash site took place between AD 750 and 1150, a time span that we term the Middle Formative period. At this time, some sites in southeastern Arizona exhibit obvious mixing of architectural styles, ceramics, and other material culture, along with different mortuary practices, suggesting that different cultural groups lived side by side. Such mixed occupations were noted at Tres Alamos and Second Canyon Ruin (Franklin 1980; Tuthill 1947), and although less conspicuous, were also observed at the Mescal Wash site.

Based on ceramic evidence, we subdivided the Middle Formative period at the Mescal Wash site into two time periods: AD 750–950 and AD 950–1150, which mirror similar periods within the Hohokam, Mogollon, and San Simon cultural sequences (fig. 4.4). At Mescal Wash, settlement was temporally discrete, as the occupation dating to AD 750–950 was largely confined to Locus D, and the subsequent AD 950–1150 occupation took place in Loci A and C.

AD 750–950. The earliest painted ceramics at Mescal Wash date to AD 750–950. We found small numbers of Snaketown Red-on-buff and Dos Cabezas Red-on-brown sherds—the site's earliest painted sherds—and larger numbers of Gila Butte Red-on-buff, Santa Cruz Red-on-buff, Cañada del Oro Red-on-brown, Rillito Red-on-brown, Galiuro Red-on-brown, and Cerros Red-on-white pottery. Most of the site's excavated structures date to AD 750–950, when the site reached its population peak. The structures vary in size, shape, and orientation, but the majority are reminiscent of Hohokam houses-in-pits (Haury 1976). Overbuilding was considerable during this time, suggesting the presence of a densely occupied, discrete hamlet, or perhaps a village.

AD 950–1150. The occupation of the Mescal Wash site during this period is indicated by the presence of Rincon Red-on-brown, Tres Alamos Red-on-white, and Sacaton Red-on-buff pottery. As in the previous period, many of the houses are identical to Hohokam structures found in the Tucson Basin and elsewhere. However, six examples of what appears to be a local architectural style were found—pit structures characterized by a large, circular, recessed area in the floor adjoining the entrance. The hearth is located in the center of this sunken area, and postholes suggest that this recess had its own special roof. Remnants of reed matting may indicate that a semicircular bench was constructed around the hearth. A similar architectural style was documented at Gleeson near the Dragoon Mountains (Fulton and Tuthill 1940) and at Tres Alamos along the San Pedro River (Tuthill 1947). Most of the recessed-hearth structures appear to have been residential. At Mescal Wash, the number of internal pits they contained is similar to the Hohokam-style houses, and with few exceptions, their floor assemblages were no different. Buff-ware sherds were less common, however, and the only Mimbres Black-on-white sherds from the site were found on the floor of one of the houses with a recessed hearth in Locus C. The same floor also contained a small clay rattle, which resembled a ceramic version of a copper bell.

One recessed-hearth structure in Locus C merits mention. This structure was much larger than any other at Mescal Wash, measuring about 10 m by 6 m (fig. 4.5). Instead of internal pits, it had a series of parallel grooves in the floor outside the recessed area that were suggestive of a raised floor. This was the only structure with an east-facing entryway. In addition,

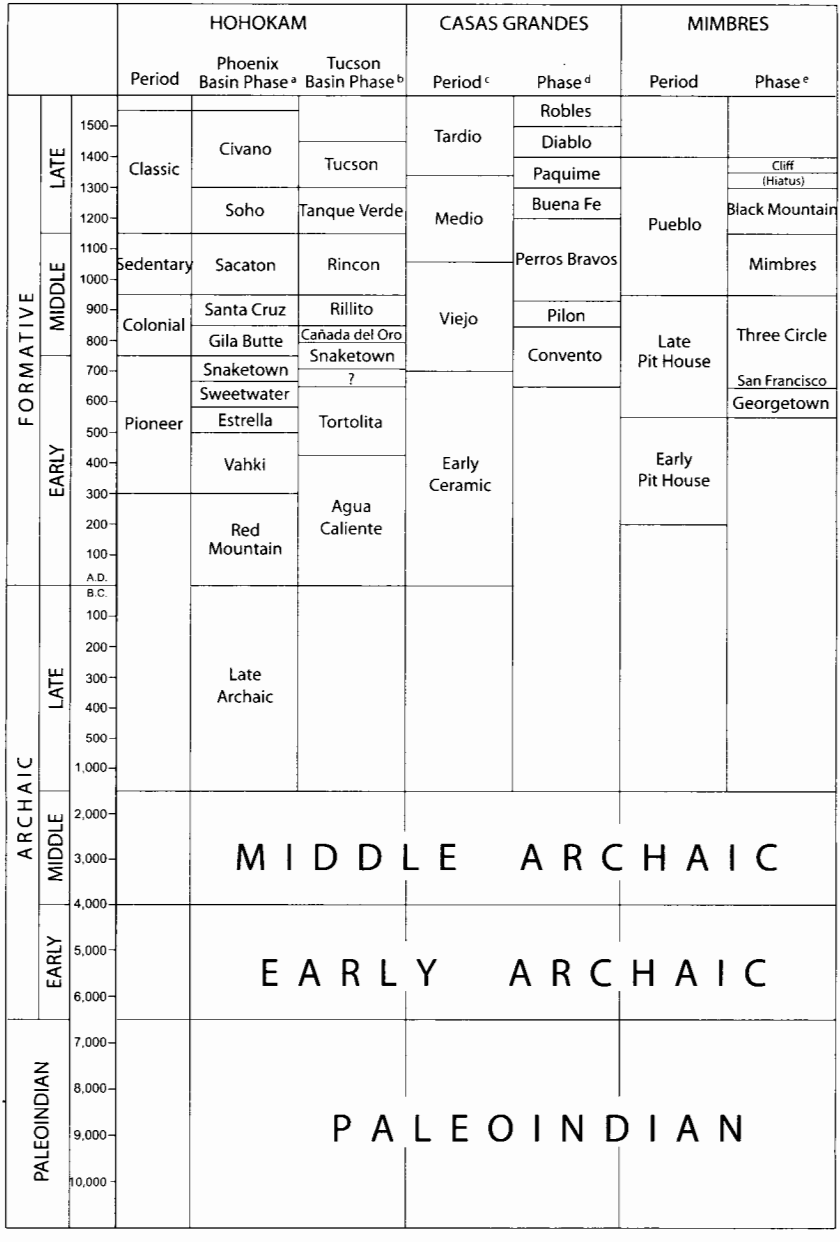
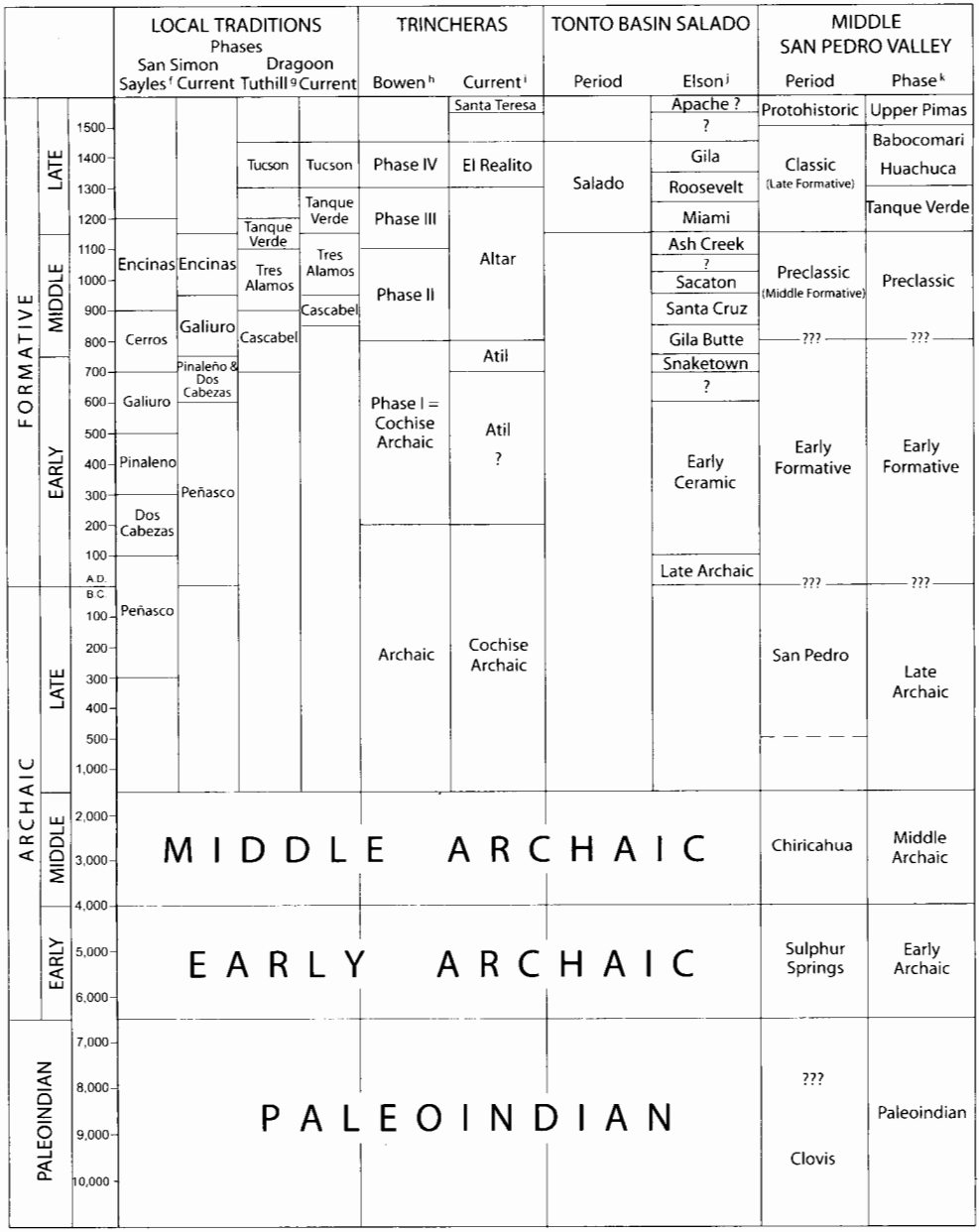


Figure 4.4 Chronological chart for southeastern Arizona. (a) Dean 1991:91; (b) Deaver and Ciolek-Torrello 1995:514 (AD 1–800), Dean 1991:91 (AD 800–1450); (c) Di Peso 1974; (d) Dean and Ravesloot 1993; (e) Lekson 1990;



(f) Sayles 1945; (g) Tuthill 1947; (h) Bowen n.d.; (i) McGuire and Villalpando 1993:71–73; (j) Elson 1996; (k) Altschul 1994.

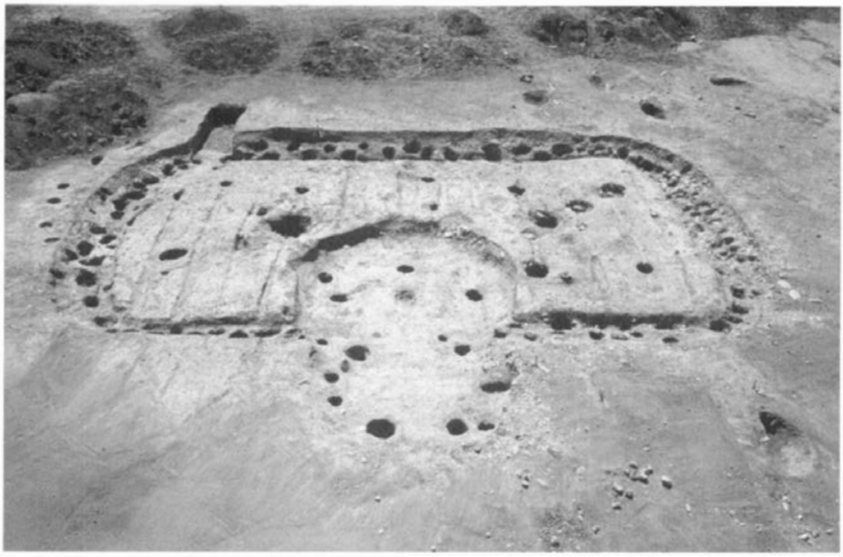


Figure 4.5 Photograph of large pit structure with recessed hearth area and parallel floor grooves.

two domestic recessed-hearth-style houses were lined up to the north of the larger structure, creating a plaza-like area in front of three structures. We have inferred, based on the various lines of evidence, that the three structures were contemporaneous and that the larger one supported a communal function.

The recessed-hearth style of architecture constitutes the single most unique aspect of the Mescal Wash site. Its presence at Tres Alamos and Gleeson—and likely at other, not-yet-excavated sites in this part of southeastern Arizona—suggests that it was an indigenous cultural development. Based on preliminary dating results from the Mescal Wash site, the style dates to sometime between AD 950 and 1050. It is noteworthy that several houses exhibit evidence of a major remodeling episode, during which the recess was filled and leveled and a new hearth was built at the upper level, thereby reverting to the previous architectural style resembling that of the Hohokam. Furthermore, a pair of burned houses with recessed hearths in Locus C were adjoined or clipped by two later, conventional pit structures. Except for the absence of recessed hearths, the intrusive houses were identical to the earlier ones: they had the same orientation and deep storage pits in the same location.

Clearly, the innovative style fell out of favor, but it is the best evidence for an episode of cultural cohesiveness in the area.

Tres Alamos and Gleeson

A review of the archaeology of contemporaneous components at two other sites in the region reveals shared architectural and material-culture traits with the Mescal Wash site. Tres Alamos flanks the San Pedro River about 18 km north of Benson and less than 25 km northeast of the Mescal Wash site (fig. 4.1). Investigations by the Amerind Foundation between 1940 and 1942 exposed cultural remains in discontinuous concentrations over several acres (Tuthill 1947). The main occupation spanned the Middle through Late Formative periods and yielded no evidence of Archaic period use. About 30 Middle Formative pithouses were excavated. Both Mogollon- and Hohokam-type structures were present, the former appearing to dominate during the Cascabel phase (AD 750–950) and the latter during the Tres Alamos phase (AD 950–1150). Two groups of Tres Alamos phase pit structures were surrounded by a stone enclosure approximately 50 m in diameter. The site also differed from Mescal Wash in that a ballcourt, dating to the Tres Alamos phase, was found. But as at the Mescal Wash site, houses of this period contained several examples with evidence of recessed-hearth areas.

The Gleeson site is located in the Sulphur Springs Valley along the south end of the Dragoon Mountains, about 75 km southeast of the Mescal Wash site (fig. 4.1) (Fulton and Tuthill 1940). Bell-shaped roasting pits, similar to those at the Mescal Wash site, suggest the presence of an Early Formative period component. Specific architecture and pottery indicate that the site was occupied during the Middle and Late Formative periods. Twenty-two pithouses were excavated, most of which were Hohokam-like, but a number of Mogollon-type structures and recessed-hearth-type houses also were excavated. The absence of a ballcourt makes Gleeson comparable to Mescal Wash.

Regional Dynamics and the Question of the Dragoon Culture

Tres Alamos, Gleeson, and many other sites in southeastern Arizona contain a distinctive, locally made pottery, termed "Dragoon," that was made from AD

700–1100. This pottery was characterized by red-on-brown ware with a decorative treatment that borrowed design elements from Mogollon, San Simon, and Hohokam ceramics (Heckman et al. 2000:43). Dragoon ceramics are found throughout most of the San Pedro River valley—the middle portion in particular—and adjacent areas. The Dragoon "culture," such as that found at Tres Alamos, Texas Canyon, and at Mescal Wash, has been considered a regional expression of the San Simon branch that was strongly influenced by the Hohokam (Deaver 1984:366–370; Franklin 1980:109–114; R. Jones 1996:18–21; Masse 1980a; Whittlesey et al. 1994:65–82). But can we equate this ceramic horizon with an actual archaeological culture? After all, aside from the ceramic traits, the sites exhibit no distinctive characteristics, with the notable exception of the recessed-hearth style of architecture. The same architecture has thus far been recorded only in small sections of three river valleys in southeast Arizona: Cienega Creek, San Pedro, and Sulphur Springs. This unique architectural style may be a key factor in identifying and defining Dragoon "culture."

It is best to regard the Middle Formative period occupation of the region as a mosaic of local cultures, each centered on river valleys or portions thereof. Generally, these settlement systems became more sharply delineated after about AD 800. In the lower San Pedro River valley (downstream from Benson), numerous Hohokam-like villages and hamlets, such as Big Ditch (Masse 1980a), Second Canyon Ruin (Franklin 1980), and Alder Wash Ruin (Masse 1980a), were established or expanded from their Pioneer period cores. These settlements, and others in the Safford region to the east, participated in the Hohokam ideological system, as indicated by the predominance of cremation burials and the presence of ballcourts (Woodson et al. 1999). It is not exactly clear whether these regional Hohokam phenomena were linked to the Phoenix area or the Tucson Basin, although ceramic data suggest direct links to the Gila River.

The situation along the upper and middle San Pedro River (upstream from Benson) is less clear. Farmstead-sized to village-sized, Hohokam-like residential components were found in the middle portion of the valley at Soldier Creek (Vanderpot 1994:86–92), Pot Town (Altschul et al. 1997), and Fairbank (A. Smith 2004), to name just a few. Some of these sites may include a ballcourt. Most Middle Formative sites in the middle San Pedro River valley, however, contain few Hohokam sherds, and this trend extends south of the

U.S.–Mexican border into the upper San Pedro River. The San Pedro River valley, then, appears to be strongly incorporated into the Hohokam system in its lower reaches, but the connection appears to weaken further upstream.

Another ballcourt documented close to Mescal Wash was found at AZ EE:2:105 (ASM) in the Santa Rita Mountains (Ferg 1984:110–114). Located 30 km southeast of Mescal Wash, this site has been interpreted as defining the eastern extent of the Tucson Basin Hohokam ballcourt system (Wilcox 1991b). The absence of a ballcourt at a site with as large a Middle Formative occupation as the Mescal Wash site suggests that Cienega Creek was on the fringes of the Hohokam regional system (i.e., just east of the Tucson Basin "heartland" and west of the Hohokam presence extending down the San Pedro River).

Regional Dynamics during the Late Formative Period

During the Late Formative period (see fig. 4.4) in southeastern Arizona, the area was affected by three regional systems: Classic period Hohokam (AD 1150–1300), Salado (AD 1300–1450), and Casas Grandes (AD 1200–1450). Adding to the mix were small household units—in particular Kayenta Anasazi groups—immigrating into the area (Di Peso 1958). The period is variably characterized by surface architecture of masonry and adobe, compounds, and platform mounds.

AD 1150–1300

In southeast Arizona, Early Classic period Hohokam sites formed a dispersed settlement system of small to moderate-sized residences of adobe-lined pit structures and surface structures of cobble masonry or cobble-reinforced adobe. Groups of these houses were occasionally surrounded by rectangular compound walls. Associated ceramics are represented by the Tanque Verde series (Red-on-brown, Red-on-black, and Polychrome). None of these types was found at Mescal Wash, nor were contemporaneous ceramics from the north, such as San Carlos and Maverick Mountain Ware pottery. The reasons that Mescal Wash was not occupied during this period are unclear. Perhaps insufficient water flow in the adjacent creek bed forced the local farmers to relocate to a more favorable setting downstream.

AD 1300–1450

Late Classic period sites retained the previous architectural styles. Compound walls became more common, but large villages dominated the settlement pattern. Settlement became nucleated, and sites were often placed in defensive locations. During this time, the construction of platform mounds emerged along the lower San Pedro River and elsewhere in southeastern Arizona (Doelle et al. 1995). In fact, several distinct but contemporaneous styles of compound layout have been identified; each style corresponds to a particular segment of the drainage (Altschul et al. 1997). At Villa Verde, along the upper portion of the river, compounds were rectangular and had rooms attached to the outside (Altschul et al. 1999). Between 150 and 200 rooms may have been present at the site, and several rooms could possibly have been built on a platform. At excavated sites along the middle San Pedro River—Babocomari Village and Garden Canyon—compounds were circular, and rooms were similarly attached to the outside (Altschul and Jones 1990). Farther north, downstream along the river, five large habitation sites—Tres Alamos, Reeve Ruin, Davis Ruin, Redington Ruin, and Second Canyon Ruin—each contained one or more rectangular compounds with rooms located inside along one or more walls. These compounds are much like those to the north associated with the Salado and Hohokam, although some of the internal features are reminiscent of the Mogollon and Anasazi (Di Peso 1958; Franklin 1980; Tuthill 1947). Finally, downstream from Second Canyon, the river was flanked by platform-mound communities characterized by architecture representing a local variant of the building style emanating from the Tonto and Phoenix basins. Clearly, these four architectural differences reflect social, if not ideological, boundaries between the various settlements. The cultural affiliation of Babocomari Village remains ambiguous. Charles C. Di Peso (1951:231–233, 238) concluded that the culture was peripheral Hohokam influenced by contacts with Paquimé, whereas Wilcox (1995) suggested it was part of the Casas Grandes regional system.

At the Mescal Wash site, habitation following the AD 1150–1300 hiatus was not marked by any formality in site layout. Rather than consisting of aggregation into large compounds, occupation was sparse, representing not more than a scattering of individual houses. Associated ceramics include Tonto, Gila, and Babocomari Polychrome types, but no Tucson Polychrome or Gila and Salt Red Ware sherds were found. Five adobe-lined pit structures were found spaced widely apart in the western half of Locus D and in Locus E. Each of these had a

posthole pattern indicative of a raised floor surrounding the hearth area. The structures were accessed through narrow, stepped entryways. Similar houses were excavated by Di Peso (1956: fig. 83) at the Paloparado site (San Cayetano del Tumacacori). The presence of not more than a few scattered houses at Mescal Wash is not a unique phenomenon for this time period. It fits well with the pattern of nucleated settlements surrounded by sparser occupations noted throughout the region.

Differing Perspectives on Culture and Place

As is the case for some other regions discussed in this volume, archaeologists traditionally have viewed southeastern Arizona as a hinterland, an area on the fringe of major prehistoric developments in the so-called heartlands. But how well does the Mescal Wash site fit into this heartland/hinterland (or core/periphery) model? Although the site is long-lived, most of the excavated features date to the Middle Formative period, and accordingly, our discussion focuses on that period. At first glance, the heartland/hinterland model seems to be applicable to the Mescal Wash site during this time, as Hohokam-style houses and ceramics are found next to Mogollon- or Dragoon-like features and artifacts. Some aspects of the site's material culture—ceramics, architecture, and mortuary practices—fit well with definitions of Hohokam, whether it is regarded as a culture (Haury 1976), regional system (Wilcox 1980), or ideology (H. Wallace et al. 1995). Other aspects fit comfortably into the various definitions of Mogollon or Dragoon. On closer inspection, however, the data suggest that there are some problems with applying the model to the site. We have developed three plausible hypotheses to explain the archaeological record.

The first hypothesis is that the site was occupied sequentially by different cultural groups. As discussed, many of the Middle Formative pithouses are identical to contemporaneous structures found in the Tucson Basin, and some of the pottery from this time period could just as well have been found at a Tucson Basin site. During AD 750–950, the Mescal Wash site seems to have been dominated by Tucson Basin Hohokam, who expanded out of the Sonoran Desert as their population increased. This Hohokam phenomenon, often referred to as the "Colonial Expansion," was not unique to the region but was prevalent in much of southern and central Arizona. Events during the period spanning AD 950–1050 are less easily interpreted. The site's population decreased and shifted to other loci, whereas local pottery and architectural

styles became noticeable. Sometime during AD 950–1050, locally inspired, recessed-hearth-style pit structures appear, only to be remodeled into, or replaced again by, Hohokam-style houses. We could interpret this ebb and flow of stylistic traits as evidence that Hohokam groups left the site and were replaced by local Dragoon groups, who in turn were displaced by another wave of Hohokam immigrants or by groups with strong ties to the Hohokam.

A test of this hypothesis will require large numbers of absolute—in particular, archaeomagnetic—dates from temporally unmixed deposits. Once archaeomagnetic results have been returned for Middle Formative structures, we might be able to argue that the Tucson Basin Hohokam, Gila Basin Hohokam, and "Dragoon" occupations were sequential and quite distinct.

It is more likely, however, that we will find that the various architectural and ceramic styles were contemporaneous. A second hypothesis is that members of various cultures and ethnic groups "co-resided" at Mescal Wash (Reid and Whittlesey 1997; Whittlesey 1995). Long a mainstay of Mogollon archaeology, the concept of co-residence has not been strongly embraced by Hohokam archaeologists. J. Clark et al. (1997), however, have demonstrated its usefulness for examining the prehistory of the San Pedro River valley. The cultural placement of the Mescal Wash site on the traditional boundary of the Hohokam and Mogollon makes this concept particularly appealing as an explanatory device.

A third hypothesis is that throughout most of its history Mescal Wash was home to groups representing a local culture that was distinct from its better-known neighbors, the Hohokam and Mogollon. This culture is best expressed in the way the site's residents adapted to their grasslands/cienega environment. As discussed previously, the economy of the site's residents remained remarkably stable. Thus, even as pottery styles, house design, site layout, and burial customs changed, the economic relationship between the inhabitants and the land remained the same. People farmed the same land, collected the same wild-plant resources, and hunted the same types of animals in approximately the same proportions. These economic pursuits were distinct from those practiced by the desert-farming Hohokam or the mountain-adapted Mogollon. One could forward an argument, then, that local groups interacted with their neighbors and borrowed architectural and material-culture styles even as they were developing homegrown traits, such as the recessed-hearth style of architecture.

The three hypotheses articulated above are not mutually exclusive. There

could have been times during the Formative period when the site was exclusively occupied by settlers from the Tucson Basin and then, alternately, when it was the sole domain of groups affiliated with a culture endemic to the valleys of southeast Arizona. At still other times, these groups, combined with Mogollon groups from the north, may have co-resided at the site either as a cohesive village or as a conglomeration of disparate farmsteads.

Ferreting out the historical sequence of occupation at Mescal Wash will have to be reserved for future analysis. Even identifying the sequence, however, will not answer a more fundamental question: Why would these groups be so interested in Mescal Wash that they would repeatedly establish occupations at the site? In large part, the answer is location. Mescal Wash is located on the most logical southern route between the Santa Cruz and San Pedro River valleys—a route taken not only by prehistoric peoples but also by the Butterfield Stage, the Southern Pacific Railroad, the Interstate system, pipelines, fiber-optic lines, and other utilities. For desert-adapted Hohokam and mountain-adapted Mogollon, Mescal Wash would have presented new environmental challenges. Yet the site does have redeeming features. Located at the ecotone between the desert and the grassland, Mescal Wash provides abundant plant and animal resources. Water would have been plentiful most of the time, as cienegas, the oases of the desert, lay at the base of the site.

For all its attractiveness, Mescal Wash was never the center of a larger local community. Surveys in the immediate region have revealed few habitation sites, with the notable exception of the Old Pantano Railroad Stop site, which we consider to be part of the same settlement system as Mescal Wash. Settlement for thousands of years appears to have been restricted to this small region near the confluence of Cienega Creek and Mescal Wash. This location, then, appears desirable enough to have been settled repeatedly and continuously for long periods of time but not indispensable enough to have been fully integrated into non-local systems. Even during the AD 750–950 period, when Mescal Wash hosted its largest population, many (if not most) of whom were Hohokam colonists, typical Hohokam traits, such as formalized site layout, were absent. The lack of a ballcourt at Mescal Wash, when one considers the presence of a ballcourt at a much smaller site in the Santa Rita Mountains to the southwest, suggests that Mescal Wash was beyond the reach of the Tucson Basin Hohokam system. The presence of a ballcourt at Tres Alamos and other sites along the San Pedro River is suggestive of a link with the Hohokam-like sites documented upstream.

The only Middle Formative public structure excavated at the Mescal Wash site was the large, recessed-hearth-style pithouse in Locus C. This structure was placed among a set of other recessed-hearth-style houses, which clearly were used for domestic purposes. In other parts of the site, we found Hohokam-style pithouses that were presumably contemporaneous. Thus, the communal function of the large recessed-hearth structure may have served only one of several social groups that were living at the site simultaneously during the Middle Formative period. It is important to keep in mind that this architectural style is a local phenomenon and, thus far, has been identified at only three sites in southeastern Arizona. As discussed above, we believe it to be associated with the Dragoon "culture."

If the Mescal Wash site was important enough to be occupied for all or most of the Formative period, then why was it never incorporated into a regional system? We suspect that the answer lies in the way that Mescal Wash was established as a cultural place and how it accommodated various ideological systems that existed throughout southeastern Arizona, all the while retaining a unique regional identity. It is possible, for example, that the Mescal Wash site was initially used by a variety of groups, primarily as a campsite for travelers moving between the Santa Cruz River and San Pedro River valleys. Because of its strategic location, it would have been important that the cienegas be available to all travelers. In time, Mescal Wash potentially became a "free zone." Among prehistoric inhabitants, stories that transcended individual cultures might have emerged to reinforce the cienega's status as a neutral and unaffiliated resource. Residents, even year-round residents, would not have been owners of the water, but rather caretakers of communal and shared resources.

This possibility is supported by the existence of shared ancient resources existing elsewhere in the Southwest (chapter 7, this volume). Antelope Hill, for example, is a sandstone hill located in the lower Gila River valley about 30 mi east of Yuma in southwestern Arizona. Long used by many Yuman and Piman groups as a milling-implement quarry and rock-art site, Antelope Hill is viewed by all as a common resource (Schneider 2000:16). Ethnohistoric accounts show that despite the fact that the groups of the lower Gila and lower Colorado rivers were constantly warring, Antelope Hill was perceived as a no-man's-land where individuals and groups could go to obtain milling implements without risk of capture or death. The importance of Antelope Hill as a persistent cultural place among Yuman tribes is expressed in tribal stories that

vary in detail but that all reinforce the hill's status as a resource bestowed by their creator upon the Yuman people to be shared (Cachora 2000:80).

We suggest that the Mescal Wash site, like Antelope Hill, was a persistent place. The function it originally served and the manner in which it entered the cultural geography of southeast Arizona shaped and oriented subsequent occupation. The power of the cienegas, as it was transmitted through stories and ritual, may have kept the site from being fully incorporated into any individual cultural system. Far from being a marginal resource on the fringe of cultural systems, the Mescal Wash site was more likely a focal point where cultural traditions intersected and different ethnic groups interacted without fear of each other.

Acknowledgments

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5

In Sync, but Barely in Touch

Relations between the Mimbres Region and the Hohokam Regional System

Michelle Hegmon and Margaret C. Nelson

Contemporaneous and apparently in sync with the vast and extensive Chaco and Hohokam regional systems (Crown and Judge 1991) was the fluorescence known as the Mimbres Classic period (ca. AD 1000–1130) in southwest New Mexico (see Hegmon 2002; Hegmon et al. 1999 for recent systematics). The regional systems involved extensive interactions, as Chacoan influence spread across much of the northern Southwest, and the Hohokam system encompassed much of the southern half of Arizona. The Mimbres Classic developed in an area east of the Hohokam system and south of the Chaco system. Although it is characterized by settlement in large aggregated villages (as well as in smaller sites) and by the spectacular black-on-white pottery for which the region is famous, the Mimbres developments were mostly confined to a single geographic region; thus, Cordell (1997: chapter 10) considers it to be an "aggregated system" but not a "regional system."

In this chapter we consider the nature of this Mimbres aggregated system (i.e., growth and intensification at a local scale) in relation to the contemporary regional systems (characterized by regionally based exchange and hierarchies [Cordell 1997:340–341]). The Mimbres case expands and complicates the heartland/hinterland distinction that is a key theme in this volume (chapter 1, this volume). "Hinterland" generally refers to archaeologically "weak" patterns, often in remote or less developed areas on the margins of larger developments, such as Papagueria in relation to the denser Hohokam core (chapter 10, this volume). "Heartland" is an archaeologically "strong" pattern with a tendency towards greater complexity. Mimbres is very definitely a strong pattern; however, unlike the regional systems, its influence was not expansive beyond the geographically restricted Mimbres region. That is, although we can recognize more and less densely settled parts of the Mimbres region (i.e., the Mimbres Valley in contrast to the eastern Mimbres area [M. Nelson 1999]), there is

apparently no distant Mimbres hinterland. Our focus here is thus on the more general issue (raised in chapter 1, this volume) regarding the degree to which the Mimbres region was influenced, or not, by the emergence and spread of regional systems.

We approach this question by examining evidence of relations between the Mimbres region and the regional systems. Clearly Mimbres is geographically marginal from the perspective of Hohokam and Chaco, but was it marginal in terms of interaction? Is there a sense in which it might be considered a peripheral part of the other systems, or should it be considered to be largely an autonomous development? Researchers (e.g., Brody 1977, 2004; LeBlanc 1983; Lekson 1999) have long noted the presence of non-local styles and objects in the Mimbres region, a presence indicative of extra-regional interaction. Here we document the degree and especially the trajectory of the interaction, focusing (for reasons explained below) on Hohokam-Mimbres ties. More specifically, we consider whether external influence in the Mimbres region waxed and waned in tandem with the growth and reorganization or decline of the Hohokam regional system. If so, then we should conclude that Mimbres was strongly influenced by the Hohokam system. In contrast, if the Mimbres region developed its own trajectory, then it should be interpreted as a relatively autonomous development that perhaps maintained ties of exchange or other forms of interactions with entities in other areas.

Mimbres and the Regional Systems

In this section, we describe relevant details of the Mimbres sequence and relate them to developments in other parts of the Southwest and Mesoamerica. Our focus is on evidence of interaction between Mimbres and other areas, and on the timing of various developments.

Archaeologists have long noted the coincident rise and change/decline of the Chaco and Hohokam regional systems and the Mimbres Classic fluorescence (Cordell 1997; Crown and Judge 1991; Lekson 1993; S. Plog 1997). Developments in Chaco Canyon itself were well under way in the tenth century, and the regional system was established by the eleventh century and continued until ca. AD 1130–1150. The Classic Bonito phase (ca. AD 1020/1040–1100, summarized in Judge 1991) refers to the heyday of the Chaco phenomenon, both within the canyon and across the regional system, and is roughly contemporary with the Mimbres Classic period (AD 1000–1130).

Similarly, the Hohokam regional system was established by AD 700 (the beginning of what Bayman [2001] calls the Preclassic period), probably intensified in the Sedentary period (AD 950–1100/1150, the later part of the Preclassic), and then ended or was substantially reorganized before the beginning of the Hohokam Classic period (AD 1150–1450). Mimbres developments were well underway in the Late Pithouse period (AD 550–1000), intensified during the Mimbres Classic period (AD 1000–1130), and waned in the late twelfth century with a major regional population decline and reorganization.

Mimbres Continuity and Change

The Mimbres region (fig. 5.1) is part of the larger Mogollon area. Although Mimbres pottery is surficially black-on-white (like Ancestral Puebloan wares found in the northern Southwest), it is a brown ware (like other Mogollon pottery) and it was a local development that can be traced back to early brown, red, and red-on-brown types (Brody 1977, 2004; LeBlanc 1983; Scott 1983; Shafer and Taylor 1986). This chapter is concerned with the later part of the Late Pithouse period (the Three Circle phase [AD 750–1000]) and the Mimbres Classic period (AD 1000–1130), the time when Mimbres Black-on-white pottery was most prevalent.

The Three Circle phase and Mimbres Classic period are both characterized by fairly dense settlement and dependence on agriculture, which probably intensified as population and settlement sizes increased over time. By the later part of the Mimbres Classic period, a time of decreased rainfall, there is evidence of environmental degradation and perhaps subsistence stress in at least some parts of the Mimbres region (Minnis 1985). The end of the Mimbres Classic is characterized by movement out of many of the larger villages to dispersed agricultural hamlets (Hegmon et al. 1998; M. Nelson 1999).

There is considerable evidence for cultural continuity in both material traits and settlement through the Mimbres sequence. For example, the latest pithouses are square or rectangular in shape and masonry lined; they generally look like Classic (aboveground pueblo) rooms built in a pit (Shafer 1995). Many Classic ceramic-design characteristics, including the use of black paint on a white slip, framing lines, and zoomorphic motifs, began in the Late Pithouse period. Furthermore, many Classic villages overlie Late Pithouse settlements. On some sites—specifically the small fieldhouses and hamlets in the eastern Mimbres area and some of the villages in the southern Mimbres Valley—and across the region as a whole, there is also strong evidence of

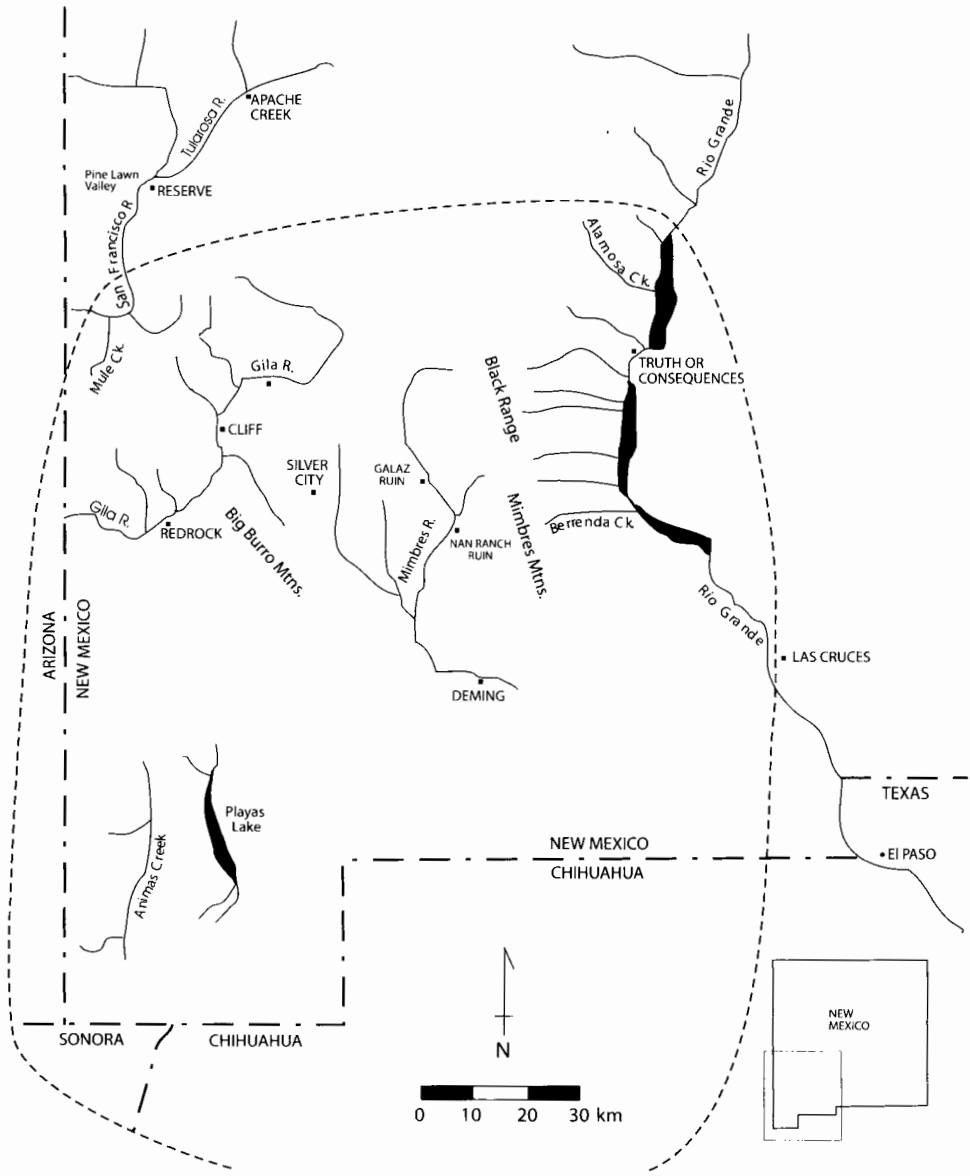


Figure 5.1 The Mimbres region in southwest New Mexico, showing the location of the Galaz Ruin.

settlement continuity from the Mimbres Classic into the Postclassic (Creel 1999; M. Nelson and Hegmon 2001).

The general movement from pithouses to aboveground pueblos at the beginning of the Mimbres Classic period (ca. AD 1000) is an obvious point of cultural transformation. However, researchers are increasingly concluding that important changes and developments, such as a decrease in residential mobility and an increase in agricultural dependence (Diehl 1996, 1997; Diehl and Gilman 1996; Stokes and Roth 1999), pre-dated the pithouse-to-pueblo transition. Most dramatically, Creel and Anyon (2003) recently documented the destruction of Late Pithouse great kivas around AD 915–925. They argue that these structures, present at most Three Circle phase villages, were deliberately set on fire, perhaps simultaneously, in an elaborate display that would have marked the end of a religious/ritual era. Subsequent (i.e., Classic period) ritual architecture took different forms, including plazas, smaller kivas, and large rooms embedded in roomblocks (Anyon and LeBlanc 1980). Few or no great kivas were built in the Mimbres region after the early tenth-century conflagrations. Shafer (1995) also documented changes in Mimbres ritual architecture and symbolism at around AD 900.

Looking Outside the Mimbres Region

A brief overview of developments outside the Mimbres region provides necessary background to our focus on Mimbres inter-regional interaction. We briefly discuss Mesoamerica/northern Mexico and Chaco and then describe Hohokam in more detail, because Hohokam-Mimbres interaction becomes the focus of our analysis.

The rise and fall of Mesoamerican civilizations, including the northernmost developments around La Quemada, occurred hundreds of kilometers from the Mimbres region. The Medio period rise of Casas Grandes, which is closer to Mimbres and generally considered to be part of the Southwest, postdates the period of focus here by a century (Dean and Ravesloot 1993). Many researchers have debated the nature of Mesoamerican-Southwestern interactions (e.g., McGuire 1980; B. Nelson 2000; Wilcox 1986). Small quantities of apparently precious materials, including copper, turquoise, and macaws, moved between the two macro-regions. Most relevant to our analysis is the presence of what appear to be Mesoamerican styles in the Southwest. Mesoamerican influence in the Southwest is most obvious and occurs relatively early in the Hohokam region, which of course is the closest to Mesoamerica. Thus it

is possible that Mesoamerican-like styles seen in other parts of the Southwest derive from Hohokam and only indirectly from Mesoamerica. However, some of the traits include religiously significant iconography, as well as general stylistic conventions; thus, it is likely that the ultimate Mesoamerican origins were not unknown to the Southwestern users. Specifically, Mesoamerican iconography, including depictions of feathered serpents and goggle-eyed figures reminiscent of the Mesoamerican deities Quetzelquatl and Tlaloc, is found in various Southwestern decorative traditions (e.g., Crown 1994; P. Schaafsma 1999), including Mimbres pottery designs (Brody 1977, 2004). Furthermore, some researchers (e.g., P. Schaafsma and Schaafsma 1974) have argued that masking, which is associated with the post-1300 Katchina religion in the Southwest, spread north from Mesoamerica through the Mimbres region. Some iconographic elements (e.g., the Flower World [Hays-Gilpin and Hill 2000]) may represent deeply rooted common origins rather than a spread from Mesoamerica to the Southwest.

