

Distinctive Places, Suitable Spaces: Conceptualizing Mobile Group Occupational Duration and Landscape Use

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Abstract While extreme mobility and ensconced sedentism can be easily distinguished in the archeological record, effective means are lacking of discriminating between degrees of mobility that may range from seasonal shifts by farmers to recurrent moves across the landscape as a way of life. Fortunately, site layout and the way space is used are related to expectations regarding length of stay, and though they are not quantifiable measures, they provide linkages between the active and material realms. Short stays elicit a search for distinctive characteristics of a place rather than investing in the modification of a place. The quest for suitable spaces is a matter of fact among mobile groups, whereas sedentary groups, or those expecting to stay in one place for an extended period, tend to build their environment to suit their needs, even formalizing spaces in consistent ways from place to place. By understanding the ramifications of these concepts it is possible to distinguish between differing degrees of mobility of groups occupying similar environmental zones in the southern portion of the American Southwest in the protohistoric and early historic periods and to apply these to wider contexts.

Keywords Occupational duration · Landscape · Site structure · Anticipated mobility · Site use · Mobility

Introduction

Distinguishing differences in duration of occupation in archaeological sites has both practical and theoretical relevance and is a problem that applies most appreciably to research on groups exhibiting high mobility (fully mobile or nomadic, semi-nomadic, supra-annual mobility [Barnard 1983; Binford 1990, p. 122; Mills 1994, p. 60]). This is because as Mills (1994, p. 60) notes “The concepts of duration of

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occupation and mobility are inversely related; as mobility decreases, duration of occupation increases.” This scalar property of occupational duration and mobility introduces several difficulties to the resolution of the issue, not the least of which becomes recognition of evidence resulting from extremely limited occupations. Even more challenging is the problem of differentiating limited occupations by sedentary groups from those longer-term occupations by highly mobile groups. Equally troublesome are the criteria by which degrees of occupational duration are assessed with regard to highly mobile groups.

The issues of occupational duration and intensity are most often addressed through accumulations research, artifact diversity, and stylistic variety (Camilli 1983; Gallivan 2002; Mills 1994; Pyszyk 1984; Reid 1982; Varien and Mills 1997; Varien and Ortman 2005). These artifact-based approaches are quite promising when studying the relative degrees of occupational persistence in sedentary systems. Yet, these approaches are less effective on many mobile group sites where overall frequency of artifacts is not sufficiently high to be subjected to statistical treatment. A key challenge has been to extract meaningful data from sites with no or few artifacts, in contexts that lack materials suitable for fine-scale chronometric dating, including those found in multicomponent situations with mixed assemblages. Simply stated, artifact diversity and density are not reliable measures of occupational duration on the majority of mobile group sites encountered in the Sonoran and Chihuahuan deserts of the southern portion of the American Southwest, which suggests similar problems exist elsewhere in the world. In fact, the subtle forms of evidence that distinguish relative degrees of occupational duration cannot in many instances be measured or quantified. Occupational duration can, however, be understood by conceptualizing the way terrain is selected and landscape is used, as well as the ways in which mobile groups adapt to extant site space.

Investment in labor and materials to construct dwellings is also a frequently used index of occupational duration because as Binford (1990, p. 129) notes “all else being equal, there is a very general inverse relationship between mobility and investment in housing.” An advantage of using the outlay of effort and resources in structure construction as a guide to occupational duration is that people tend to seek or construct shelter if they plan on staying over, regardless of the length of the stay. Again, Binford (1990, pp. 121–122) remarks with respect to his cross-cultural ethnographic sample “There are no known cases among modern hunter-gatherers where shelter is not fabricated in residential sites (anywhere that hunter-gatherers plan to sleep), regardless of the expected occupational duration, and only in rare instances are sites of any kind produced by hunter-gatherers where no shelter is provided by the occupants.” Thus, structures are expected on mobile group habitation sites and, all things being equal, they should reflect, in a general way, degree of mobility.

There are several relevant observations regarding this issue of using structures as the basis for assessing occupational extent on mobile group sites in the southern Southwest. A basic problem in using structure durability as an index of occupation duration is that on many mobile group sites, structures have not been recognized. This deficiency results from a couple of different factors, one of which is that evidence of the dwellings is so unobtrusive that most archaeologists are apt not to recognize them when using the accepted devices of recognition (or perhaps in some

cases surface evidence is not preserved). Clearly, these conceptual tools are in need of revision, but discussions of this are beyond the scope of this current essay (but see Seymour, 2002a, 2008a, 2009a, b).

Regardless, the fact is, structures have been identified and they and their placement within sites do transmit information on relative degrees of mobility. With respect to the various ancestral Athapaskan groups in the American Southwest investigated by this author, there is a correspondence between degree of mobility and relative measures of substantiality in housing remains. Those dwellings related to the Navajo pastoralists and Western Apache (Cibecue, White Mountain, San Carlos, Tonto) who were part-time cultivators are the most substantial and those related to the ancestral Chiricahua and ancestral Faráon most unobtrusive. Ancestral Mescalero structures fall in the middle, both with regard to the known historical adaptation of this group and the visibility, nature of the rock perimeter rings, and density of artifacts. It seems that relative degree of investment in preparation of housing is a reliable index of anticipated mobility in circumstances where climatic conditions allow flexibility in effort expended and particularly when environmental variables are relatively constant across a broad area so that certain variables can be excluded when comparisons are made.