The Chaco regional system, which extended across much of the northern Southwest and may have encompassed more than 67,000 sq km (Judge 1991: 16), was well established by the early part of the eleventh century and continued at least until AD 1130/1150. Recent research on the Chacoan outliers, which define the extent of the regional system, makes clear that the system took different forms in different areas and at different times (Kantner 2003a; Kantner and Mahoney 2000), with earlier developments in the area south of Chaco (i.e., closer to the Mimbres region) and a later expansion to the north. The Chaco regional system involved shared styles and probably ideational systems underlying those styles; many goods were moved into Chaco Canyon, and participants may also have periodically gone to the canyon (Cameron and Toll 2001; Judge 1989). However, other than movement *into* Chaco Canyon, interaction across the Chaco regional system apparently did not involve large-scale movements of goods, except possibly small quantities of preciosities such as turquoise (Kantner 2003a).

Lekson (1993, 1999) has argued for northern influence, including the possible extension of the Chacoan regional system, into the Mimbres region. Few other researchers seem to be in agreement, however. For example, the extensive outlier database recently compiled for the Chaco World Conference (Kantner 2003b) does not include any Chacoan outliers in the Mimbres region. Lekson's arguments about northern influence in the Mimbres region may apply to Postclassic (i.e., post–AD 1130) Mimbres times, given his views on

the rise of Casas Grandes (Lekson 1999) and the possible evidence of northern migrants at the Pinnacle Ruin (Lekson et al. 2002).

The Preclassic Hohokam regional system (beginning ca. AD 700) is defined by the extent of ballcourts and red-on-buff ceramics, which are distributed more extensively than the ballcourts. At its maximum extent, during the Sedentary period, it encompassed ca. 80,000 sq km and included at least 238 ballcourts (Doyel 1991; J. Marshall 2001). In contrast to the Chaco regional system, which apparently involved a mostly unidirectional flow of goods into the canyon, there is strong evidence that the Hohokam regional system involved the extensive circulation of many materials. Large quantities of bulky goods—including pottery, ground stone, and probably crops, as well as smaller items such as shell and obsidian—moved across the Hohokam regional system (Abbott 2000; Doyel 1991; Stone 2003). This exchange may have been facilitated in market-like settings at ballcourts (see Abbott 2004), and a variety of evidence suggests that the ballcourt network was in decline by AD 1070 (Abbott 2004; Doyel 2000a), concomitant with the reorganization of the Hohokam regional system (Bayman 2001).

Hohokam Red-on-buff pottery was frequently decorated with zoomorphic (and occasionally anthropomorphic) motifs; their possible appearance on Mimbres pottery is a focus of our analysis. Two recent studies have documented stylistic trends in Hohokam pottery. In research on zoomorphic iconography on whole vessels from the Gila River Basin in central Arizona, A. Smith (2000) found that zoomorphic motifs were commonly used (i.e., on ca. 11 percent of decorated vessels) from at least from AD 300 to 1150 and were most diverse during the Colonial period (AD 750–950), when the Hohokam regional system was first established. She also found an increase in reptiles and a decrease in birds over time and found considerable spatial homogeneity in the trends she documented. This homogeneity is not surprising, considering recent evidence that much of the red-on-buff pottery was produced at only a few locations by large-scale specialists (Abbott 2004).

Wallace (2001) developed a detailed seriation of Hohokam Buff Ware. The key traits in his seriation are primarily technological and general design style characteristics (e.g., details regarding hachure, line use, and fringe), but he also noted the use of various life-forms (including zoomorphic motifs). His data (particularly those in his table 10:17) confirm A. Smith's (2000) conclusion that the use of zoomorphic motifs began fairly early in the buff-ware tradition, well before AD 750. He also found that life-forms were particularly

characteristic of what he calls the Middle Sacaton I phase, which is in the middle/late part of the Sedentary period and probably extends into the eleventh century.

To summarize the temporal trends with reference to Mimbres, the Hohokam regional system was at its height around the beginning of the Mimbres Classic period (i.e., AD 1000), and the end dates for the Mimbres Classic (AD 1000–1130) and Hohokam Preclassic (AD 700–1150) are generally in sync. However, the Hohokam ballcourt network seems to have been in decline by AD 1070, half a century before both periods' end dates. Hohokam use of zoomorphic motifs (beginning around AD 300) predates both Mimbres Black-on-white pottery and the Hohokam regional system. Although there is some indication that Hohokam zoomorphic motifs were most common and most diverse before AD 950 (i.e., around the time of the Mimbres Pithouse to Mimbres Classic transition), zoomorphic motifs and other life-forms (i.e., human figures) were commonly depicted on Hohokam pottery throughout the Sedentary period (i.e., until ca. AD 1150, a few decades after the end of the Mimbres Classic at ca. AD 1130). Hohokam life-form motifs continue to appear on bridges and highway constructions in the Phoenix Basin today.

Mimbres Interregional Interaction

A number of studies have examined evidence for interaction across and beyond the Mimbres region, including both the movement of goods and the apparent spread of styles and ideational systems. Three studies that have investigated the movement of goods into and out of the Mimbres region have reached different conclusions regarding timing and directionality. As part of his research on food stress and the potential of exchange to ameliorate it, Minnis (1985) considered evidence for extra-regional exchange, focusing on imported items found on Mimbres sites. He concluded that during the Mimbres Classic period (in comparison with the preceding Late Pithouse period), there was an increase in inter-regional exchange with areas to the west and a decrease in exchange with the south. However, Minnis also cautioned that his evidence for these trends was based on extremely small quantities of extra-regional items in the Mimbres region.

A complementary study by Nogue (2001) considered the dating of Mimbres settlements and the presence of Mimbres ceramics on sites outside the Mimbres region. She documented a gradual movement of population, over the

course of the Mimbres Classic period, towards the eastern and southern parts of the region (a trend also noted by Lekson [1990a] and M. Nelson [1999]). Coincident with this demographic shift, Nogue found an increase in the regional movement of Mimbres ceramics to areas south and east of the Mimbres region and a concomitant decline of movement to the west. Thus, at the same time that Minnis found a slight increase in material coming into the Mimbres region from the west, Nogue found a decrease in Mimbres pottery moving out to the west.

Another study that considered the importation of ceramics (as well as ceramic styles) to the Mimbres region compared the Mimbres Classic with the early part of the Postclassic period (the Mimbres Reorganization phase, ca. AD 1150–early 1200s). Specifically, in previous research (Hegmon et al. 1998) we found a relative dearth (fewer than 2 percent) of non-Mimbres ceramics in Mimbres Classic period assemblages, in comparison with those of later times. We concluded that the Mimbres Classic period exhibited "a strong 'Mimbres focus' with a homogeneous material culture" (Hegmon et al. 1998:158).

The most detailed studies providing information on Mimbres interregional interaction have focused on pottery, particularly the presence of nonlocal styles and motifs on Mimbres Black-on-white pottery. In the Mimbres Postclassic there are a few examples of pottery that seem to combine Mimbres with northern and eastern styles and technologies (Hegmon et al. 1998), and Brody (1977:100–101, 2004:91–95) notes some similarities in the two painting traditions. We (M. Nelson and Hegmon 2001: fig. 6) previously illustrated a Chupadero Black-on-white jar with a Mimbres-like design found on a Postclassic site. However, to our knowledge, no studies have noted the presence of Chacoan styles on Mimbres pottery, and Brody (1977:95–100) specifically emphasized the lack of Mimbres-Anasazi (i.e., Ancestral Pueblo) design similarities. This does not necessarily mean that there was no Chacoan influence on Mimbres pottery, but it would be difficult to detect stylistically. Specifically, much Chacoan pottery is characteristically decorated with allover fine hachure designs (Neitzel 1995). Design styles with allover hachure (albeit less fine) are often considered to have been influenced by Chaco (see S. Plog 1990, 2003). However, the use of some hachure (in addition to solid and other designs) is common on Southwest design traditions and is far too widespread (across both time and space) to be considered characteristic of a single tradition. Hachure is frequently used in Mimbres designs, but we know of no Mimbres vessels that have the allover hachure characteristic of Chaco.

In contrast to Chacoan hachure, Mesoamerican and Hohokam painted-design styles are much easier to detect on Mimbres pottery because both include characteristic motifs such as feathered serpents and horned toads with diamond-shaped bodies. A number of researchers, including Brody (1977, 2004), Thompson (1994, 1999a, 1999b), P. Schaafsma (1999), LeBlanc (1983), and Anyon (Anyon and LeBlanc 1984) have long noted the presence of Mesoamerican motifs on Mimbres pottery, although there has been relatively little discussion of temporal trends, which we will consider here. The influence of Hohokam design styles on early Mimbres painted designs was well documented by Brody (1977, 2004) in his comprehensive *Mimbres Painted Pottery*. He furthermore suggested that Hohokam influence declined later in the Mimbres sequence (a trend also discussed by Anyon and LeBlanc [1984]). There is also some suggestion (e.g., LeBlanc 1983) that Hohokam goods (including shell and palettes) were also more common in the Mimbres Pithouse period than in the Mimbres Classic period.

To summarize, although all lines of evidence are not in agreement, there are indications for considerable Hohokam-Mimbres interaction (e.g., movement of Hohokam materials as well as designs into the Mimbres region) and indications that this interaction declined in the Mimbres Classic period (which was roughly contemporaneous with the maximum extent of the Hohokam regional system). There is also evidence of Mesoamerican materials and goods appearing in the Mimbres region, although the temporal trends of this interaction are unknown. Less evidence is available regarding the extent and timing of Mimbres-Chaco interaction.

Our focus here is thus on Mimbres-Hohokam interaction. Specifically, we derive quantitative data to examine and perhaps refine the trends noted by Brody (1977, 2004) and others. In order to provide a comparative baseline, we also include analyses of Mimbres-Mesoamerican interaction. This focus (on Hohokam rather than Chaco) is for both cultural-historical and practical reasons. Interaction between Hohokam and Mimbres is clearly evidenced in Mimbres styles and imported material. We do not deny the likelihood of Mimbres-Chaco interaction, but the material evidence is neither clear-cut nor amenable to quantitative analysis. In contrast to Chacoan hachure, Hohokam designs (particularly zoomorphic motifs) are distinctive and relatively easy to identify on Mimbres pottery. Thus, it should be possible to trace and quantify Mimbres-Hohokam interaction through the study of material culture. We further focus our analysis on painted pottery because it provides a large data-

base and because tight chronological control is possible, thanks to detailed ceramic-dating frameworks (Scott 1983; Shafer and Brewington 1995).

Database and Analytical Strategy

The research presented here is based on the analysis of the extensive collection of whole and mostly whole Mimbres Black-on-white bowls from the Galaz Ruin (Anyon and LeBlanc 1984). As one of the largest Mimbres villages, Galaz was occupied during the Pithouse, Classic, and Postclassic periods and is well documented. The geographic position of Galaz, as well as compositional analysis of its pottery (V. Powell 2000), suggests that Galaz was centrally located with regards to inter-regional exchange and interaction. Numerous compositional studies (e.g., Creel, Williams, et al. 2002; Gilman et al. 1994) have established that Mimbres Black-on-white pottery was made locally, probably at Galaz and at most or all villages, though it was also exchanged across the Mimbres region and beyond.

Our analysis is based on published photographs of the Galaz bowls (Anyon and LeBlanc 1984; Brody and Swentzell 1996) and includes photographs that are available in the Mimbres Archive at the Maxwell Museum of Anthropology at the University of New Mexico. The analysis has three components, described in more detail below: (1) Each bowl was assigned to a chronologically sensitive microstyle following a methodology developed by Shafer and Brewington (1995); (2) Hohokam-like motifs and stylistic conventions were recorded; (3) Mesoamerican-like motifs were recorded. In discussing these analyses and results, we use the term *design* to refer to the painting in general. A *motif* is a particularly recognizable portion of the design (e.g., a long-necked waterbird), and a *convention* is a general characteristic of the design (e.g., complete filling of the design field).

We emphasize that we are identifying and discussing Hohokam-*like* or Mesoamerican-*like* designs. The presence of these designs should not be interpreted as a direct indication of interaction. It may be that some designs originated outside the Mimbres region and their original incorporation into the Mimbres corpus was a result of inter-regional interaction. However, later use of those designs may have been independent of later interaction. It is also possible that some designs were part of pan-Southwest or even pan–Southwest-Mesoamerica belief systems and are not indicative of outside influence; Hays-Gilpin and Hill (2000) make this point regarding the Flower World complex.

Figure 5.2 Style I/Early Style II indicated by wave hachure and a design that extends up to the rim (after Brody and Swentzell 1996:51).

B. Nelson (2006) uses the term "Mesoamerican interaction marker" to suggest the many and varied ways patterns seen in the Southwest might be reminiscent of Mesoamerican styles.

The bowls were ordered chronologically by assigning them to the microstyles established by Shafer and Brewington (1995) based on the well-dated collections from the NAN Ranch Ruin. Microstyles are fine, chronologically significant divisions within broader typological categories. They are distinguished primarily on the basis of design characteristics (as well as some details of rim shape), many of which pertain to the treatment of rims and the attributes of framing lines. For example, an absence of rim framing lines, such that designs extend directly to the rim (figs. 5.2 and 5.3), is a relatively early characteristic. More specifically, wavy hachure combined with a design that extends to the rim is characteristic of Style I/Early Style II (fig. 5.2). Fine straight-line hachure framed by thick lines is generally characteristic of Style II; in the case of the bowl illustrated in figure 5.3, thick-framed hachure and a design that extends to the rim are considered diagnostic of Early Style II. Rim framing lines are generally later, and the details of their treatment are diagnostic of particular parts of the sequence. Multiple fine rim framing lines with

Figure 5.3 The straight line hachure (with thick frames) indicates that this bowl is slightly later than that depicted in figure 5.2, although because the design also extends up to the rim, it is still classed as Early Style II (after Brody and Swentzell 1996:69).

pendant triangles (fig. 5.4) are transitional between Late Style II and Early Style III. Sets of thin and thick rim frame lines (fig. 5.5) or unattached thick rim frame lines (figs. 5.6 and 5.7) are characteristic of Middle Style III. Fine-line hachure with fine frames (fig. 5.6) is also generally characteristic of Style III. We emphasize that the attributes used to determine microstyles are different from those identified as Hohokam-like or Mesoamerican-like and do not include any of the Hohokam or Mesoamerican motifs. Table 5.1 summarizes the microstyles and dates of 720 bowls.

Hohokam-like Designs

Probably the most famous Mimbres pottery designs (i.e., those used to illustrate book covers) are zoomorphic or anthropomorphic figures, sometimes laid out portrait-like in the center of bowls (e.g., figs. 5.4 and 5.5), sometimes opposed with rotational symmetry (fig. 5.7). Both of these design conventions are most common during the Mimbres Classic period. With the

Figure 5.4
The rim frame lines with pendant triangles indicate that this naturalistic bowl (which has a portrait style layout) is transitional between Late Style II and Early Style III (after Brody and Swentzell 1996:33). The figure on the right has an "eye band" mask, a Mesoamerican-like motif.

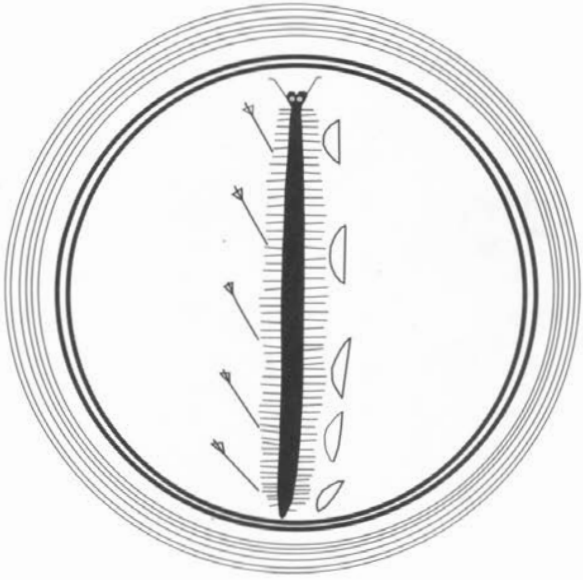


Figure 5.5
Middle Style III bowl as indicated by the sets of wide and fine rim lines (after Brody and Swentzel 1996:45).

Figure 5.6
Middle Style III bowl as indicated by the two wide rim lines as well as fine straight hachure with thin frames (after Brody and Swentzel 1996:65).

Figure 5.7
Hohokam-like long-necked water birds on a Mimbres bowl. This design is also an example of two opposed figures. Because of the two wide rim lines, this is classified as Middle Style III (after Brody and Swentzel 1996:100).

Table 5.1 Chronological resolution and distribution of bowls by style and microstyle (after Shafer and Brewington 1995).

Chronological Group	Style or Microstyle	Abbreviation	Dates (AD)	No. of Bowls
Later III	Late Style III	Late III	1110–1130/1150	29
III	Middle/Late III	Middle/Late III	1060–1130/1150	1
III	Middle Style III	Mid III	1060–1110	261
III	Style III	III	1010–1130/1150	46
Early III	Early Style III	Early III	1010–1080	141
Pre-III	Style II/III	II/III	970–1020	86
Pre-III	Late Style II	Late II	970–1020	54
Pre-III	Style II	II	880–1020	16
Pre-III	Early Style II	Early II	880–980	35
Pre-III	Style I or Early Style II	I or II	750–980	40
Pre-III	Style I	I	750–900	11
TOTAL				720

exception of some later styles prevalent in other parts of the Southwest (e.g., Fourmile style [see Carlson 1970; Crown 1994]), these conventions are unique in pre-Hispanic Southwestern pottery. Furthermore, many Mimbres zoomorphic designs (such as long-necked water birds [fig. 5.7] and horned toads with diamond-shaped bodies [fig. 5.8]) are also common on Hohokam pottery. However, the earliest Mimbres zoomorphic figures are often incorporated into overall designs (fig. 5.8), a convention also common on Hohokam Red-on-buff pottery. Thus, researchers have long noted what appeared to be Hohokam influence on early Mimbres designs (e.g., Brody 1977:89–95, 2004:81–86; Wheat 1955:200). In order to systematically document and quantify this trend, we identified sets of both motifs and conventions that we interpret as Hohokam-like designs on Mimbres pottery (table 5.2), drawing upon Brody's (1977, 2004) discussion.

The presence of these Hohokam-like motifs and conventions on the Galaz bowls was recorded, and the distribution by time period is listed in table 5.3.

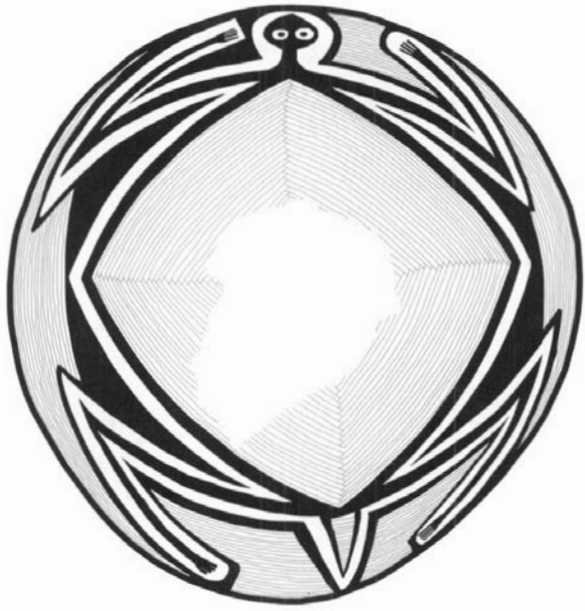


Figure 5.8 Hohokam-like convention of filling the entire design field, and Hohokam-like horned toad motif. The fine line hachure with thick frames indicates that this bowl is Style II (after Brody and Swentzel 1996:107).

Some bowls have more than one Hohokam-like design (e.g., a horned toad incorporated into an allover design, fig. 5.8). Thus, the number of bowls with any Hohokam design (which is less than the total number of Hohokam designs recorded) was also determined and is listed in the last column in the table. For purposes of quantification, we also recorded whether a bowl depicted any kind of life-form (i.e., a human, an animal, or a flower), in which case it was classified as having a "representational" design.

Mesoamerican-like Designs

Mimbres pottery is also renowned for the uncommon but spectacular designs that depict apparently mythical creatures, and in at least some cases (e.g., snakes with horns or feathers), these depictions are reminiscent of Mesoamerican motifs (i.e., Quetzalcoatl). Many researchers, especially Brody (1977: 200–210, 2004:171–176), P. Schaafsma (1999), and Thompson (1994, 1999a, 1999b), have noted and studied the presence of Mesoamerican-like designs on Mimbres pottery, including mythical creatures as well as other kinds

Table 5.2 Hohokam- and Mesoamerican-like designs (motifs and conventions) considered in the analysis.

Design	Convention or Motif	Hohokam- or Mesoamerican-like	States Included	Comments
Horned Toad	Motif	Hohokam	NA	Usually with diamond-shaped body
Water Bird	Motif	Hohokam	NA	Usually long-necked, in profile
Triangle with Scroll	Motif	Hohokam	Interlocking or not	
Integrated Representational	Convention	Hohokam	NA	Zoomorphic or anthropomorphic motif integrated into overall design
Filled Field	Convention	Hohokam	NA	Entire design field is filled (in contrast to figure in center of bowl, portrait style)
Macaw	Motif	Mesoamerican	Any parrot-like bird	See Creel and Mckusick (1994)
Mask	Motif	Mesoamerican	Full or eye-band	
Tlaloc	Motif	Mesoamerican	NA	Goggle-eyed figure
Knife Wing	Motif	Mesoamerican	NA	See Thompson (1999a)
Rabbit and Moon	Motif	Mesoamerican	NA	
Flower World	Motif	Mesoamerican	Flower, bird, butterfly, rainbow	See Hays-Gilpin and Hill (2000)

Table 5.3 Hohokam-like motifs and conventions on Mimbres bowls.

Style or Microstyle	No. of Bowls	Bowls with Representational Designs	Bowls with Non-Representational Designs	Bowls with Hohokam-like Motifs			Bowls with Hohokam-like Conventions		
				Horned Toad	Water Bird	Triangle with Scroll	Integrated Representational	Filled Field	Any Hohokam
Late III	29	14	14	0	1	1	0	4	6
Middle/Late III	1	1	0	0	0	0	0	0	0
Middle III	261	127	133	1	1	12	0	15	30
III	46	6	40	0	0	1	1	5	7
Early III	141	19	122	1	0	6	3	33	40
II/III	86	41	44	1	0	3	2	8	11
Late II	54	5	49	1	0	8	0	9	17
II	16	2	14	1	0	6	1	6	9
Early II	35	1	34	0	0	7	0	15	19
I or II	40	5	33	0	0	12	0	28	30
I	11	0	11	0	0	8	0	8	9
TOTAL	720	221	494	5	2	64	7	131	178

Note: Bowls (n = 17) with both Hohokam- and Mesoamerican-like designs are included in both tables 5.3 and 5.4. Because some bowls have more than one Hohokam-like design, the number of bowls with "any Hohokam" design is less than the total of Hohokam designs.

of motifs such as the knife wing (Thompson 1999a). (There is no obvious use of Mesoamerican design conventions on Mimbres pottery.) Also relevant is Hays-Gilpin and Hill's (2000) discussion of the Flower World, which they see as pan-Southwest-Mesoamerica, though with its earliest visual manifestations in Mesoamerica. The Flower World is indicated by depictions of flowers, as well as other colorful objects, including birds, butterflies, and rainbows, which are present on some Mimbres bowls (Hays-Gilpin and Hill 2000: fig. 19.2). Drawing on the work by these researchers, we identified a set of motifs that we interpret as Mesoamerican-like designs on Mimbres pottery. These are listed in table 5.2, and their distribution in the Galaz assemblage by time period is listed in table 5.4. As was the case in table 5.3, the last column in table 5.4 shows the number of bowls with any Mesoamerican design.

Regional Dynamics and Hohokam and Mesoamerican Designs on Mimbres Pottery

The presence of some Hohokam-like and Mesoamerican-like designs on Mimbres pottery is well established. Our focus here is on tracing and quantifying the presence of those designs over time and considering the relationship between the presence of Hohokam-like designs on Mimbres pottery and the growth and especially decline of the Hohokam regional system. If Mimbres use of the designs increased and decreased as the Hohokam system expanded and contracted, these changes would indicate fairly strong Hohokam influence in the Mimbres region. In order to gauge Mimbres inter-regional interaction more generally, we also consider the presence of Mesoamerican-like designs on Mimbres pottery. If Mimbres use of Hohokam and Mesoamerican designs increased and decreased in tandem, this pattern would suggest that a key factor is Mimbres inter-regional interaction in general. If the use of designs from the two traditions varies independently, it would indicate different patterns of interaction between Mimbres and the two regions.

Hohokam zoomorphic motifs were present beginning in the AD 300s (A. Smith 2000); thus, they long pre-date the earliest decorated Mimbres pottery. Hohokam zoomorphic motifs became more common as the regional system expanded around AD 700/750 (A. Smith 2000). The use of zoomorphic designs on Hohokam Red-on-buff pottery continued through the Hohokam Preclassic (i.e., until AD 1150), although the ballcourt network for disseminating this pottery probably went into decline as early as AD 1070 (Abbott 2004).

Table 5.4 Mesoamerican-like motifs on Mimbres bowls.

Style or Microstyle	No. of Bowls	Bowls with Representational Designs	Bowls with Non-Representational Designs	Bowls with Mesoamerican-like Motifs						
				Macaw	Mask	Tlaloc	Knife Wing	Rabbit and Moon	Flower World	Any Mesoamerican
Late III	29	14	14	0	1	0	1	0	8	9
Middle/Late III	1	1	0	0	0	0	0	0	0	0
Middle III	261	127	133	1	4	1	11	0	29	41
III	46	6	40	0	0	0	1	0	3	4
Early III	141	19	122	1	0	1	5	0	8	11
II/III	86	41	44	1	2	0	4	1	10	17
Late II	54	5	49	0	0	0	1	0	3	5
II	16	2	14	0	0	0	0	0	0	0
Early II	35	1	34	0	0	0	0	0	0	0
I or II	40	5	33	0	0	0	1	0	3	5
I	11	0	11	0	0	0	0	0	0	0
TOTAL	720	221	494	3	7	2	24	1	64	92

Note: Bowls (n = 17) with both Mesoamerican- and Hohokam-like designs are included in both tables 5.3 and 5.4. Because some bowls have more than one Mesoamerican-like motif, the number of bowls with "any Mesoamerican" design is less than the total number of Mesoamerican designs.

We know that the earliest Mimbres Black-on-white pottery (which had occasional zoomorphic designs) appeared around AD 750, roughly the time of Hohokam expansion.

The distributions, by chronologically sensitive microstyle, of Hohokam- and Mesoamerican-like motifs and conventions on Mimbres bowls from the Galaz Ruin are shown in tables 5.3 and 5.4. In order to examine temporal trends and their relationship to Hohokam developments, we grouped the bowls into four chronological groups (see table 5.1) and calculated the percentage of bowls that have a Hohokam or Mesoamerican design for each chronological group. The percentage indicates the fraction of the total number of bowls (the second column in tables 5.3 and 5.4) that have any Hohokam or Mesoamerican design (the last column in each table). The four chronological groups include one that predates the Mimbres Classic period and three divisions of the Mimbres Classic period: (1) Preclassic Mimbres, or pre–Style III (i.e., AD 750–1020); (2) Early Style III (AD 1010–1080); (3) Middle Style III (AD 1060–1110); and (4) Late Style III (AD 1160–1130/50). Groups 1 and 2 are generally associated with the rise and expansion of the Hohokam regional system; Groups 3 and 4 mostly post-date its apparent decline (around AD 1070).

In order to examine temporal trends, the percentages of bowls with Hohokam and Mesoamerican designs are shown on bar charts (figs. 5.9 and 5.10). Figure 5.9 shows that, following an early period of popularity (pre-III, AD 750–1020), Mimbres use of Hohokam designs dropped by the beginning of the Mimbres Classic period (ca. AD 1000), well before the decline of the Hohokam ballcourt network (ca. AD 1070). The reduction of Mimbres use of Hohokam designs continued in Group 3 (III), after the ballcourt network decline. Hohokam designs then became slightly more common in Late Classic Mimbres times (Group 4, "later III"), although the Hohokam regional system was probably substantially reorganized by this time. In contrast, Mimbres use of Mesoamerican-like designs became increasingly frequent during the AD 750–1150 period (i.e., from pre-III to later III) (fig. 5.10). A. Smith (2000) noted that bird motifs became less common and reptile motifs became more common on Hohokam pottery over time. The few data we have on these lifeforms on Mimbres pottery (i.e., a total of five horned toads and two water birds [table 5.3]) do not fit with this trend; instead, reptiles are slightly more common on earlier vessels and birds are more common on later ones.

Many of the designs considered in this analysis are representational (i.e.,

they include zoomorphic, anthropomorphic, or sometimes plant motifs), and these kinds of designs became more common later in the Mimbres sequence. It is possible that this trend influenced our results, specifically the differences between Hohokam-like and Mesoamerican-like designs. That is, the designs we classified as Hohokam-like included some representational motifs as well as conventions that may be part of any kind of design. In contrast, virtually all of the Mesoamerican-like designs considered in our analysis are representational motifs. In order to control for changes in the frequency of representational designs overall, we recalculated these figures, including only bowls with representational designs. These recalculations did not change the trend apparent in the Hohokam-like designs (fig. 5.11). For Mesoamerican designs, which are virtually all representational, the recalculation does make a difference and it reveals fluctuations but no strong overall increase or decrease (fig. 5.12).

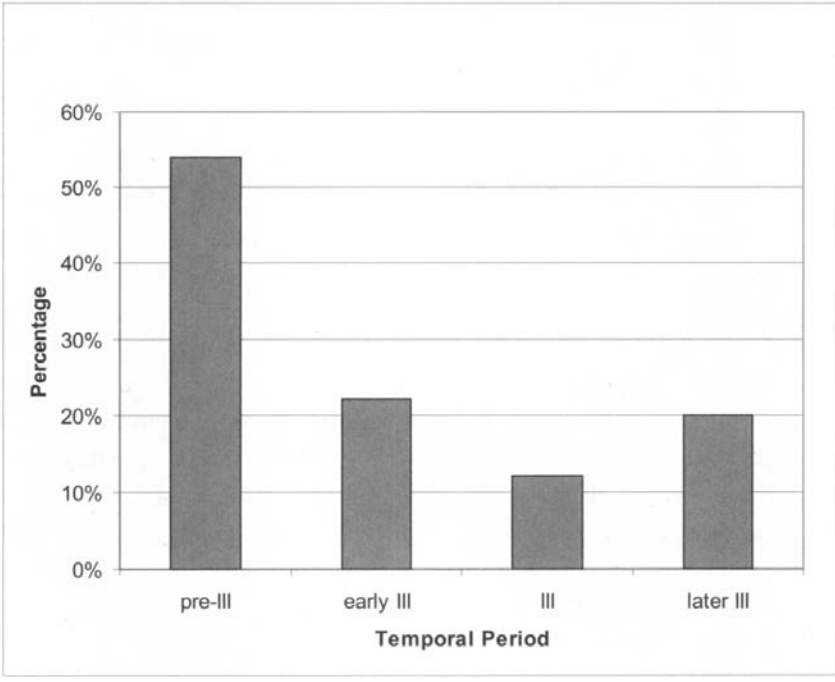


Figure 5.9 Percentage of Mimbres bowls from Galaz Ruin with Hohokam-like motifs and conventions.

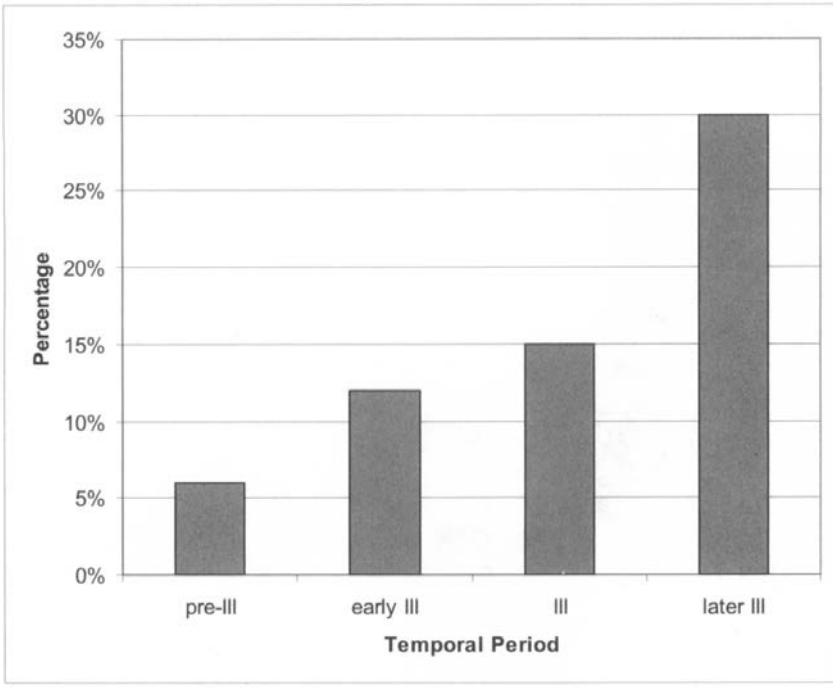


Figure 5.10 Percentage of Mimbres bowls from Galaz Ruin with Mesoamerican-like motifs.

Conclusions

One of our primary findings is that there was a decrease in the frequency of Hohokam-like designs on Mimbres bowls over time. From the perspective of the literature on Mimbres archaeology, this is not surprising; our results confirm and quantify a pattern noted long ago by Brody (1977, 2004) and others. However, from the perspective of the Hohokam regional system, our results seem counter-intuitive. The greatest extent of the Hohokam regional system across southern Arizona and possibly beyond correlates temporally with a decrease in Hohokam-like designs in the Mimbres region. At the same time, the frequency of Mesoamerican-like designs in the Mimbres region stayed relatively constant or even increased.

One purpose of this volume is to consider how and to what extent areas outside of the Chaco and Hohokam regional systems were influenced by the

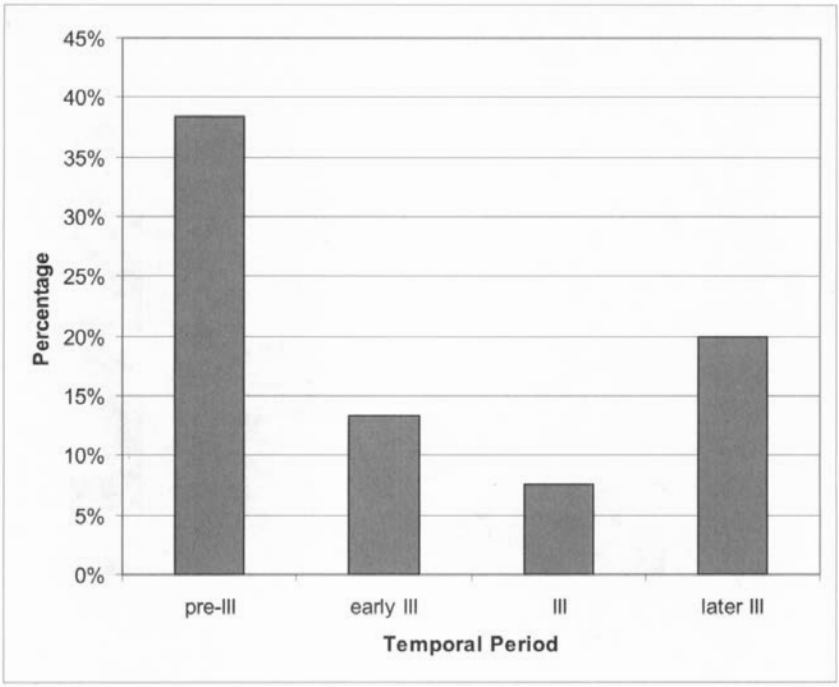


Figure 5.11 Percentage of Mimbres representational bowls from Galaz Ruin with Hohokam-like motifs and conventions.

regional-system heartlands. We found that, over time, people in the Mimbres region used fewer and fewer Hohokam-like designs on their ceramics, but they continued to use Mesoamerican-like designs. We cannot be certain that all of the designs we analyzed originated in these regions and moved to the Mimbres region, though more detailed analyses (e.g., Hays-Gilpin and Hill 2000; Ortman 2000; P. Schaafsma 1999) might refine our understanding in this respect. Even if we were certain that everything we identified as a "Hohokam-like" design actually originated in the Hohokam area and moved to the Mimbres, we emphasize that these designs are not a direct measure of any particular kind of interaction (see also S. Plog 1978). These are the designs that Mimbres artists *chose* to paint on their bowls. Studies of ethnic groups (e.g., Hodder 1982) show quite clearly that interaction may cross material or stylistic boundaries. What is particularly interesting in this case is the emergence of the boundary between Mimbres and Hohokam, at the same time that the Hoho-

kam regional system was expanding, and at the same time that Mesoamerican-Mimbres stylistic similarities increased.

The decline in Hohokam-like designs, which seems to be correlated with decreases in the frequency of Hohokam-like material culture (shell bracelets and palettes) and with increases in Mesoamerican-like material (macaws and copper bells), could be seen as a decline in the *influence* of Hohokam on Mimbres. We reject this interpretation. Instead, we argue that the decline represents a strategy—possibly a conscious strategy—on the part of residents of the Mimbres region to distance themselves from developments to the west and possibly to signify new links to the south. These changes occurred not long after the dramatic changes in Mimbres ritual architecture, including the deliberate burning of great kivas at numerous sites (Creel and Anyon 2003; see also Shafer 1995). Thus, we argue that the changes in Mimbres inter-regional interaction should not be interpreted as simple shifts in exchange partners;

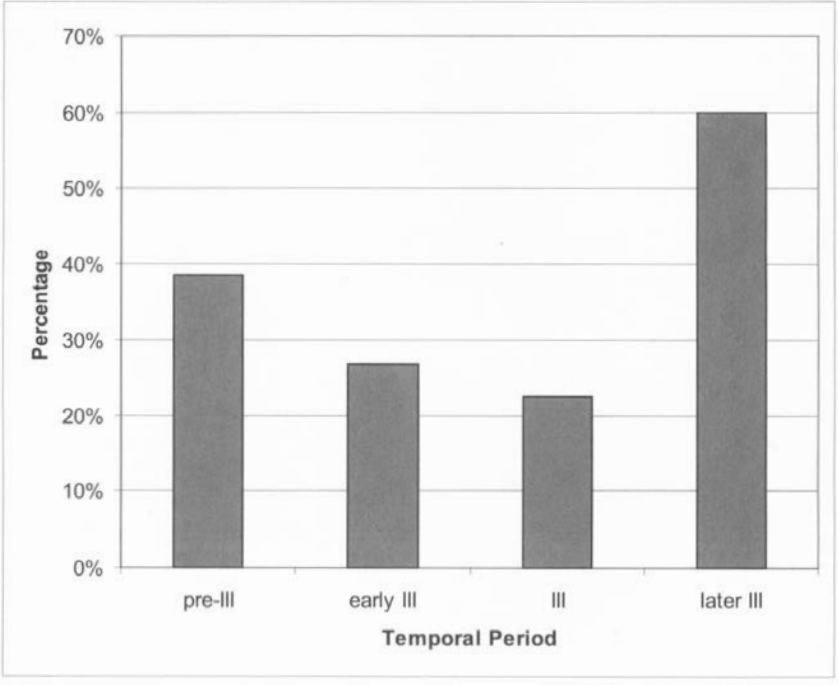


Figure 5.12 Percentage of Mimbres representational bowls from Galaz Ruin with Mesoamerican-like motifs.

they likely involve ideological, social-political and alliance-building strategies by the people involved, including the emergence of a new more bounded "Mimbres identity." Analyses of the material exchange as well as the ceramic designs will lead to better understandings of Mesoamerican and Southwest interactions, the internal dynamics within the Southwest, and the emergence and decline of the phenomenon known as the Mimbres Classic.

Acknowledgment

Stephanie Kulow prepared figures 5.1–5.7.

6

Making and Breaking Boundaries in the Hinterlands

The Social and Settlement Dynamics of Far Southeastern Arizona and Southwestern New Mexico

John E. Douglas

Like lobe-finned fish netted in the Indian Ocean, Southwestern hinterlands can be viewed as messengers from an ancient world: things whose astonishing characteristic is stability amid a sea of change. This view, ultimately derived from neo-evolutionary stages and atomistic views of societies, limits the perceived usefulness of archaeological hinterlands to illustrating timeless processes in a more recent, and therefore more readily studied, archaeological record (Stuart and Gauthier 1988:426). In this chapter, I consider an alternative view of hinterlands: that they must be examined in terms of both local history and their relationships and linkages with heartlands. These issues are examined for the Animas phase occupation of southwestern New Mexico (fig. 6.1), southeastern Arizona, and adjacent areas of northern Mexico, which dates between AD 1150 and 1450.[1] The Animas phase makes a productive case study because there is a long and theoretically explicit debate over the relationship between this hinterland area and a clear-cut heartland—Paquimé (or Casas Grandes) and the Casas Grandes region of northwest Chihuahua (Douglas 1995; Kidder et al. 1949; Minnis 1984; Skibo et al. 2002). Before exploring recent discoveries and interpretations, the chapter begins with a brief history of heartland-hinterland studies in the "International Four Corners," the area where Arizona, New Mexico, Chihuahua, and Sonora meet. This historical review is followed by an assessment of what defines the Animas phase as a hinterland. Particular focus is placed on assessing recent discoveries and studies of public architecture—ballcourts and platform mounds—as evidence of leadership roles in the Animas phase area, and assessing what these features say about the articulation of the Animas phase with heartland systems. I suggest that Animas phase incorporation of "heartland" features is idiosyncratic and mediated by local leadership and local goals.

Historical Perspectives

In the mid-1970s, Charles C. Di Peso broke with prevailing thoughts on hinterlands while forging his interpretation of the International Four Corners region in what is now known to be the AD 1200–1500 period (Dean and Ravesloot 1993). Noting the much larger size of Paquimé, estimated at 2,100 rooms arranged around 160 plazas (Di Peso et al. 1974:4:203), compared with any contemporary site in the region, as well as the astonishing number and diversity of items that were procured at a distance, Di Peso (1974:2:331–332) viewed the surrounding communities as "satellites" of Paquimé, providing needed resources to the core. For Di Peso, the power of Paquimé was straightforward: founded by Toltecs, the settlement benefited from a rigid Mesoamerican social hierarchy as well as special military, technological, and ritual skills. Although Di Peso's Toltec hypothesis is not supported by the data (McGuire 1980), his focus on economic, ritual, and political forces was prescient (Doyel 1994:13). His work set a trend, followed by other scholars (e.g., McGuire 1991; Tainter 1994; Wilcox 1991c) who have sought to model peripheries in the pre-Hispanic Greater Southwest as manipulated and controlled by cores.

The sources and types of power (Wolf 1990) exhibited by Southwestern societies are germane to heartland-hinterland issues because they relate to the nature of intersocietal political and economic bonds. In the International Four Corners case, Di Peso saw the regional power inequalities as immediate and obvious. Although the supporting evidence for this "mercantile" Paquimé has failed to stand, some scholars continue to treat the power of Paquimé as self-evident. Notably, C. Schaafsma and Riley (1999:237) argue for a strongly hierarchical regional organization, finding it sufficient to define the "Casas Grandes World" as isomorphic with the distribution of Chihuahuan Polychrome ceramic ware and coursed-adobe pueblos.

Today, other researchers, particularly Whalen and Minnis (2001), are examining the specific sources and evidence of control by Paquimé, with a tendency to see social, ritual, and political power exercised across narrower social fields and more limited geographical areas. This style of thinking is part of a larger trend in Southwestern archaeology, in which archaeologists interpret the power of Southwestern leaders as dynamic, negotiated, and sometimes conflicting (McGuire and Saitta 1996; B. Mills 2000; Rautman 1998). Such modeling has been aimed at internal workings of "societies," particularly Pueblo societies, and although the boundaries of "societies" are left

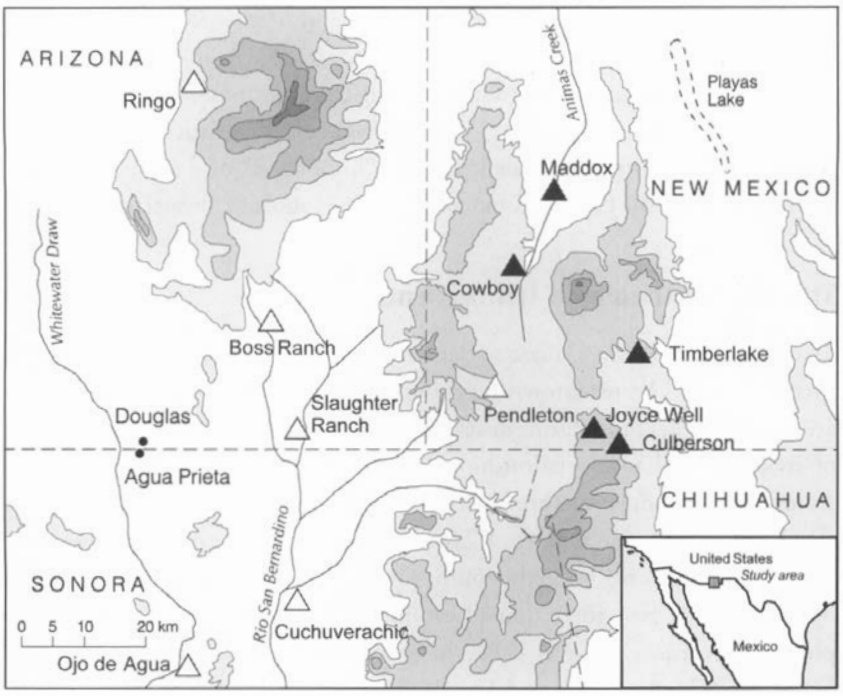


Figure 6.1 The Animas phase region with the location of sites discussed in the text; filled triangles represent ballcourt sites (sites with ballcourt locations come from P. Fish and Fish 1999 and Skibo and Walker 2002).

distressingly vague, there are largely unanalyzed implications for "regional systems." If power *within* Southwestern societies is dynamic and conflicted, it is difficult to conceptualize how a "heartland" could exercise control over a large hinterland to produce a "regional system" or "world."

Yet it is not satisfactory to view hinterlands as uncoupled to heartlands. In the study area, peak prehistoric population size and peak archaeological visibility were reached in the Animas phase, which is at about the same time as the corresponding peaks in the Casas Grandes heartland. More generally, aggregation, aboveground structures, plaza organization, intensified corn agriculture, and many ceramic styles all change at approximately the same tempo in the Animas phase area as in the region as a whole (Lekson et al. 2004). By AD 1300, these trends had coalesced into the Salado in the south-central U.S. Southwest (Crown 1994; Lekson 2000) and the highpoint of the Medio

period in the Casas Grandes region (Whalen and Minnis 2001). From these large-scale trends alone, there can be no doubt that the Animas phase population was linked in many ways to surrounding communities. But before exploring the nature of these linkages, I examine what characteristics of the Animas phase make it appropriate to define it as a "hinterland" of the Casas Grandes and, most likely, the contemporaneous Classic Hohokam "heartland."

The Study Area as a Hinterland

To evaluate how Animas phase settlements functioned as a hinterland vis-à-vis their larger and better-known neighbors, three complementary perspectives are needed: first, comparisons of scale or population size; second, examination of style and exchange relationships; and third, developments in leadership. Animas phase populations are obviously "peripheral" in the sense that they are smaller and less stable than the Classic Hohokam region to the northwest or the Casas Grandes region to the south. The scale of difference may be captured by considering the widely quoted estimate of 1,300 people for the Animas phase in the *entire* Animas Valley in southwest New Mexico (Findlow and De Atley 1974:40; P. Fish and Fish 1999: table 1.4), compared with an estimated peak population of 3,000 people for Paquimé *alone* (Di Peso et al. 1974:4:203).[2] This scalar dichotomy between heartland and hinterland includes an inherent link with the subsistence dimension. The reliance on canal irrigation for the largest sites in both heartlands (Doolittle 1993), along with the construction of terraced hillsides in the Casas Grandes area (Di Peso 1984; Whalen and Minnis 2001), make the productivity, relative stability of land tenure, and the labor demands of the agricultural systems fundamentally different for the heartlands than for the Animas phase hinterland.

With respect to differentiation of style and the variability of exchange goods, the Animas phase ceramic assemblages indicate relative distinctiveness in the face of growing regional homogenization. Three lines of ceramic evidence point to these conclusions: first, there are several unique, characteristic, and widespread utility wares associated with the Animas phase; second, the wide range of painted wares thought to be manufactured in the Animas area is derived from several different traditions, in addition to fairly distinctive painted ceramic types known from single sites, suggesting considerable local experimentation;[3] and third, the large variety of non-local painted ceramics found at these sites were manufactured in several distinct regions and generally

appear in small and spotty frequencies (Douglas 1995, 1996, 2004; A. Johnson and Thompson 1963; Kidder et al. 1949). I argue that these ceramic data are consistent with groups deliberately maintaining an independent identity, and the non-local ware distribution is consistent with economic independence and dynamic, fluctuating exchange relations (Douglas 1995).

Regarding leadership processes in hinterlands, the topic requires new and thorough examination. Researchers have tended to focus their debate on social identity, often, as presented above, largely defined through ceramics. Yet a distinctive social identity is not equivalent to social, economic, or political independence. Indeed, this observation is the stock-in-trade of historical archaeologists, who often investigate distinctive social groups burdened with limited choices. Granted, such historic power differentials generally are fueled by imperialism or capitalism, but they make the point that prehistoric Southwestern archaeologists need to be wary of simplistic assumptions about identity and independence.

Leadership roles within the hinterlands and their connections to the heartlands are undoubtedly important linkages where the power of heartlands can be played out in ritual, social, political, and economic spheres. Alternatively, local leaders might be selective and adaptive in choosing relationships with heartlands, thereby strengthening local systems. Presumably, because of the differential in population size, all hinterlands could be subject to coercion by warfare and territorial expansion, so independence would never be absolute. Nevertheless, raids, even with superior numbers, would not necessarily lead to control, and warfare can be costly. Furthermore, territorial expansion of irrigation-based heartland groups into less-watered areas might be difficult at best. Hinterland leadership therefore may have a fair amount of choice in the types of contact and the amount of independence that they can maintain in dealing with heartland areas. The remainder of this chapter therefore explores the nature of leadership and its connection to heartlands in the Animas phase by considering public architecture and burial practices.

Ritual and Architecture in the Hinterland

According to several authors (P. Fish and Fish 1999:36; Lekson 2000:292; Skibo and Walker 2002:127; Wilcox 1995:289), the presence of ballcourts alone is sufficient evidence to indicate that the Animas phase is part of a Casas Grandes regional system. In light of new evidence of public architecture in the

Animas phase (Douglas 2004; Skibo and Walker 2002), as well as the approach outlined above, it is appropriate to reevaluate the role of public architecture (compare with Douglas 1995:247).

Animas phase ballcourts are an undeniably important link between the Casas Grandes region and the Animas phase. At the very least, ballcourts, taken with the shared production and use of Casas Grandes pottery, support the claim by P. Fish and Fish (1999:40) that Animas phase populations participated in some aspects of a Casas Grandes "worldview." However, this phraseology sidesteps issues of power relations: the Animas phase might still combine beliefs and artistic traditions borrowed from afar that, in combination with stable local characteristics, produced a unique local system (chapter 4, this volume). To evaluate social and political processes, we need to look at the specific context of these ballcourts.

Ritual architecture, such as a ballcourt, is a particularly powerful attribute to interpret ideological connections and separations. Southwestern archaeologists have used differences in ritual architecture to illuminate factionalism in the archaeological record (Stone 2002). Furthermore, if, as Rappaport (1999) contended, ritual is the means by which the most basic propositions of a culture are verified and reproduced, similarities and differences in ritual architecture need to be weighted heavily in identifying ideology and sources of leadership power. Thus, if ballcourts occurred consistently in a standardized form, as they do in the Preclassic Hohokam ballcourt system (Wilcox and Sternberg 1983), we may reasonably conclude that underlying shared ritual and social values are present.

My views of ballcourts in the hinterland are shaped by the interpretations of Whalen and Minnis (1996), which focus on ballcourts in the Casas Grandes heartland. They found that, even in Chihuahua, these features are diverse in form, show considerable variability in placement relative to settlements, are patchy in distribution, and therefore are fundamentally different than those of the Preclassic Hohokam system.

The variability is even greater in the Animas phase area, although the data are sketchy: no systematic survey and description has been conducted, and only the ballcourt at the Joyce Well site has been excavated and fully described (Skibo and Walker 2002). Accepting the five ballcourts identified by P. Fish and Fish (1999) and Skibo and Walker (2002) in the boot heel of New Mexico —three clustered in the southern Playas Valley, two in the northern Animas Valley—it is evident that (1) the distribution is patchy (fig. 6.1), (2) the spa-

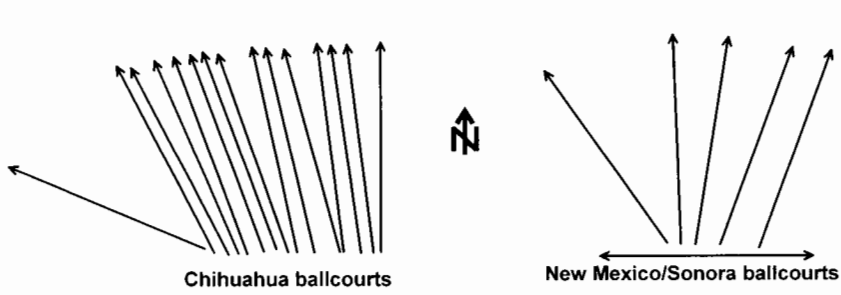


Figure 6.2 Orientations of hinterland and heartland ballcourts (data from Whalen and Minnis 1996: Table 1).

tial relationship between habitation sites and ballcourts differs (some ballcourts are north and some south of the associated habitation site (Skibo and Walker 2002:122), and (3) construction techniques and shape are heterogeneous (Skibo and Walker 2002:123). This variability is even more evident when prospective ballcourts outside the boot heel of New Mexico, such as the Ringo site in the Sulphur Springs Valley in southeastern Arizona, are considered (P. Fish and Fish 1999:37; A. Johnson and Thompson 1963). Thus, I see the same kind of uneven variation in ballcourt distribution and construction that is evident in Animas phase ceramic-type distributions (Douglas 1995).

It is revealing to look at the alignment of ballcourts summarized by Whalen and Minnis (1996) who considered twenty-one ballcourts—fifteen in the Chihuahuan heartland and six in the periphery of Sonora and New Mexico (fig. 6.2). The Chihuahuan ballcourts average 19 degrees east of north, with a fairly small standard deviation (s.d. = 15 degrees); the periphery ballcourts average 17 degrees west of north, with a large standard deviation (s.d. = 41 degrees). The orientations of the peripheral ballcourts show little clustering, and only the ballcourt at the Joyce Well site possesses an orientation close to most of the Chihuahuan ballcourts. Skibo and Walker (2002) add to this diversity by describing two new ballcourts, both not far from the Joyce Well site in the Playas Valley, one oriented east of north and the other west of north. Given increased awareness of prehistoric sophistication in orienting features to the cardinal directions (Lekson 1999), this inconsistency should not be ascribed to an inability of those in the hinterland to know which way was north, but rather as an indicator of basic ritual and social differences.

But noting differences in ballcourts does not exhaust the variability in

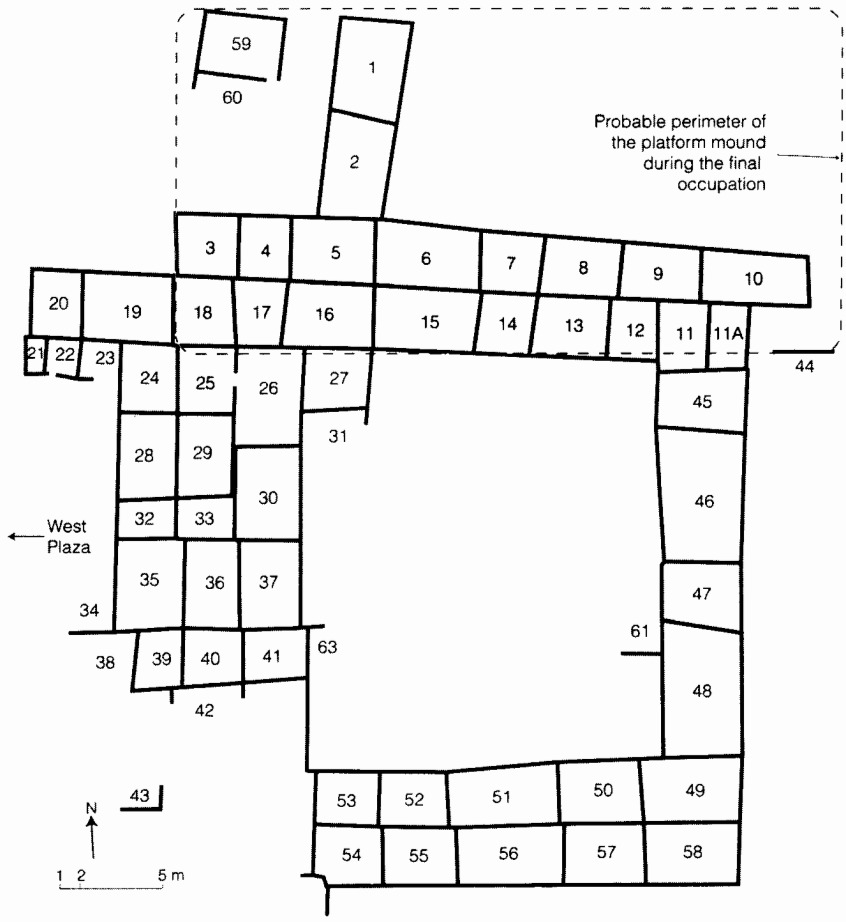


Figure 6.3 The Pendleton Ruin, redrawn from Kidder et al. 1949 (fig. 3), with the location of the platform mound indicated.

ritual and political architecture in the Animas phase area. A reanalysis of field notes and artifacts for the Pendleton Ruin in the Animas Valley (Douglas 2004) demonstrates that its final incarnation likely included a 1-m-high platform mound integrated into one of the plazas or compounds; the mound incorporated most of the rooms excavated by Alfred V. Kidder et al. (1949) and several adobe cells built for the purpose of extending the mound area (fig. 6.3). These conclusions come largely from the excavators—Kidder and the Cosgroves—who spoke of a "black mound" in their excavation notes and suggested

the mounding might have been a platform for houses (Kidder et al. 1949:130). By connecting these observations to a reanalysis of the ceramics by provenience, it is clear that the mound was constructed while other rooms continued to be occupied (Douglas 2004).

In regional context, the mound construction is similar to Classic period mounds from southern Arizona (Doyel 2000b; Elson and Abbott 2000): it is integrated into apparent residential space and, at least partially, relies on adobe walls for maintenance of a vertical edge (in this case, apparently only within the plaza). It is less similar to the individual house mounds of Sonora and the cobble-faced ceremonial mounds standing apart from the domestic plazas at Paquimé (Douglas 2004). The "Salado" or "Classic Hohokam" features found in the Animas Valley might be unexpected, if we were to follow the suggestion that ballcourts mark the Animas phase as part of the Casas Grandes region.

Finally, if ritual activity is the gold standard for cultural identity that relates to leadership roles, burial practices should be compared between the Casas Grandes and the Animas phase areas. In the 1930s, Kidder, accustomed to the strong pattern of under-floor burials in Chihuahua, was shocked by the rarity of burials at the Pendleton Ruin. He used this difference as a key attribute for splitting the two areas culturally (Kidder et al. 1949:230). This distinction has withstood the test of time. Even at Paquimé, most burials are individual internments under floors or plazas (Ravesloot 1988:69). This pattern of keeping the dead near descendants and their homes fits a social pattern of strengthening lineages and cross-generational property rights (McAnany 1995:100).

In contrast, Animas burials are generally rare and those present are variable: subfloor burials were fairly common at the Joyce Well site (McCluney 2002:45) and approximate the Casas Grandes pattern, but at the Pendleton Ruin, deliberate burials were limited to four cases, all of which had been interred within the mound (Kidder et al. 1949:130). Only a single subfloor burial was found at the Boss Ranch site in the northern San Bernardino Valley (Douglas 1990, 1996). In the central San Bernardino Valley, at the Slaughter Ranch site, extensive excavations by J. Mills and Mills (1971) demonstrated that burials were generally concentrated in two defined extramural areas, where groups of secondary cremations, lacking individual offerings, were found. If a Casas Grandes "worldview"—or a Classic Hohokam one, for that matter—existed in the Animas phase area, it does not uniformly extend to the treatment of the dead.

Hinterland Leadership and Boundaries

In making sense of these data, it is worth noting that mound building has been closely tied to emerging social inequalities (Elson 1998; Elson and Abbott 2000) and that ballcourts are most likely tied to political competition (Whalen and Minnis 1996). Thus, these architectural forms indicate that some individuals sought to project leadership through the ballcourts and the mound at the Pendleton Ruin (and potentially others). Animas phase political processes, like much of its material culture and subsistence practices, were not isolated from the changes shaping the fourteenth-century heartlands in the Casas Grandes and Classic Hohokam regions.

But did heartlands *impose* these features and, by inference, the underlying social processes, as a Di Peso or world-system model might suggest? Such an imposition in a non-state area might be created by migration, intermarriage, or a variety of patron-client relationships. At the Joyce Well site, I would argue that such processes probably occurred: with its "properly" aligned ballcourt, Casas Grandes burial practices, raised hearths, and a ceramic assemblage that is heavily but not exclusively weighted to Casas Grandes types, I have no trouble with Skibo et al.'s (2002) appellation that the Joyce Well community was on "the frontier of the Casas Grandes World." However, I suggest that at sites west of Joyce Well, the features and assemblages are too variable and too patchy in their distribution to reflect such an imposition and lie, therefore, well beyond that frontier.

Instead, in the Animas and San Bernardino valleys, it appears that the limited number of diverse ballcourts, experimentation in mound building, and localized burial practices reflect ritual variation and experimentation in local leadership. The mound at Pendleton Ruin is particularly important in this regard. At an estimated 600–800 m^3 of fill (fig. 6.3) and perhaps two person-years of labor (Doyel 2000b:304), the construction effort was small, yet it is a much larger effort than Animas phase ballcourts, estimated at about ten person-days each (Skibo and Walker 2002:123). Furthermore, the construction uses "Salado" or "Classic Hohokam" conventions, indicating that local leadership was not incorporated into a Casas Grandes sociopolitical "regional system."

The Animas phase hinterland appears to be neither a fossil nor a puppet, but rather a region with its own dynamic in emerging leadership that must be understood in its own right (chapter 2, this volume). In general, for marginal subsistence environments, it is likely that inequalities come from control over

networks of exchange (Blanton et al. 1996:7). In keeping with such a "network" process (Blanton et al. 1996; B. Mills 2000), Animas phase leadership appeared to use non-local goods and symbols acquired from afar to bolster local standings. But use of these symbols is eclectic and often appears to be superimposed over local practices of utility ceramics, funerary rites, and village construction. The variation in funerary rites may be particularly indicative of a system that failed to develop a core set of beliefs that could stabilize the position of local leaders.

In all likelihood, exotic paraphernalia and practices indicate widespread interaction and exchange, not the replacement of basic values by a heartland system. The power of emerging leaders was undoubtedly circumscribed by local practices and conditions, particularly settlement instability, which would create insecurities in food production and the maintenance of exchange partners (Douglas 1995, 2004). In turn, this instability causes the emblems of leadership—the exotic—to appear transitory rather than patterned in the archaeological record.

Conclusions

Heartlands *were* central to the changes in the Animas phase area by providing trade partners, goods, and symbols of leadership, but these things do not appear to have been *imposed* from the outside. It is likely that Classic Hohokam and Casas Grandes regional systems were "about" aggregated irrigation societies (cf. Adler 1996; McGuire and Saitta 1996:211). What may be truly surprising about the Casas Grandes sphere of organization and ideology is not Whalen and Minnis's insistence (2001) that it was relatively small (*contra* Lekson 2000:292), but rather that it was flexible enough, and powerful enough, that it could be "stretched" at all to nearby small communities in dry farming areas, such as where the Joyce Well site is located.

For too long, Southwesternists have looked to the densest and largest systems as the sole source of social, political, economic, and ritual power. Parallel, and important, processes occurred in areas we label hinterlands. Ethnoarchaeology from other culture areas demonstrates that we should not construe creative change as the sole domain of heartlands. In Wiessner's (2002:245; also Wiessner and Tumu 2001) rich ethnohistory of the growth of inequalities in the New Guinea highlands, she notes that important cults were developed among the highland western Enga, whose communities and populations were

smaller than the eastern Enga. The ecological marginality of the western Enga seems to have made the area a hotbed of reform and change (Wiessner and Tumu 2001:308), and cults developed in the highlands ultimately affected systems of ritual, exchange, and leadership in the population core to the east.

Hence, with biases on ranking regions in importance by room count (Wilcox 2005) and on finding "strong patterns" (Tainter and Plog 1994), would Southwestern archaeologists even entertain such a pattern of innovation from hinterland to heartland? Such a question burrows into the core of the debate over the roles of structure and agency in the Greater Southwest (Walker 2002: 159). A more dynamic view of the heartland/hinterland dichotomy can be created by acknowledging a spatial dimension to social life and by recognizing that an important component of agency is the selective and creative use of structures and social links found outside of the local community.

Notes

1. Definitions of the Animas phase vary somewhat, and I give full consideration to them elsewhere (Douglas 1990, 1995, 1996). My preferred definition is to apply the term "Animas phase" to people in the region that lived in aboveground adobe structures and that produced a fairly distinct textured and polished corrugated utility ware called Cloverdale Corrugated (Kidder et al. 1949). In practice, this definition differs from others by including a few sites in Sonora and Arizona not normally defined as Animas (Braniff Cornejo 1986; A. Johnson and Thompson 1963), as well as including post–AD 1300 sites with Salado Polychrome ceramics—the "late Animas phase." Some archaeologists prefer to see the Animas phase ending at AD 1300, replaced by a fourteenth-century occupation labeled "Salado" (Hegmon et al. 1999). I, and others (Carpenter 2002), see continuity with the earlier remains.

2. I am skeptical of population estimates made from rooms lacking tree-ring data, largely because of the uncertainty in identifying contemporaneous room use. The figures presented here are used solely to underscore scale differences. It is also worth considering that the Animas Valley may not have the largest Animas phase sites or population; for example, Cuchuverachic, a now-destroyed site in Sonora, was estimated (in the Amerind Foundation site files) to cover a 1 km^2 area and contain 400 to 500 rooms.

3. Although the nature of the evidence varies, painted-ceramic types claimed to have been manufactured in the Animas area include Salado polychromes (Crown 1994); El Paso Polychrome (Carpenter 2002); Chihuahuan polychromes (Woosley and Olinger 1993); a polychrome and a black-on-red type apparently unique to the Ringo site (A. Johnson and Thompson 1963); and a red-on-brown and a polychrome type apparently unique to the Boss Ranch site (Douglas 1990, 1996).

7

Papaguerian Perspectives on Economy and Society in the Sonoran Desert

James M. Bayman

The Papagueria in Sonora, Mexico, and southern Arizona is an "open space" (*sensu* Upham 1992) in the archaeology of northwest Mexico and the southwest United States. Although numerous archaeological sites have been discovered in this area, ancient public architecture is largely absent and its heterogeneous ceramic assemblages are *not* uniformly dominated by any particular cultural tradition. This lack of a clear-cut technological or social affiliation (according to the culture-historical frameworks of conventional archaeology) should not be unexpected because this territory was surrounded by three major traditions: the Patayan, Hohokam, and Trincheras (fig. 7.1).[1]

Ancient Papagueria was likely a cohesive region of local populations with identities that cannot be interpreted easily using the paradigm of culture-historical archaeology (see McGuire 2002 for a relevant discussion). Spanish explorers in the Early Contact period referred to this territory as the "Papagueria," which in English translates to the "area of the Papago Indians." The Papago Indians (now called "Tohono O'odham") resided in this locale when ethnographers first arrived in the late nineteenth century, and this area remains their homeland today.

The Papagueria is located between the Gulf of California, the Lower Colorado River, the Lower Gila River, and the Baboquivari Mountains, west of the Tucson Basin. Unlike the river valleys along its borders, the Papagueria lacks perennial streams, and it is not surprising that early ethnographers witnessed some degree of residential mobility among its inhabitants (Castetter and Underhill 1935). Archaeologists have often invoked this Historic period lifeway to interpret the local archaeological record (e.g., Haury 1975:4–5; Masse 1980b; McGuire 1991:350).

Indeed, archaeology confirms that residents of the Papagueria never

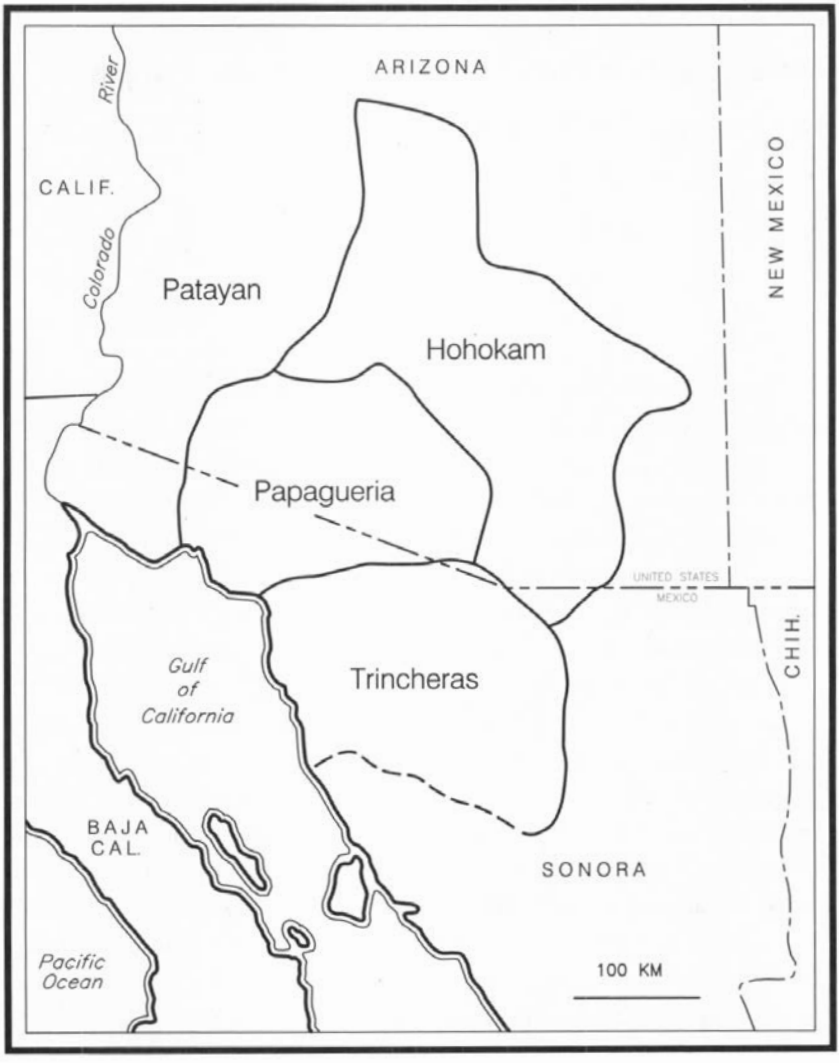


Figure 7.1 The Papagueria in southwest Arizona (U.S.) and northwest Sonora (Mexico).

practiced intensive floodwater farming or large-scale canal irrigation like their Patayan and Hohokam neighbors to the northwest and northeast did. Moreover, artifact assemblages in the Papagueria are often mixed and contain varying proportions of Patayan (i.e., Lower Colorado Buff Ware), Hohokam (i.e., Red-on-buff), and Trincheras (Sonoran Brown Ware) ceramics. For this and other reasons, the social identity of populations who traveled through, or resided in, the Papagueria is a confounding problem for the region, at least from the standpoint of conventional culture-historical archaeology.

Since the 1930s, many culture-historians have equated red-on-buff ceramics and marine-shell ornaments with an archaeological tradition they named "Hohokam" (W. Gladwin and Gladwin 1929a, 1929b; Haury 1976). Distributions of these materials and particular architectural technologies led many archaeologists to conclude that the confluence of the Salt and Gila River valleys was the "heartland" of Hohokam society and that outlying areas, such as the Papagueria, were colonized later in the chronological sequence (Haury 1975). This geographically restrictive focus was modified in the 1970s and 1980s, however, as archaeologists began to emphasize ecological, economic, and political dimensions of Hohokam society (e.g., Doyel 1974; P. Fish and Fish 1991; McGuire and Schiffer 1982; Teague 1984; Weaver 1972). This alternative perspective has focused on delineating the distributions of monumental architecture, such as ballcourts and platform mounds, to characterize "regional" and "macro-regional" systems (e.g., Crown 1991a; Doelle et al. 1995; Downum and Madsen 1993; Gregory 1991; Gregory and Nials 1985; Wilcox 1979, 1999; Wilcox and Sternberg 1983). Much like Chaco, the Hohokam regional system expanded incrementally with each new discovery of a ballcourt or a platform mound.

Regional distributions of Hohokam monuments were documented and sometimes interpreted using variants of world-system theory, as construed by Wallerstein (1974) and others (e.g., McGuire 1987). Strong contrasts were quickly drawn (and later refuted by some [e.g., S. Fish and Fish 2000; Lerner 1985]) between the so-called Hohokam "core" and its surrounding "periphery" or "hinterland." Although ballcourts and platform mounds have not been identified across most of the Papagueria, many archaeologists concluded that this area was a variant of the Hohokam tradition (e.g., Haury 1975) because red-on-buff ceramics and marine-shell artifacts are commonly recovered from archaeological sites there.

My intention in this discussion is not to offer yet another critique of this

core/periphery framework as it is applied to Southwestern archaeology. Rather, I critically evaluate the guiding premise that the Papagueria served only as a "hinterland" for the extraction of economic resources by a non-local population believed to have a Hohokam heritage. Instead, I argue that prior to AD 1200 the Papagueria was visited and utilized by members of multiple traditions, i.e., the Patayan, Hohokam, and Trincheras. The lack of ballcourts in the Papagueria during this period illustrates that this region was *not* ideologically dominated by the Hohokam tradition. Moreover, I conclude that this area was also the homeland of resident societies that had fluctuating ties and connections with Patayan, Hohokam, and Trincheras populations.

The social and economic rules for managing this joint-use territory were institutionalized by local populations *and* visiting practitioners of Patayan, Hohokam, and Trincheras technological traditions. Although the nature of the social and economic institutions that governed the Papagueria remains to be clarified, the archaeological record indicates that this territory functioned as a common-pool resource (CPR) system (*sensu* Ostrom 1990; Ostrom et al. 1994), at least before AD 1200. The region contained resources that both local and non-local groups used, and it embodied a buffer zone between the most archaeologically robust traditions (i.e., Patayan, Hohokam, and Trincheras). CPR systems have been documented in the Great Basin archaeological record (e.g., Eerkens 1999), and their discovery in other regions of the Greater Southwest should not be surprising.

Common-Pool Resources and Joint-Use Territories

A common-pool resource is "a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use" (Ostrom 1990:30). Examples of common-pool resources may include (but are not limited to) oceanic fishing grounds, terrestrial foraging domains (e.g., forests and mountains), and potable waters (e.g., lakes and aquifers). Common-pool resources are generally used by different populations, such as individuals, families, tribes, or larger-scale societies (Eerkens 1999:298). Although groups in a CPR system may harvest resources without gaining prior permission, they must adhere to mutually-agreed-upon rules established and practiced by all joint users (Eerkens 1999:298).

Varying social and ecological conditions determine the degree to which a CPR system is actively managed. Theories for the emergence of such joint-use territories are generally tied to several concerns: (1) environmental buffering, (2) the reduction of social conflict, and/or (3) the cost and benefits of defending a territory (Eerkens 1999:307). Although ecological and geographic factors are certainly relevant to the development of CPR systems, history and politics are no less significant (*sensu* Pauketat 2001a). Climatic variability, demographic pressure, and political incentives offer different advantages and drawbacks to groups who seek to colonize or acquire resources from such territories (Dean 2000).

The Papagueria offers an exceptional opportunity to evaluate the utility and empirical validity of CPR theory to archaeological interpretation in the American Southwest. This portion of the Sonoran Desert contains valued marine and terrestrial resources—including shell, salt, and high-quality obsidian—that were vital to many ancient Southwestern societies. The region also contained large game (such as bighorn sheep), edible and non-edible plant resources, and arable land for non-intensive agriculture, and yet it was too large for any one population or society to control access.

The economic and social incentives for acquiring such resources were a potential source of competition and conflict among groups who resided in, or utilized, the Papagueria. In fact, a wealth of new information confirms that local populations in the Papagueria had fluctuating social and economic ties with non-local populations that archaeologists know as the Patayan, Hohokam, and Trincheras traditions (Ahlstrom and Roberts 2002:113). Archaeological evidence of the intensive use of local resources by multiple populations indicates that a socially constructed solution was achieved in the Papagueria for several centuries.

The Papaguerian Archaeological Record

Archaeological research in the Papagueria has intensified greatly over the last two decades, under the aegis of cultural resource management (Bayman 2001; fig. 7.2). Archaeological correlates of common-pool resource use are clearly illustrated in the character of water management and subsistence economies, craft economies and technological organization, and ideologies and worldview in the Papagueria. The discussion below focuses on key findings that are especially germane to the application of CPR theory in archaeology.

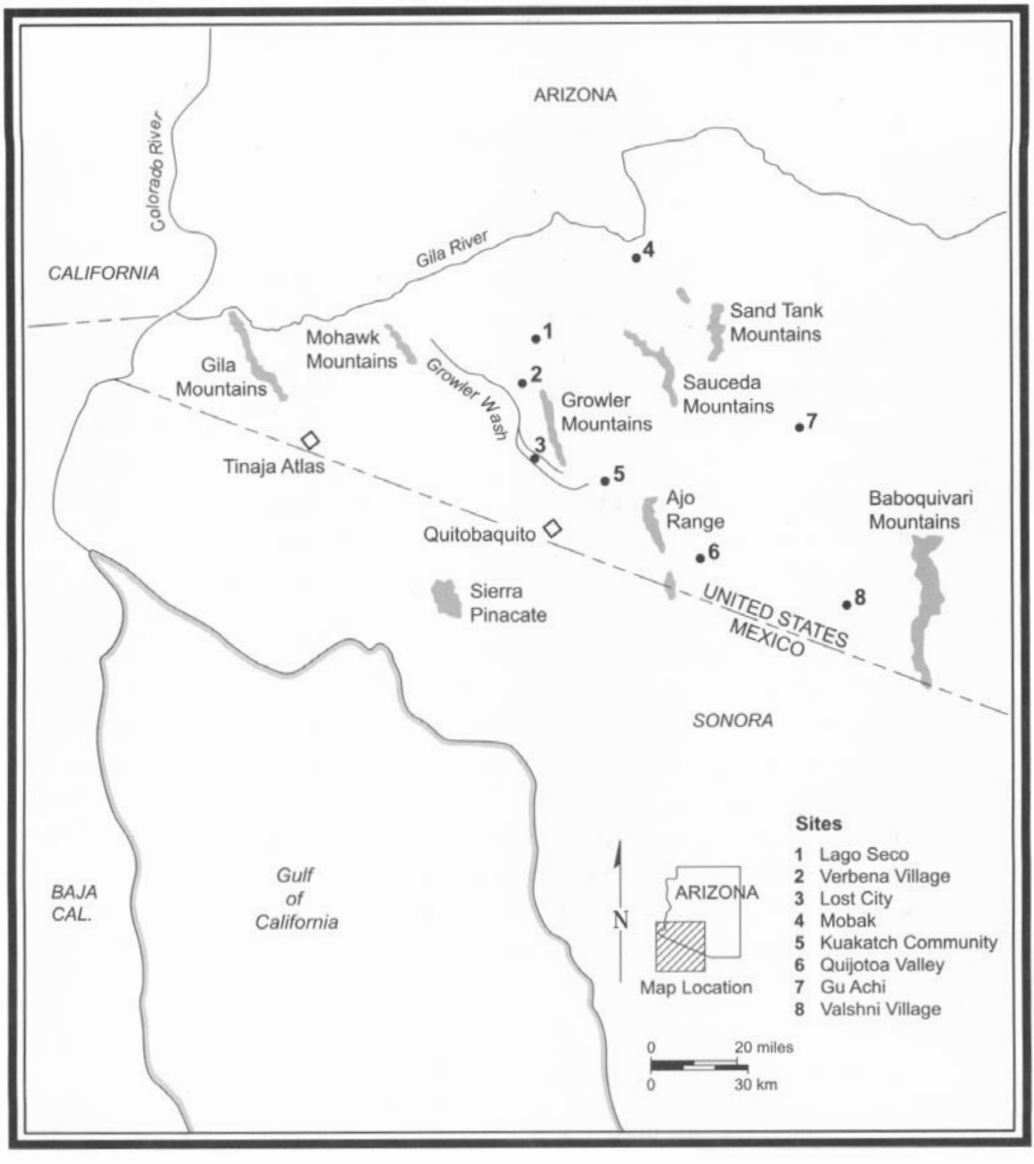


Figure 7.2 Papaguerian landscape features and archaeological sites mentioned in the text.

Water Management and Subsistence Economies

Archaeological work in the Papagueria confirms the practice of innovative technologies for harvesting and storing surface runoff, as well as the recovery of subsurface ground water. Reservoirs and potential walk-in wells have been increasingly documented across southwestern Arizona (Ahlstrom et al. 2000: 106; Bayman 1993; Raab 1975). The remains of aquatic plants and animals—including cattail, ostracodes, *phragmite* reeds, and mud turtles—confirms that reservoirs in the Papagueria and Sonoran Desert were highly effective water storage devices (Bayman 1997; Bayman et al. 2004). Walk-in wells—which were once documented only in the Phoenix and Tucson basins—have now been hypothesized to exist at Verbena Village (AZ Y:8:11 [ASM]) in western Papagueria (Ahlstrom et al. 2000:106) (fig. 7.2; table 7.1). Together, such facilities enabled human populations to inhabit areas far beyond the distribution of natural water sources such as Quitobaquito Springs (fig. 7.2; table 7.1) or the numerous *tinajas* (e.g., Tinajas Altas) and playas (Broyles 1996) of western Papagueria.

Ongoing archaeological work has also yielded solid evidence for agriculture and resource extraction across western Papagueria. The discovery of carbonized maize cobs at Lago Seco (AZ Y:8:3 [ASM]), a large shell-production site with Patayan ceramics (fig. 7.2; table 7.1), offers tantalizing evidence of agriculture in this non-riverine area (Huckell 1979:96). Burned cupules of maize and maize phytoliths have been recently reported from two pithouses at the Mobak site (fig. 7.2; table 7.1) in western Papagueria (M. Hill and Bruder 2000:17-10–17-11). The high frequencies of maize pollen aggregates, as well as maize husk and cob phytoliths, indicate that fresh corn was being stored or processed at this interior desert settlement (M. Hill and Bruder 2000:17-11). Formal trough metates and manos at this site further substantiate the practice of corn agriculture at this desert locale (Lewenstein and Bonet 2000:12-4). This site also yielded squash pollen. These tangible signatures of floodwater farming illustrate the subtle pervasiveness of non-riverine farming in the Sonoran Desert and in western Papagueria.