Yet, another challenge is that where structures have been identified there is often a substantial physical distance between dwellings and work areas. Additionally, these primary loci of a site (dwellings and work areas) may be separated by a mile from other directly related and functionally critical loci (such as lookout or signal stations). Conceptual and definitional limitations held by researchers and land managers tend to exclude the linkage of these spatially discrete areas as sites or as behaviorally related loci of temporally synchronized human activity. But it is important to conceptualize the way mobile groups use site space, distribute their work areas across the terrain, and uniquely conceptualize the landscape.

Work areas that are identified on the basis of artifacts and features are regarded as sites, but because few or no artifacts are associated with the dwellings located many tens of meters away, their relation to the work areas is regarded as problematic. There is not yet widespread acceptance of these admittedly vague rock rings as features (despite hundreds being carefully documented in the Southwest [see Seymour 2002a, 2008a, 2009a, b] and thousands in adjacent regions [Fowler and Fowler 1971; Rogers 1939, 1966]) because the presence of artifacts is considered a litmus test for affirmation of the cultural origin of otherwise ambiguous curvilinear alignments or clearings in rocky surfaces.

The goal is to remedy some of these conceptual liabilities by considering the underlying basis for settlement layout and landscape use among highly mobile groups with respect to what has been referred to as occupational duration. The concepts of anticipated mobility and suitable places with distinctive performance characteristics have been enlisted in order to understand the linkages between spatially discrete loci, the basis for their distribution, and how they are related to mobile group landscape use. This issue is especially pertinent to mobile groups who occupied the Sonoran and Chihuahuan deserts of the southern Southwest during the protohistoric and historic periods because some groups were sufficiently mobile that evidence of their presence is as light as mist on the morning landscape. Occupational extent was influenced not only by the nature of their adaptation as hunter-gathers but

also by the fact that many of them were raiders who found themselves in conflict with powerful and persistent adversaries. Choices as to settlement location and the tempo of movement were affected not only by environment and terrain but also by political and social factors. These political and social influences can be seen in changes in the places selected and the way places were used through time. Thus, it is not an issue of the adaptation of hunter-gatherers, per se, but the act of moving and the concept that movement is imminent. The expectation for a short stay versus long stay is fundamental in the choices people make as to whether to modify space or deal with it on its own terms. In a broader context, this effort provides an opportunity for investigating the nature of space use among mobile groups.

On-going field and ethnohistorically based research carried out by the author throughout the southern Southwest (Fig. 1) provide a basis for the discussion that follows. These data pertain specifically to the period falling between 1300 and 1900 CE. During the latter half of this sequence historical and ethnographic records are



Fig. 1 General study area in the Southern Southwest

available to contextualize the data. These data illustrate that there is a continuum of mobility and the case studies provide examples at various points along this scale and illustrate changes through time, beginning with the pre-contact period as a base line. The early mobile groups and later historic-period Apache represent the most transient forms of occupational duration, while the pre-colonial and then mission-based O'odham provide a comparative baseline of sedentism for this region. Thus, data from the Southwest are enlisted to assess some of the material foundations of mobility that have relevance in a wider forum.

Background Information

Before proceeding a brief overview of the occupational sequence of the area will be of value. In the southern reaches of the American Southwest the late prehistoric period ends around 1400 CE. This is when the classic prehistoric agricultural societies (Anasazi or Ancestral Pueblo, Mogollon, Hohokam, Salado, and so on) decline in importance, geographically contract, and reorganize. About this same time, perhaps in the 1300s or earlier, a host of other groups become visible in the archaeological record (Seymour 2008b, 2009c), some of whom were later mentioned in documentary sources. These terminal prehistoric groups include the ancestral Apache, other mobile groups not related to the Apache (Canutillo complex; Seymour 2002a, 2008c), and in southern Arizona, some of the ancestors of modern-day O'odham, known as the Upper Pima by the Spaniards, and specifically the Sobaipuri, which was a subgroup of the Upper Pima or the Akimel O'odham (River Pima). The Sobaipuri were sedentary farmers that lived along the major river courses, unlike their neighbors—the ancestral Apache and the Jano, Jocome, and other mobile groups who were hunter-gatherers, traders, and raiders.

While many archaeologists attribute environmental stresses to the decline of the prehistoric sedentary cultures in this area, it cannot be ignored that the historically recognized and ethnographically documented groups (Sobaipuri, ancestral Apache, and non-Athabaskan Canutillo complex mobile groups) become visible in the region at about this time. Whether these groups were migrants from other areas or reorganized descendants of extant groups is not yet resolved. What is clear is that all display an extremely unobtrusive archaeological footprint, requiring renewed conceptual indices of relative degrees of mobility.

Place Assessment in Circumstances of High Mobility

For mobile groups, the arrival at a residential location involves an appraisal of the character of place. This place selection is a daily activity or at minimum a seasonal activity depending upon degree of mobility. Place assessment and choice assume a different role in the decision-making process for mobile groups than they do for those that are more sedentary. Whereas sedentary groups establish a place, modify the space, organize within it, structure it, and build it, many mobile groups find an appropriate location and adjust their activities to the circumstance and setting. Thus, it is a “selection” of place rather than a “creation” of place that differentiates mobile

groups. This difference is fundamental for understanding the ways mobile groups use space and transform the properties of a place.

Archaeologists have tended to examine issues of place use (*sensu* Binford 1982; and also traditional cultural places) under the rubric of “occupational duration” and “site structure.” Such concepts are most appropriate for sedentary groups who occupy locations for long periods and structure or rigidly adapt space to suit their needs. In comparison, the concepts of “anticipated mobility” or expected duration of stay (see Kent 1991) and the “use of space” or “use of place” are more appropriate to hunter-gatherers and pastoralists who select a place with an emphasis on “distinctive characteristics,” rather than “making” a place. These distinctive characteristics are similar to what Zedeño (1997, 2000; Carroll et al. 2004), after Schiffer and Skibo (1997, p. 29) has referred to as the performance characteristics of a place for ritual activities, although my work suggests that these essentially same set of performance characteristics apply to mobile group sites in a more general way (Seymour 1995, 2002a), rather than to post-contact rituals. Such performance characteristics apply to the selection of places within the wider landscape setting and have been especially useful in understanding mobile groups in general and more specifically mobile groups who did not want not to be found (Seymour 1995, 2002a, b, 2003a, b; Seymour and Harlan 1996; Harlan and Seymour 1996).

A fundamental concept is that a place with distinctive performance characteristics is sought out, in contrast to the process of “making” a place. The place may be transformed through the activities performed there, but relatively speaking, less purposeful modification of the place occurs. When modification does occur it is consistent with the distribution of materials and character of the place itself. Houses are not constructed on a flat using materials carried from a distance, but instead are set amidst the rocks that ring the perimeter and are used to hold the superstructure in place. This means that they are often on slopes or in areas less conveniently accessed.

It may be argued that the concept of “site structure” objectifies the way people interface with the landscape. Consequently examination of the layout of mobile group behavior in space is most effectively studied as the “use of space.” Such uses may include one or more discrete activities that together form a task or a behavioral chain, the life history of a site or of a use area (see Schiffer 1999). Structure is imparted when behavior is repetitive and recurrent in nature and fixed in space (Binford 1982, p. 6). Thus, practice makes structure through repetition (Bourdieu 1977, 1990), though this is only one of the ways structure is conveyed. Many mobile-group sites do not exhibit such structure because the duration of use was short. Behavior that is not repeated in a location—either owing to the rarity of the task, the shortness of the stay, the collapsing of many activities in one location, or use of multiple distinct locations—will result in a lighter archaeological imprint. This faint trace is not predictable across contexts and in relation to other archaeological features because it is not determined by its relationship to other modifications to that space but by the character of the place itself. Thus, mobile groups “use” space as presented rather than imposing structure or organization upon it. The distinctive character of the place and its adherence to certain performance requirements are what motivate its selection and the distribution of use areas across the site. This concept has been fundamental in locating mobile group sites (see Seymour 1995) and to recognizing them as such when found (Seymour 2002a).

Yet, as noted by Kent (1991), the operative factor for many measurable aspects of mobile group site layout is the expectation of an extended stay, rather than the fact of staying. For this reason, one could have a pueblo made of coursed stone that was abandoned the day after it was constructed (because of the death of the owners or any number of factors), but the sturdiness of construction bespeaks the expectation for an extended stay. Differences in housing investment apparent at visitor encampments surrounding the Salinas and Galisteo Basin pueblos seem to be related to expected length of stay. The 35 clustered structure rings found at Tabirá (LA 51; Pueblo Blanco), for example, are more durable (with slab-lined sides, some of which are dug into the slope) than the single and paired vague structure rings found at Abó and Quarai. The number of dwelling outlines and historical mention of wintering over at certain pueblos (Gunnerson and Gunnerson 1971; Hammond and Rey 1940, pp. 261–262) suggest that these structures at Tabirá were more durable because the occupants were expecting to reside there throughout the winter and perhaps because they expected to return to the location repeatedly through the years. The less durable single and paired structures at Abó, Quarai, and elsewhere likely represent short-term forays from not-too-distant mountain settlements.

Kent's (1991) important work examined the role of "anticipated mobility" in relation to a number of measurable factors in ethnoarchaeological contexts including square meters of the site per person, site size, formal storage loci, prevalence of activity restricted areas (or monofunctional loci), investment in hut construction, hut diameter, and number of huts per site. All but one of these measures was most affected by anticipated mobility, even more so than actually duration of stay. The one area that did not correlate well was related to the monofunctionality of activity areas and corresponding facilities. As she noted "more research is needed to isolate and understand the variables influencing the number and different types of features located at various sites" (Kent 1991, p. 41). Subsequent studies have shown a relationship between feature diversity and longevity of settlement type (Kelly et al. 2005, p. 410), but only in a relative sense, for example, as when comparing villages versus foraging camps.