Geomorphic evidence of stream-channel modification implies that ancient communities in the Growler Valley sometimes "dredged" tributaries of large washes to deliver water to their fields (Pearthree et al. 2000). Although the geomorphic evidence of this irrigation activity is not entirely conclusive (Pearthree et al. 2000:468), the discovery of two grains of *Zea mays* pollen in a nearby (presumed) field is intriguing (Pearthree et al. 2000:474–480). If

Table 7.1 Selected archaeological sites in the Papagueria with evidence of habitation; ceramic wares are listed in descending order of relative abundance.

Name/State/Number	Location on fig. 7.2	Area/Size	Characteristics and Inferred Functions	Span of Occupation and Major Ceramic Wares	References
Growler Valley and Environs					
Lago Seco, AZ Y:8:3(ASM)	1	100+ ha	Playa, abundant marine-shell debris, lithic tools	AD 1050–1535; Patayan Buff Ware and Sonoran Brown Ware	Huckell (1979)
Verbena Village, AZ Y:8:11 (ASM)	2	263 ha	Possible walk-in well, roasting features, and shell debris	AD 1100–1300; Hohokam Buff Ware, Sonoran Brown Ware, and Patayan Buff Ware	Olszewski et al. (1996)
Lost City, AZ Y:16:1 (ASM)	3	Several ha	Trash mounds, multiple reservoirs, inhumation burial	AD 900–1450; Sonoran Brown Ware and Hohokam Buff Ware, Salado Polychrome	Bayman (1989:96); Ezell (1955); Fontana (1965:62–64); Masse (1980b:230–234)
Mobak, AZ Z:1:29(ASM)	4	131.5 ha	Ephemeral structures, maize and squash pollen, maize cupules and phytoliths, trough metates and manos	AD 1025–1218, AD 1247–1406, and AD 1850–1920; Patayan Buff Ware, Hohokam Buff Ware, historic "Padre" beads (two)	M. Hill and Bruder (2000); Lewenstein and Bonet(2000); Miksa (2000)

Kuakatch Community					
AZ Z:13:1 (ASM)	5	105.2 ha	Pithouses, reservoir, spindle whorls, polishing stones, obsidian, shell, and turquoise	AD 975–1400; Hohokam Buff Ware, Sonoran Brown Ware and Salado Polychrome, San Carlos Red Ware	Rankin (1995); Bayman et al. (2004)
AZ Z:13:2 (ASM)	5	7.6 ha	High artifact diversity	AD 1150–1400; Sonoran Brown Ware, Hohokam Buff Ware, Trincheras Purple-on-red	Rankin (1995)
AZ Z:13:8 (ASM)	5	5.5 ha	High artifact diversity	AD 1150–1400; Hohokam Buff Ware and Sonoran Brown Ware	Rankin (1995)
AZ Z:13:27 (ASM)	5	Not reported	Farmstead	Not reported	Rankin (1995:115)
Dos Lomitas (two sites)	5	Not reported	Pithouses, roasting features	Not reported	Rankin (1995:115)

Table 7.1 *Continued*

Name/State/Number	Location on fig. 7.2	Area/Size	Characteristics and Inferred Functions	Span of Occupation and Major Ceramic Wares	References
Quijotoa Valley					
Gu Vo Hiktani, AZ Z:14:33 (ASM)	6	365 m long	Trash mounds, hearths	AD 900–1300; Sonoran Brown Ware	Rosenthal et al. (1978:63–64, 95, table 7)
Shell Site, AZ Z:14:21 (ASM)	6	790 m long	Possible structure, abundant marine shell, hoe-like tools	AD 1100–1300?; Sonoran Brown Ware	Rosenthal et al. (1978:43–44)
Huihikiwani, AZ Z:11:5 (ASM)	6	61 m long	Pithouse, inhumation and cremation burials	Unknown; Sonoran Brown Ware; Hohokam Buff Ware	Rosenthal et al. (1978:32–39)

Santa Rosa Wash					
Gu Achi, AZ Z:12:12 (ASM)	7	101 ha	Pithouses, ramadas, trash mounds, reservoir	AD 550–1000 and AD 1200–1450; Sonoran Brown Ware, Hohokam Buff Ware, Patayan Buff Ware, and Trincheras Purple-on-red, etc.	Masse (1980b:188–191)
Valshni Village	8	Not reported	Houses, trash mounds, burial	AD 875–1150; Sonoran Brown Ware, Hohokam Buff Ware, Trincheras Purple-on-red	Withers (1973); Ahlstrom et al. (2000:67–135)

Note: Because of unresolved disagreements concerning the classification of Papaguerian ceramics (see McGuire and Villalpando 1993:42–43 for a detailed discussion), "Sonoran Brown Ware" includes a variety of potentially distinguishable types that have been proposed in Sonora, the Arizona Papagueria, and the Tucson Basin. The bewildering difficulty in classifying Papaguerian ceramics may be due, in part, to cultural and technological "fluidity" in regions with common-pool resources.

agriculture was practiced in this area, it was probably a substantial undertaking. Estimates of the area that was irrigated by these dredged tributaries range from 941 to 22,636 acres, if formulas developed by Ackerly (1991), Haury (1976), and others are applied (Pearthree et al. 2000:472).

Archaeological work in the Papagueria also indicates the sustained extraction and consumption of non-domesticated plant and animal resources. Fieldwork has documented abundant scatters of ceramics, ground-stone and chipped-stone artifacts, and fire-cracked-rock features (e.g., Doelle 1980; M. Hill and Bruder 2000; Lascaux and Tucker 2000). Some of these sites, such as Verbena Village (AZ Y:8:11 [ASM]) and Lost City (AZ Y:16:1 [ASM]), exceed 640 acres (or 1 sq mi) in area (Olszewski et al. 1996:79–93) (fig. 7.2; table 7.1). Notably, artifact scatters on these sites often include ceramics from bowls and jars (e.g., Lascaux and Tucker 2000:303, 325, 335, 339, 342, 345), suggesting food consumption in a residential context. Archaeological excavations will be required to substantiate the hypothesis that these and other large sites (i.e., Lago Seco) functioned as long-term habitation settlements in the Papagueria.

Other sites reflect much smaller and more ephemeral locations where foraging activities related to animal hunting and plant processing were undertaken (e.g., Bayman 1989; Doelle 1980). These activities are reflected by highly fragmented animal-bone and informal grinding implements (e.g., Lyon and Holloway 2000). Many (but not all) of these sites are located along playas and tinajas where water would collect after seasonal storms.

Craft Economies and Technological Organization

Land use and settlement along natural and human-developed water sources have striking implications for the organization of craft economies in the Papagueria. Many models of Papaguerian archaeology implicitly assume that residential mobility would have discouraged local craft production (e.g., Huckell 1979). The recovery of molded spindle whorls and perforated sherd disks at sites in western and central Papagueria offers evidence of local cotton- and agave-fiber textile manufacture in the non-riverine deserts (e.g., Rankin 1995:206; Rosenthal et al. 1978:129, fig. 39). There is not yet evidence that cotton and agave were cultivated in the deepest reaches of the interior desert; such materials were likely imported from settlements along the perennial rivers at the outer margins of the Papagueria.

Although chemical characterization techniques have been applied to ceramics from eastern Papagueria (e.g., P. Fish et al. 1992), none have yet been

completed on assemblages from central and western Papagueria. For theoretical and empirical reasons, local ceramic production will almost certainly be repeatedly documented in the Papagueria when appropriate characterization techniques are used. Recent studies in the Great Basin confirm that prehistoric foragers throughout the region produced between 60 to 70 percent of their ceramic vessels (Eerkens et al. 2002:220). Most foragers in the Great Basin were relatively mobile, perhaps even more so than most populations in southwestern Arizona. Thus, minimally comparable levels of local ceramic production should be expected for the Papagueria and are likely to be demonstrated once characterization techniques are applied to materials from the region.

In fact, petrographic studies in Quijotoa Valley (in central Papagueria) imply that some plain-ware ceramics may have been manufactured locally (Rosenthal et al. 1978:131). The likelihood of local ceramic production is corroborated by ceramics from the site of Gu Achi (fig. 7.2; table 7.1). Large ceramic vessels at Gu Achi, with diameters in excess of 70 cm, suggest that on-site production would have been much more efficient, and far less costly, than acquiring ceramics through long-distance trade (Masse 1980b:142). Polishing stones recovered from Kuakatch Village in the Organ Pipe area (Rankin 1995: 600) also highlight the potential for local ceramic production (fig. 7.2; table 7.1). A similar mode of local production may well account for Patayan ceramics on archaeological sites in the Papaguerian deserts. In fact, petrographic studies of Lower Colorado Buff Ware from two sites (i.e., Mobak and Rainy Day) in the vicinity of the Sauceda Mountains (fig. 7.2; table 7.1) indicate that some of them were locally produced (Miksa 2000).

Whether or not Papaguerian populations always manufactured ceramics at habitation sites in the interior desert, such sites often yield mixed assemblages (Gregonis 2000:473). Some sites, for example, contain roughly equal proportions of Patayan and Hohokam ceramics (Lascaux and Tucker 2000: 311; Lyon and Gregonis 2000:662–663). This pattern continued into the Historic period, when some vessels exhibit a blend of shapes and decorations that are derived from both O'odham and Yuman traditions (Gregonis 2000: 473). Although different cultural groups may have met at these locales in ancient and Historic period times to exchange goods and/or information (Lascaux and Tucker 2000:317), it is equally possible that Papaguerian artisans simply incorporated facets of non-local ceramic traditions (e.g., Patayan and Hohokam).

The collection of marine shell from the Gulf of California and the manufacture of ornaments are well established in the Papaguerian archaeological

record (McGuire and Howard 1987). Although most studies have emphasized Hohokam involvement with shell-ornament production (e.g., Bayman 2002; McGuire and Howard 1987), strong evidence exists for participation by practitioners of the Trincheras and Patayan traditions as well (e.g., Huckell 1979; McGuire and Schiffer 1982; McGuire and Villalpando 1993; Villalpando 2000:243–245). Ceramics from each of these cultural traditions have been documented at marine-shell gathering sites along the Sea of Cortez, in Sonora, Mexico (Mitchell and Foster 2000). Interestingly, these three traditions practiced different technologies to manufacture marine-shell ornaments (Jernigan 1978:207).

High-quality obsidian is another resource that was available in the Papagueria. Unlike some regions of the Southwest, populations in the Papagueria emphasized the use of locally available sources (i.e., Sauceda and Los Vidrios) (Shackley 1995). However, the relative abundance of Papaguerian obsidian found in archaeological sites outside the region implies that local material was also exported to neighboring areas of the Sonoran Desert (Bayman and Shackley 1999). The social and economic mechanisms for this circulation remain unknown, and down-the-line exchange is only one of many possible behaviors.

Religious Ideologies and Worldview

The religious ideologies that integrated populations in the Papagueria are difficult to discern using current models in Southwestern archaeology. An apparent lack of public monuments, such as ballcourts and platform mounds, implies that this region harbored worldviews unlike those that dominated the better-known regional systems in the Sonoran Desert (i.e., Patayan, Hohokam, and Trincheras). Figurines and ritual caches are also lacking in the Papagueria (Masse 1980b:302), offering further evidence of ideological differences from the regional centers of Hohokam society. Cremation burial was, however, practiced by the Patayan, Hohokam, and Trincheras traditions, and cremations (and inhumations) have been documented in southwest Arizona. The occurrence of cremations and other burials (e.g., Fontana 1965; Rosenthal et al. 1978:34–39) illustrates that a resident population was present in some, if not all, areas of the Papagueria.

The discovery of offertory shrines comprised of stone mounds with ceramic sherds in western Papagueria (e.g., Rogers 1966:51–52, 75–76) indicates that distinctive rituals were also practiced in the region. One trail shrine was comprised of more than 50,000 stones, and Rogers (1966:76) speculated

that each item was deposited by individual travelers. Notably, some of the shrines contain Historic period Yuman ceramics that were (later) overlain by Hohokam sherds (Rogers 1966:76).

Moreover, alignments of boulders (some of which weigh 200 pounds) spanning distances of 600 ft have also been recorded across southwestern Arizona (Lyon and Gregonis 2000:638). In no case do these alignments exhibit the degree of stylistic elaboration or scale that are comparable to large intaglios in the California desert (Rogers 1966:76). Ceremonial functions for the Arizona alignments and rock art have been proposed by some archaeologists (Lyon and Gregonis 2000:638) who have worked in the Papagueria.

Food-animal cremations, which are rare in the Hohokam core, are well documented in the Papagueria (Hayden 1985; Lascaux and Tucker 2000:316). Species represented by such offerings include deer, antelope, bighorn sheep, badger, and jackrabbit. The possible role of these offerings in commemorating ancestral totems should be evaluated by recourse to oral histories and ethnographic accounts.

Historic period piles of horns from bighorn sheep illustrate yet another dimension of ritual practice in the Papagueria (especially in the Sierra Pinacate) that was absent in other contemporary areas of the Sonoran Desert. The ritual meanings of these historic shrines are elusive, and yet it is clear that they served much smaller communities than those that were involved with prehistoric ceremonies held in ballcourts and at platform-mound settlements. These Historic period shrines may have ancient analogues that are not preserved in the archaeological record of the Papagueria.

Implications for the "Hinterlands" of Southwestern Archaeology

In closing, I argue that social and economic institutions emerged in the Papagueria that were quite different from those that developed in epicenters of regional traditions such as the Patayan, Hohokam, and Trincheras. The Papagueria did not function as a marginal periphery for a hegemonic Hohokam regional system or any other population; instead, its pluralistic population was comprised of multiple societies in the Southwest, at least prior to AD 1200.

The Papagueria may have enabled some degree of political autonomy and cultural independence for local resident populations. Indeed, it is likely that the loyalties and social identities of local populations shifted over time and

space as they interacted with visitors from neighboring heartlands (e.g., Patayan, Hohokam, Trincheras). Such independence was only one of many potential benefits of occupying a region with common-pool resources. The institutions that negotiated this dynamic pluralism also facilitated the use of local resources by outsiders.

After AD 1200, however, large *cerro de trincheras* sites were constructed on hilltops along the western margins of the Hohokam tradition in eastern Papagueria and in northwestern Sonora (e.g., Downum et al. 1993; Ives 1936; A. Johnson 1963; McGuire and Villalpando 1993; O'Donovan 2002; Sauer and Brand 1931; Stacy 1977). The potential use of these facilities in defensive warfare is hotly debated (e.g., Downum 2002; LeBlanc 1999:258–263; H. Wallace 1995c; H. Wallace and Doelle 2001; Wilcox 1989), although it is likely that they materialized a variety of meanings (O'Donovan 2002:80–81). Besides their potential use for defense, it is also possible that these monumental constructions were symbolically meaningful for establishing rights to land and territory (Downum 2002). Whether or not cerro de trincheras were used for defense, for agriculture, and/or for symbolically staking claims to landscapes, the institutional arrangements that once governed the use of common-pool resources in the Papagueria apparently unraveled. With increased demographic pressure in other regions of the Late Prehistoric Southwest (Dean et al. 1994), economic competition may have intensified among members of the Patayan, Hohokam, and Trincheras traditions.

Recent research compels us to revise our interpretations of the Papagueria and its role in the prehistoric Southwest. We still have a poorly developed understanding of the so-called "weak patterns" (*sensu* Tainter and Plog 1994) or "empty spaces" (*sensu* Upham 1992) of Southwestern archaeology. I argue that some of these territories were utilized as CPR systems. Of course, not all Southwestern hinterlands functioned as CPR systems. Yet such systems may have been far more common than archaeologists have thus far recognized. Investigating the organization and pervasiveness of such systems will provide a more textured understanding of the relationships among hinterlands and heartlands in Southwest prehistory.

Note

1. My reference to three major traditions does not presume that they were static entities. I use these terms gingerly, knowing that their cultural content was dynamic and variable (*sensu* McGuire 2002).

8

No Peripheral Vision

A View of Regional Interactions from South-Central New Mexico

Thomas R. Rocek and Alison E. Rautman

In this chapter we make three basic arguments. First, following Whittlesey's (1998c, 2000) observation on the so-called "northern periphery" of the Hohokam and M. Smith and Berdan's (2000) argument for Postclassic Mesoamerica, we suggest that for many regions of the Southwest during many time periods, concepts such as "core-periphery" or "heartland-hinterland" do little to clarify the shifting and inconsistent patterns of cultural, economic, and political interaction. We use the Sierra Blanca and Salinas districts of New Mexico to make this argument. Second, we highlight the diversity in the archaeological record between these two areas; in some ways Sierra Blanca is more of a hinterland than is Salinas, but this contrast depends on the types of evidence and the periods we consider. We make this point to emphasize how the situational and fluid nature of regional interactions renders hinterland/heartland classifications of little value in interpreting these ambiguous cases. Finally, we suggest that while heartland/hinterland and core-periphery models have helped draw attention to regional political, economic, and demographic interaction, the emphasis on these patterns of interaction is the most useful outcome of such models, not the models themselves. As an alternative, we outline the concept of heterarchy as a framework for describing shifting and variable patterns of regional interaction.

Weak Patterning in the Interaction Sphere of Marginal Heartlands

The concepts of heartland/hinterland or core-periphery have a long tradition in the Southwest. The initial syntheses of Southwestern archaeology by Alfred V. Kidder (1924) and Winifred Gladwin and Harold S. Gladwin (1934) were based around an assumption that normative patterns characterized large

sections of the Southwest, with certain core regions most clearly representing those norms (see also chapter 1, this volume). As understanding of regional and temporal variation across the Southwest expanded in the last several decades, researchers introduced a range of concepts aimed at explicitly addressing how cultural patterns were expressed in different regions and times. Such concepts include the "Chaco Interaction Sphere" (Altschul 1978), the "Chaco Halo" (Doyel et al. 1984), the "Chacoan Regional System" along with "Downtown Chaco/Chaco Core/Chacoan Outliers" (e.g., Cordell et al. 2001; Crown and Judge 1991; Doyel [ed.] 1992), the "Gran Chichimeca" (Di Peso 1974), "strong patterns" and "weak patterns" (Tainter and Plog 1994), and the "Hohokam Regional System" and "core" with associated "periphery" Hohokam (Crown and Judge 1991; McGuire 1991; Whittlesey 1998c, 2000; Wilcox 1979).

This multiplicity of terms reflects not only the patterns in the archaeological record but also the theoretical perspectives that archaeologists have brought with them to the study of that record. Some uses of these terms are fairly casual. For instance, Torres's (2000) phrase "Anasazi Heartland" evokes R. Adams's (1981) usage in Southwest Asia rather than a formal theoretical construct. The sociological meaning of a heartland in fact emphasizes primarily a territory's potential for military control (Collins 1978:7), a meaning rarely emphasized in Southwestern archaeology.

Recently, the terminology of "core-periphery" or of "core-periphery-margin," derived from world-system theory, has seen particularly widespread use in the Southwest. This terminology, derived from Wallerstein's (1974) world-system model of state-level interaction, implies a specific set of underlying theoretical concepts (Whittlesey 1998c, 2000). The clearest world-system–derived models describe a core area dominating a periphery and drawing resources from a margin (e.g., T. Hall 1999, 2000; Sherratt 1993). They imply a degree of centralized political control that clearly characterizes central portions of Mesoamerica for much of the last two millennia and arguably appears for brief periods in northern Mesoamerica and the American Southwest. However, if one applies this model in its original sense, McGuire (1986:245) has aptly argued that "we may wish to speak of Chaco Canyon as a core; but in terms of the Southwest and Mesoamerica the entire Southwest must be considered a periphery"; or, "The Southwest . . . was the hinterland of a periphery" McGuire (1986:246). The original core-periphery world-system model appears somewhat "marginal" in the Southwest!

However, world-system and related perspectives have been extended to a range of non-state systems and even to cases lacking definable core-periphery relationships (e.g., Chase-Dunn and Hall 1997; Chase-Dunn and Mann 1998; T. Hall 1999, 2000; see also discussion in Whalen and Minnis 2001; Whittlesey 1998c:609). Gills and Frank (1993:95) used the concept of hinterland to describe an area that "contains natural resources, including human labor, which are tapped by the center-periphery. However, what distinguishes the hinterland from the periphery is that the peoples of the hinterland are not fully, institutionally, subordinate to the center." This use is similar to Sherratt's (1993) concept of the margin in world-system theory. From this perspective, however, the Chacoan, Paquiméan, or Hohokam "centers" exerted "core-like" domination only for brief periods and over limited areas (e.g., Whalen and Minnis 2000:175, 2001), leaving the "hinterland" as a residual category for much of the Southwest.

Examinations of terminology such as these have value, however, in focusing attention on the variables used to define a "core" or a "periphery" and on the nature of the interactions within and between them. For example, discussion in Chase-Dunn and Hall (1997) and T. Hall (1999, 2000) regarding the nature and archaeological signatures of "frontiers" or boundary zones between core and periphery highlights the idea that their relationships involve several kinds of interactions that are perhaps only very loosely linked to each other. These authors utilize a spatial framework of social networks that recognizes that the size and geographic shape of these networks can vary, depending on whether one considers the area that encompasses (1) the exchange of bulk goods, (2) the network of political and military interaction, (3) the circulation of prestige goods, or (4) the network defined by the exchange of information (fig. 8.1). These networks are envisioned as discrete activities exhibiting nested boundaries, with bulk exchange often the most constrained (presumably by transportation factors), and information networks extending the furthest out from a core (T. Hall 1999:7, 2000).

The Salinas and Sierra Blanca districts provide an opportunity to examine the usefulness of these concepts away from the most likely Southwestern "cores," such as Chaco or Paquimé. Neither the Salinas nor Sierra Blanca districts of New Mexico ever exerted strong political or economic control over a surrounding area in the way that Chaco Canyon or Paquimé apparently did. In some respects, then, both areas appear archaeologically as peripheries, or hinterlands—but of what core area or heartland? The archaeological record

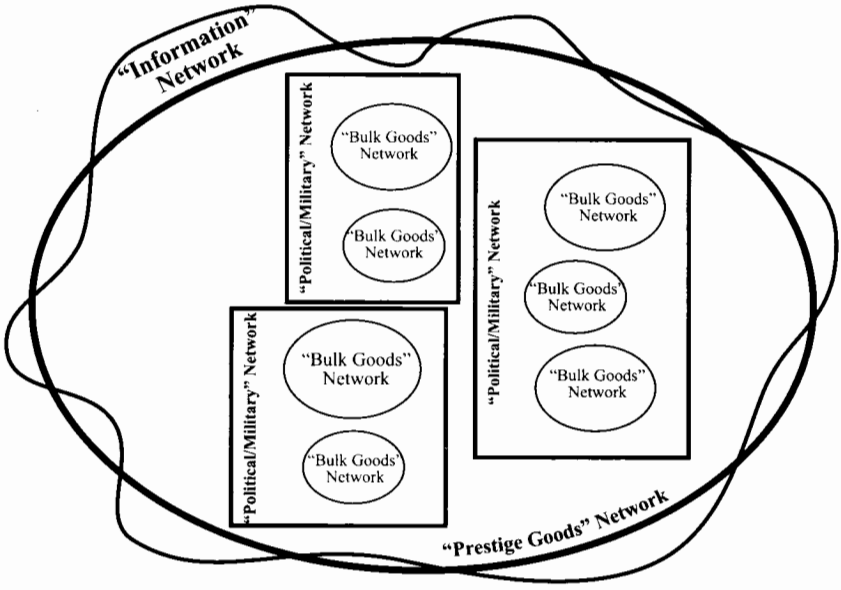


Figure 8.1 Chase-Dunn and Hall's schematic figure of the relationship of information, political/military domination, bulk goods and prestige goods relationships in world systems. Core-periphery-margin relationships should involve nested relationships among these variables (after Chase-Dunn and Hall 1997:54).

from these two areas indicates shifting and crosscutting interactions along a number of axes of variation. We propose that these interactions might best be understood using ideas of heterarchy that were originally developed for the study of variable and inconsistent patterns observed in political power relations.

Heterarchical Organization and Models of Regional Interactions

According to Crumley (1979:144, 1994:12), heterarchies are systems in which the component elements have (1) "the potential of being unranked (relative to other elements)," and/or (2) the potential of being "ranked in a number of ways, depending on systemic requirements." In the case of systems of regional interaction, for example, we might consider that different types of interactions across regions are expected to vary in importance, depending on the geo-

graphic and temporal scale of analysis, their crosscutting relationships with other types of interaction, and the contexts of interaction (Brumfiel 1995: 125). Proposing a heterarchical organization to a given phenomenon, such as regional interaction, does not uniquely identify any single organizational structure; rather, the concept forces us to specify more clearly the context and temporal duration of the relationships that we are describing (Flanagan 1989).

It follows that if we consider that the organizational structure of regional interactions may be quite variable in nature, we will focus not on identifying "cores" and "peripheries" in regional interactions, but rather on investigating ways in which a single region might act as a core and also, perhaps simultaneously, as a periphery, depending on the temporal scale or social context. A further implication is that the relationships among regions may not be accurately summarized in the vocabulary of cores and peripheries. Rather, more fluid and crosscutting relationships are possible and in fact expected, depending on whether we consider economic, social, ritual, or political contexts.

In southeast and central New Mexico, it is apparent that each of our study areas exhibits some characteristics of a typical core or periphery. In the following discussion, we describe how these characteristics vary: the observed relationships may operate at different spatial scales or for different periods of time; they may affect different sizes of social groups; and different relationships may have different impacts on the entire regional system.

Relationships and Interactions in the Study Area

Our study area includes two neighboring "districts": the Sierra Blanca district of southeastern New Mexico encompasses upland regions of the Sierra Blanca, Sacramento, and Capitan Mountains (Kelley 1984), whereas the Salinas district includes areas of central New Mexico south of the Estancia Basin, near Chupadera Mesa (fig. 8.2).

These two regions are generally viewed as peripheral to the main "action" in the archaeology of the Southwest in both the professional literature (see Cordell 1997: chapter 6) and also in popular accounts (e.g., Hayes 1993; Murphy 1993). This interpretation seems to be based on the areas' geographic location near an ecological border between the Plains and the high desert Southwest, the intermediate spatial location between the Rio Grande pueblos and the Plains, the persistence of pit-structure dwellings well into Pueblo II

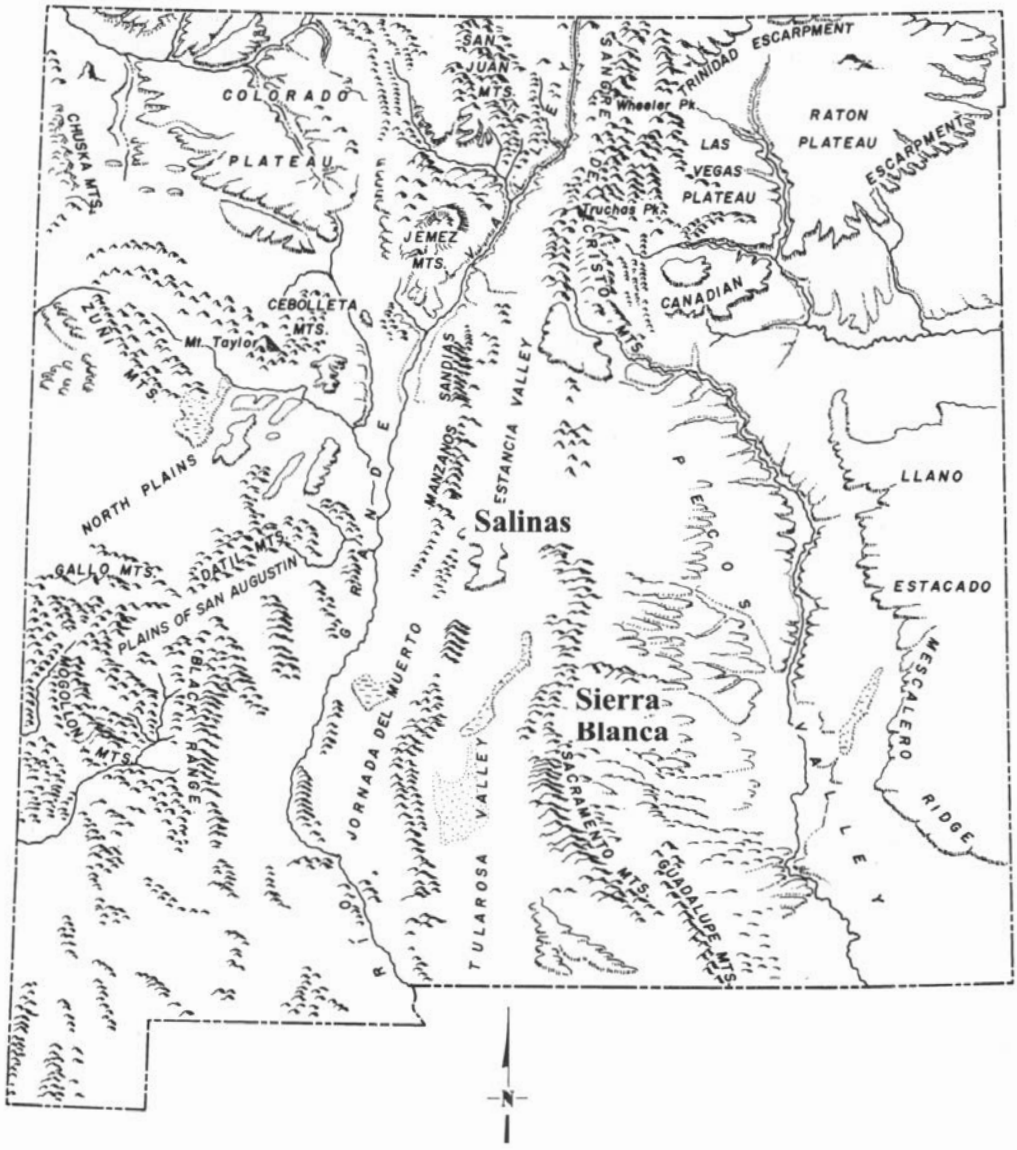


Figure 8.2 Location of the Salinas and Sierra Blanca districts (background map after Beck and Haase 1969: Map 2). From *Historical Atlas of New Mexico*, by Warren A. Beck and Ynez D. Haase. Copyright © 1969 by the University of Oklahoma Press, Norman. Reprinted by permission of the publisher. All rights reserved.

and III time periods, and the co-occurrence of brown-ware and gray-ware ceramics. In fact, the co-occurrence of these two wares is implicitly interpreted as indicating interaction between the central Mogollon (Brown Ware) and Anasazi (Gray Ware) "heartlands" (Cordell 1997; Mera 1940; Stuart and Gauthier 1981; R. Gordon Vivian 1964)—a ceramic argument explicitly made by Lang (1982) and later by Wiseman (1986, 2004).

However, there are two kinds of problems in applying extant models to these areas. First, it is not clear where the "core" would be: is the "core" or "heartland" the entire Puebloan Southwest? The Anasazi region? If one primarily considers geography, one could argue equally for a core centered in the Plains or in the Southwest. Alternatively, design styles in non-local pottery suggest cultural interaction with a number of different core areas, including the Chacoan, Mimbres, and the northern Rio Grande regions (Rautman 1993; Wiseman 1986, 2004). The Salinas area is commonly characterized as receiving cultural influences from a number of different regions, including the Anasazi, the Tusayan, the Cibola, the Western Apache areas of Arizona and western New Mexico, the Mogollon Highlands, and the Eastern Apache regions of west Texas (e.g., Hayes 1993: fig. 1). In the Sierra Blanca area, Beckett and Wiseman (1979) note large quantities of non-local "trade" ceramics from several areas, including Cases Grandes, Salado, Mimbres, Western Pueblo, and the middle Rio Grande, which they attribute to the region's peripheral status.

A second, and more fundamental, problem is that identification of cores and peripheries shifts depending on what category of evidence and what time periods we consider. Furthermore, the behavior of the regions as cores or peripheries themselves is inconsistent; in some respects they behave more like peers than peripheries, and depending on the variables and time periods, the two districts diverge in the degree of "core-like" or "periphery-like" characteristics that they exhibit. These issues are illustrated by examining the Salinas and Sierra Blanca districts with Chase-Dunn's and T. Hall's variables in mind.

Information Exchange

Both areas show abundant evidence of interaction in the form of broadly shared material culture and styles. The spread of Chupadero Black-on-white ceramics, for instance, is part of a very widespread style horizon in the late-first to early-second millennium Southwest, extending north-south from the Chaco region to the Mimbres and east-west from the Kayenta district to

Chupadera Mesa (e.g., Red Mesa, Puerco, Cebolleta, Reserve, Tularosa, and perhaps Mimbres Black-on-white styles [Wiseman 1986:47]).

However, this style horizon does not appear to come from a single "core" area; instead, it records a pattern of regional interaction and exchange among multiple areas. The origins of Chupadero itself around AD 1050 or 1100 appear to derive from earlier styles from several regions, particularly those on the Mogollon-Anasazi boundary, rather than from either "core" (Wiseman 1986).

The pattern of Chupadero Black-on-white *production* differs from the evidence for the derivation of the Chupadero style and again does not appear to reflect ideological domination from a core. Specifically, despite Chupadero's ties to a broad pan-Southwestern style horizon, its major production centers are at multiple locations *within* the two regions themselves (Creel, Clark, et al. 2002; Ennes 1999; Garrett 1991; Stewart et al. 1990). Chupadero *exchange* follows yet a third pattern. Trade flows from both the Salinas and the Sierra Blanca/Capitan regions, with the latter apparently having a wider trade network on the Plains to the east and south and extending northwest into the Salinas district (despite the local production there) and west into the Mimbres area (Creel, Clark, et al. 2002).

More striking still is ceramic assemblage similarity between the Sierra Blanca and Salinas regions. These similarities suggest a higher level of social and ideological interaction between these two areas than between them and any external "core" areas to the west or northwest (Rautman 1993; Wiseman 2004). The evidence of multiple, separate Chupadero ceramic-production areas in the two districts suggests that the Salinas–Sierra Blanca similarity may be due to interaction and shared ideology rather than exchange.

Prestige Goods

Evidence for prestige-goods circulation into the two regions is similarly complex. Rio Grande glaze wares, which are initially linked to sources in the Rio Grande Valley and the west, were imported into the Salinas area and initially treated as prestige items (Graves 2002). However, Salinas pueblos also produced glaze wares in the fourteenth and early fifteenth centuries (Allison 1993; D. Jones 1995; Spielmann 1998b; Warren 1981:67).

At this same time, the Sierra Blanca region developed ties south to Mexico, importing northern Chihuahuan ceramics and copper bells and macaws into the Pecos River valley (Emslie et al. 1992; Kelley 1979, 1984). In the same

period, glaze wares first appeared in the Sierra Blanca region (e.g., Rocek and Speth 1986; Wiseman 2004), while black-on-red ceramics patterned after the glazes were also produced locally (Human Systems Research 1973:335–337; Stewart 1979). These signs of prestige-goods circulation show links with areas to the west/northwest and the south, but again no single "core" dominated these interactions. Furthermore, insofar as the Salinas district took on the role of producer of the glaze wares, it acted more as a core than as a periphery during this time.

Military and Political Domination

Chase-Dunn and Hall's third realm, that of military or political domination, does not appear relevant for much of the prehistory of either the Salinas or the Sierra Blanca region. However, there is evidence of military action during the period of abandonment of both districts: first in the form of burnt rooms with unburied bodies at some eastern Sierra Blanca sites (Wiseman 1997), and later in the documented history of Plains groups' raids on the Salinas pueblos (Hayes 1981). Thus, to the extent that military domination was present, it emanated from yet another region, the Plains.

If political control can be monitored by ideological ties, then the archaeological record argues for two potential political cores, one contributing glaze wares from the west and the other providing Mexican trade items from the south (Wilcox 1991c). Additionally, Bigelow and Speth (2004) argue that the apparent communal consumption of dogs at a Puebloan site on the eastern edge of the Sierra Blanca district demonstrates the influence of Plains ideology. Again, ideological connections indicative of political influence point to several different core regions. In fact, however, there is no obvious evidence of "domination" in these ideological ties, though they do clearly indicate inter-regional interaction.

Bulk Goods Transport

Evidence of bulk-goods transport includes Contact period exchange of maize and other goods from the Salinas pueblos to Plains groups for bison products. The long time-depth of this relationship is indicated by Plains lithics at the Salinas pueblos and (in small quantities) at Sierra Blanca sites and the occurrence of glaze wares and Chupadero Black-on-white in the southern Plains (e.g., Creel, Clark, et al. 2002; Rocek and Speth 1986; Spielmann 1991a).

The intensity and pattern of the Plains trade changed over time, however. The eastern fringe of the Sierra Blanca district shows a sharp increase in bison procurement from the Plains and in ceramic imports from the west in the late AD 1200 to 1300s (Speth 2004; Wiseman 2004). Speth (2004) suggests that these developments relate to population influx into the Rio Grande Valley associated with abandonment in the Four Corners region. He argues that demand for bison products among the Rio Grande pueblos fueled the rise of bison-hunting economies on the Plains margin. Baugh (1991) and Spielmann (1991b) show how this growth ultimately lead to abandonment of Sierra Blanca sites in the fourteenth or early fifteenth centuries, when some of the villagers probably became Plains nomads (Speth 2004), and others joined the Salinas pueblos to the northwest. From this perspective, then, the eastern Sierra Blanca district *could* be analyzed as peripheral to the Rio Grande Valley.

But this eastern portion of the Sierra Blanca district could be viewed equally well as marginal to the Plains bison hunting—or as a "middle man" between peer systems in two ecological zones. Furthermore, the western "core" area is ambiguous: it could include the western part of the Sierra Blanca region, the Salinas district, or the Rio Grande pueblos. In addition, Wilcox (1991c) argues that yet another region, the Paquimé system to the south, played a critical role in the initial rise of the Plains-margin economy, a view consistent with evidence of Mexican prestige goods cited above.

Finally, external relations were clearly not the only, or necessarily even the dominant, factor shaping the economy of the Sierra Blanca district. Speth (2004) and Baugh (1991) cite environmental deterioration that may have made farming increasingly difficult on the Plains margin, while making bison hunting more attractive. Thus, the economy of the Sierra Blanca region was influenced by shifts in demand for bison products as well as by local ecological changes.

Similar complexity characterizes the shifting bulk-goods trade of the Salinas district. In the Contact period, Salinas area salt was exported to Mexico and to the Rio Grande pueblos, but evidence is lacking for the antiquity of this pattern. Cotton was also important in this area. It is not clear whether cotton was grown east of the Rio Grande (Winship 1896:575), but Spanish documents record cotton clothing at all the Salinas pueblos (Bolton 1908:180; Hammond and Rey 1953:650). Imports may have involved raw cotton and/or finished cloth; loom anchor holes in kivas at Gran Quivira pueblo suggest that cloth was woven there (Hayes 1981). There is no doubt, however, regarding

the importance of cotton in Plains-Pueblo exchange: numerous explorers describe the trade of cotton mantas to Plains Indians in return for meat and hides (Hackett 1937).

Inconsistent Measures of Core-Periphery-Margin Relations

Chase-Dunn and Hall's model exhibits a striking lack of consistency in south-central New Mexico—the apparent "core" for the Salinas and Sierra Blanca districts varies depending on which variable is examined, with some external impact coming from virtually every direction (fig. 8.3). If we consider military impact, possible cores include even the Plains, an area notably lacking in other "core-like" characteristics. Exchange of bulk goods, which also links the Salinas and Sierra Blanca districts with the Plains, appears to be best interpreted as a fairly symmetrical peer-to-peer interaction. Furthermore, relations among the groups involved in Plains trade were in rapid flux (e.g., Baugh 1991; Spielmann 1991b; Wilcox 1991c): the identities of any cores and peripheries here are clearly moving targets. In prestige-goods production, neither area appears consistently peripheral, with the Salinas district, in particular, often acting more as a core than as a periphery.

Finally, contrasts between the Salinas and the Sierra Blanca regions make it difficult to lump both areas together as a "hinterland" or "periphery." In some respects, the Salinas district appears less peripheral than Sierra Blanca. Geographically, the Sierra Blanca region is certainly more peripheral to the Southwest culture area and perhaps as a result was more exposed to both the opportunities afforded by bison hunting on the southern High Plains and to the dangers of conflict with Plains nomads. Perhaps as a result, the cultural sequence in the Sierra Blanca region follows a different pattern than Salinas. In the Sierra Blanca district there is no trajectory of aggregation into increasingly large pueblos and pueblo clusters such as we see in the Salinas area (Mera 1940). Instead, the eastern fringe of the Sierra Blancas shows growing involvement with a bison-based economy, and the whole district experienced abandonment of aggregated pueblos by the mid- to late fifteenth century (Speth 2004).

However, identifying the Sierra Blanca district as a periphery of a Salinas core also does not fit any clear model of core-periphery relations. There is no evidence of ideological, prestige goods, or bulk trade domination of one region

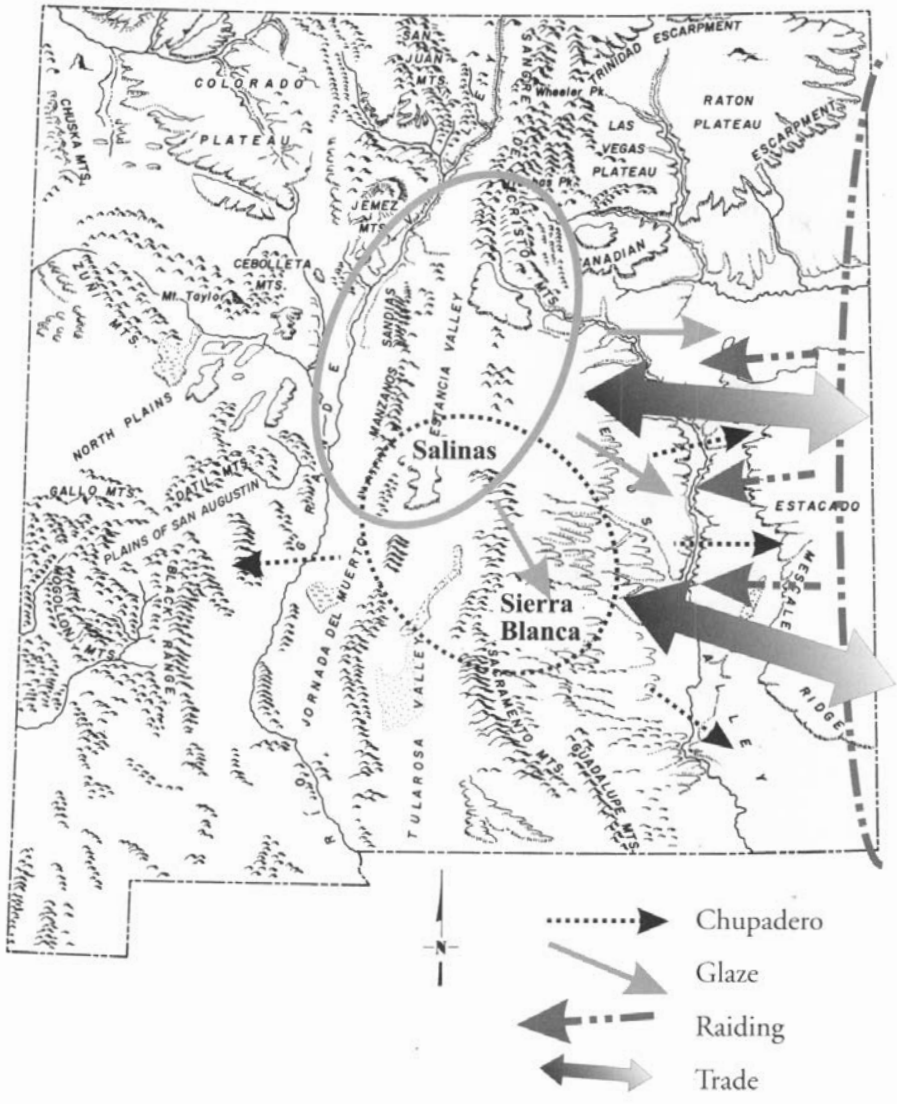


Figure 8.3 Schematic of selected source (outlined areas) and interaction (arrows) relationships among the Salinas and Sierra Blanca regions and between them and their surroundings. Contrast with the nested relationship suggested by T. Hall (1999:7, 2000) and illustrated in figure 8.1 (background map after Beck and Haase 1969: Map 2). From *Historical Atlas of New Mexico*, by Warren A. Beck and Ynez D. Haase. Copyright © 1969 by the University of Oklahoma Press, Norman. Reprinted by permission of the publisher. All rights reserved.

by the other. Also, to the extent that migration of colonists into the periphery demonstrates military or political control, the Sierra Blancas probably acted as a core, feeding population into the Salinas region at the time of abandonment, while few colonists migrated from the putative Salinas core to the Sierra Blanca periphery (although cf. Wiseman 2004). Furthermore, it should also be noted that if geographic marginality and early abandonment are criteria for identifying a periphery, Mesa Verde and Chaco Canyon would be candidates as well; both ended up as northern fringes to major population concentrations along the Rio Grande, and both lost their villages a century or more earlier than the Sierra Blanca district!

An Alternative Model

We might simply characterize this pattern as a chronological sequence of shifting cores, first centered in the Chacoan north and Mogollon west, later shifting to Paquimé in the south, and finally splitting between the Rio Grande Valley on the west and the Plains on the east (cf. Wilcox 1991c). However, such a characterization fails to account for the lack of consistency among the various types of interaction (ideological, prestige, military-political, and bulk transport), the continued importance of contacts in multiple directions, and the internal variation within the Salinas–Sierra Blanca "periphery."

Core-periphery models have played a helpful role in highlighting relevant variables and the possible "states" of interaction, such as those articulated by Chase-Dunn and Hall. However, these variables exhibit a pattern of change and inconsistency that does not fit a core-periphery structure. Although T. Hall (1999) and Chase-Dunn and Hall (1997) have argued that world-system models can be extended to cases where cores and peripheries cannot be defined, we concur with M. Smith and Berdan (2000:284) who suggest that such an extension "relax[es] the model beyond usefulness."

How can we best interpret the patterns of inter-regional interactions that characterize the archaeology of the Sierra Blanca and Salinas regions? We have argued that these regions exhibit non-hierarchical relationships that not only vary over time but also differ in appearance, depending on which variables one examines—an apparent core by some measures may not be a core, or may even be a periphery by other measures. We argue that this situation is analogous to that characterized as heterarchy in political relations (see Brumfiel 1995; Crumley 1995; Rautman 1998; Small 1995). The concept of heterarchy allows

for seemingly conflicting and ambiguous relationships because it emphasizes the importance of identifying the social context of observed relationships, the social scales (Barth 1978) at which they operate, and also their temporal duration (see also Flanagan 1989).

Such a perspective recognizes that the changes and contrasts among alternative types of relations between regions are not anomalous, nor are they best characterized as transitions from one set of core-periphery relations to another. By abandoning traditional hierarchical core-periphery-margin models, we do not deny that asymmetrical relationships may characterize aspects of interaction among particular regions at particular times. Examination of the variation among different aspects of interregional interactions still allows recognition of cases that approximate core-periphery conditions, when multiple asymmetrical interactions coincide. But such an approach also allows clearer study of the many cases that don't fit such consistent asymmetric patterns.

This view is similar to T. Hall's (1999, 2000) observation that information, prestige-goods, political-military, and bulk-goods networks may coincide in some cases, and not in others. T. Hall (2000:238–239) characterizes world-systems as pulsating, with the networks that make them up nested and overlapping. The evidence from Salinas and the Sierra Blancas agrees with this model of overlapping and temporally variable networks; there is little evidence, however, for nested networks of interaction. These areas exhibit patterning that seems better characterized by a heterarchic model of highly variable and shifting interactions. Furthermore, the archaeological record suggests that interactions *within* parts of a regional system (for instance, the interactions between the Salinas and Sierra Blanca/Capitan "peripheries" or even between the Sierra Blanca highlands and the eastern Plains fringes of the same district) may be as important, or even more important, than the interaction between apparent "cores" and their surroundings. Analyses based on a model of heterarchy focuses our attention on this interplay of the various social and geographic scales of interactions, their shifting forms, and their relative and changing strengths and directions over time.

9

Direct Procurement of Ceramics and Ceramic Materials, "Index Wares," and Models of Regional Exchange and Interaction

Implications of Petrographic and Geological Data from the Upper Basin and Coconino Plateau

Sidney W. Carter and Alan P. Sullivan III

Commenting on the scant record of aboriginal occupation he encountered during a trip down the Colorado River between Lees Ferry and Lake Mead in the Spring of 1953, Walter W. Taylor (1958:29) remarked that "there seems to have been little or no cultural relation with peoples living north, west, or south—and apparently very little contact at all." In contrast, the discovery of San Francisco Mountain Gray Ware (indicative of the Cohonina [see below]) with ballcourts on the southern edge of the Coconino Plateau (Wilcox et al. 1996) has been interpreted as evidence of ceremonial interaction between the Cohonina and the Hohokam macro-regional system (Wilcox 1999:124–127). Similarly, the re-interpretation of Wupatki as an "outpost of the Chacoan macroregional system" (Wilcox 1999:137) east of the Coconino Plateau evokes a dramatically different picture of prehistoric cultural dynamics in northern Arizona—one of relatively persistent contact and interaction among contemporaneous settlements (Wilcox 2005). Still, decades of research on the North Rim (E. Hall 1942; Schwartz et al. 1981), the Inner Canyon (Euler 1988; A. Jones 1986; Schwartz et al. 1979, 1980), and across the Coconino Plateau (Fiero et al. 1980; Jennings 1971; Schwartz 1957) are solidly consistent with Taylor's hinterland view (see also Coder 2002; Euler and Chandler 1978; Fairley et al. 1994; Schwartz 1990; Sullivan et al. 2002). Garcia's recent synthesis (2004) of the geographical distributions of Tusayan Gray Ware, San Francisco Mountain Gray Ware, and Alameda Brown Ware, however, suggests that interaction occurred among all these areas and involved exchange between communities around Grand Canyon and the edges of the Hohokam and Chacoan macro-regional systems (see also Lyneis 1996). Thus, by some accounts this corner of the ancient Southwest was indeed an insular place, a

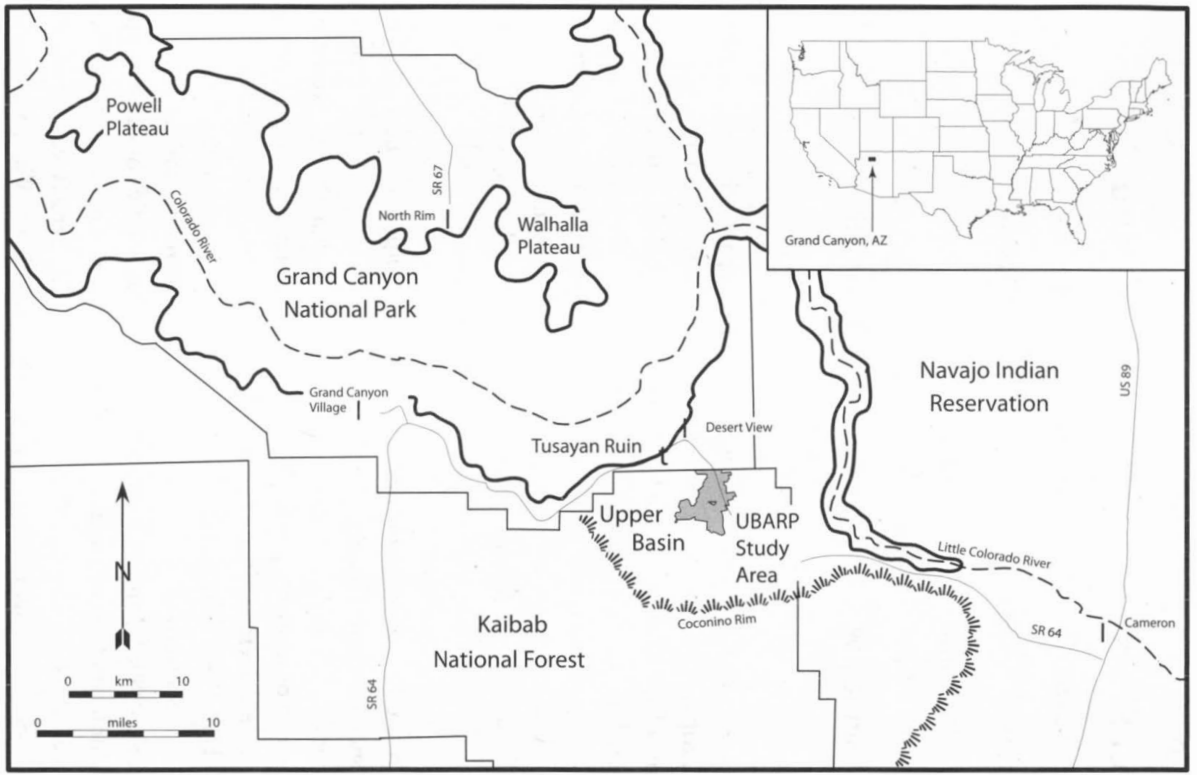


Figure 9.1 Location of the Upper Basin Archaeological Research Project ("UBARP Study Area") in northern Arizona.

hinterland of largely autonomous communities, whereas by others it was implicated in regional-system activities. In both cases, however, the validity of the competing models is dependent to a great extent on how regional patterns of ceramic "index wares" are defined and interpreted (cf. Braun and Plog 1982; Effland et al. 1981; Upham et al. 1994).

In this chapter, therefore, we test assumptions related to inferring regional aspects of ceramic production and exchange with new petrographic data from Upper Basin ceramics (fig. 9.1). With consideration of regional geological diversity as well, we argue that the area's inhabitants were neither insular nor dependent on others for resources, having obtained non-local materials or ceramic vessels by direct procurement rather than through exchange. Accordingly, we suggest that what constitutes ceramic evidence for regional and interregional interaction is far from unequivocal.

Investigating the Ceramic Traditions of a Persistent Hinterland

Between AD 700–1200, the Coconino Plateau and the Grand Canyon region were home to two major gray-ware traditions—Tusayan Gray Ware (TGW) and San Francisco Mountain Gray Ware (SFMGW). These wares are distinguished by conspicuous technological differences: TGW pottery was constructed with coarse-textured pastes and finished by scraping to yield partially to completely obliterated coils, whereas SFMGW was made with medium-textured pastes and finished by paddling, occasionally in combination with scraping (Colton 1955, 1958). Harold S. Colton and Lyndon L. Hargrave emphasized these distinctions, as well as contrasts between TGW and SFMGW vessel forms, in their studies of the ceramic variability and culture history of northern Arizona (Colton 1939, 1946; Hargrave 1938). In Colton and Hargrave's (1937:27) terminology, both TGW and SFMGW subsumed "utility types" that were "used for cooking or for storing water or grain" and were "usually found in the form of large vessels." By extension, Colton (1946:26–31) suggested that TGW and SFMGW were each an "index ware" that was "peculiar to a certain prehistoric tribe," in these cases the Kayenta Anasazi and the Cohonina, respectively.

Colton's index-ware concept was predicated on the assumption that the provenience, or point of recovery, and provenance, or point of origin, of a "utility" ware coincided: "large pottery vessels used for cooking and storage

Table 9.1 Archaeological characteristics of 18 Upper Basin mapping units that yielded sherds for petrographic analysis.

Mapping Unit	Type	Number of Rooms	Sherds Analyzed		Artifact Density (artifacts/ sq m)	Dominant Gray Ware
			TGW	SFMGW		
38.2	Masonry structure	1	1	2	8.3	TGW
43.0	Masonry structure	1	1	1	9.6	SFMGW
53.0	Masonry structure	1		1	4.4	SFMGW
121.0	Fire-cracked-rock pile		1	1		SFMGW
123.1	Fire-cracked-rock pile			1		Mixed
125.0	Masonry structure	5	8	5	21.8	TGW
235.0	Fire-cracked-rock pile		1	1		TGW
236.0	Fire-cracked-rock pile		1	1		Mixed
257.1	Masonry structure	1	2		6.6	TGW
306.0	Masonry structure	1		1	7.1	Mixed
308.0	Masonry structure	1	1	2	11.8	SFMGW
451.0	Masonry structure	6		1		TGW
735.2	Masonry structure	1	1		18.1	Mixed
757.0	Masonry structure	1	1		4.2	TGW
911.0	Masonry structure	1		1	15.0	SFMGW
1081.0	Sherd and lithic scatter		1			SFMGW
1098.0	Pithouse depression	2		1		SFMGW
1223.0	Masonry structure	2	1	1	19.8	TGW

Note: TGW = Tusayan Gray Ware; SFMGW = San Francisco Mountain Gray Ware

were difficult to transport and so with few exceptions are found close to the place of manufacture, and thus act as indicators of the people that made them" (Colton 1953:67). Consequently, Colton's hypotheses about the geological sources for the materials used in TGW and SFMGW were guided primarily by his perception of a "correlation between the character of the surface rocks and pottery wares" in northern Arizona (Colton 1946:257; see also Haas et al.

1994:210). Colton suggested that TGW was produced from materials derived from "Mesozoic sandstones" (presumably the Triassic Chinle Formation) in the area "north of the San Francisco Mountain area and east of the Kaibab monocline," whereas SFMGW was manufactured with "residual clays derived from limestone" in the "area covered by Kaibab [Formation] limestone" (Colton 1946:26–31, 256). Despite Colton's early hypotheses regarding sources for TGW and SFMGW, detailed analysis of the compositional attributes of these wares, and consideration of their relevance for resolving problems related to regional ceramic assemblage variability, received little attention until the early 1990s (Field 1992; S. Roberts 2001; Samples 1994; Zedeño et al. 1993).

Because the association of pottery wares with prehistoric groups, necessitated by Colton's index-ware concept, has long been recognized as problematic (Shepard 1965:321), the terms "Kayenta Anasazi" and "Cohonina" themselves may require reevaluation (e.g., Cartledge 1979; Fairley 2003:121–123). Nevertheless, as Zedeño (1994:11) notes, wares such as TGW and SFMGW are meaningful units of analysis in provenance research because the criteria developed by Colton to differentiate them pertain to fundamental aspects of ceramic technology. Our ongoing program of petrographic analysis of ceramics from the Upper Basin Archaeological Research Project (UBARP) area and of geological deposits from the eastern Grand Canyon seeks, therefore, to (1) ascertain the nature and sources of ceramic materials used by the region's prehistoric potters, and (2) determine the compositional differences between TGW and SFMGW. As a first step in realizing these objectives, we report on the analysis of 20 TGW sherds and 20 SFMGW sherds recovered from 18 UBARP mapping units (table 9.1), which were formed between AD 900–1150 (Sullivan et al. 2003; Uphus 2003). Analysis of samples of alluvial sediments, soils, and rocks from the Upper Basin provides a geological background for interpreting ceramic compositional variability (cf. Colton 1946:26).

The Regional Context of the Upper Basin

Because of the nature of its archaeological and geological resources, the Upper Basin is ideally suited for evaluating long-standing assumptions about the origins of ceramic-ware distributions as well as models of ceramic production and exchange. First, after 15 field seasons of intensive survey and excavation, it has been determined that the Upper Basin's prehistoric archaeological record was created by people who sustained themselves principally on wild-plant resources produced in anthropogenic environments created in the basin's

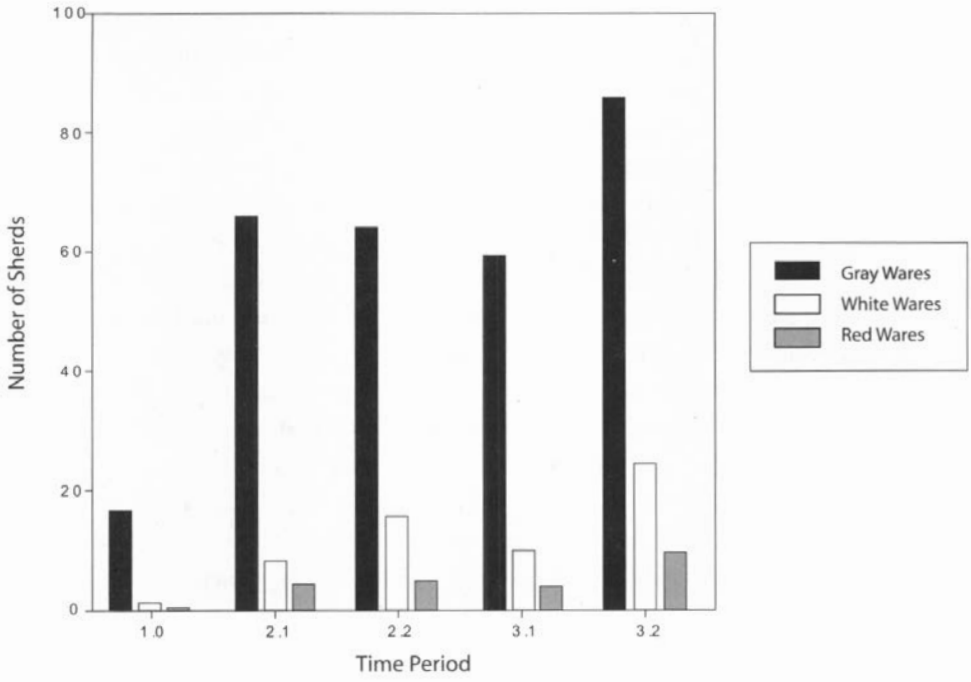


Figure 9.2 Variation of UBARP ceramic assemblages broken down by ware. Number of sherds is standardized by area of the recording unit (19.65 sq m; n = 182 mapping units) and annualized by the duration of each period, which is based on tree-ring-dated ceramics for northern Arizona (see Uphus 2003 for specifics): Period 1 (AD 875–1000), Period 2.1 (AD 1000–1050), Period 2.2 (AD 1050–1070), Period 3.1 (AD 1070–1115), and Period 3.2 (AD 1115–1150).

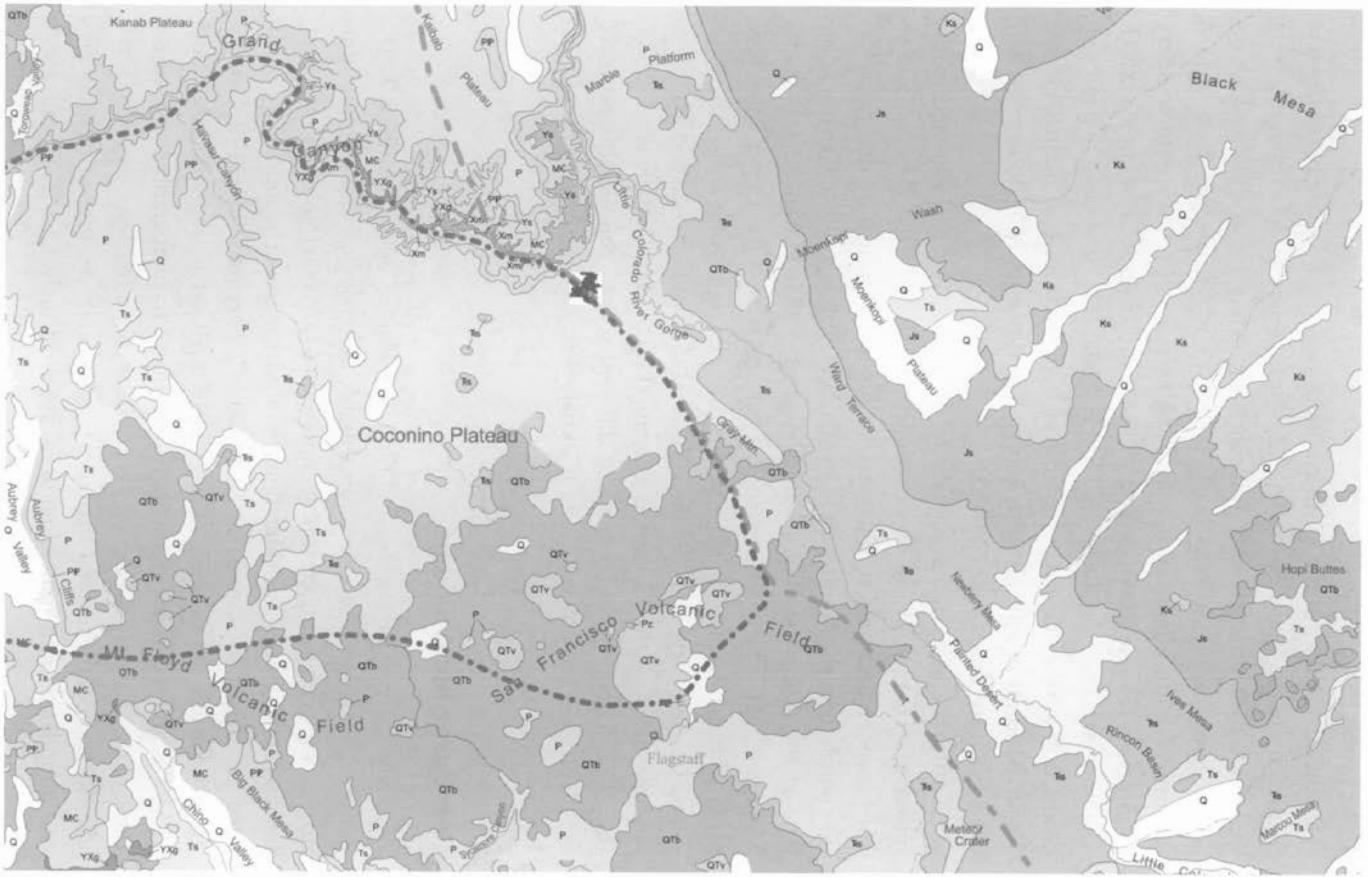
pinyon-juniper woodland between AD 900–1200 (Sullivan 1996) and who moved seasonally to the Inner Canyon and North Rim as circumstances warranted (Sullivan et al. 2002). In terms of subsistence economy, therefore, these people were self-sufficient (Sullivan and Ruter 2006). Second, as in other parts of northern Arizona, such as Black Mesa (S. Powell 2002:85) and Wupatki National Monument (Sullivan 1994), gray wares dominate Upper Basin ceramic assemblages (fig. 9.2) (Uphus 2003). Decorated white wares and red wares, which are featured in models of exchange networks (Douglass and Schaller 1993; Effland et al. 1981; Hegmon et al. 1995; Hegmon and Plog

1996; Lyneis 1996; S. Plog 1986; C. Wilson and Blinman 1995) and alliances (Upham et al. 1994) in the northern Southwest, occur in comparatively low frequencies in the Upper Basin (fig. 9.2). Nonetheless, samples from relatively well-dated contexts are readily available for petrographic analysis and for regional comparisons (Sullivan et al. 1995). Third, excavations have yielded remains of pottery fabrication and firing areas at three sites with masonry architecture (Fugate 2003; Sullivan 1988). Although it is unknown which ceramic wares were produced (cf. Garcia 2004:273), it is clear that pottery production at relatively small settlements (five rooms or less) occurred in the Upper Basin during the eleventh and twelfth centuries AD (Becher and Sullivan 1994; see also Sorrell 2005:52).

Lastly, the geological variability of the Upper Basin is restricted to the mixed siliciclastic and carbonate sedimentary rocks of the Permian Kaibab Formation bedrock and to Quaternary alluvium deposited by drainages that flow south from the South Rim of the Grand Canyon into Lee Canyon at the base of the Coconino Rim (Billingsley et al. 1985; Huntoon et al. 1980; Metzger 1961). The relative geological homogeneity of the Upper Basin contrasts with the dramatic geological diversity of neighboring areas—the inner Grand Canyon (Beus and Morales 2003) and the San Francisco and Mt. Floyd volcanic fields of the Coconino Plateau (Lesko 1989; Ulrich et al. 1984) (fig. 9.3). These regional geological differences hold considerable potential for identifying the provenance of materials that were incorporated in Upper Basin ceramics.

Petrographic Analysis

As many analysts have stressed (Miksa and Heidke 2001; Stoltman 2001), petrographic analysis supplies indispensable mineralogical and textural information for investigating ceramic compositional variation (Stoltman and Mainfort 2002). With these considerations in mind, the coarse fractions (i.e., all silt-sized and larger inclusions, or "nonplastics"; Shepard 1965:24–25) of the 40 aforementioned ceramic samples were analyzed petrographically.[1] Both SFMGW and TGW are particularly well-suited to petrographic analysis because of the relatively large grain sizes of their coarse fractions, which facilitate identification of the textural attributes (grain size, shape, angularity, sphericity, and abundance) and mineralogical identities of inclusions (Freestone 1995:


Kanab Plateau
Grand
Canyon
Hansaur Canyon
Kaibab
Plateau
Marble
Platform
Black
Mesa
Wash
Moenkopi
Moenkopi
Plateau
Ward Terrace
Little Colorado River Gorge
Coconino Plateau
Gray Mtn
Aubrey
Valley
Aubrey
Cliffs
Mt. Floyd
Volcanic
Field
San Francisco
Volcanic
Field
Flagstaff
Big Black Mesa
Chino
Valley
Sitgreaves Peak
Hopi Buttes
Navajo Mesa
Painted Desert
Ives Mesa
Rincon Basin
Meteor
Crater
Marcos Mesa
Little

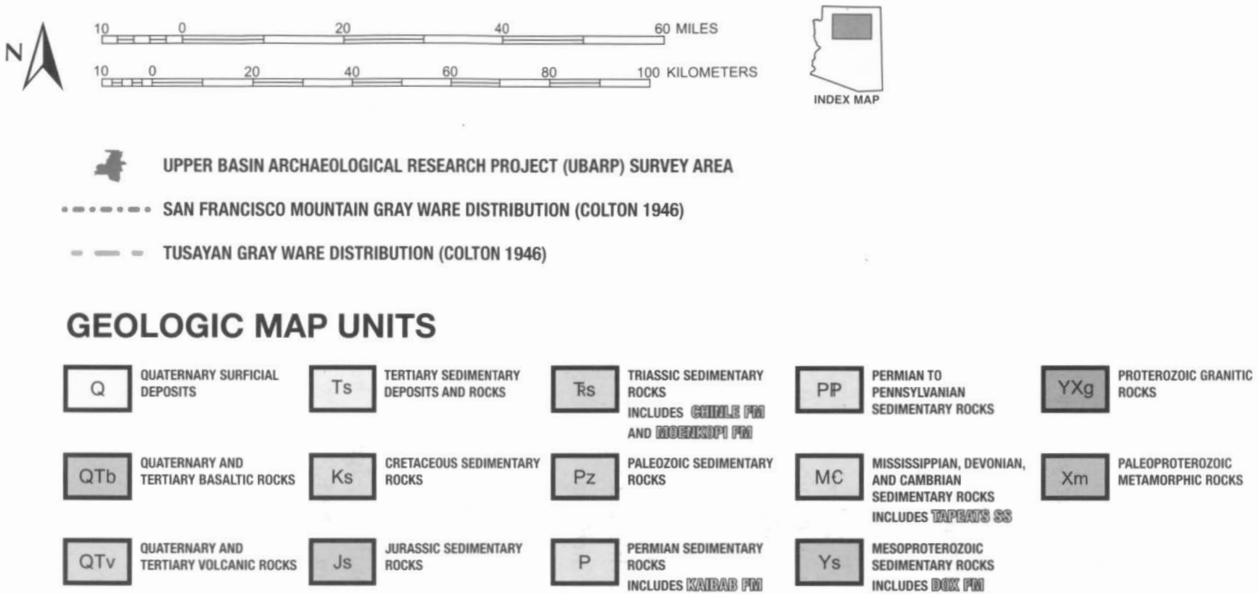


Figure 9.3 Map of a portion of northern Arizona showing the location of the Upper Basin Archaeological Research Project survey area, regional extent of Tusayan Gray Ware and San Francisco Mountain Gray Ware ceramics, and principal geologic units (geologic map information from Richard et al. 2002). From Digital Graphics Files for the Geological Map of Arizona, by S. M. Richard, S. J. Reynolds, J. E. Spencer, and P. A. Pearthree. Copyright © 2002 by the Arizona Geological Survey, Tucson, AZ. Reprinted by permission of the publisher. All rights reserved.

113). In addition to qualitative petrographic observations, quantitative measurements of the compositional attributes of TGW and SFMGW were made using point-counting techniques.[2]

UBARP Tusayan Gray Ware

The coarse fractions of UBARP TGW specimens constitute roughly 20 percent to 30 percent of their ceramic bodies and are principally composed of monocrystalline quartz and polycrystalline quartz (table 9.2). The majority of quartz grains in TGW specimens are moderately sorted, range in grain size from medium to coarse sand, are generally subangular (occasionally subrounded), and have moderate to high sphericity; however, quartz silt is present in most specimens. Only 10 sherds have trace amounts of microcline (0.9–6.3 percent), whereas low and variable amounts of perthite (0.9–10.6 percent) and other potassium feldspar (0.9–12.1 percent) occur in 13 and 14 specimens, respectively. Trace amounts of plagioclase (0.7–4.0 percent) appear in 10 specimens. Opaque grains, with variable grain size (very fine sand to medium sand) and morphology (blocky, tabular, or fibrous shapes with variable angularity), occur in inconstant proportions (0.9–34.3 percent) in all but two sherds (which have no opaque grains). A variety of sedimentary lithic fragments, such as mudstone fragments (with and without quartz silt inclusions), sandstone fragments (mostly fine-grained quartz arenite), and chert fragments, appear in all but one specimen.[3]

Regional Patterns of Tusayan Gray Ware Composition

Field's (1992) sample of 12 TGW sherds from two sites in the vicinity of Lee Canyon, at the southern edge of the Upper Basin, is broadly divergent compositionally from UBARP TGW. Of Field's three compositional groups, Group I (which contains one TGW sherd) is characterized by quartz-rich, fine-grained, subrounded sand with moderate microcline abundance, whereas Group III (which contains 11 TGW sherds) is marked by quartz-rich, medium-grained, subangular-to-subrounded sand with variable microcline content. However, only the three Lee Canyon TGW sherds with low microcline content (5 percent or less) are consistent with the compositions of the majority of UBARP TGW specimens; the other nine Lee Canyon TGW sherds have microcline in abundances ranging from 10 percent to 20 percent. Field (1992:226) concluded that because of the "significant percentage of

Table 9.2. Petrographic composition of Tusayan Gray Ware from the Upper Basin Archaeological Research Project (n = 20).

Variable	Mean Abundance (%)	Standard Deviation (%)
Monocrystalline quartz	42.8	14.9
Polycrystalline quartz	27.2	6.9
Microcline	1.3	1.8
Perthite	4.0	4.0
Other potassium feldspar	3.9	3.7
Plagioclase	0.8	1.3
Total mica (muscovite + biotite)	0.0	0.2
Opaque grains	9.3	9.4
Sedimentary rock fragments	8.8	10.1
Igneous rock fragments	1.6	2.4
Metamorphic rock fragments	0.3	0.7
Other	0.0	0.2

microcline" in most of the sherds and the lack of microcline in Lee Canyon stream sands, none of the TGW sherds in his sample were made with locally available materials.

The absence or low abundance of microcline in Upper Basin TGW (table 9.2) stands in contrast to TGW from Black Mesa, 11 sherds of which were documented by Garrett (1986:127–128) as having coarse fractions with 16 percent microcline on average (see also D. Hill 1994). Garrett's small samples (3–5 sherds) of TGW from other sites in northeastern Arizona (Long House Valley, Cow Springs, and Middle Chinle Valley) are dissimilar to the Black Mesa TGW sample due to their lack of chert and "untwinned and twinned feldspar" (Garrett 1986:128). Because UBARP TGW specimens commonly contain chert fragments and feldspar grains, they are compositionally distinct from TGW in these localities. Furthermore, UBARP TGW is dissimilar from a sample of 26 TGW sherds from two sites in the eastern Little Colorado River region, analyzed by Zedeño et al. (1993:204–205), because their sample disclosed (1) an average microcline content of 19 percent, and (2) the presence of grog in seven sherds (ranging from 10–28 percent in abundance). Synthetically, the results of these studies indicate little petrographic similarity among TGW assemblages from well-studied areas in northern Arizona (Kojo 1996).[4]

UBARP San Francisco Mountain Gray Ware

UBARP SFMGW specimens are characterized by coarse fractions that comprise roughly 40 percent to 50 percent of their ceramic bodies and are dominated by monocrystalline quartz (table 9.3). The poorly sorted quartz grains have an average grain size of medium sand and highly variable grain morphology, ranging from subrounded grains with moderately high sphericity to subangular tabular and wedge-shaped grains with low sphericity (cf. Samples 1994:276). The angularity of the quartz sand in SFMGW and the common appearance of concave grain surfaces (perhaps indicative of conchoidal fractures) may indicate that the raw materials for SFMGW were crushed prior to being incorporated into ceramic pastes. All SFMGW specimens have trace to moderate amounts of microcline (0.6–17.0 percent), and trace to low amounts of perthite (1.5–7.5 percent) occur in all but three specimens. A moderate abundance of other potassium feldspar (11.6–32.8 percent) appears in all SFMGW sherds. Trace to low proportions of plagioclase (0.7–7.0 percent), and mica (0.7–7.5 percent [muscovite and biotite, occasionally altered to chlorite]) occur in all but three specimens. Opaque grains are present in all but one sample (which had none) in trace to low abundance (0.9–6.8 percent), with relatively consistent grain size (fine to medium sand) and morphology (subangular blocky grains).[5] Trace amounts of chert fragments appear in many samples, and sandstone fragments (mostly fine-grained quartz arenite) and limestone fragments are present in several sherds. A few specimens contain polymineralic rock fragments with quartz, muscovite, and potassium feldspar, occasionally with metamorphic textures.

Regional Patterns of San Francisco Mountain Gray Ware Composition

Zedeño et al.'s (1993:207) analysis of 22 SFMGW sherds from two sites located between Kingman and Seligman, Arizona, revealed broad compositional similarities to UBARP SFMGW, such as comparable amounts of quartz, potassium feldspar, plagioclase, mica, and opaque grains. However, the presence of "felsic volcanics" as lithic fragments in eight sherds (although in unspecified abundance) is incongruous with UBARP SFMGW (B. Mills et al. 1993: Appendix C).

SFMGW analyzed by Montague-Judd (2001) from three sites on Sitgreaves Mountain, which is located between Williams and Flagstaff, Arizona, provides a perspective on the compositional attributes of SFMGW from near

Table 9.3 Petrographic composition of San Francisco Mountain Gray Ware from the Upper Basin Archaeological Research Project (n = 20).

Variable	Mean Abundance (%)	Standard Deviation (%)
Monocrystalline quartz	43.0	7.7
Polycrystalline quartz	14.2	3.8
Microcline	6.6	4.1
Perthite	3.5	2.5
Other potassium feldspar	19.1	6.1
Plagioclase	1.8	1.7
Total mica (muscovite + biotite)	3.5	2.1
Opaque grains	3.4	1.8
Sedimentary rock fragments	3.4	2.6
Igneous rock fragments	0.9	1.0
Metamorphic rock fragments	0.4	1.1
Other	0.2	0.4

the center of the geographic distribution of SFMGW (Samples 1992).[6] Of the 29 sherds in Montague-Judd's sample, 26 have compositional characteristics that are generally consistent with UBARP SFMGW, with the exception of an average plagioclase abundance (17 percent) that is much higher than that of UBARP SFMGW (mean = 1.8 percent).[7] The moderate plagioclase content of SFMGW from the Sitgreaves Mountain samples also contrasts with the total absence of plagioclase grains reported by Zedeño et al. (1993). Overall, however, and in striking contrast to regional patterns of TGW compositional heterogeneity, available regional petrographic data indicate a high degree of compositional homogeneity among SFMGW assemblages across the Coconino Plateau (cf. Warren 1980:132).

Sources of Ceramic Materials for Tusayan Gray Ware and San Francisco Mountain Gray Ware

As Anna O. Shepard repeatedly emphasized (1964:519, 1965:163), evaluation of the lithologic diversity of a region and assessment of the textural and compositional variability among potential geological sources of ceramic materials are indispensable steps for any provenance study (see also Glowacki and Neff

2002). Following Shepard's approach, our research has incorporated (1) survey and sampling of the geology of the UBARP study area, and (2) review of the extensive literature on the geology of northern Arizona to identify potential locales of ceramic raw materials (cf. Triadan et al. 2002).

The UBARP Study Area

To document variation in the textural and compositional characteristics of inclusions (Shepard 1965:161–162; Stoltman 1989:149), samples were taken from (1) a residual clay deposit derived from the Kaibab Formation encountered during excavation of a five-room masonry pueblo (MU 125; Fugate 2003); (2) alluvium from Deer Tank Wash, which is a major drainage in the project area; (3) shale in the Kaibab Formation; (4) sandstone in the Kaibab Formation; and (5) sandstone chunks found at two UBARP mapping units (MU 1010 and MU 1018.1). Results indicate that the soil from the clay-rich horizon near MU 125 contains (1) abundant carbonate fragments; (2) poorly sorted, very fine-to-medium–grained, subangular quartz, with low to moderate sphericity; and (3) traces of medium-grained perthite. Hence, as a potential clay source, it is inconsistent with both TGW and SFMGW on textural and compositional grounds. The sample from the moderately clay-rich alluvium from Deer Tank Wash has high quartz-silt content (approximately 30–40 percent) and, therefore, is incongruent with most UBARP TGW specimens. The specimen of shale has only a trace amount of quartz silt and, hence, is petrographically undiagnostic for provenance studies.

With respect to sourcing parent materials for inclusions, the only major sandstones in the Kaibab Formation with average grain sizes coarse enough to account for those observed in UBARP TGW are "cross-laminated beds of calcareous sandstone that grade into sandy limestone," which occur in Facies 4 of McKee's Beta Member (the main facies of the Beta Member that is exposed to the south and east of Grand Canyon [McKee 1938:45, 113–118]).[8] However, these coarse, quartz-rich sandstones are relatively scarce in the Kaibab Formation (R. Clark 1980). Even more rare are units bearing "a coarse-grained, feldspathic sand fraction" in the Alpha Member of the Kaibab Formation (J. Brown 1969:171). UBARP surveys have documented scarce, well-sorted, coarse sandstones as discontinuous lenses and thin beds in association with more abundant fine sandstones of the Kaibab Formation. Quantitative petrographic analysis of a sample of one of these sandstones indicates that it

is a subarkose (90.0 percent quartz, 8.7 percent feldspar, 1.3 percent lithic fragments).[9]

The sandstone specimens recovered from the surfaces of MU 1010 and MU 1018.1 do not appear to be derived from the immediate environs of the mapping units, and it is presently unclear whether these samples originated in the Kaibab Formation. They are characterized by abundant coarse-grained, moderately to highly spherical, subrounded quartz (monocrystalline and polycrystalline) and fine-grained, highly spherical, subrounded quartz. In addition, these sandstones contain low-to-moderate amounts of medium-to-coarse–grained, subrounded feldspar (microcline, perthite, and other potassium feldspar). Quantitative petrographic analysis indicates that the sample from MU 1018.1 is a subarkose (83.7 percent quartz, 12.3 percent feldspar, 3.7 percent lithic fragments). As with the subarkosic sandstones sampled from Kaibab Formation bedrock, these sandstones and the coarse fractions of some UBARP TGW sherds share gross compositional traits. However, the textural properties of these rocks and those of TGW specimens are somewhat incongruent because the mineral grains in TGW sherds tend to be more subangular than subrounded. Yet the angularity of the sand grains could have been increased by crushing and grinding chunks of these local sandstones, a supposition that would help explain why ground-stone artifacts are routinely found in association with pottery-making activity areas (Becher and Sullivan 1994; Sullivan 1988).

It is noteworthy that all of the potential sources of ceramic raw materials from the UBARP area are deficient in three key mineralogical components of SFMGW—potassium feldspar, mica, and opaque grains. Therefore, Colton's (1946:28–29, 1958) supposition that SFMGW was made from materials derived from the Kaibab Formation is not supported by geological data from the Upper Basin.