My studies suggest that the reason this single factor was so ambiguous was that the question itself was inappropriate for mobile groups and therefore the results were unclear. Because mobile groups have a unique approach to landscape use (in comparison to more sedentary people), the arrangement of space within encampments is particularly helpful in conveying expectations for intensity and duration of use. Expected duration is a fundamental concept, as noted by Kent, yet by focusing on features and facilities and the "making" of space, she was invoking assumptions regarding the "degree" of modification, rather than questioning the assumption of modification itself. Focus on the built environment is a concept most appropriate to sedentary adaptations. Its use for mobile groups beyond comparisons of structure durability (and the other measures she found relevant) obscures the fundamental differences in approach to landscape use and terrain selection.

By reframing the question it is possible to see that many practitioners of a highly mobile lifestyle tend to shift physically to a location that is suitable for a particular activity instead of "making" modifications to site space to suit a specific task or series of repeated tasks. Consequently, work areas are dispersed around a site, rather than being focused on a selected area where, through the addition of tasks, greater

numbers of features, facilities, and artifacts accumulate. Dwellings may or may not be situated near work areas because the location as presented, that is suitable for dwelling placement, may not have the appropriate performance characteristics for other activities.

Workstations and artifact clusters (chipping stations, anvil stones, groundstone, and hide-working stones) are positioned where suitable boulders, raw materials, or shade were found. This pattern is consistent for mobile group sites in general and is characteristic of such sites across the southern Southwest to the extent that associated work areas are often situated far from dwellings. Thus, it is not an issue of how many non-habitation facilities and features are present or are packed into a space, but rather why a particular space was selected for a particular task and how the space and the naturally occurring characteristics of it were used. The issue differentiates between building a place (sedentary) versus utilizing and improvising within the relevant characteristics of a place (mobile). The difference is apparent in the compactness, multi-functionality, and modifications required to make a formal space versus the adaptation and arrangement of human activities around the naturally occurring characteristics of the space.

Advantages of Structuring Space

Formalized organization may be preferable when extended use of the area is expected that would be sufficient in duration to warrant the investment. This is because formalization or partitioning of space assists in the ease with which tasks can be completed and the reliability and availability of space of a particular kind. One can leave tools adjacent to a hearth and be assured that they will be readily accessible for the next round of related activities. Thus, they lie in their designated place, in temporary storage, until that foreseeable task is commenced again. By organizing the space, tasks are made more efficient, easy, and predictable (Seymour 2009d).

This formalization of particular kinds of space reduces conflicts between competing tasks and between members of a cooperating unit (and between competing units). It imparts control over the activities occurring and who and how many may work there. A privatization of the work area is established (that itself has implications regarding social transformation) that is reinforced reflexively by its structure. The regularity in the layout of such areas reflects shared notions about roles and range of tasks, and incorporates experiences regarding the appropriate amounts and shapes of space and the necessary relationships between features and unmodified space. The outer extent of these zones may be demarcated. These boundaries are at once conceptual, symbolic, and behavioral.

The sedentary Sobaipuri (Seymour 2004a, b, 2007a, b, 2008d) establish a basis for comparison between these sedentary farmers and the contemporaneous mobile groups with respect to the way the built environment organized space and served as the focal point for activities. This group, whose distinctive pattern is visible between 1400 and the 1770s, is an interesting point of contrast because the material record of the Sobaipuri looks superficially flimsy, requiring little investment in labor, and so appears indicative of a transitory lifeway. There are low densities of nonperishable

material culture. Their domestic architecture seemingly consists of insubstantial superstructures of thin bent branches that formed a dome-shaped mud-covered hut. After centuries of exposure to the elements these dwellings look more like mobile group structures of rock ringed huts than substantial dwellings affiliated with irrigation farmers. However excavations reveal several key characteristics that indicate permanency. Evidence of intensive and long-term occupation or of repeated episodic return to the location is indicated by superimposed structures and use of recycled groundstone, cores, and fire-cracked rock in structure walls. Persistence of place is also reflected in the formalized and predictable arrangements of structures relative to one another, attention to and focus on the built environment, modification to the terrace surface itself, and the formal and routinized nature of work areas. The role of increasing formalization of space, consistent with the concept of a built environment, is made apparent in this example from the sedentary Sobaipuri. The way space is used and modified on Sobaipuri sites clearly expresses a sedentary pattern.

Effort was invested to modify the site space to create a unique place. Occupants moved large boulders to more favorable locations adjacent to their structures and removed cobbles from the terrace surface, placing them on the edge of the site and out of the way (Seymour 1990, 1993). Structures were formally arranged and though site layout changed in the late 1700s owing to a variety of factors (including the increased need for defense), the organization remained prescribed and predictable and is the most prominent aspect of the built environment. Structures were paired though time and seem to reflect (1) use of one as a general purpose structure with space set aside for certain inside activities and a work area outside and (2) use of a second feature-less structure (that was often smaller or oval shaped) perhaps used for storage (as Russell 1975 mentioned among the ethnographically documented Gila O'odham) that lacked the outdoor work area.

A fundamental difference between Sobaipuri use of space and that exhibited by neighboring mobile groups is that for the Sobaipuri many work areas were centered in and adjacent to structures. These intramural and extramural work areas are predictably situated with respect to the structure itself. Indoor work areas are arranged with regard to dwelling boundaries, with space of particular types usually occurring in the same general areas. These houses commonly have interior fire pits or ashy areas whereas mobile group structures in my sample rarely have these features because household activities focused elsewhere on the site (allowed by favorable climatic conditions). There is no doubt that throughout time dwellings were the focal point of key activities in Sobaipuri settlements. This is indicated by the formalization of intramural work areas that likely resulted from the redundancy of use and consistency of activities conducted in specific locations.

Changes are visible through time in the formality of space preparation on Sobaipuri sites that seem to reflect increasing occupational stability and density. Early structures from the 1400s and 1500s CE have intramural groundstone, flat rocks, and oxidized and ashy pits that indicate particular areas were used in specific ways but the space was not formally demarcated until later. On designated mission-related settlements (such as at San Cayetano del Tumacácori) occupation continued (and was expected to continue) in one location for many years. The result is that distinctive work areas inside structures were clearly demarcated and set aside by the

construction of partition walls and permanent facilities, such as rock rings and floor depressions to stabilize baskets or ceramic vessels (Seymour 2007a). At these latter sites, structures were often superimposed in a single location and rocks were robbed from earlier structures for rebuilding. Whereas at the earliest sites, instead of refurbishing existing structures, dwellings were abandoned and a new set established nearby.

Extramural work areas are positioned in relation to the formalized arrangement of structures, whether in parallel linear rows or clustered parallel rows. Some of the most important extramural work areas, those affiliated with the household, are directly associated with houses. These outdoor work areas are positioned with respect to the entryway, and also with regard to the positioning of the structure to take advantage of or avoid the sun and wind. These tend to occur within a prescribed distance from the structure and the outer limits of these areas are routinely demarcated by discarded fire-cracked rock and remnant ash dumps.

Settlement stability is also reflected in the positioning of communal outdoor work areas that are predictably placed with reference to other forms of modified space, such as structures. Communal work areas are positioned so that they fit in between, near, or beside the dominant structural array.

The Continuum of Occupational Duration: Case Studies

Many of these concepts related to the selection and making of space can be illustrated with contrastive examples of mobile groups relative to the sedentary Sobaipuri. Particular relevance to the issue of occupational duration or the concepts of anticipated mobility and place assessment is found in the examples from early Athapaskan and non-Athapaskan Canutillo-complex mobile groups. The complexity of these changing settlement dynamics can be traced through time and between these groups and so examples are contrasted between the prehistoric, early historic, and late historic periods. Although local examples illustrate the concepts, use of terrain characteristics to one's advantage is not restricted to this region or time. The basin-and-range province of the Sonoran and Chihuahuan deserts presents a highly varied landscape (valleys and jagged rocky mountains) that is not always present in other regions. While the same concepts apply to other regions without geologic contrasts, the connection between selection of a specific place and attributes of a place may not be as clear. For example, in southeastern New Mexico where the vast sandsheets and dunal formations present an ever-changing topographic medley, connections may be more difficult to make between specific terrain attributes and site placement or locus selection.

The most difficult task in understanding occupational duration relates to differentiating between dimensions of mobility and also gradients of sedentism. Little confusion arises when differentiating between extreme forms of mobility and sedentism; a construction built by a fully sedentary group in comparison to that of a highly mobile group is easily distinguished. Even a seasonal or temporary Puebloan field house is clearly distinct in scale from a hut ring occupied by a transitory hunter-gatherer or pastoralist. This distinction is quite apparent in the Salinas Pueblo area of east-central New Mexico where rectangular masonry foundations of small one- and

two-room structures (Puebloan) are juxtaposed against vague delineations of rocks that were pushed aside to form a circular or oblong boundary (mobile groups). Both dot the countryside surrounding the major late pueblos that received and hosted Colonial-period Spaniards and mobile groups. Instead, the problem is one of differentiating between relative degrees of mobility in a meaningful way when less substantial forms of construction materials were used. In this sense, this article is not about examining relative scales of sedentism but rather exploring portions of the continuum of residential mobility visible in the archaeological record. This treatment necessarily includes consideration of correlates of occupational duration, indices of occupational intensity, and signatures of these unobtrusive and enigmatic features and use areas that resist the concept of “built environment” and “making” of place.

In this section archaeological examples are offered that explore how the concept “persistent place” intersects with the notion of intervallid use. Repeated, episodic use represents another dimension of occupation variability that is easily confounded with duration and so must be distinguished conceptually and with regard to material and spatial correlates. Punctuated persistence does not imply incessant use as does the idea of persistent place, but instead takes into account circumstances where there is an (1) expectation to return for short periods over time or (2) expectation for seasonal use (3–6 months) on an annual basis. This is simple enough on the face but the actual persistence of a place and expectations regarding duration of stay are played out within a social landscape. For the Apache and their mobile ancestors the historic record clarifies that this element is especially germane with respect to both (1) their interaction with amiable groups who temporarily co-reside and (2) antagonistic relationships that compel certain terrain selection decisions. The characteristics of site layout and site use are examined that seem to be most telling regarding these differences.