The Grand Canyon and Coconino Plateau

Several formations in the Grand Canyon region, such as the Toroweap Formation, Kaibab Formation, and Chinle Formation, contain sandstones with compositional traits similar to those in our TGW sample, namely a very high abundance (~60–90 percent) of quartz (including polycrystalline quartz) and a low-to-moderate abundance (~5–15 percent) of feldspars. However, the Toroweap Formation and most of the Kaibab Formation are texturally inconsis-

tent with TGW, as they are predominantly fine-to-medium–grained (Hopkins and Thompson 2003; McKee 1938; Turner 2003). The rare medium-to-coarse sandstones of the Kaibab Formation (J. Brown 1969) and the medium-to-coarse sandstones of the Chinle Formation (particularly those in the Shinarump Member; Cadigan 1972) are the best general matches in the Grand Canyon region for the compositional and textural properties of UBARP TGW. Hence, Colton's indirect identification of the Chinle Formation as a source of raw materials for TGW remains a plausible but untested hypothesis, particularly in view of the fact that the map distance from the UBARP Study area to the closest outcrops of the Chinle Formation on the Coconino Plateau is approximately 30 km (to the southeast).

Although several archaeologists have concluded that the raw materials for SFMGW may have been derived from granitic plutonic rocks or sedimentary rocks (Fairley et al. 1994; S. Roberts 2001; Zedeño et al. 1993), few have analyzed the distribution of potential source lithologies for SFMGW in north-central Arizona and considered their compositional and textural variation. The primary compositional criteria for distinguishing potential sources for SFMGW materials are (1) a high abundance (~50–70 percent) of quartz, (2) a moderate abundance (~20–35 percent) of potassium feldspar, and (3) a trace-to-low abundance (~1–7 percent) of mica. In terms of the sedimentary record of the Grand Canyon region, arkosic sandstones of the Dox Formation (Stevenson 1973) and the Moenkopi Formation (Cadigan 1971; McKee 1954) are the most likely compositional matches for SFMGW from the UBARP study area (cf. Warren 1980:126);[10] yet the sandstones in the Moenkopi Formation are all fine-grained and, therefore, inconsistent with the medium texture of SFMGW.[11,12] The most extensive outcrops of Dox Formation sandstones are in the inner Grand Canyon in the vicinity of Unkar Delta, about 20 km northwest from the Upper Basin. Similarly, the most promising sources of granitic rocks with the mineralogical components observed in SFMGW are also in the inner Grand Canyon, such as exposures of the Paleoproterozoic Bright Angel pluton along Bright Angel Canyon, a side canyon north of the Colorado River located approximately 35 km northwest of the Upper Basin (Karlstrom et al. 2003). Paleoproterozoic granitic rocks comparable to those in the Grand Canyon are found at the southwestern edges of the Coconino Plateau (DeWitt 1989); these sources are at least 120 km southwest of the Upper Basin, on the fringe of what has traditionally been considered "Cohonina" territory (Bair and Stoker 1994; Fiero et al. 1980; Garcia 2004; Jennings 1971).

Table 9.4 Statistically significant differences in point-count data between Tusayan Gray Ware (TGW) (n = 20) and San Francisco Mountain Gray Ware (SFMGW) (n = 20).

Variable	Mann-Whitney U	Z	p-value
Polycrystalline quartz	25.0	−4.73	.000
Sedimentary rock fragments	110.0	−2.44	.015
Opaque grains	123.0	−2.08	.037
Total potassium feldspar	7.0	−5.22	.000
Total mica	32.5	−4.96	.000
Plagioclase	122.5	−2.14	.035

Note: The first three variables are those where TGW sample values are greater than those of SFMGW; the last three variables are those where SFMGW sample values are greater than those of TGW. Total potassium feldspar = microcline + perthite + untwinned potassium feldspar; Total mica = muscovite and biotite.

Discussion

Because (1) TGW and SFMGW are considered utility wares (Colton 1955, 1958), (2) utility wares are found in abundance close to their place of manufacture (Colton 1953:65; Colton and Hargrave 1937:28), and (3) TGW and SFMGW are both abundant in the Upper Basin (Sullivan 1986; Uphus 2003), a reasonable conclusion is that, despite significant compositional dissimilarities (table 9.4), TGW and SFMGW were manufactured in the Upper Basin. However, petrographic data indicate that the raw materials for UBARP SFMGW do not occur in the Upper Basin, and the coarse fractions of UBARP TGW may not be derived from the local Kaibab Formation either, particularly not in the near-vicinity of the excavated masonry ruins where ceramics were fabricated and fired (Becher and Sullivan 1994; Sullivan 1988). Clearly, these findings conflict with long-held assumptions about what constitutes utility wares, which form the basis for Colton's index-ware concept and upon which regional interaction models ultimately depend. Moreover, based in part on his observations that "Cohonina" sites with SFMGW containing "quartz sand temper" were located near Williams, Arizona, in "a volcanic area with Kaibab limestone surfaces four or five miles away," Colton (1946:308) postulated that a "cultural tradition" drew upon resources in "the immediate environment," which he defined as "an area with a ten mile radius" of a settlement. Arnold's (1993) much-cited "threshold model" suggests an even more conservative definition of

local ceramic resources. Drawing upon a "worldwide sample" of ethnographically documented distances between production areas and ceramic resources, Arnold (1993:200–202) defines "preferred," "second," and "third" threshold distances to "temper sources" as 1 km, 3 km, and 7 km, respectively; in 91.4 percent of the cases in Arnold's sample, temper sources are located within 7 km of pottery production loci. Interpreted in light of Colton's and Arnold's models, therefore, the most likely sources for Upper Basin TGW and SFMGW materials are areas that lie beyond the limits of what ethnographically and archaeologically have been considered typical resource catchments for pottery production (e.g., Arnold 2000; see also Whittlesey 1992; Zedeño 1994:103).

Ceramic Ware Distributions, Interaction, and Exchange Reconsidered

The evidence for non-local materials in Upper Basin TGW and SFMGW ceramics supports at least three hypotheses. First, TGW and SFMGW may have been produced by, and brought to, the Upper Basin by non-local people. Although the acquisition of non-local plain wares has been postulated for Chaco Canyon (B. Mills et al. 1997; Stoltman 1999), the lower Salt River valley (Van Keuren et al. 1997), the Tonto Basin (Stark et al. 1998), and the Grasshopper region (Zedeño 1998), the mechanisms invoked to account for the movement of plain wares in these cases have little relevance for the Upper Basin. For example, the archaeology of the Upper Basin has disclosed no evidence for (1) "staple-financed redistribution" associated with a "corporate leadership" (as proposed for Chaco Canyon; Earle 2001:32; Toll 2001:75); (2) "ceremonial exchange networks" associated with communal architecture, such as ballcourts (Van Keuren et al. 1997:170; Wilcox 1999); or (3) large "immigration events" marked by dramatic changes in the technology and organization of domestic architecture (as documented in the Tonto Basin [Stark et al. 1998:224] and at Point of Pines [Zedeño 2002]).

Second, TGW and SFMGW ceramics or their raw materials may have been obtained indirectly by local Upper Basin populations through exchange (Garcia 2004:282). This is a remote possibility because any edible or non-edible resource that occurs in the Upper Basin, such as chert or pinyon nuts (Effland et al. 1981:46–48), either readily occurs or could be easily procured in other areas of the Coconino Plateau (Garcia 2004:24–26; Sullivan 1996:154–

155). In other words, it is presently unclear what commodities or artifacts Upper Basin groups could have produced and exchanged for non-local materials or ceramics made elsewhere.

Third, Upper Basin groups may have directly procured materials, vessels, or both. This explanation is favored for two reasons. First, one of its entailments is that ceramics fabricated and fired in the Upper Basin were used to supplement or replenish non-local *founder* assemblages of TGW and SFMGW, perhaps attributable to "small-scale migrations" of "individuals or families" and their associated pottery (Zedeño 1994:16–17), which would explain the pottery-production features noted earlier. Second, it is consistent with the acquisition of obsidian from either the Mt. Floyd or San Francisco volcanic fields (Lesko 1989) that, based on the low abundance of material (fig. 9.4; see also Effland et al. 1981:47), was a comparatively inconsequential, though steady, activity despite a dramatic change in the composition of gray-ware assemblages (fig. 9.5). In addition, if the materials for SFMGW, in particular, were obtained from within the Grand Canyon, such direct procurement would have been facilitated by the extensive trail system that integrated the Upper Basin/South Rim, the Inner Canyon, and the North Rim (Sullivan et al. 2002; P. Wilson 1999).

The third hypothesis raises the possibility of the extra-local "movement of raw materials," which is usually discounted in analyses of ceramic variability because of assumptions about minimizing "energy expenditure" associated with "resource exploitation" (Zedeño 1994:17–18). However, models that incorporate such assumptions ignore Arnold's (1985:56) admonition that "long distance transportation of primary ceramic materials like clays and tempers is unusual, but it is by no means impossible" (see also Bailey 1983). As Costin (2000:380) has observed, many archaeologists misconstrue Arnold's model and "assume that potters simply used the *closest* resources" (emphasis original), thereby underestimating the complexity and variability of ancient ceramic-resource procurement strategies (see especially Effland et al. 1981:46). Such oversimplification downplays the role of technological choice in the selection of ceramic resources; as Arnold (1985:58–59) has suggested, if "local" ceramic materials are not "suitable for use with local technology," then potters might procure appropriate materials at distances in excess of those in the "threshold model" and, hence, "communities could have a resource area with a 25–50 km radius."

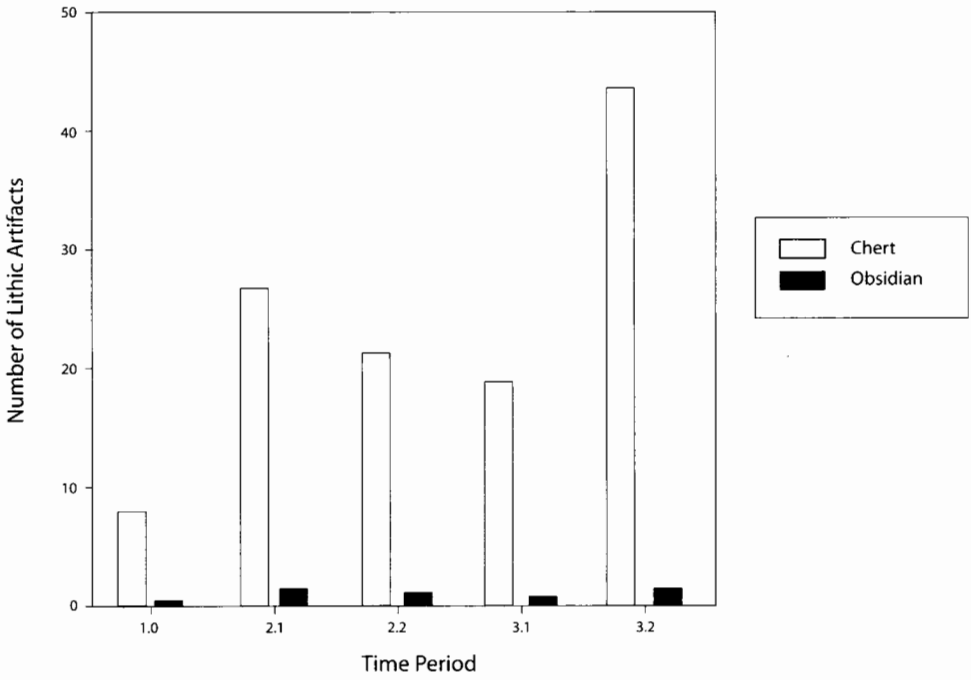


Figure 9.4 Variation of UBARP lithic assemblages broken down by material type (chert [local] or obsidian [non-local]). Number of lithic artifacts is standardized by area of the recording unit (19.65 sq m; n = 183 mapping units) and annualized by the duration of each period, which is based on tree-ring-dated ceramics for northern Arizona (see Uphus 2003 for specifics): Period 1 (AD 875–1000), Period 2.1 (AD 1000–1050), Period 2.2 (AD 1050–1070), Period 3.1 (AD 1070–1115), and Period 3.2 (AD 1115–1150).

Conclusions

The results of this study underscore the importance of distinguishing between the *organization of procurement*, which is revealed by investigations of regional geological variation and compositional analyses of ceramics and their raw materials, and the *organization of production*, which is determined by the discovery of pottery-production areas and associated artifacts (Arnold 2000; Costin 2000). Consequently, the Upper Basin study directly challenges two orthodox assumptions that underlie interaction-exchange and regional-system models that are based on the geographic distribution of ceramic wares: (1) that

procurement catchments for ceramic raw materials were roughly coterminous with the distribution of "utility wares" and, by extension, their loci of production (e.g., Colton 1946; S. Roberts 2001[13]); and (2) that variation in regional distributions of ceramics is attributable principally to variation in the extent or intensity of interaction within and between networks (Garcia 2004).

Additional compositional characterization of ceramics and geological deposits in the Upper Basin, the Grand Canyon region, and the Coconino Plateau is needed to understand more fully the regional relationships between ceramic-resource procurement and ceramic-artifact production. Although it is difficult to distinguish between the movement of people with their pottery and the movement of pottery through small-scale reciprocal exchange, both mechanisms reveal the inadequacies of entrenched assumptions regarding the distribution and circulation of plain-ware ceramics and their raw materials (Ze-

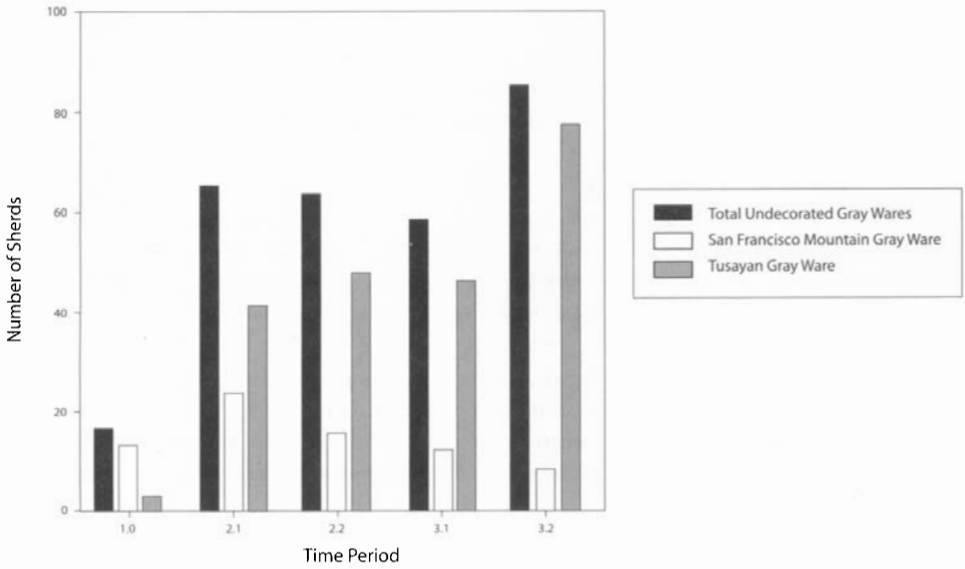


Figure 9.5 Variation through time in undecorated ceramic assemblage composition in the UBARP project area. Number of sherds is standardized by area of the recording unit (19.65 sq m; n = 182 mapping units) and annualized by the duration of each period, which is based on tree-ring-dated ceramics for northern Arizona (see Uphus 2003 for specifics): Period 1 (AD 875–1000), Period 2.1 (AD 1000–1050), Period 2.2 (AD 1050–1070), Period 3.1 (AD 1070–1115), and Period 3.2 (AD 1115–1150).

deño 1998). The Upper Basin case, then, is instructive because it obliges us to consider the likelihood that procurement of non-local resources or artifacts entailed neither exchange networks nor alliances (Bayman 1999; see also Blinman and Wilson 1993) and that the lives of considerable numbers of people were uninfluenced by regional interaction systems.

Acknowledgments

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Notes

1. Petrographic analyses were conducted using standard thin-sections (30 microns thick) and polarized light microscopy. All terminology for grain size refers to the standard Udden-Wentworth scale (Boggs 1995:80–81). Estimates of sphericity are noted only for quartz grains (Boggs 1995:97). References to grain shape generally follow Bullock et al. (1985:26–29).

2. A modified form of the Glagolev-Chayes method of point counting was used, which entails "superimposing a grid over a thin section and recording observations (not just of grains, but of matrix, voids, or whatever appears beneath the crosshairs) at every grid intersection point" (Stoltman 2001:306). This grid was achieved by using mechanical stages on Olympus and Zeiss petrographic microscopes. Each point was classified as either a fine-grained matrix, void, or coarse (silt-sized and larger) inclusion. A 0.5 mm grid interval for both x and y directions was used, which yielded an average of 372 non-void points. On average, 119 inclusions were identified per sample.

3. While the polycrystalline quartz, perthite, and microcline observed in UBARP TGW specimens are typical of plutonic igneous rocks such as granite, the high abundance of monocrystalline quartz in all specimens and low abundance of sedimentary lithic fragments in several specimens suggest a siliciclastic sedimentary parent rock. For overviews of compositional and textural properties of siliciclastic sediments and classifications of sedimentary rocks, see Tucker (2001:42–55) and McLane (1995:123–158).

4. Although Blinman and Wilson (1993:79–80) claim that "sourcing resolution is too poor to characterize gray-ware exchange within the Kayenta area," it is unclear whether the extent of compositional variation in their gray-ware sample or the limitations of their analytical techniques (binocular microscopy) are responsible for their perception of poor "sourcing resolution." Much of the basic compositional and textural variability of potential sources of ceramic raw materials in the Kayenta area has already been documented by geological overviews of the Pennsylvanian and Permian (Blakey and Knepp 1989), Triassic and Jurassic (Blakey 1989), and Cretaceous (Nations 1989) formations of northern Arizona, and the individual studies that such overviews synthesize contain more detailed lithologic and petrologic information.

5. Most of these opaque grains have a metallic gray appearance in reflected light, suggesting that they are iron oxides. Electron microprobe analysis of several SFMGW specimens confirms that some of these opaque grains are magnetite and ilmenite.

6. As noted by Cartledge (1979:303), much of Deadmans "Gray" from the Sitgreaves Mountain area (a third of all sherds collected in a survey) is actually tan or brown, suggesting partial oxidization that may reflect poorly controlled firing conditions and/or a high iron content of the clay fraction. In the present study, tan or brown SFMGW is classified as "Deadmans Brown" (cf. S. Roberts 2001:34). Quantitative estimates of the prevalence of Deadmans Brown in UBARP ceramic assemblages are not yet available. The technological differences between Deadmans Gray and Deadmans Brown may extend beyond firing atmosphere, as most Deadmans Gray sherds in the UBARP area have well-burnished surfaces that are not observed on Deadmans Brown sherds. As suggested by Cartledge (1986), "detailed studies of Deadmans Gray attributes could be useful in defining local group geographic boundaries as well as intergroup exchange relations" (see also Garcia 2004; Sorrell 2005).

7. The other three SFMGW sherds in Montague-Judd's study, which had abundant volcanic grains and low quartz content, were later reclassified as Alameda Brown Ware (Montague-Judd 2001:264).

8. McKee's Beta Member, the lower member of the Kaibab Formation, was later termed the Fossil Mountain Member, and the upper member, the Alpha Member, was later renamed the Harrisburg Member (Hopkins and Thompson 2003:197).

9. The point-counting procedure used for quantitative petrographic analysis of sandstone samples was the same as that used for the ceramic samples, although more inclusions were counted than in the ceramic samples (on average 460 non-void points were counted, 300 of which were framework grains).

10. Coarse-grained sandstones of the Tapeats Sandstone exhibit substantial regional variability in feldspar abundance (Burgert 1972; Cox 1993); according to McKee (1945: 39), the coarse sandstone facies of the Tapeats Sandstone is "locally arkosic." Therefore, certain localities of the Tapeats Sandstone may have feldspar contents comparable to those observed in SFMGW. The Tapeats is generally not micaceous (Burgert 1972); however, the Bright Angel Shale, which overlies the Tapeats Sandstone, is locally micaceous (McKee 1945).

11. As measured by Cadigan (1971), the coarsest member of the Moenkopi Formation, the Holbrook Member, has a median grain size between 120 and 140 microns at localities near the Little Colorado River; in contrast, the median grain size of SFMGW samples is approximately between 250 and 300 microns. Because Cadigan (1971:36) documents a "moderately strong regional trend of decreasing grain size from southeast to northwest," it is likely that the Moenkopi Formation has an even finer texture in the center of the geographic distribution of SFMGW.

12. Certain Tertiary sedimentary deposits on the Coconino Plateau near the Mogollon Rim might be compositionally consistent with SFMGW, specifically sandstone components of the upper parts of "distant plateau gravels" described by Holm (2001:1469), which contain "abundant crystalline clasts of Precambrian rocks." However, the majority of the Tertiary gravel deposits contain clasts of Tertiary volcanic rocks, which are absent in all UBARP SFMGW.

13. For example, S. Roberts's (2001:179) judgment that "granitic sources within the Grand Canyon" were "less likely" sources for SFMGW than "sedimentary sources in the Cohonina territory" (with "Cohonina territory" apparently defined by the distribution of SFMGW) reflects a conflation of issues of procurement with those of production: "If the Cohonina manufactured SFMGW in the Grand Canyon, I would expect SFMGW to appear with greater frequency at sites within the Grand Canyon." Roberts ignores the possibility that resources for ceramic raw materials in the Grand Canyon could be used for SFMGW manufacturing without production of SFMGW occurring in the Grand Canyon.

10

Poor Mesa Verde

So Far from Heaven, So Close to Chaco

Sarah H. Schlanger

Hinterlands and heartlands occupy landscapes defined by relationships of distance and proximity, privation and opportunity, emotion and politics. In this complex, situational geography, hinterlands and heartlands are intimately connected. The relationship between hinterland and heartland may be largely demographic, expressed through population shifts and redistribution; or economic, with goods or labor from the hinterland bolstering the heartland's productivity; or sociopolitical, involving various kinds of networks; or some combination of all these and more. The heartland may guide the relationship with its hinterlands in a more or less direct sense, through an overarching system of political control, or more indirectly, as when heartland behaviors or trends are adopted, emulated, or rejected by more distant communities of place and interest.

As landscapes evolve, what constitutes a hinterland or heartland may change, as may the boundaries between them. Hinterlands may become heartlands, and heartlands may become hinterlands. Recognizing which is heartland and which is hinterland, while interesting, is no more important than recognizing that the two are tied together. As other chapters in this volume demonstrate, the heartland/hinterland relationship may not characterize interactions in every part of the Southwest. For the Mesa Verde area and for northern stretches of the ancient Pueblo world that occupied what we call the Four Corners country today, however, a heartland/hinterland discussion seems to be particularly apt.

The title of this chapter refers to an old Spanish *dicho*, or saying, which changes from place to place across the Greater Southwest but never fails to identify the critical relationship between heartland and hinterland. In New Mexico, we say, "Poor New Mexico! So far from Heaven, so close to Texas," and we credit our lament to Mañuel Armijo, a three-term governor of New

Mexico during the period of Mexican rule, 1824–1846. Armijo knew, as do all New Mexicans, what it is to live in the hinterland of a more powerful neighbor. For New Mexico, there have been several such neighbors: Spain, the United States, Mexico, and Texas. The truth captured in the dicho is that New Mexico is both heartland and hinterland in the eyes of its citizens, even while it may be a hinterland in God's eyes and in the eyes of Texans.

Mesa Verde, of course, at least in the eyes and experience of archaeologists, has had the similar fortune of being both heartland and hinterland in the emotional geography of the Pueblo Southwest. For many, the Mesa Verde country—the wooded mesas, spring-fed canyons, and brushy flats north of the San Juan River, west of the Colorado River, and east and south of the San Juan Mountains—is truly a heartland. This terrain was the site of early, and seminal, fieldwork, was home to field projects and field schools that have trained many professional archaeologists, and is dotted with spectacular ruins and romantic cliff-dwellings. If not for a short period midway between the establishment of the first farming villages and the eventual retreat from the cliff-dwellings, the Mesa Verde region might well be the undisputed heartland of the Ancestral Pueblo world. Instead, in the tenth and eleventh centuries AD (and a millennium later, in the twentieth century), Chaco Canyon captured the hearts and minds of the Southwest. The events that displaced Mesa Verde in the tenth century have been discussed at length as the "Chaco Phenomenon," and our current understanding of them is reviewed in a number of recent syntheses (Cameron 2005; Cameron and Toll 2001; Doyel [ed.] 1992; Lekson 1999; B. Mills 2002; Sebastian 1992; R. Gwinn Vivian 1990). The events that displaced Mesa Verde in the twentieth century are recounted, if not recognized, in most histories of archaeological research in the Southwest.

This chapter explores Mesa Verde's position in space and time in relation to the greater geography of the Puebloan Southwest and the Colorado Plateau. (Here, unless otherwise noted, I am using the terms Puebloan Southwest and Ancestral Pueblo as synonyms for the now-outdated term "Anasazi.") My focus is on several critical developments in regional demography and population distribution: the establishment of the regional expression now recognized as the Ancestral Pueblo Southwest; the rise of Pueblo villages on the Colorado Plateau, ca. AD 700–900; the "Pueblo Expansion," ca. AD 900–1100; and the Pueblo retreat from the Colorado Plateau, ca. AD 1100–1300.

Population distribution is only one expression of a heartland/hinterland relationship, but it is one that is relatively easy to explore. The primary analyti-

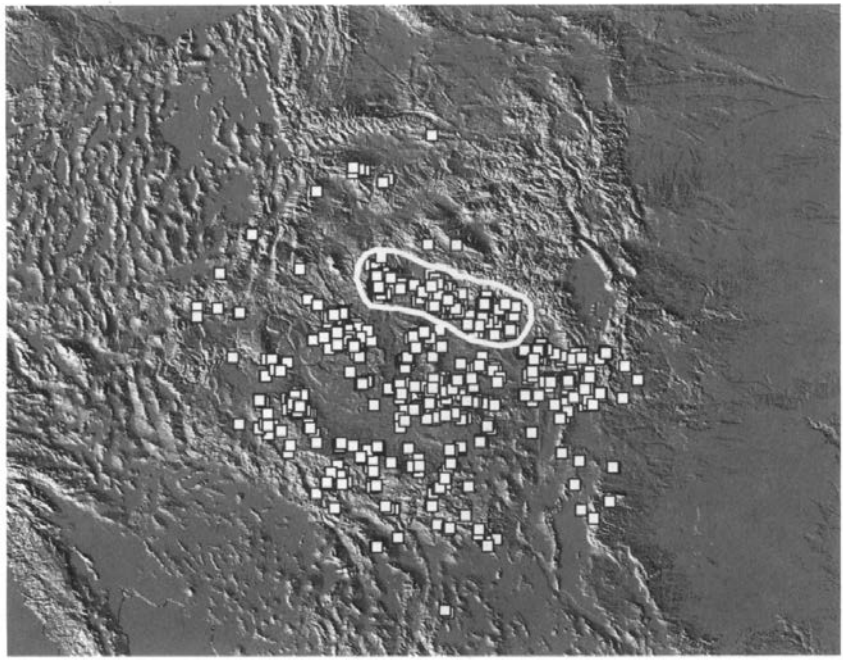

Figure 10.1 All tree-ring dated sites included in Robinson and Cameron's 1991 synthesis of Laboratory of Tree-Ring Research data are shown here on this shaded relief map of the Southwest. The Mesa Verde region is located within the white boundary line.

cal tool used here is a record of construction activity and site occupation (Robinson and Cameron 1991) built from the tree-cutting dates derived from samples submitted to, or collected by, the Laboratory of Tree-Ring Research at the University of Arizona over the past 75 years. Where construction wood is well preserved and sample collection has been relatively thorough, the tree-ring record can provide a rough proxy for demographic and occupation trends on a scale that facilitates regional comparisons. In the analyses and discussion that follow, the spatial distribution of first, or earliest, cutting dates at tree-ring-dated sites tracks population growth and colonization in the Pueblo Southwest, and the distribution of latest cutting dates measures population persistence and decline. The locations of sites contributing cutting dates and the Mesa Verde Study area are indicated in figure 10.1.

History, Hinterlands, and Heartlands

Today, much of what we identify as the Mesa Verde archaeological region (shown inside white line, fig. 10.1) might be considered as a hinterland, at least in demographic terms. Where as many as 14,000 people may have lived in nearly 30 distinct communities in the Mesa Verde region between AD 1160 and 1280 (Wilshusen 2002), there are now fewer than half as many communities and perhaps half the population. Chaco Canyon, to the south, reached its height of occupation somewhat earlier, in the tenth and eleventh centuries AD. Today, the only settlement in the canyon proper is the small outpost maintained by the National Park Service. The geographic extent of the greater "Chaco Phenomenon" is still under discussion but, at a minimum, included the Mesa Verde country in the late eleventh and early twelfth centuries (Duff and Wilshusen 2000; Varien 1999).

Since the end of the thirteenth century, self-sustaining farming communities, of which the Navajo may be arguably the most successful, have been reestablished only sporadically in this region. Navajo families settled south of the San Juan River, the frontier between Ute and Pueblo populations and the traditional southern border of the Mesa Verde region, in the 1500s, if not slightly earlier (Towner 1996) and have farmed small plots along smaller washes from that time to the present. The Spanish, in contrast, arriving on the heels of the Navajo, failed entirely to establish settlements on this frontier during their tenure in the Southwest from the late sixteenth century through the early nineteenth century, and the American presence, both in terms of Hispanic settlers and Anglo settlers, has been largely confined to the period after the mid-nineteenth century. Hispanic occupations have been small, and family-based for the most part, and traditionally have included livestock production as well as farming, logging, mining, hauling, and other support for extractive industries. The major aggregated Anglo settlements have been commercial hubs serving dispersed ranching settlements, rail stops, and mining and logging towns. Today, the region is still characterized by a boom-and-bust economy, now tied closely to energy production and to cycles of tourism and interest in the regional prehistoric occupations. That the region remains part of an ancestral heartland for the Pueblo communities of the Southwest and for the interested archaeological public is clear (Ellis 1967; Lekson and Cameron 1995; Naranjo 1995; Swentzell 1993); that it is a hinterland with regards to modern settlement seems clear as well.

The archaeological history of the Pueblo Southwest is well known. By the late nineteenth century, the "San Juan country," or Mesa Verde and Chaco together, was seen as the homeland, if not the heartland, of Pueblo peoples. Without the benefit of a firm chronological understanding of the Chaco and Mesa Verde occupations, early scholars, including Holmes (1878) and Morgan (1881), considered Chaco and the Mesa Verde to be one and the same area.

As more was learned about chronological relationships, however, heartland/hinterland questions came into play. As originally conceived, Pueblo Bonito, the hallmark structure of the Chaco occupation, was identified as an archetype for the "Great Pueblo," or Pueblo III period of the Pecos Classification system. Shortly after the publication of this scheme (Kidder 1927), though, tree-ring dating would place Pueblo Bonito a hundred years before its supposed contemporaries in the Mesa Verde country. At that point, Chaco became the core of the Pueblo Southwest: earlier than Mesa Verde, its monumental buildings taller and more dazzling, its setting more challenging, more central, altogether more "classic." Poor Mesa Verde, once the heartland of Pueblos and home to the Great Pueblo occupation, became a kind of typological hinterland to Chaco Canyon, in both time and space.

Heartland and Hinterland: A Simple, Spatial Approach

As noted previously, as circumstances change, heartlands and hinterlands may trade roles or at least shift boundaries. Rather than belabor whether or not Chaco or Mesa Verde is *the* heartland, or whether Mesa Verde is both heartland and hinterland, or whether we should return to calling both regions the Ancestral Pueblo heartland, I want to consider a different, simpler, question: Where is Mesa Verde in relationship to the rest of the Pueblo Southwest as it develops through time? We know that Mesa Verde is at the margins of the Pueblo Southwest in geographic terms. It sits, depending on which map you choose to use, either at the northern border of the area recognized archaeologically as the Greater Southwest or somewhere along the northeastern border. To the south, west, and east lay the settlements of the contemporary Pueblo peoples. To the north lies the boundary between lands occupied by ancestral farming communities and lands occupied by more nomadic peoples.

But where is Mesa Verde, as a set of communities, in relation to other communities in the Pueblo Southwest? Where is it relative to the lands marked

by the archaeological record of the Ancestral Pueblo occupation? Is it at the heartland of the Pueblo Southwest, at least in terms of population distribution, or is it a hinterland? To answer these questions, I examine the development and growth of the Pueblo Southwest at a general level by focusing on site construction and occupation trends.

The Southwest as Seen in Tree-Cutting and Construction Activity

The data I use here were compiled in a directory of tree-ring-dated sites from the records of the University of Arizona Laboratory of Tree-Ring Research (Tree-Ring Lab) (Robinson and Cameron 1991); I am using them as a proxy record of tree-cutting activity, construction, and occupation in the Pueblo Southwest. Although this record is an important tool for exploring the past, it is not without biases. The Southwest as defined by the distribution of tree-ring dates from the 1,364 sites in the Tree-Ring Lab database is not entirely congruent with the Southwest as it is generally defined (fig. 10.1). As those who work in southern Arizona and southern New Mexico will note, this record is dominated by the Southwest of the Ancestral Pueblo occupation—the Southwest where structures were built with juniper, fir, and pine timbers, which were preserved in roofs and in roof-fall and wall-fall within pit-structures and pueblos alike. The desert Southwest, where house construction depended on a different suite of building materials, is almost invisible in this record. In addition, the database is built exclusively from excavated contexts, and this may mean that it is a better record of where archaeologists have worked than where people have lived in the past. After comparing the tree-ring record with survey data on site distributions and with settlement reconstructions developed from site counts, I feel confident that the data are a fair proxy of the population history of the Pueblo Southwest and can support the inferences I draw here.

The most striking pattern created by the sites with cutting dates in the Tree-Ring Lab database shown in figure 10.1 is the clear clustering of sites in three large bands. First, a northern tier of sites stretches from the northwestern edge of the Mesa Verde country, in the vicinity of the Abajo Mountains, southeast across Mesa Verde proper to the northern Rio Grande. Second, a central band runs from the confluence of the San Juan River and the Colorado River southeast across Black Mesa, the Chuskas, and Chaco to the southern border of the San Juan Basin and the Zuni Mountains. And third, a southern

band begins at the confluence of the Little Colorado River and the Colorado River and runs southeast along the Mogollon Rim. This Southwest, as defined by the 1991 tree-cutting record, stretches well north into Colorado and Utah and well south into the boot-heel of New Mexico. The Mesa Verde region is very well defined in this large-scale view, as is the Chaco area, the Kayenta area, the northern Rio Grande, and the communities along the Mogollon Rim.

Considered at this scale, Mesa Verde is at the margin of the Southwest, but it is not a hinterland. Instead, it is a locus of much of the tree-cutting activity recorded in the database. This activity is concentrated around the margins of geologic basins and lowlands. The Uintah Basin, considerably north of the generally recognized boundaries of the Southwest, is sketchily outlined in tree-cutting dates, while the outlines of the San Juan Basin and the southern Colorado Plateau are highlighted by the tree-cutting record. Tree-cutting activity is clearly heaviest at the interface between uplands and lowlands. If heartland and hinterland are distinguished by relatively heavy and relatively light occupations, respectively, then this Southwest has the potential for investigating the dynamics of numerous heartlands and hinterlands.

How well does the tree-cutting record reflect the overall distribution of sites in the Pueblo Southwest? Three lines of evidence suggest that it is a reasonable proxy. First, I have compared the tree-cutting pattern with the site-distribution record derived from the New Mexico Archaeological Records Management System (ARMS) database as a check on the overall adequacy of the distribution patterns seen in the Tree-Ring Lab data.[1] Figure 10.2 shows the overlap between that portion of the 1,364-site tree-cutting/construction record in the Tree-Ring Lab dataset (large white circles) and the 40,000+ record database of sites with structures (room-blocks, pit-structures, other constructed features associated with habitations) captured in the ARMS records for northwestern New Mexico (small white circles). The basin- and lowland-margin concentrations seen in the tree-cutting record are repeated in the larger, survey-based dataset for New Mexico and are especially marked when the dataset is restricted to those sites that archaeologists felt confident in placing into one of the Pecos Classification periods: Basketmaker II–III (approximately AD 1–700), Pueblo I (AD 700–900), Pueblo II (AD 900–1100), Pueblo III (AD 1100–1300), or Pueblo IV (AD 1300–1600). Interestingly, the "hinterland" areas, the areas which show up as white space in these illustrations, do contain sites; these sites tend to be difficult to date, either because they have small, hard-to-characterize, surface manifestations, or because they

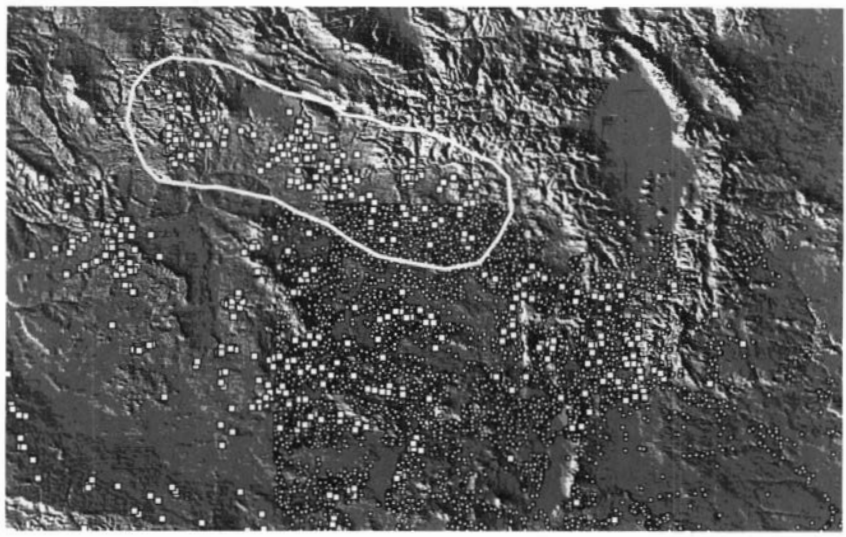

Figure 10.2 Although the New Mexico Archaeological Management System (ARMS) contains many more site records than the Tree-Ring Lab dataset, the distribution of sites in the Tree-Ring Lab dataset compares well with ARMS survey site data. Tree-Ring Lab cutting dates are shown as large squares; small squares represent sites recorded in ARMS as of December 2001. Note that only sites assigned to a Pecos Classification period are shown from the ARMS files and that the ARMS distribution shows only sites located in New Mexico. The Tree-Ring Lab data and the ARMS data have remarkably similar distributions in the San Juan Basin, just south of the eastern half of the Mesa Verde region as shown here.

seem to include relatively small sites with materials from a number of periods. At any rate, the ARMS data and the tree-cutting patterns are giving us the same overall picture, and their agreement gives me confidence in using the tree-cutting record as a rough proxy for site construction and occupation. Second, I was able to compare the 1991 Robinson and Cameron dataset to an updated set of tree-ring dates compiled more recently by Mark Varien and his colleagues at Crow Canyon for the Mesa Verde region. Although there are more dates in the Crow Canyon dataset, which has supported a number of recent publications (Varien 1999; Varien and Wilshusen 2002), the additional dates do not change the spatial distribution of dated samples in any significant way.

Finally, the population-density contour maps developed by J. Hill et al. (2004) from an analysis of all recorded, post–AD 1200 occupations of sites

greater than 12 rooms in size show essentially the same bands of occupation described above. Taken altogether, these studies support the use of the tree-ring record as a reasonable proxy for both tree-cutting activity and the underlying demographic events that shaped population distribution in the Pueblo Southwest.[2]

How Did This Southwest Develop?

By considering the tree-cutting record as a proxy for site construction and occupation trends, we can examine the development in general of that segment of the prehistoric Southwest where builders incorporated pine, fir, and juniper wood into habitation structures. Figure 10.3 (a–e) illustrates the distribution of tree-ring-dated sites from five periods: (a) AD 1–700, which includes Basketmaker III and late Basketmaker II manifestations; (b) AD 700–900, the

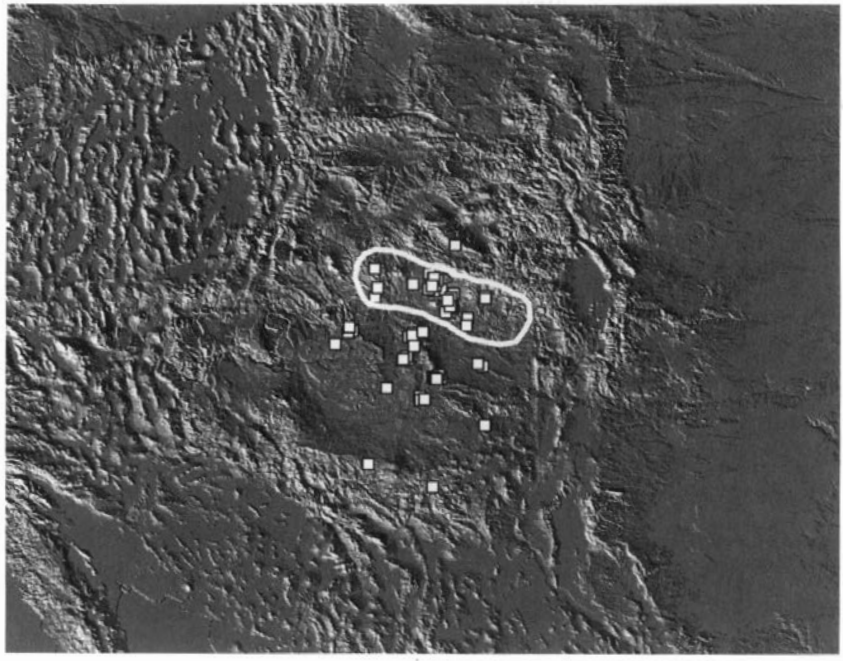

Figure 10.3 (a) This figure illustrates the distribution of first cutting dates from sites that date between AD 1 and 700.