Case 1: Highly Mobile Hunter-Gatherers

The first group examined here represents the highly mobile occupants associated with the Canutillo complex. These likely represent one or more of the non-Athapaskan groups referenced for the area by the Spaniards (most likely the Jano or Jcome) in southern Arizona (Seymour 2002a, 2004a, b, 2007a, 2008c, d). These non-Athapaskan mobile groups had a durable biface- and formal-tool oriented flaked-stone technology, small expedient groundstone, and small rock-ringed structures or clearings in a rocky surface, as have been recorded on sites from southern Arizona, southern New Mexico, and southwest Texas (Seymour 2002a, 2009a). Low-fired plainware pottery is sometimes found on their sites as are types that were clearly obtained from neighboring groups, such as the O’odham. Initially (1400s CE) they settled on hills and ridges near playas, rivers, and cienegas hunting, fishing, and gathering plant resources. By the mid-1600s CE many had adopted the lifeways of neighboring Athapaskan and Puebloan groups. By the 1700s they ceased to be mentioned as a distinct group in the historic record, although evidence of their presence is visible archaeologically until sometime in the late 1700s.

The Sharples Site (AZ DD:8:44 [ASM]), situated on a terrace above the Santa Cruz River near Tubac, Arizona, illustrates how these highly mobile groups used, and by inference conceptualized, the landscape differently than their more sedentary

counterparts. Unlike their Sobaipuri neighbors, houses and work areas are not formally arranged in a definable pattern. Relevant artifacts (especially chipping stations) and features, including nine small circular (1.25–2 m across) rock-ringed structures, most seemingly paired, are scattered in the naturally rocky areas across the site. The cobble-size rocks that define the outer perimeter of the structure were gathered from the rocky surface in the immediate area and arranged or pushed into place to form a single outline that presumably held the branches in place that served as the superstructure. Material culture overlaps spatially with the prehistoric section, where Canutillo-complex structures sometimes incorporate prehistoric structural debris and abandoned adobe walls into their own. The expedient incorporation of prehistoric structural debris and the accommodation of tasks to extant terrain conditions are important characteristics that are inferred to relate to the short duration of site use and broader mobile group notions about the expected duration of their stay.

None of these Canutillo-complex structures recorded to date throughout the geographic range of this complex have interior fire pits or ashy areas, and those at the Sharples Site are no exception. These lack interior features of any kind, other than large embedded boulders and cobbles that may have functioned as conveniently situated furniture. This contrasts with their contemporary sedentary equivalent where, as noted, thermal features and intentionally placed rocks and groundstone are routinely found in and associated with Sobaipuri structures. The difference likely relates in part to how these houses were used in each case. The insubstantial nature of these Canutillo-complex structures, their construction on the surface, and their round shape are consistent with cross-cultural ethnographic data regarding groups who are highly mobile (Binford 1990).

There are no outdoor work areas directly associated with the houses. Instead, work areas—indicated by chipping stations, anvil stones, expedient groundstone, and hide-working stones—are dispersed across the terrace, ostensibly where suitable boulders, raw materials, and shade were found. An abundance of late-occurring flaked-stone debris on a prehistoric adobe compound wall suggests that the linear adobe surface was specifically selected by the Canutillo complex occupants because it was raised and mostly devoid of rocks. Workers apparently moved to locations suitable for an activity rather than modifying an area to suit a specific task or series of repeated tasks. Such considerations seemed to include minor differences in elevation, variations in the rockiness of the surface, soil depth, presence of naturally occurring rocks that were suitable for furniture and facilities, and, undoubtedly, shade. This illustrates the premise that investment in modifying the area to create a unique place was not undertaken in conditions of limited duration occupancy.

The flimsy nature of dwelling construction indicates that occupation was of a relatively short duration. This duration was sufficiently long, however, that other features show evidence of more than one incidence of use. For example, there is evidence of repeated battering on different portions of the anvil stones and multiple material types reflected in the debitage scattered around these stones; and multiple, but still light, grinding facets on groundstone; cores exhibit multi-directional platforms and are in some cases spatially separated from their debitage. These suggest that for the length of stay, occupants returned to a specific feature to repeat basic activities or multiple actors had their turn.

There is also a replication of features here that could indicate repeated visitation or performance of the same activity at different times by the same individual or household unit. Yet there is also reason to infer that the redundancy relates to the number of household units at the camp at one time. Other than structures, the hide-working stones are the only feature type present that requires any effort at all to fabricate. A suitably flat stone had to be procured, the end flaked to roughen the edge, and the slab placed upright and anchored in the ground. The four occurrences of this feature type are consistent with the presence of multiple contemporaneous task units, especially since these are all positioned in clearings in the relative center of the mobile group encampment. The association of this particular type of task with basic household activities lends to this notion that multiple commensal units were present and that tasks were carried out in distinct work areas within view and earshot of one another.