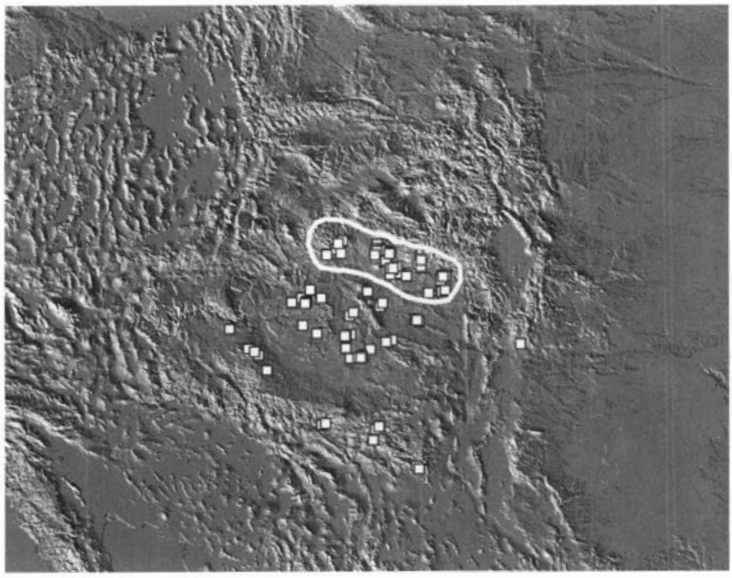

Figure 10.3 (b) The distribution of first cutting dates from sites that date between AD 700 and 900.

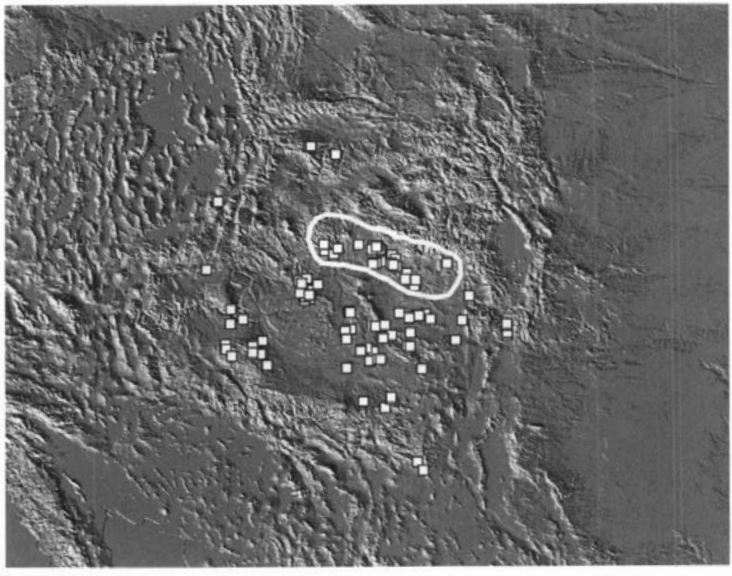

Figure 10.3 (c) The distribution of first cutting dates from sites that date between AD 900 and 1100.

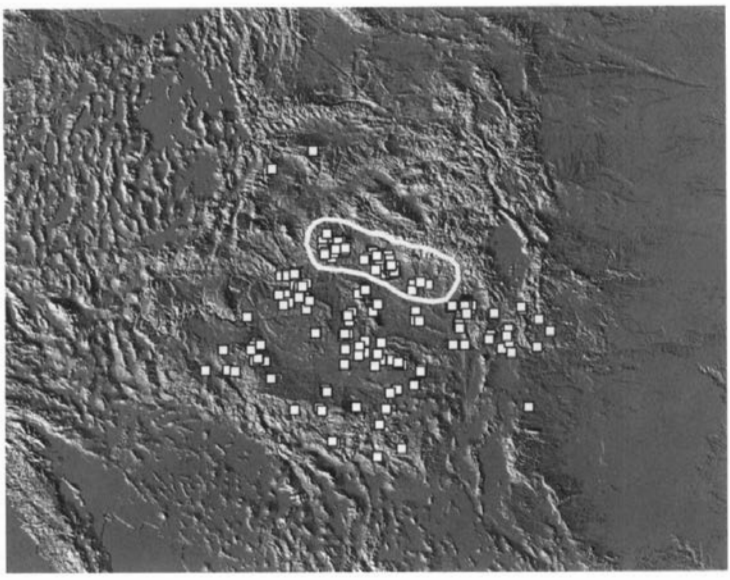

Figure 10.3 (d) The distribution of first cutting dates from sites that date between AD 1100 and 1300.

Figure 10.3 (e) The distribution of first cutting dates from sites that date after AD 1300.

Pueblo I period; (c) AD 900–1100, the Pueblo II period; (d) AD 1100–1300, the Pueblo III period; and (e) AD 1300–1600, the Pueblo IV period.

Tree-ring-dated sites from the period AD 1–700 are concentrated in a few locations: Mesa Verde and the Durango area; in the vicinity of the Chuskas, the Lukachukais, and Canyon de Chelly; and Black Mesa. In contrast, by the Pueblo I period, AD 700–900, the general shape of the Pueblo Southwest as we know it today had emerged. The bands, or tiers of occupation noted in figure 10.1, in the north along the Abajos to Sangre de Cristos axis and in the south along the Mogollon Rim, are well established. The Pueblo I period is especially well represented in the Mesa Verde area. The Chuska slopes, both east and west, also appear to be another center of concentration.

The period from AD 900–1100, or Pueblo II in the Pecos Classification scheme, shows an enlarged Pueblo Southwest, and one which exhibits a number of clusters: the Mesa Verde area; the Kayenta area, focused here on Black Mesa; the Little Colorado drainage north and west of the Mogollon Rim; Chaco; and the Chuska/Zuni Mountains area in the center of the Southwest. In the period from AD 1100–1300, the occupation "bands" are very strongly expressed. Mesa Verde seems to have split into eastern and western groups; the northern Rio Grande is emerging as a population center; the Kayenta area is clearly defined; clusters are forming in the upper reaches of the Little Colorado drainage; and the Chuska/Zuni Mountains center remains.

These patterns are radically altered after AD 1300. The loosely defined Mogollon Rim pattern remains, as does the emerging northern Rio Grande occupation. The rest of the Southwest, including the Mesa Verde country, however, might well be called a hinterland.

Mesa Verde and the Rise of Pueblo Villages

In recent years, the Mesa Verde country has been identified as the setting of some of the Southwest's first Pueblo villages. These Pueblo I period villages, which occur across the northern San Juan drainage, from Bluff, Utah, east to the Piedra River in Colorado, contained perhaps as much as one-third of the total population of the Ancestral Pueblo Southwest in the mid-ninth century AD (Wilshusen and Ortman 1999: fig. 2) and made the Mesa Verde a heartland of Pueblo peoples for at least the half-dozen generations of Southwestern occupation between the mid-eighth century AD and the late ninth century. As

Wilshusen and Wilson note (1995: fig. 6.10), the Mesa Verde accounts for nearly 45 percent of all tree-ring-dated sites at the height of the first village occupation, around AD 860. These villages contain multiple masonry-footed and mud-walled room-blocks of single-story living-room and storage-room suites; the room-blocks are associated with plaza areas and subterranean "pit-structures" with both domestic and religious uses. The 21 villages described by Wilshusen and Ortman contain an estimated 12 to 140 households apiece (Wilshusen and Ortman 1999: table 1); interestingly, these early experiments in aggregated community life appear to have an average lifespan of just 40 years.

The villages appear in the archaeological record between AD 760 and AD 880 and form several distinct clusters across time and space in the Mesa Verde country. The earliest villages appear in the western sections of the Mesa Verde region, and the last cycle of village formation takes place in the eastern stretch of the region, in the area now dominated by the Navajo Reservoir. While one area was occupied, the remaining stretches of the Mesa Verde region were substantially depopulated, if not actually abandoned (Schlanger and Wilshusen 1993; Wilshusen and Ortman 1999). Wilshusen and Ortman interpret this pattern to suggest that the Mesa Verde was home to just a few coordinated communities of village builders. The late Basketmaker occupation in the Mesa Verde country, which was characterized by dispersed hamlets of one to several households, coalesced to form the first villages on Alkali Ridge, Utah, around AD 760. Then, these villages were abandoned, and new ones were established across the southern portion of the Mesa Verde country, from the Mesa Verde proper to the vicinity of modern Durango, Colorado, between AD 800 to AD 840. From AD 840 to AD 880, the Mesa Verde saw village clusters from the vicinity of Dolores, Colorado, west to Elk Ridge in southeastern Utah. This part of the Mesa Verde was subsequently depopulated, and villages were built on the eastern margin of the region, around what is today the Navajo Reservoir area, from about AD 880 through AD 920. Differences in ceramic and architectural patterns at village sites suggest the presence of more than one cultural group; how these cultural groups were related is not yet known. Wilshusen and Ortman also suggest that at least some of the Mesa Verde population may have reconstituted its villages further south, in Chaco Canyon itself, where survey has revealed a significant population rise in the early AD 900s (Wilshusen and Ortman 1999:377–382).

What Wilshusen and Ortman have documented in their study of village

formation and coordinated population movements can be understood as the formation of an Ancestral Pueblo heartland in the Mesa Verde country. As the Pueblo I communities of the Mesa Verde country shifted across the region, abandoning villages and building new ones, heartland/hinterland relationships shifted across the Mesa Verde, and across the Ancestral Pueblo world as well. The northern San Juan region contained much of the population of the Southwest for well over a century. In demographic terms, at least, the Mesa Verde can lay claim to being the heartland of pueblos as well as the heartland for the Pueblo people.

Mesa Verde, the Pueblo II Expansion, and the Great Pueblo World

If Mesa Verde was an Ancestral Pueblo heartland in the ninth century, it was certainly no longer one in the tenth century. As an examination of the distribution of tree-cutting dates reveals, the Mesa Verde has relatively few sites established in the AD 900s, a period already noted as a period of low population locally, if not widespread abandonment of the Mesa Verde region (Schlanger and Wilshusen 1993; Varien 1999; Wilshusen and Ortman 1999; Wilshusen and Wilson 1995). Figure 10.4 (a–d) illustrates the distribution of first cutting dates in the Tree-Ring Lab database between AD 900 and AD 1160.[3] If the Mesa Verde region was a major focus of the "Pueblo II expansion," when many small sites were established in the Ancestral Pueblo Southwest and when the "Chaco Phenomenon" was apparently at its peak, a number of sites should be established in the region during these years. In this dataset, most of the "boom" occurs in the last half of the period, from AD 1000 to AD 1100; extending the Pueblo II period until AD 1150, as Lipe and Varien (1999) argue is appropriate for the Mesa Verde region, makes it even more apparent that there wasn't much activity in the Mesa Verde area during the AD 900s. The previously discussed suggestion by Wilshusen and Ortman (1999) that the Mesa Verde communities had moved south seems to be borne out here, albeit with a twist. Although previous community relocations had cycled around 40 years or so in length (AD 760–800; AD 800–840; and AD 840–880), the retreat south was not matched by a re-occupation of the north until nearly 100 years had passed.

After the mid-1100s, Mesa Verde began to emerge as a major population

center once more. This time, however, it was becoming increasingly isolated from other areas: the cutting activity recorded in the Tree-Ring Lab record from the AD 1100s through the AD 1200s (fig. 10.4d) shows the creation of clearly defined clusters: eastern Mesa Verde, western Mesa Verde, the Kayenta area, and other clusters emerge as distinct and separate features of the Pueblo Southwest. While there were many trees being cut and, by extension, a considerable amount of construction, the pattern looks oddly fragmented (compare fig. 10.4a, b, and c). Rather than a Mesa Verde heartland, as we saw in earlier periods, we appear to have multiple heartlands (and, by extension, multiple hinterlands). The landscape was becoming one of distinct, separate occupations: a landscape of small heartlands, and an increasing number of potential hinterlands.

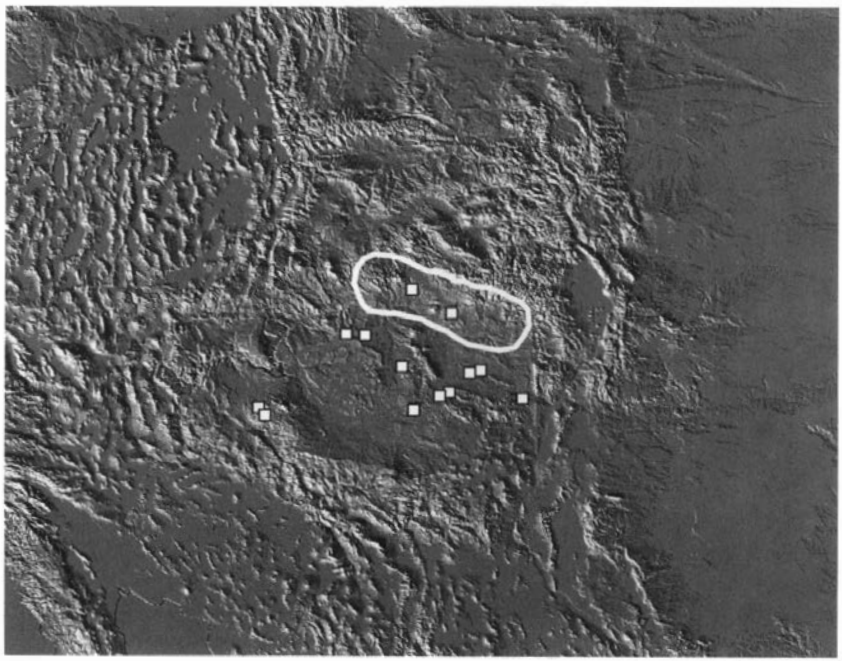

Figure 10.4 (a) The period from AD 900–1100 is often characterized as a period in the expansion of settlement across the northern Southwest. This figure illustrates the distribution of first cutting dates from sites that date between AD 900 and 959.

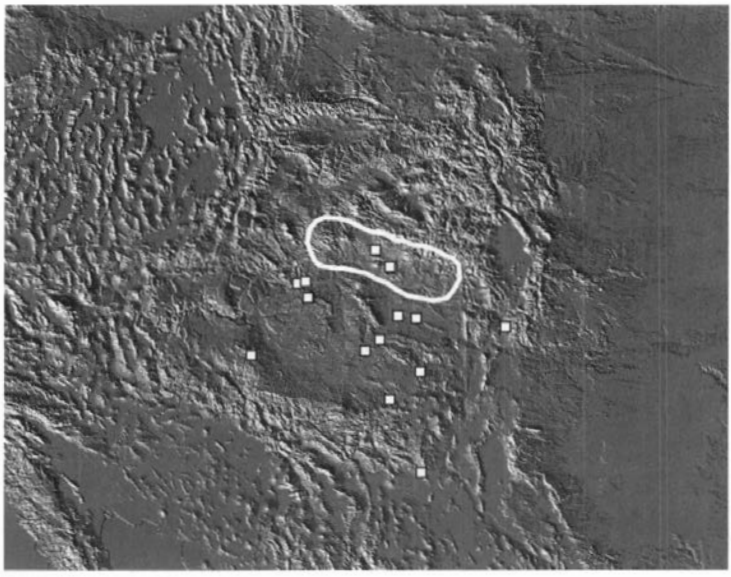

Figure 10.4 (b) The distribution of first cutting dates from sites that date between AD 960 and 1019.

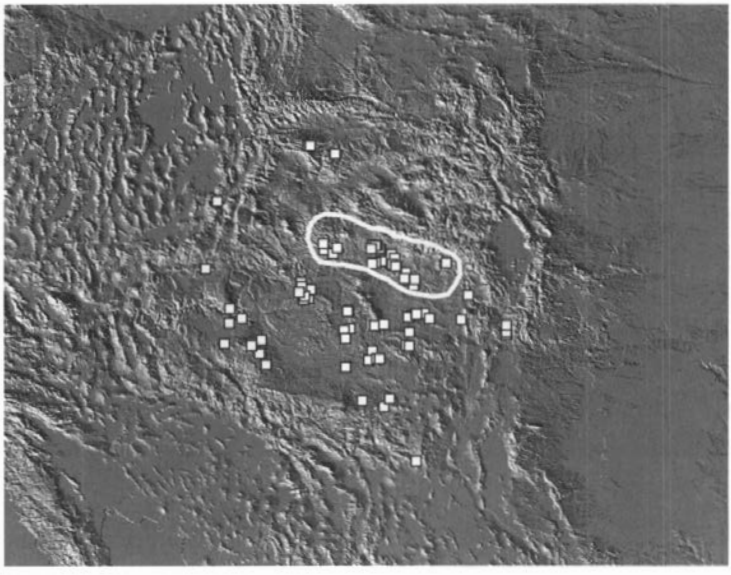

Figure 10.4 (c) The distribution of first cutting dates from sites that date between AD 1020 and 1099.

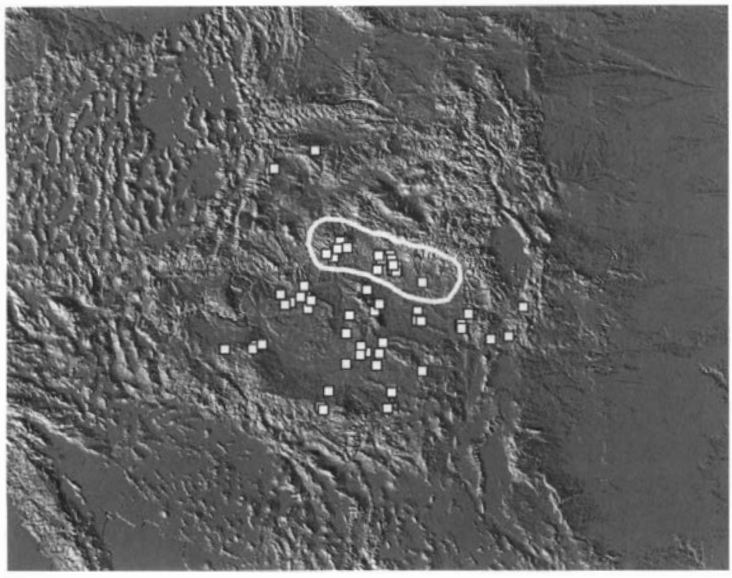

Figure 10.4 (d) The distribution of first cutting dates from sites that date between AD 1100 and 1159.

Mesa Verde and the Pueblo Retreat

The tree-cutting record is a useful tool for exploring the latest prehistoric occupations in the Pueblo Southwest with an eye to the question of hinterlands and heartlands as well. The illustrations in figure 10.5 (a–d) show latest cutting dates recorded at sites from AD 1260 to AD 1300; here I am concerned with the last evidence of construction rather than the initiation of an occupation.

From AD 1200 through about AD 1260, the Pueblo Southwest is relatively stable: occupation extends to the Colorado River on the west and to the Sangre de Cristo Mountains, and beyond, on the east. The greatest extent of the Ancestral Pueblo, the old "Las Vegas, Nevada–to–Las Vegas, New Mexico" Southwest was lost at least 50 years before, around AD 1160. From AD 1260 on, however, the configuration of this Southwest changes radically. Sites are lost in each of the three bands described earlier; sites are also lost on the west margin. Away from the Pueblo Southwest, desert occupations are still relatively extensive in this period (J. Hill et al. 2004), but the demographic reconstructions developed by J. Hill et al. (2004) show the same overall pattern of withdrawal and concentration into increasingly isolated population pockets.

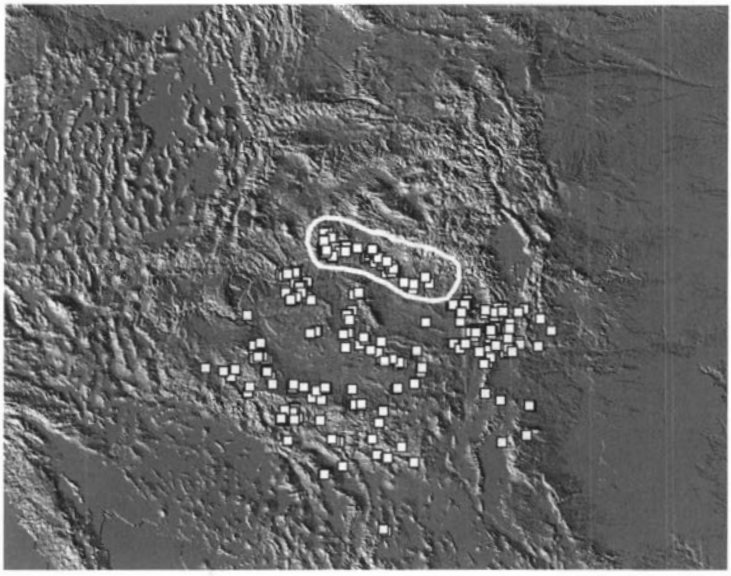

Figure 10.5 (a) The latest cutting dates in the Southwest in the Tree-Ring Lab dataset illustrate the relatively rapid decrease in the size of the occupied Southwest between AD 1200 and 1300, and a major shift in occupation after AD 1300. This figure shows the latest cutting dates that fall between AD 1200 and 1300.

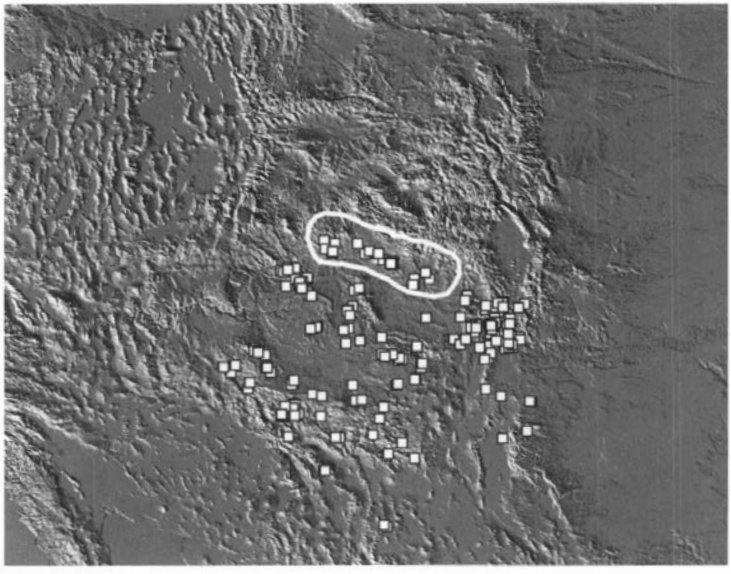

Figure 10.5 (b) The latest cutting dates between AD 1260 and 1300.

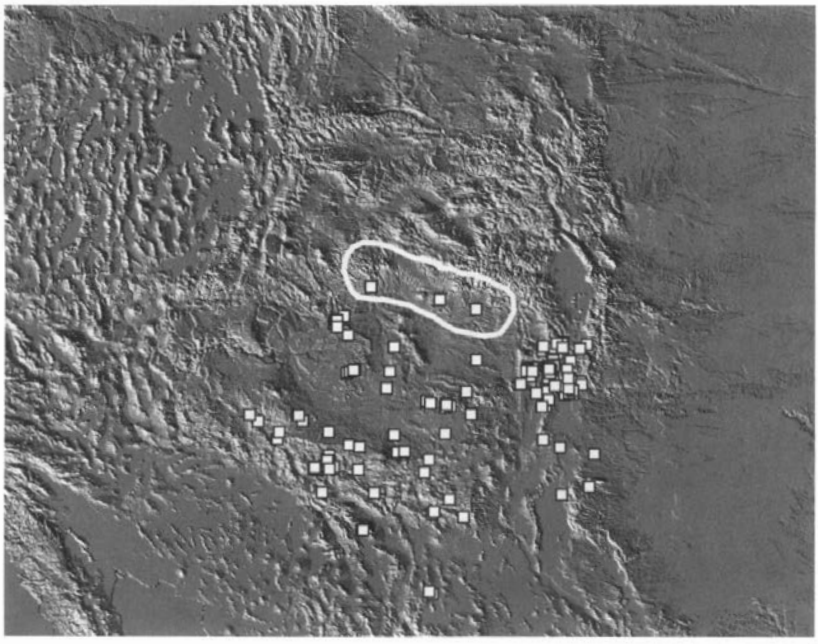

Figure 10.5 (c) The latest cutting dates between AD 1280 and 1300.

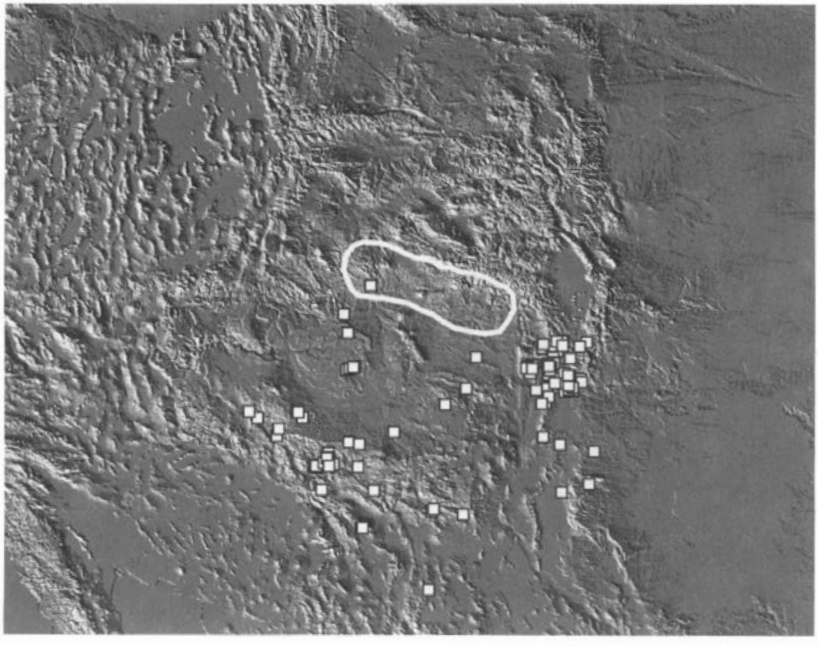

Figure 10.5 (d) The latest cutting dates after AD 1300.

The tree-cutting data used here suggest substantial hinterlands existed by AD 1300 for the Mesa Verde area and the Pueblo Southwest; the site-based model developed by J. Hill et al. (2004) shows hinterland development reaching the levels I note about a century later, around AD 1400. The tree-ring-date proxy may underestimate site occupations, while the site-count-based proxy may overestimate site duration. Each records the same pattern of hinterland development, however.

In general, the Pueblo Southwest was retreating towards the southeast and the Rio Grande. By the last decade of this century, occupations in the west center on Hopi and Zuni and the lands along and below the Mogollon Rim (fig. 10.5d). Mesa Verde, the slopes of the Chuskas, the Kayenta area, all represented in the earliest occupations of the tree-cutting Southwest, have all become hinterlands. Chaco, of course, had lost its position as a heartland about 150 years earlier.

Final Thoughts on Heartlands and Hinterlands

To return to a point made only indirectly in the beginning of this chapter: heartland and hinterland are evocative terms. Here, I have focused on just that aspect of a heartland/hinterland dynamic that considers where people are on a landscape. Mesa Verde may have been a hinterland during the initial century of the Pueblo II world that was dominated by Chaco Canyon and its sphere of influence. For most of the period considered the Pueblo occupation of the Southwest, though—from the first Pueblo villages through the last prehistoric occupation of the Pueblo Southwest around AD 1300—Mesa Verde was more heartland than hinterland. To call it a heartland for the Pueblo peoples, equal to and intimately connected with Chaco, is not a stretch. Did Mesa Verde consider itself a heartland? Until the mid-thirteenth century, I suspect not. Before that time, the Pueblo Southwest was a relatively continuous world of settlements that were often less than a day's walk apart. After the mid-thirteenth century, that world began to fragment. Distances between neighboring communities became much larger, and many settlements, especially those west of the Rio Grande, may have begun to feel rather isolated. Heartland and hinterland, however, may be terms best used in hindsight.

I have deliberately worked here at a scale that is far beyond that which is conventionally used in regional research in the Southwest. This scale illustrates

vividly how the Pueblo Southwest was made up of clusters of population surrounded by relatively empty lands: many heartlands and many hinterlands. The scale also illustrates that the Pueblo Southwest as we understand it in prehistory became a part of the landscape very early on. The big pattern of occupation that we see—the tiers of occupation that follow the highland/upland/basin interface—was established at least by Pueblo I times and was maintained for 500 years. The Mesa Verde/northern Rio Grande connection appears fairly early on as well in these maps of the Southwest. We might argue from this analysis that the Mesa Verde region extended as far east as the northern Rio Grande and that, rather than a migration to the Rio Grande, we might consider a consolidation along the Rio Grande—the far eastern end of the northern tier—as a better model of the events of the late AD 1200s.

Finally, on the basis of this large-scale analysis, I would propose that the Mesa Verde has been both heartland and hinterland during the past 2,000 years. Mesa Verde and its powerful southern neighbor seem to be the heartland of the Southwest for archaeologists; they also appear to have been heartlands, in terms of population distribution, for much of the Pueblo Southwest's prehistory. Recent research has begun to blur distinctions between Mesa Verde and Chaco. Wilshusen, Ortman, and Van Dyke (Wilshusen and Ortman 1999; Wilshusen and Van Dyke 2006) have proposed that Mesa Verde and Chaco may be rooted in an early, village-forming population that shifted regionally across the Four Corners area. Cameron (2005) has suggested that we may have overdrawn our archaeological cultures in the Pueblo Southwest and confused cultural change with change through time. When we learn more about the relationship between Mesa Verde and Chaco, we may find ourselves in agreement with the first archaeologists who studied this region and concluded that it was best understood as one area, the San Juan country.

As geographic regions, Mesa Verde and Chaco appear to trade positions as heartland and hinterland: Mesa Verde may have been a heartland for the early aggregated communities in the last half of the first millennium AD; a hinterland during the AD 900s and early 1000s; and a heartland again during the late twelfth and thirteenth centuries. Directing our attention to the persistence of the Mesa Verde country as a heartland, a hinterland, and the focus of repeated reoccupations over centuries, will no doubt lead us to a greater understanding of the role of this region in the development of the Southwest and the central role of places for the people of the Southwest. This is not to say that Mesa Verde was ever *the* heartland of the Southwest; the early spatial definition

of the Pueblo Southwest suggested by this research allows for the identification of many heartlands and the persistence of many hinterlands.

Acknowledgments

I need to thank Bill Lipe and Bill Robinson for their interest in working with the tree-ring cutting date information presented here; this paper is the intellectual stepchild of an "atlas" of tree-ring dates we put together nearly 10 years ago as an SAA poster presentation. I also thank Tom Windes, of the Chaco Center at the University of New Mexico, and Mark Varien and Scott Ortman, of the Crow Canyon Archaeological Center, for sharing their tree-ring-date databases with me, although I did not use their material here. I am not sure that the Tree-Ring Lab staff would approve of how I have used the Tree-Ring Lab data; I am reasonably sure that Tom, Mark, and Scott, willing as they were to share information, have breathed a sigh of relief that I haven't claimed their approval for the approach I have taken here either.

Notes

1. Readers will note that the north and west boundaries of the ARMS site distribution are truncated abruptly at the north and west by the New Mexico state border. The ARMS data include only New Mexico sites, and I was not able to obtain similarly detailed information on Colorado and Arizona distributions to include in this study.

2. Interested readers are invited to compare figure 3 from J. Hill et al. (2004) with figures 10.1 and 10.5 presented here.

3. Because first-cutting dates are used here, rather than site-occupation spans, these distribution maps do not include sites occupied before AD 900 and still occupied into the AD 900s and beyond.

11

Becoming Central

Organizational Transformations in the Emergence of Zuni

Andrew I. Duff and Gregson Schachner

How is it that particular places or regions become central in the minds and actions of the many? This compelling question, usually paired with monumental architecture and magnificent artifacts, has driven much of the archaeological research conducted in the last century. As Southwestern archaeologists have sought to explain obvious patterns evident at regional scales, equally important questions concerning hinterlands have been overshadowed. Although questions related to hinterlands remain largely unanswered, asking them repays analytical attention. Consequently, this chapter poses the following question: What social processes and individual actions are involved when centrality shifts or is transformed over time, such that what was once a hinterland can become—in a handful of generations—an enduring heartland? We attempt to answer this question using archaeological data from the Cibola region of the American Southwest.

To address this question requires at least some consideration of the terminology employed in this volume. We understand "heartland" to be an area or locale that is or was the focus of communal social energy and interaction, though the form of this focus could be political, economic, demographic, or devotional. Heartlands come in many shapes and sizes, ranging from spatially extensive systems with many hubs but no singular foci to those with clear and obvious cores or centers. We define "hinterlands" as those areas that are socially or spatially peripheral to heartlands but that have archaeological indications of some awareness or participation in regionally expansive systems. Archaeologically, this connection is frequently manifested through iconographic or architectural similarity, the traits commonly used to define regional systems (Wilcox 1979) or interaction spheres (Caldwell 1964). That said, hinterlands are not insignificant backwaters. In fact, we hope to show quite the opposite.

The focus on central places and regional centers often obscures or

overshadows the actions and importance of hinterland populations even though these are the people largely responsible for the perpetuation or demise of regionally central patterning. Stability is a commodity that seldom characterizes central developments, especially among middle-range societies. Though they may persist for several generations, heartlands collapse. In many contexts, populations at the margins or boundaries of strongly patterned developments endured their dissipation by selectively incorporating ideologically meaningful or organizationally useful aspects of these systems in novel contexts. The merging of familiar symbols and novel social contexts results in the formation of syncretic, historically contingent systems of organization that are frequently subject to individual or corporate manipulation (Aldenderfer 1993; Duff 2002). This historical contingency allows us to trace threads of both the familiar and the novel with archaeological data. We do so here using the Cibola region of west-central New Mexico and east-central Arizona (LeBlanc 1989) (fig. 11.1)—an area broadly centered on present-day Zuni Pueblo—to discuss changes in community form and organization as Cibola residents transformed the region from a Chacoan hinterland to an enduring heartland, one that is still home to the Zuni people.

We have in this contribution an empirical goal: description of how we see the archaeological record documenting shifts within the Cibola region as it was transformed from a peripheral zone during the Chacoan era (ca. AD 1000–1150) to a region that became increasingly central, eventually developing into an enduring heartland in the thirteenth, fourteenth, and fifteenth centuries. Zuni people, their oral traditions and association with regional archaeological sites, have long been considered a key to understanding Puebloan persistence, but most have viewed this from the perspective of research at or near Zuni. Apropos of this volume, our views and understanding of this heartland are as much shaped by our research in its hinterlands as in its heartland, especially along its eastern, southern, and southwestern extent representing zones shared with Acoma and where material culture patterning grades into what is traditionally considered Mogollon.

Though we acknowledge the complexity of this endeavor, we also wish to underscore the importance of social developments that facilitated enduring population aggregates, something that we argue first occurred in the areas surrounding modern Zuni early in the AD 1200s. This system of social integration incorporated aspects of Chacoan ideology that were crucial to an emergent and persistent centrality (A. Fowler and Stein 1992; Kintigh et al. 1996), a

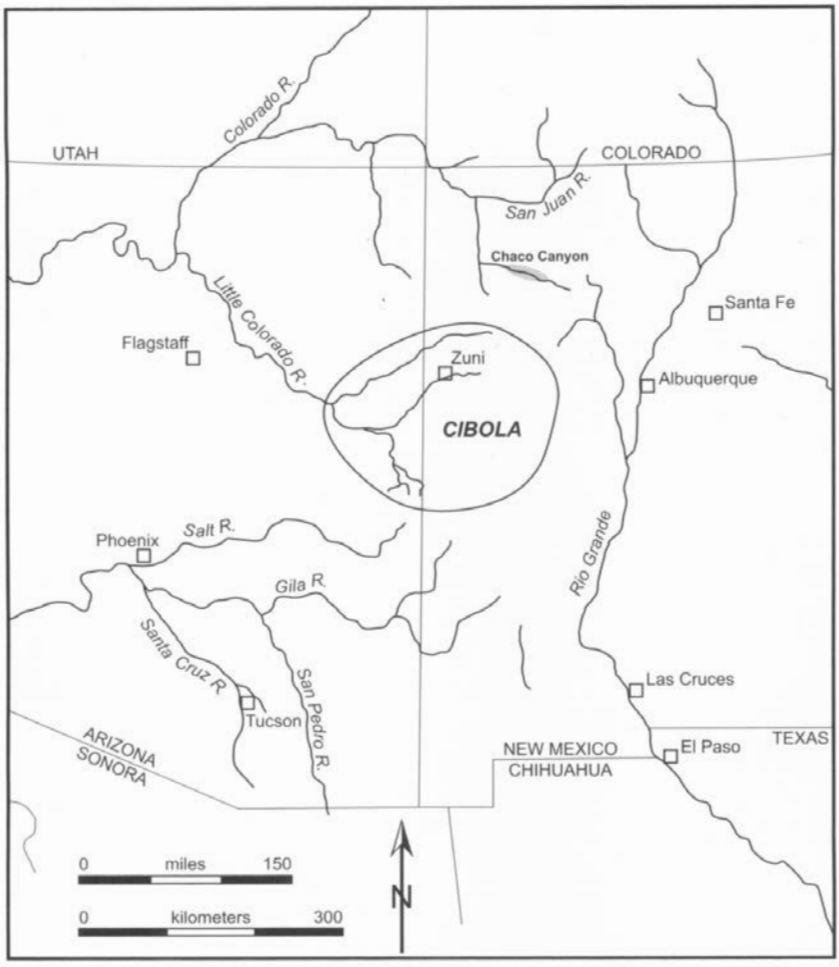

Figure 11.1 Location of the Cibola region in the American Southwest.

process that enabled the "deep sedentism" (Lekson 1990b) of the still-occupied heartland that is Zuni. These actions altered the meaningful associations of powerful and familiar symbols and systems, providing contexts in which individuals and groups actively recast the structure of organizational relationships. In short, from yesterday's hinterlands can emerge tomorrow's heartlands. Appreciation and understanding of the full range of a region's historical dynamics demonstrates that hinterland processes are as relevant and important as are those of heartlands.

The Heartland Chaco

Though we have no lack of models about what Chaco might have been—some conceptual, some cross-cultural—we still lack a detailed understanding of what it meant to live in the world in which things Chacoan were on center stage. That it *was* central, most do not question; *how* it was central remains subject to extended discourse. That it had a lasting impact on the course of *all* Pueblo history, especially that of the Cibola region, there is no doubt.

Perhaps with roots in the dramatic AD 800s aggregations in the Mesa Verde region (Wilshusen and Ortman 1999), great-house sites in Chaco Canyon became a growing presence in the San Juan Basin in the tenth century (Judge 1991:24; Windes and Ford 1992). Particularly favorable agricultural conditions in the AD 900s and 1000s fostered population increases throughout the Plateau and Mountain regions (Dean 2000:101–102) and great-house construction within the canyon expanded during this interval (Lekson 1986: 260–261), as did some settlements linked to the canyon within its developing "halo" (Judge 1989:225, 238).

Chacoan regional influence was at its height between AD 1050–1130 when great houses were constructed well beyond the San Juan Basin. Although several great houses had earlier roots, it was during this period that Chacoan tendrils extended into the Cibola region. The greatest direct influence during this period appears to have been along the Puerco River of the West and in the Red Mesa Valley, where a series of Chacoan-inspired or -influenced communities are well documented (M. Marshall 1994; M. Marshall et al. 1979; Powers et al. 1983; F. Roberts 1939; Van Dyke 2000). This represents the first wave of great houses south of the San Juan Basin and, especially in the Red Mesa Valley, cross-mesa ties may have more directly linked some of these communities back to Chaco (Kantner et al. 2000).

However, as one moves south of the Puerco River and San Jose River, the distribution of great houses and communities becomes more patchy and the structural composition of these sites becomes more variable (fig. 11.2). A handful of great houses have been recorded in the vicinity of the modern Zuni reservation (A. Fowler et al. 1987), including Village of the Great Kivas (F. Roberts 1932). Another distinct group of great houses occurs along the Carrizo Wash–Largo Creek drainage south of the Zuni reservation (A. Fowler and Stein 1992: fig. 9-1). To our minds, this is the southernmost grouping of great houses, and these appear to have emerged within an area largely devoid of

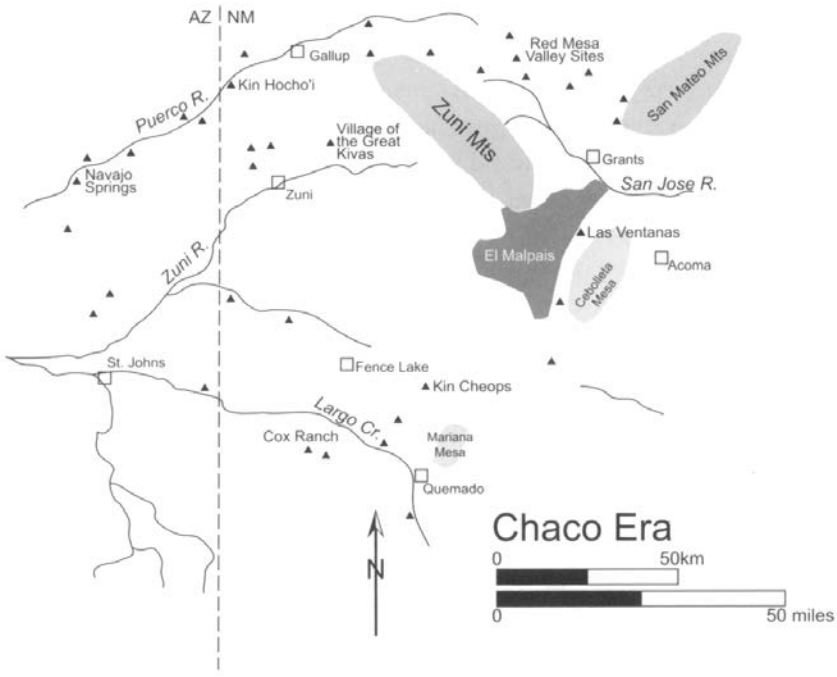

Figure 11.2 Chacoan settlements in the Cibola region.

Pueblo I period settlement (Danson 1957; Duff 2003; Whalen 1984). There are a few great houses along the east side of the lava at El Malpais and Cebolleta Mesa (A. Fowler and Stein 1992: fig. 9-1; Van Dyke 2000). These can be viewed as an extension of the Red Mesa Valley sites, but with important indications of difference (Elyea et al. 1994; Wozniak and Marshall 1991).

We suspect that the archaeological visibility of Pueblo I settlement in the Cibola region underrepresents populations of this period, but we must still note that several Chacoan-era settlements and great houses appear in zones with limited previous occupation. Around these nodes of Chaco-pattern settlement are large areas that simply lack great houses (fig. 11.2). What is uniform about this period in the Cibola region is its variability. There are zones of Pueblo II settlement without great houses, great houses that emerge within earlier communities, and a large area east of the Zuni reservation lacking evidence of Pueblo II settlement altogether. This is especially interesting because it is this area that becomes the heart of regional population in subsequent periods.