Excavations around one of these hide-working stones produced unbroken fully functional hide working tools (bifacial Harahey knife and perforator). The presence of tools left at the work place is most characteristic of people who are on the move. This behavior is something Sahlins (1972, pp. 12–13) attributes to the absence of a sense of possession among some hunter-gatherers who:

display a notable tendency to be sloppy about their possessions. They have the kind of nonchalance that would be appropriate to a people who have mastered the problems of production. "They do not ...take care of their belongings," nor do they put them in order. They "place no value whatever on their utensils and...they have completely forgotten the effort it took to make them. Actually, no one clings to his few goods and chattels which, as it is, are often and easily lost, but just as easily replaced.

Such easily replaced tools are found across the Sharples Site, conceivably providing evidence of absence of storage-specific facilities and lack of storage associated with structures.

Thus, the locations of activity areas are spatially distinct but are positioned relative to natural characteristics of the terrain: anvil stones are large immovable boulders; boulders and cobbles of suitable shape, size, and coarseness were used in place for grinding; clearings in the rocky surface facilitated comfort in task performance and so hide-working stones were placed there. Locations devoid of brush and elevated to take advantage of views and breezes were preferred for tool production and maintenance. These features are not positioned in any specific relation to the dwellings, and artifacts do not cluster in or near structures. One reason for this seems to be that these especially small structures were not used for dwelling, per se, in the same sense as being used for general purpose structures where the full range of household tasks (storage, manufacture, sleeping, and cooking) were conducted in a confined space. Rather, they functioned for a more narrowly proscribed set of purposes, which have yet to be defined (sleeping, child restraint) (Seymour 2009a). Instead, features of a particular type were positioned relative to other features in the same class. Not all suitable boulders were used for grinding or as anvil stones but those that show evidence of grinding or pounding impacts are clustered in one sector of the site where such rocks occur in natural abundance. This pattern of widely dispersed dwellings and loosely clustered functionally specific

work areas seems to result from the parsing of activities between communal and household areas. This pattern also seems most consistent with the focus of the majority of residentially related activities in communal work areas where each participant had their own work station.

O'Connell and others (1991, p. 72) report that among the modern-day hunting-gathering Hadza, "more than 85% of these [daytime refuse producing] activities occur in communal activity areas, less than 15% in household areas." For the mobile occupants of the Sharples Site this preference for communal activity may be another important factor that accounts for the sparseness of material near dwellings and the discreteness of work areas throughout the site. The dispersed nature of the features relative to dwellings, and their clustering relative to one another, supports the notion that people sought locations that were inherently appropriate for specific activities. Yet since not all suitable boulders show evidence of use, some were selected over others. Thus, the clustering that is apparent was likely based upon preference, not for specific boulders, but for areas where boulders with particular properties clustered so that people would work together communally, perhaps in the shade or breeze.

Case 2: Mobile Athapaskan Raiders

A second group is represented by the seasonally transhumanant ancestral Chiricahua and Mescalero Apache or early Athapaskan occupants (Cerro Rojo complex; Seymour 2002a, 2004a, b). Four strategies are recognizable with regard to settlement choice and site layout that are temporally dependent. Changes through time seem to reflect dynamic social, economic, and political relations where landscape use, terrain selection, and site layout transformed when dealings changed with those residing in neighboring areas. Expectations for duration of stay were dependent upon the movements of retaliating enemies, trading opportunities, and raiding targets, as well as environmental resource availability. While site layout was dependent upon naturally occurring terrain characteristics, the inventory of relevant terrain features changed through time in an additive way, as did their weighted importance in place selection.

The earliest known encampments from the 1300s and 1400s CE are represented by small sites in foothill settings near springs or along major rivers. An example is provided by the Dragoon Mountain Site, which is among the earliest known ancestral Chiricahua sites. This small residential site is nestled in the oak and piñon forest on a south-facing slope in the foothills (Seymour 1995; Seymour and Harlan 1996). The core of the site consists of two structures (a lean-to and a rock-ring structure), two small roasting pits, a probable gaming feature, a grinding slick, and a surface scatter of artifacts (see Seymour 2002a, 2004a, 2009a; for definitions of structure types). The presence of only two structures suggests that this site is a small camp, perhaps occupied by two families or an extended family.

Chronometric dates and the way space is used within the site suggest this location was occupied relatively early. Chronometric dates suggest use in the 1400s and perhaps into the early 1500s CE. Several characteristics of this site suggest that occupants had the expectation for a long-term stay or repeated use. Among the most definitive indices are the presence of storage features, reuse of thermal features, evidence of leisure and the pursuit of non-subsistence tasks, a relatively high density

and diversity of artifacts for this type of site, and a relatively high diversity of features.