Several of the great houses we do know about are distinctly un-Chacoan. Most great houses satisfy Lekson's (1991) "big bump–little bump" definition, but the structures themselves are extremely variable. Not all have great kivas. Thus, variation among Cibola great houses mirrors patterns from a wider area of the Chacoan-influenced world (Van Dyke 1999). Cibola settlements and great houses also participated in a different sphere of interaction than did Chaco. Material goods from the Cibola region were not clearly funneled toward the canyon (Toll 1991), and the region borders areas that did not participate directly in Chacoan developments, at least as expressed by great houses. Cibola was bounded on the south by the Classic Mimbres system, and material infrequently circulated between these neighboring systems. In the Upper Little Colorado River area, there do not appear to be any clear Chacoan great houses despite intriguing possibilities (Duff 2002:68–69). Further west, residents of the Silver Creek region that migrated from the great house–rich Puerco River area organized their communities around circular great kivas but did not construct great houses (Herr 2001).

In terms of material links to the Chaco system, connections are even less tangible. Canyon constructions incorporated timbers from the Chuskas (Betancourt et al. 1986; Windes and McKenna 2001), but this activity otherwise appears to have been a matter of coordination of labor (Windes and McKenna 2001). Large numbers of vessels manufactured in the Chuskas made their way to the canyon (Toll 1985, 2001), as did lithics from Narbona Pass (Cameron 1982, 2001). Obsidian seems to have come largely from the Grants–Mt. Taylor area (Cameron 2001:87). Limited quantities of "Zuni spotted chert" (Cameron 2001:87) and some AD 900s ceramics derive from the Cibola region—probably the Red Mesa Valley (Toll 1982)—but the majority of material flows associated with Chaco Canyon derives from an area largely confined by the San Juan Basin and the Chuska slope. Although direct evidence remains elusive, periodic visits by residents of outlying communities may have brought in additional materials (Renfrew 2001).

What is most interesting about Cibola great-house communities is their exchange ties. Ceramic information from a few of the Cebolleta Mesa great houses (Las Ventanas and Skull) indicates that exchange is clearly directed *outside* the Chaco system. At Las Ventanas (a.k.a. Candelaria), Mogollon Brown Ware, produced in areas to the southwest, constitutes about 15 percent of the total assemblage, while in the surrounding community it averages only 4 percent of site assemblages. Similarly, Socorro Black-on-white is twice as com-

mon at the great house as it is in the surrounding community (Schachner and Kilby 2005). Elevated amounts of Socorro Black-on-white have been recovered from several other Cebolleta Mesa great-house sites (Wozniak and Marshall 1991) suggesting ties with middle Rio Grande populations, an area that is clearly outside the normal boundaries of Chaco influence. The differentiation of Cebolleta Mesa great houses from other contemporary Cibola area sites may signal the development of something distinctively Acoman.

At Cox Ranch Pueblo, a multiple-roomblock Chacoan community just south of the Zuni Salt Lake, the plain-ware assemblage is dominated by Mogollon Brown Ware, as are assemblages from the surrounding community (Duff 2003; Duff and Nauman 2004). Similarly, western areas along the Silver Creek and Upper Little Colorado River are dominated by brown-ware assemblages. Great houses and community sites in the Zuni and Puerco River districts are dominated by gray-ware ceramics. To the extent that technological style is an accurate barometer of historical difference (a proposition to which we are favorably inclined), these plain-ware data suggest that the occupants of the Cibola region included groups with variable origins and connections that were most visibly united through construction of great house–oriented communities. This relationship is mirrored in the decorated ceramic assemblages throughout the region that are characterized by both Cibola White Ware and White Mountain Red Ware, which may mark the beginning of a shared Cibolan interaction sphere.

Reorganization and the Emergence of Localized Centers

As Chaco withered as a central place of occupation, pilgrimage, ritual, or architectural expression in the mid-twelfth century, transformation of the hinterlands to the north and south was energized by local developments. Emerging from an extended period of generally poor environmental conditions (ca. AD 1130–1180), how communities and social relations were constructed was fundamentally reconceived among populations in both the Mesa Verde and Cibola regions. Communities generally became more physically consolidated on the landscape (Kintigh 1996; Varien et al. 1996), but social relations continued to be structured around institutions and architecture with roots in the earlier Chacoan world (Kintigh 1994; Kintigh et al. 1996; B. Mills 2002:97).

Throughout the Cibola region, communities oriented around great houses

that clearly post-date Chaco developed (A. Fowler et al. 1987; A. Fowler and Stein 1992; Stein and Fowler 1996). Great houses were built using a template from the Chacoan era, which included oversize rooms, elaborate masonry, an encircling berm often cut by paths, and great kivas (A. Fowler et al. 1987; Kintigh et al. 1996), and these features occur within larger residential aggregates containing from a handful to as many as 33 roomblocks. Community roomblocks range from 6 to 60 or more rooms, with aggregate community room counts ranging from 100–500 total rooms.

This pattern is evident in all parts of the Cibola region (fig. 11.3), with the exception of the Red Mesa Valley, which was largely depopulated by this period. Along the Puerco River is the type site of At'see Nitsaa at Manuelito Canyon and Fenced-up-horse Canyon (A. Fowler et al. 1987; Schutt 1997). Several sites in the Zuni region (Badger Springs, Spier 81), along Carrizo Wash and Jaralosa Wash (Hinkson Ranch, Garcia Ranch, Goesling), a few near Mariana Mesa (Tom's Rock, Hubble Corner/McGimsey 143), and along Cebolleta Mesa (Cebolla Canyon, Armijo Canyon) adhere to this pattern. Even short-lived settlements in areas heavily settled for the first time, such as Los Gigantes in the El Morro Valley (Schachner and Kintigh 2004), are constructed in this pattern.

The distinct departure from the Chaco pattern is evidenced by extremely large unroofed great kivas seen at several of these sites (Kintigh et al. 1996). The three tested examples—McGimsey's Site 143 (a.k.a. Hubble Corner; McGimsey 1980), the Hinkson Site (Kintigh et al. 1996), and Los Gigantes (Schachner and Kintigh 2004)—reveal kivas between 25–34 m in diameter, with low-perimeter benches and no indications that they were roofed. These structures have about three-to-five times the floor area of the average Chacoan great kiva. Though not present at all sites, this innovative departure remains consistent with the Chacoan emphasis on round great kivas. Smaller kivas on the order of 8–12 m in diameter are present at other great-house sites, and these were probably roofed. Several of these also include A. Fowler and Stein's (1992) "time-bridges," where sites are connected to Chacoan period great houses (and to later period sites) by roads. However, not all communities contain great houses or great kivas. Unlike the Mesa Verde region, few Chacoan great houses were reoccupied and/or remodeled, although sites on Cebolleta Mesa may be the exception (Elyea et al. 1994; Roney 1996; Wozniak and Marshall 1991).

Within the Cibola region, communities with several hundred residents

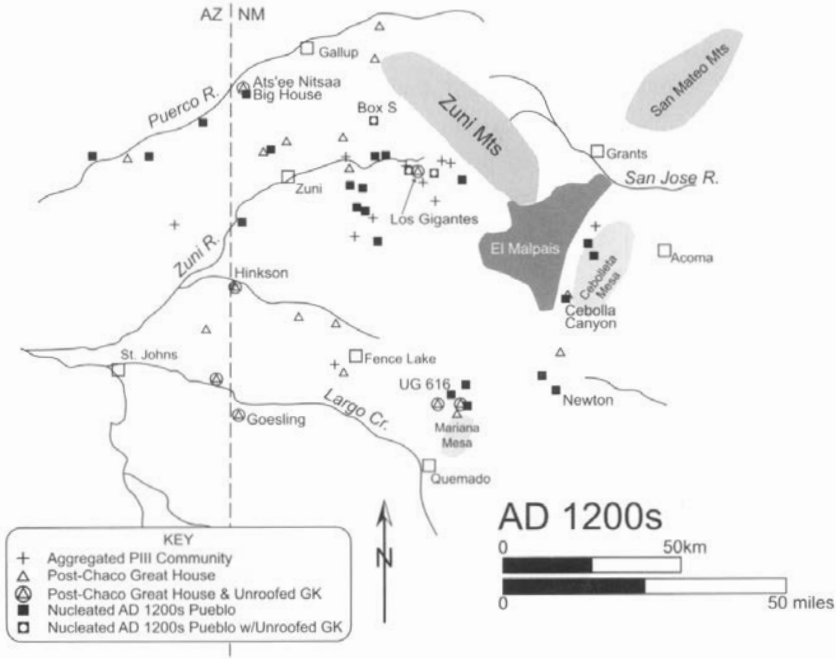

Figure 11.3 Post-Chacoan settlements in the Cibola region.

became the norm, but there appear to have been differences in how they were integrated. Aggregated settlements must have required more formalized mechanisms for supra-household decision making (G. Johnson 1982, 1983, 1989; Kosse 1990, 1996) to resolve disputes, allocate lands, and to coordinate defense. The demographic scale of many communities hints that some may have come to combine two or more previously distinct communities. Unroofed great kivas may relate to the need to integrate larger numbers of individuals (Kintigh 1994) but that they were open and could accommodate many more viewers may have been just as important; activities or performances within these features would have been visible to all, not just those within the kiva as was the case for the roofed, subterranean Chaco-era structures.

By the early AD 1200s, new forms of settlement and integration were developing in the Cibola and Mesa Verde regions. Soon after AD 1225, several massive, nucleated pueblos were constructed in the El Morro Valley, some with the large, unroofed great kivas. Although these earliest nucleated sites have a form similar to later pueblos—large rectangular or ovoid constructions with

continuous perimeters—they do not appear to be plaza-oriented as we commonly think of the term. Instead, the enclosed portions of these settlements contain numerous rooms, depressions, and other indications of architecture, some of which may have been organized around smaller plazas. What is clear is that these settlements housed unprecedented numbers of people, with the largest of these—Archaeotekopa II and Kluckhohn—each having more than 1,200 rooms (Duff 2002; Kintigh 1985). Along Cebolleta Mesa, a similar architectural pattern is evident as linear constructions, but the sites are much smaller, averaging about 100 rooms (Roney 1996: fig. 10.21; Wozniak and Marshall 1991). This new architectural form appears to sublimate household visibility, an architectural statement that may be an accurate reflection of an underlying behavioral pattern.

We believe this novel social form was contemporaneous with the continued occupation of settlements organized around post-Chacoan great houses, settings in which households (or extended households) remained architecturally visible as distinct roomblocks. The pattern of contemporaneous nucleated and aggregated settlements developed in several areas but is clearest in the El Morro Valley, on the Zuni Reservation, and by Mariana Mesa. There was a great deal of variability and experimentation within communities as expressed in architecture, which we believe was also the case with social institutions. Despite the architectural variation, sites of all forms share a common decorated ceramic assemblage dominated by Tularosa Black-on-white and St. Johns Polychrome.

This period was quite literally one of experimentation with community building (Pauketat 2001b), as groups constructed diverse material expressions of community organization and unity. Great-house communities continued to emphasize household autonomy in residential architecture and suprahousehold solidarity in communal constructions, referencing the great houses of an earlier time. Nucleated settlements project community as the primary social unit, with larger corporate groups likely more prominent entities within these settlements (Duff 2002:168–169). Whatever the organizational structure within nucleated communities, as a social and architectural form, this pattern clearly represents a break with the past. In a little over a century, these social experiments developed into an organizational and cosmological structure of lasting impact as integrated populations occupying plaza-oriented constructions with hundreds of rooms became the norm.

By AD 1250 (if not earlier), communities in the Mesa Verde region were also shifting to nucleated forms. Sand Canyon Pueblo, with more than 400 rooms and 90 kivas, typifies this pattern, as do several of the famous cliff dwellings (chapter 10, this volume; Varien et al. 1996). Here the architectural manifestation of household persisted, with detectable "unit pueblos" accommodated within the structure of the site. Whatever organizational structures were adopted by Mesa Verde region communities, they were clearly not sustainable over the longer term as populations emigrated from the region through the AD 1200s, resulting in its complete depopulation soon after AD 1280 (Duff 1998; Duff and Wilshusen 2000). By this time, portions of the Cibola region were also losing population. The Puerco River drainage within New Mexico seems to have been largely depopulated (Duff 1998; Schutt 1997), and Cebolleta Mesa population declined as some residents moved east toward Acoma.

The material acts of communal construction clearly document that groups in the AD 1200s were becoming larger and more physically consolidated. Population consolidation must have required or facilitated changed social institutions governing land tenure and other aspects of production, internal and external disputes, and group membership. The densest concentration of Cibolan sites during this period is within the El Morro Valley—an area that was not occupied during the Chacoan period. The establishment of these settlements initiates the persistence that comes to be the heartland centered at modern Zuni.

Consolidation: Emergence of the "Middle Place"

By AD 1280, both the aggregated roomblock settlements and the massive nucleated structures were abandoned and the transition to plaza-oriented pueblos was complete throughout Cibola and the occupied Western Pueblo region. Regionally discrete settlement clusters become evident during this period, with the densest of these at Zuni (Duff 2000, 2002). There are marked population differences between settlement clusters, with Hopi the only group rivaling Zuni (Duff 2002:43–44). It appears that the basis of organization in the earlier massive sites was unsustainable, with most post–AD 1275 Zuni sites containing between 400–800 rooms (Huntley and Kintigh 2004). The remaining Western Pueblo settlement clusters consist of between three and five

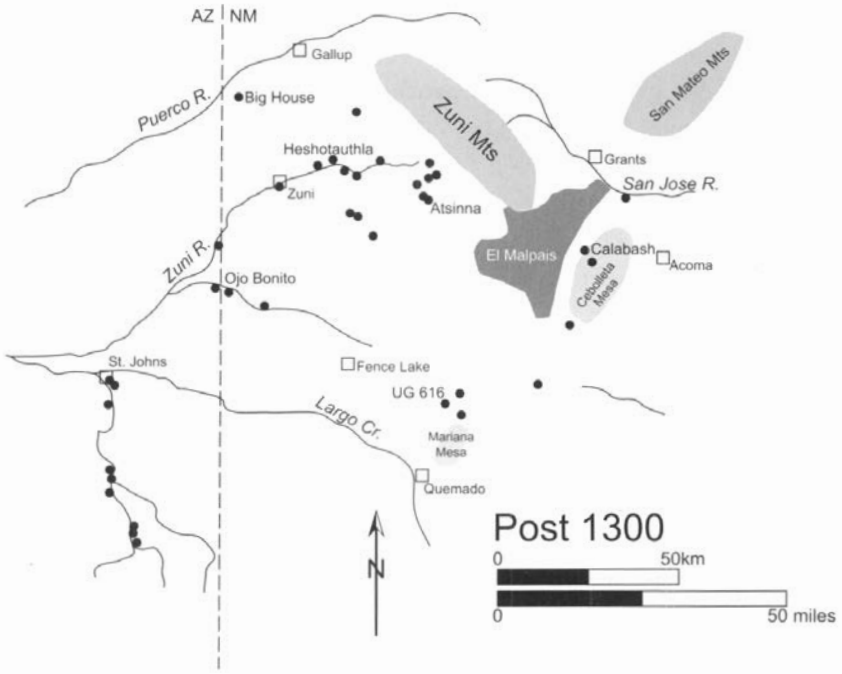

Figure 11.4 Nucleated settlements in the Cibola region.

settlements that are generally smaller, ranging from 100–400 rooms (E. Adams and Duff 2004). The exceptions to this rule are Hopi and the Homol'ovi settlements, the latter of which were closely tied to Hopi (E. Adams and Duff 2004). Smaller settlement clusters had much wider circles of social interaction as measured by ceramic circulation. Interaction among residents of these settlement clusters was structured by population density at some level, and Zuni appears to have had few contacts with these groups (Duff 2002). Our ability to gauge interactions within the Zuni region is limited, but vessels did circulate between some settlements (Duff 2002; Huntley and Kintigh 2004).

By the early AD 1300s, several sites in the Cebolleta Mesa area and on Mariana Mesa were depopulated (fig. 11.4). Mariana Mesa groups are likely to have founded or joined sites in the Zuni heartland, while Cebolleta Mesa settlers appear to have moved to Acoma. By AD 1325 at the latest, Zuni had clearly emerged as the Cibolan heartland with thousands of residents. Occupants of the Zuni region—the El Morro Valley and the Zuni reservation—appear to be the heirs of the Cibola tradition.

Developments in the Acoma province parallel those at Zuni, with continued interaction between Zuni and Acoma evidenced by a shared decorative ceramic tradition that remains distinct from adjacent areas. Unfortunately, we have no systematic data regarding interactions between Zuni and Acoma. At about this same time (ca. AD 1325), several settlement clusters experienced internal reorganization, as several settlements were abandoned with the largest clusters seeming to be the ones that persisted (Duff 2002; Huntley and Kintigh 2004). The AD 1300s are clearly associated with the development or elaboration of new ritual systems, such as the Katsina (E. Adams 1991) and Southwestern cults (Crown 1994), that are evident in many settlement clusters of the Western Pueblo but not yet evident at Zuni.

In the late AD 1300s, Zuni and Hopi were clearly central in demographic terms, with populations in each region likely exceeding the total population of all other Western Pueblo districts combined (Duff 2000). At this time, the Western Pueblo area saw the depopulation of most settlement clusters and consolidation of populations into Hopi and Zuni. Pueblo residents appear to have been drawn to these demographic and historical magnets, bringing with them the ideas, rituals, and traditions of their former homes. At Zuni, this movement resulted in internal reorganization, with several settlements—the famed Cities of Cibola—founded downstream of the fourteenth-century heartland near modern Zuni Pueblo (fig. 11.5). Most of these settlements appear to have been founded at about AD 1400, with clear indications of non-local material culture present in the region for the first time in more than two centuries. Salado Polychrome and Hopi Yellow Ware ceramics and cremation of the dead indicate that immigrants were clearly part of this reorganization. We should also point out that many of these sites appear to have been founded anew, not a situation in which migrants joined existing and thriving communities. As best we can tell, migrants came primarily from the Plateau and Mountain areas southwest of Zuni, bringing with them rituals linked to the Katsina and Southwestern cults (Duff 2002). The fifteenth-century consolidation at Zuni brought together an amalgamation of peoples, materials, and likely multiple linguistic/tribal groups.

In material terms, diversity in burial treatment and ceramic inventories persists for several decades before a uniform suite of distinctly Zuni material culture reemerges (Schachner 2006). By AD 1500, Matsaki Polychrome emerges as a homogenous ceramic tradition, marking a break with Acoma. Zuni oral history links this consolidation of peoples and the bringing of

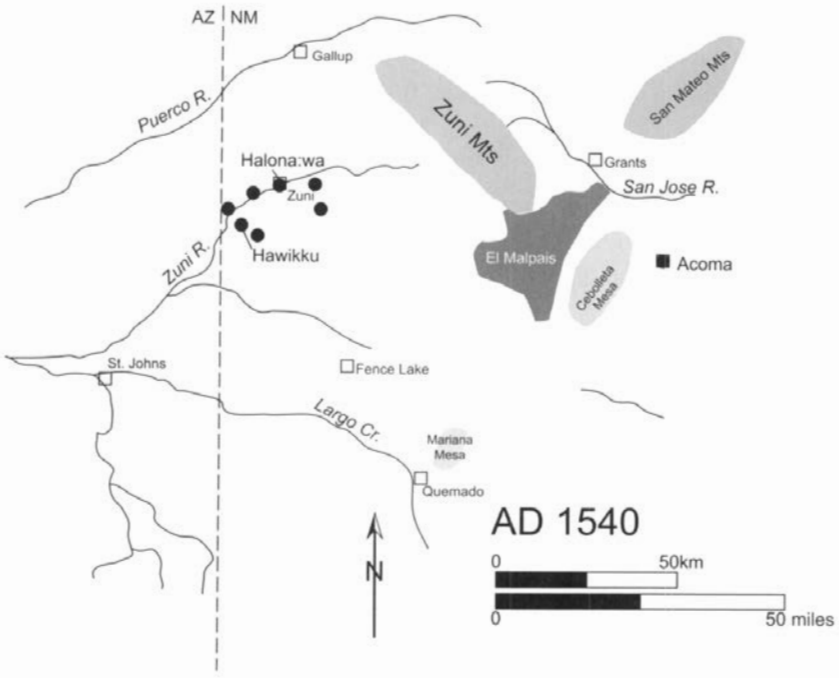

Figure 11.5 Protohistoric settlements in the Cibola region.

Katsina with emergence of a social identity that can be considered distinctly Zuni, an internally coherent system of shared understandings, materials, rituals, and language that was evident to the Spanish upon arrival about five generations after the fifteenth-century consolidations (Duff 2002). Although they may have been autonomous entities in many respects, there clearly appears to have been some supra-community coordination between the six to nine settlements occupied at contact in AD 1540.

A Hinterland Transformed

That Zuni became central is key to Zuni identity, but that it became so through the consolidation of several groups from different areas each bringing with them their histories, rituals, and experiences is also essential. We have attempted to describe archaeologically, and to infer socially, how this transformation happened. During the Chacoan era, Cibola community patterning

does not appear to have been much different than in other areas within the Chacoan sphere. Though they do not appear to have contributed materially to the Chaco Canyon system, Cibola communities adopted the architectural and settlement conventions of this larger entity. Interactive ties were oriented instead within the region and to what becomes the Acoma province.

With the collapse of Chaco, the initial reorganization of communities in the Cibola region reinterpreted elements of Chacoan symbolism but applied them to a new social setting within larger settlement aggregates. The physical consolidation of community residents into aggregated settlements surrounding great-house architecture involved large numbers of people. While this pattern persisted, several communities began experimenting with new architectural and social forms more obviously focused on communal identity. These nucleated communities—constructed in the early AD 1200s—foreshadowed developments that swept the Puebloan world in the century that followed. These nucleated settlements clearly indicate a transformed conception of community that must have been accompanied by changes in social organization. Experimentation and diversity in organization is evidenced in the contemporaneous occupation of nucleated settlements and great house–oriented communities, but the development of modes of organizing large numbers of co-residing individuals endured, as the place this developed first—the Zuni region and El Morro Valley—became central to occupation for centuries to follow.

By the later thirteenth century, a stable organization consisting of large social groups occupying plaza-oriented pueblos encompassed the Western Pueblo area. We are not implying that this form was exported from Zuni, just that residents of the Zuni region appear to have had the longest history with this form of communal organization. Somewhat similar experiments with larger aggregates and a variety of organizational and architectural forms appear to characterize the Mesa Verde region at about the same time (Lipe 2002).

Within the Cibola region, the Zuni area became the center but was peripheral—in terms of material indications of interaction—to the remaining regions occupied during the Pueblo IV period. However, as these regions were depopulated late in the fourteenth century, Zuni again became prominent, attracting groups of migrants to the region, thereby spurring local reorganization (Duff 2002). What appears to have been attractive to the migrants from

outside districts was both a sense of history—relatively greater persistence in place—and a successful record of integrating large groups of people in nucleated communities. From the fifteenth century onward, Zuni emerged as one of a few Southwestern heartlands and one of only two Puebloan-occupied zones in the Western Pueblo area. Although central in archaeological terms, and in terms of symbolic geography, the search for the *Middle Place* was finally completed by the consolidated population of Zuni people.

12

Reconceptualizing Regional Dynamics in the Ancient Southwest

Relational Approaches

Ruth M. Van Dyke

Hohokam, Chaco, and Paquimé—three major centers of cultural development or "heartlands" in the ancient Southwest—have been the subject of collected works too numerous to list. Until now, however, a compendium devoted entirely to the interstices between and among these places has not been available. As the authors in this volume recognize, these interstices or "hinterlands" were not only resource-exploitation zones and travel corridors for heartlands—they were home to a substantial number of the Southwest's inhabitants. Contemporary research within Southwest hinterlands is burgeoning, just as archaeological theory is progressing past the bounds of functionalism, evolutionism, and ecological determinism. It is a timely moment for fresh examinations of areas outside the Hohokam, Chaco, or Paquimé cores. In the past, hinterlands were examined and explained using such ideas as the Gladwinian core-periphery model, world-system theory, and peer-polity interaction. Today, there is a pressing need to develop new understandings of regional dynamics. In this volume, new theoretical directions and new data—much of it gleaned from recent cultural-resource-management projects—come together.

How can we best understand hinterlands, both in relationship to heartlands and on their own terms? The studies in this volume synthesize regional research that represents diverse contemporary approaches. In every case, volume authors are moving towards dynamic, multidimensional, reflexive understandings of the past—understandings that might best be characterized as *relational* approaches. From a relational perspective, social and material interactions are flexible, conditional, and interdependent. Social entities are defined, in part, by the mutualities and contradictions that characterize their relationships with other entities. The relational interpretations presented here incorporate intersecting domains such as economics, identity, and power, offering productive new ways to think about hinterlands.

Hinterlands and Heartlands

The dichotomous terms *hinterland* and *heartland* conjure a vision of bounded, balanced opposites existing in a state of dualistic tension. To move beyond the categorical divisions implied by such nomenclature, it is important to understand the historical contexts against which these new ideas are constructed. Throughout the twentieth century, regional dynamics in the Southwest have been approached largely from culture-historical and processual perspectives. Harold S. Gladwin, Winifred Gladwin, Emil W. Haury, Harold S. Colton, and their contemporaries drew rigid boundaries around the core culture areas in the Southwest. Peripheral areas were seen as uniformly and unidirectionally influenced by cores, and change was considered the result of independent invention, diffusion, or migration. Thus, in the Gladwinian model of the Hohokam, for example, peripheries were expected to resemble homogenous, watered-down versions of the Phoenix Basin Hohokam core (Wilcox 1980). As Whittlesey, Elson and Clark, and others explicitly demonstrate in this volume, such is not the case.

Modified versions of world-system models offered an improvement over these early static, internally homogenous visions of the ancient Southwest (Wilcox and Shenk 1977). World-system theory explains how economic interactions lead to relations of dependency and exploitation between bounded social entities. However, many have critiqued the systemic, functionalist, and homeostatic aspects of world-system models (e.g., McGuire et al. 1994). Furthermore, world-system theory was originally developed to explain the rise and spread of capitalism in the context of state societies and thus clearly is not the best lens through which to view the prehistoric, precapitalist past (Kohl 1987; McGuire 1991, 1996).

Renfrew and Cherry's (1986) peer-polity interaction model is one alternative to a world-system vision that has enjoyed some popularity in the Southwest (Kantner 1996; Kintigh 1994; Minnis 1989). In this model, the symbols and trappings of power associated with core-area polities are emulated by would-be elites in neighboring hinterlands. Elites exchange high-status items and compete with one another for followers. Peer-polity models are not necessarily the best way to think about regional social dynamics in the Southwest, however, as the Southwest was never one interlinked social network, and the model does not help us understand multidimensional and long-range interactions.

Without exception, the authors in this volume make a concerted effort to

move past the limitations of these earlier approaches. The terms "core" and "periphery" are evocative of homeostatic social entities existing in fixed, unidirectional relationships. In an attempt to leave behind the baggage inherent in these labels, Sullivan and Bayman adopt the less loaded terms "heartland" and "hinterland" (R. Adams 1965; Frank and Gills 1993), which are somewhat analogous to Tainter and Plog's (1994) "strong and weak patterns." Although any label can become totalizing, Sullivan and Bayman are explicitly trying to open the door for diverse, dynamic, multidimensional perspectives on the regions studied here. Heartlands are defined as "areas with long, continuous developmental histories, whose sociopolitical formations concentrated and controlled (if not monopolized) the distribution of information and resources" (chapter 1, this volume). The hinterland studies presented here do not rely upon the larger reference points of heartlands, yet at the same time Sullivan and Bayman are not advocating a return to an atomistic regionalism. Hinterlands might or might not have a variety of relationships—economic, political, religious, or otherwise—with neighbors. They cannot be considered a priori as subordinate to heartlands. Patterns of dependence or exploitation might exist, but they must be demonstrated.

Just as hinterlands are not homogenous, static entities, neither are heartlands. Hohokam, Chaco, and Paquimé were three different kinds of social entities with different kinds of relationships with neighboring regions. As Rocek and Rautman explicitly note, these three heartlands "only exerted 'core-like' domination for brief periods and over limited areas" (chapter 8, this volume). It is not appropriate to expect them to have had similar kinds of influences on nearby hinterlands.

The Hohokam heartland is the most core-like of the lot, with a long, in situ trajectory of cultural development in the Phoenix and Tucson basins that clearly impacted surrounding areas in various ways, particularly during the Colonial and Sedentary periods (AD 750–1150). Thus, it is not surprising that core-periphery and world-system models have been especially attractive to Hohokam scholars. In this volume, Whittlesey, Elson and Clark, and Bayman grapple specifically with decoupling the Lower Verde, the Tonto Basin, and the Papagueria from a Hohokam-centric view.

A different set of issues confronts Schlanger for the Mesa Verde area, and Duff and Schachner for the Cibola region. Chaco was a center place, to be sure, but it was not the same kind of long-term, stable heartland exemplified by the Phoenix and Tucson basins. A paradox of Ancestral Pueblo archaeology is that

although well-preserved Puebloan masonry architecture suggests permanence and stability, pueblos were rarely occupied for more than a few generations. Demographic centers of settlement on the Colorado Plateau shifted every few centuries, if not more frequently. Chaco was a relatively short-lived social aberration in the trajectory of Puebloan prehistory, extending its wide-ranging influence primarily between AD 1000–1150. Before AD 850, the Mesa Verde region was home to people who became Chacoan (Cameron 2005; Wilshusen and Van Dyke 2006). After AD 1150, both the Mesa Verde and the Cibola regions were occupied by peoples whose ancestors had been Chacoan, as Chaco itself grew empty. Schlanger, and Duff and Schachner, then, grapple with understanding how two Chacoan hinterlands were also, at other times, Puebloan heartlands.

Paquimé is qualitatively different yet again, exhibiting a scale of social and political organization different from anything else seen in the Southwest. Paquimé is arguably the only heartland of the three that was plainly an economic center with a clear-cut social hierarchy. Here, Douglas, and (to some extent) Hegmon and Nelson, and Rocek and Rautman, directly consider Paquimé's impacts on its neighbors.

Relational Approaches

Volume authors explore regional interactions at varying scales and in diverse dimensions. Many of the studies demonstrate ways in which understandings derived from core-periphery and world-system perspectives are incomplete, misleading, and incorrect. Some authors explicitly advocate alternative models —for example, Whittlesey develops a cultural-landscapes approach, Rocek and Rautman advocate heterarchy, and Bayman uses a common-pool resource (CPR) model. Each of the authors in this volume—even those who do not explicitly advocate a particular model—seeks new, multidimensional ways to think about identities, interactions, and sociopolitical organizations in their respective areas. Clearly static, or one-size-fits-all, conceptions of social relationships in hinterlands are inadequate. The authors recognize that we need to get away from dichotomous, categorical thinking. In its place, I argue, each of them is advocating something akin to a relational approach.

Relational thinking is an emerging—albeit rarely explicitly recognized—trend in Southwest archaeological research. With roots in feminism, Marxism, and practice theory, relational thinking represents a break with essentialist

approaches. Throughout much of the twentieth century, research in the Southwest was hampered by categorical thinking, in which archaeologists attempted to understand past social entities by placing them into the correct bounded, tidy geographic or sociopolitical boxes. Material evidence was often contradictory, however, and these studies frequently resulted in unproductive, polemical debates (McGuire and Saitta 1996; Speth 1988; Yoffee 1994).

Relational analyses leave behind futile attempts to categorize the past and focus instead on the dynamic, multidimensional, and contradictory relationships among historically situated social entities. To abandon essentialism does not imply a refusal to look for, and at, material and social patterns. Rather, a relational perspective recognizes that social and material interactions are negotiated, flexible, and conditional. They are dependent upon specific local, provisional contexts.

Social relationships tend to involve both mutualities and contradictions. Some interactions revolve around shared benefits, while others may entail conflicting interests. Interactions may be contradictory, plural, and ambiguous. Interactions among social entities are reflexive in that they are shaped by existing relationships, yet they also drive the processes of social transformation. Ambiguities and contradictions among different kinds of relationships may become sources of conflict leading to social change.

Relational approaches refocus investigations away from "who" and "what" questions towards "how" and "why" questions. The authors in this volume deliberately eschew questions grounded in categorical views of the social world, such as, "What resources did the core extract from this hinterland," or, "To which culture area can this hinterland be assigned?" Instead, they ask questions such as, "How were both local and non-local peoples using the resources found in this area, and how was this use socially negotiated? How did peoples in this region use material culture to ethnically identify themselves? How did individuals and groups construct power and authority? How and why did these dimensions shift over time?" These broad questions intersect and overlap in many of the chapters, but they might be loosely characterized as relational investigations into economics, identity, and power.

Economics

The economic domain, encompassing aspects of the appropriation and exchange of material goods, is one of the most comfortable areas for archaeologists to investigate. Some of the studies in the volume, including Carter and

Sullivan, Elson and Clark, Rocek and Rautman, and Bayman, are concerned primarily (but not exclusively) with economics. These authors discuss exchange and interaction both within and among regions as multidimensional and dynamic, involving different material and social variables at different points in time.

Carter and Sullivan explore ceramic procurement and production in the Upper Basin of the Coconino Plateau. Their petrographic analyses indicate that, despite evidence for local pottery production, both Tusayan Gray Ware and San Francisco Mountain Gray Ware contain non-local materials. The Upper Basin is thought to have been a rather insular area, yet it appears possible that inhabitants were acquiring raw materials for pottery production. This study challenges the idea that gray-ware pots, as utility wares, are found close to their place of manufacture (Colton and Hargrave 1937) and that primary ceramic raw materials, such as clays and tempers, are rarely imported over long distances (Arnold 1985). It raises questions about relationships between Upper Basin inhabitants and their neighbors and about the organization of pottery production and procurement across the Coconino plateau.

Elson and Clark describe the Preclassic (before AD 1100) Tonto Basin as a heterogeneous place, due primarily to differences in available resources—particularly water. They argue that the Salt River area of the Lower Tonto Basin was attractive to Colonial Hohokam migrants because the environment resembled the Phoenix Basin and, hence, irrigation agriculture could be sustained. By contrast, water flow and elevation were different along Tonto Creek and in the Upper Tonto Basin. In these areas, indigenous inhabitants practiced their own long-term, local subsistence and settlement strategies. Throughout the Sedentary period, Hohokam connections for all Tonto inhabitants attenuated, and ties grew stronger to Puebloan regions to the north and east, perhaps as Tonto residents sought a better market for exchange of cotton.

In their discussion of the Salinas and Sierra Blanca areas of eastern New Mexico, Rocek and Rautman explicitly advocate heterarchy (Ehrenreich et al. 1995) as a way to think about conflicting, multidimensional, ambiguous relationships among different groups or regions that changed over time. The people of eastern New Mexico exchanged ideas, bulk goods, and prestige goods on differing scales and with different neighbors. For instance, information on pottery styles was shared with both Mogollon and Puebloan neighbors, and locally produced Chupadero Black-on-white was traded east to the Plains, while prestigious Rio Grande Glaze Ware was imported from the north. Other

prestige goods were imported from Chihuahua. Plains peoples to the east were both raiders and trading partners, as pottery and maize were exchanged for bison products and lithics. Rocek and Rautman paint a picture of economic, social, and political interactions among eastern New Mexico neighbors that were not uniform or hierarchical, but were complicated and at times contradictory.

Bayman explores the common-pool resource or CPR model (Eerkens 1999; Ostrom et al. 1994) as a way to understand the complexities of economic interactions in the Papagueria. CPR models are grounded in costs-benefits perspectives but do not preclude dimensions of agency or historical contingency. A resource, such as a water supply, fishing grounds, or a foraging area, may be too large or geographically ambiguous to be expediently controlled by one group. Instead, many different individuals, groups, or societies may all use the area, agreeing to abide by common rules. In the Papagueria, a variety of resources were used in diverse ways by at least three different groups of people. Hohokam, Patayan, and Trincheras groups and individuals engaged in shell, salt, and obsidian trade, as well as farming, gathering, and bighorn sheep hunting.

Identity and Power

Some of the most interesting discussions in the volume center on the multiple, shifting ways in which hinterlands residents constructed identity. These discussions have moved well past the static, essentialist approaches of the past. As Elson and Clark point out, early studies were focused around attempts to connect hinterlands with the appropriate heartland. "If the culture of these people could just be correctly assigned, understanding would follow." The authors in this volume, however, are focused on understanding local peoples in their own right. All of the hinterlands discussed here are explicitly considered to contain indigenous populations as autonomous entities. Vanderpot and Altschul, and Carter and Sullivan, adopt the terms "persistent place" and "persistent hinterland," respectively, to illustrate this point. People exchanged goods and ideas, moved in and out, and associated themselves with other nearby areas in different ways, but in most of these hinterlands, there were local, core populations present over the long term. Whittlesey captures some of this ambiguity and flexibility in her description of the lower Verde as a "corridor for long-distance population movement, at other times the home of a distinctive local group, and always a zone of mixed and moving cultures."

Local identities were sometimes, but not always, constructed with reference to heartlands. The symbols of powerful neighbors might be appropriated for local purposes. Ballcourts are symbolically potent features that appear in many of the regions surrounding the Hohokam core. Few of the authors here suggest that ballcourts indicate the unequivocal presence of Hohokam people. Rather, the features might represent participation in a common cult, or they might be part of a local identity that draws some cohesion from references to Hohokam neighbors.

In a study of the Lower Verde, Whittlesey argues that elements of Hohokam material culture may have been appropriated in the construction of local identity. The Lower Verde exhibits more diversity than can be accommodated by a limited vision of the area as peripheral to the Hohokam core. For a growing number of archaeologists (e.g., Ashmore and Knapp 1999; Van Dyke 2004), landscapes provide an excellent material window into the negotiation of identity, power, and meaning. Similarly, Whittlesey draws upon a mélange of scholars that includes historical geographers (Jackson 1984), critical geographers (Cosgrove 1984), structuralists (Rapoport 1990), and phenomenologists (Tilley 1994) to develop what she terms a "cultural-landscapes" approach, using the concept of landscape as a basis from which to think about the complex, interactive relationships between the Lower Verde and other areas. For example, ballcourts may have signaled participation in a Hohokam cult, but other physical landmarks, such as mountain peaks, may have been integrated into local cosmologies. Religion, as expressed on the landscape, would have been but one facet of a multidimensional relationship between the Lower Verde and the Hohokam core area.

Sometimes local identities were specifically constructed to be separate from heartlands. Hegmon and Nelson's investigation into Mimbres pottery motifs is an interesting case study in this regard. Zoomorphic and anthropomorphic Hohokam designs appeared frequently on Mimbres pottery during the Three Circle phase (AD 750–1000), which roughly corresponds to the Hohokam Colonial period (AD 750–950). However, during the ensuing Mimbres Classic period (AD 1000–1130), which roughly corresponds to the Hohokam Sedentary period (AD 950–1150), Hohokam designs appeared less often on Mimbres pots. This pattern occurs despite the fact that Hohokam exchange and influence was generally at its height during the Sedentary period. Hegmon and Nelson argue that this pattern represents a conscious strategy on

the part of Mimbres peoples to distance themselves from the expanding Hohokam, effectively creating a stylistic boundary.

The symbols of powerful heartlands are also used to construct identity when those heartlands are distant not only in space but also in time. The past is a potent tool for the construction of identity (Van Dyke and Alcock 2003). Duff and Schachner explore the ways in which Chacoan ideology was used to create a Cibolan identity in the post-Chaco world. This process is expressed architecturally by the appearance of unroofed great kivas, road segments extending to abandoned Chacoan sites, and new communities built around old great houses. Ultimately, the concept of center place was transferred from Chaco Canyon to Zuni, as the Cibolan area was transformed from Chacoan hinterland to Zuni heartland. The histories and rituals of several groups of people were integrated and reorganized in this process as well.

Separate identity does not imply economic or political independence, but the construction of identity is often linked to the legitimation of power. Exotic symbols, architecture, or ideas can become tools for the legitimation of authority, particularly when they are derived from outside sources that are perceived as powerful. Douglas explores how strong centers were used by locals to define identity and build local power during the Animas phase (1150–1450) in the International Four Corners (southwest New Mexico, northwest Chihuahua, northeast Sonora, and southeast Arizona). Ballcourts are among the material attributes used by others to argue that this region is a satellite of Paquimé. However, ballcourts in the International Four Corners, and the ritual activities they presumably represent, are quite variable. Some sites, such as Joyce Well, might be best understood as a Paquimé frontier, but at sites farther west, ballcourts, burial practices, and Salado-like platform mounds suggest a unique, local mélange of activities. Douglas suggests that Animas phase leaders may have been experimenting with architecture and ritual derived from outside areas as ways to legitimate local power. The Animas hinterland was neither a stagnant backwater nor a weak reflection of the Casas Grandes heartland—rather, this hinterland was a hotbed of innovation, where social inequalities simmered and creative strategies were attempted to legitimate leadership. Although the volume authors do not delve as explicitly into this facet in other hinterlands, it appears likely that external symbols, architecture, or ideas also were incorporated into local strategies to secure power in the lower Verde, Mimbres, Mesa Verde, and Cibola regions.

Conclusion

The volume authors represent a diverse cross section of the population of Southwest archaeologists, just as their chapters represent a wide variety of geographic hinterlands. Many of the chapters represent useful syntheses of recent regional research. The strongest common theme that runs throughout these papers, however, is a rejection of categorical perspectives and a quest for new approaches that allow for more dynamic, interactive, and flexible models. As I have argued here, these new perspectives, although not labeled as such by the authors, might well be characterized as relational approaches.

The ultimate measure of any archaeological model is how well it helps us to understand the social past. Relational approaches are steps in a positive direction, as they can account for more variability and can address more interesting and nuanced issues, including not only issues that revolve around economy but also those that intersect with social power and identity. It is important to gain a better understanding of Southwest hinterlands, not only because hinterlands are autonomous entities to be understood in their own rights, and not only because they are vitally interconnected with heartlands. Hinterlands also represent important loci for archaeological study because, as Douglas suggests, they are likely to have been hotbeds of social innovation. As the chapters in this volume illustrate, it is clear that the margins are anything but marginal to our understanding of the ancient Southwest.

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