The inference of repeated episodic use of this location is supported by the presence of two roasting pits situated between the structures. The contents of these roasting pits have been to some extent spread across the surface. This characteristic is typical of roasting pits that have been used, cleaned out, and reused again. The lack of mounding suggests that while these features were reused, they were not used in the cooking of large plants or animals the way the large burned rock middens or mounded ring middens were. It is expected that, as is typical of roasting pits, dates derived from the fill will potentially span the entire sequence of uses, perhaps several decades or more. Several additional roasting pits of similar size and morphology are present on the slopes nearby, also suggesting a succession of short-term uses, that is, if they are contemporaneous.

Evidence for storage conveys the intent to return and the presence of two small caches attests to the repeated use of this location. One cache located on an adjacent ridge finger, still contains two one-hand manos. These manos are in a small cairn-like feature, enclosed by indistinct rocks situated in a crevice between boulders. The second probable cache (or potentially a post support) is located in the “wall” of the lean-to but the contents have been removed.

Evidence of leisure may also be an indication of longer-term use of the site. A possible gaming feature is present at the south end of the core area that is similar to a known features in the Santa Cruz Valley (at AZ EE:5:24, ASM; Seymour 1993), on the Llano Estacado at LA 109599, and to ethnographically documented features used in the stick game among the White Mountain Apache (see photograph in Ferg 1988, p. 157).

The diversity of the assemblage in the core area of this site and its large size relative to many other small Chiricahua Apachean sites suggest that the encampment was occupied repeatedly over several years. Through time more durable artifacts and items of greater value eventually enter the archaeological record, contributing to a more diverse assemblage, more complete tool kits, and consistent associations of artifacts with use areas and features (also see Schiffer 1987, 1999; Seymour 2002a, 2009c). Thus while the duration of any one visit was relatively short (possibly 3–6 months), repeated episodic use presents a material signature that mimics that of the longer duration use characteristic of a more persistent place.

The affect of this punctuated persistence is subtle but informative with regard to increasing scales of duration. In comparison, the more northern Athapaskan groups (such as the Western Apache, Jicarilla Apache, and Navajo) had a relatively more sedentary lifeway. Or, to rephrase this, the northern Athapaskan groups occupied locations for longer durations and the persistence of reuse of a place often had greater time depth than their southern neighbors. These differences in tempo of reuse, the protracted attraction to the place, and length of use during each visit often result in greater accumulations of materials (50 to hundreds of items) and more indelible feature footprints. Many small Chiricahua Apachean sites have no artifacts or only one owing to the lack of reuse or persistence, making this Dragoon Mountain Site assemblage comparatively dense. Consisting of only 18 items the assemblage contains a wide range of implements that would be expected for accomplishing household chores. This diverse assemblage also suggests that a range of processing

tasks was undertaken here, including plant processing and perhaps hide working. A scraper, a pounder or crude pestle, a grinding slick, and several other tools and an assortment of expediently produced debris are present on the main portion of the site, along with quartz crystals and raw magnetite chunks. The area is unusually rich in the diversity of edible and useable plant species, and nearby springs (a half mile or so away; .80 km) could be easily accessed without giving away the location of the camp.

The presence of these artifacts near the structures, the completeness of the assemblage relative to the projected household assemblage, the range of tools present, the absence of metal, and the nature of the artifacts themselves all point to an early occupation. Later assemblages at camps tend to be smaller, with lower diversity, and are often situated at some distance from the habitation area. The smaller and less diverse nature of later assemblages relates in part to the use of Euro-American materials for tools that were more durable and valuable and hence were kept longer and taken from site to site. Maintenance of such tools leaves no or less debris, decreasing total artifact frequencies in comparison to counts that include flaked-stone resharpening debitage. Also, shorter use periods dictated by pressure from pursuit meant that less waste was generated. Except for circumstances of a surprise attack (where tools might have been inadvertently abandoned) shorter stays meant that fewer tools and debris would enter the archaeological record (Schiffer 1987, p. 94).

Later in time, with the pressure of military pursuit, work areas were often positioned in areas with a direct line of sight to a sentinel that might be stationed on a distant peak, whereas structures were tucked behind vegetation or landforms to disguise their presence, as at Long Canyon (see below). Artifacts near dwellings at the Dragoon Mountain Site indicate that the Athapaskan occupants had not yet adopted the siege frame of mind that is so typical of their later adaptation. Nonetheless the site is situated in rocky terrain, amidst dense high vegetation, and adjacent to deep erosion channels that would have provided cover and resistance to surprise. Placement of the site in a round valley, situated behind a low topographic rise, further shielded it from notice and provided ample routes for escape.

Another perhaps unconventional indication of the relative temporal placement of the Dragoon Mountain site is provided by the presence of the roasting pits within a meter or so of the structures. This is unusual for raiders because the smoke would easily give away the location of the encampment. Later in time when military pressure was intense, thermal features tend to occur only on remotely situated sites or they were carefully placed off site so as not to attract attention to occupants.

By the 1600s and 1700s CE, and perhaps earlier, a second strategy in site layout and place selection reflected increased enemy military pressure. This resulted in a shift toward high and rugged elevations among convoluted canyons for larger settlements, as is exemplified by the setting of the 300-feature 130-acre Cerro Rojo Site in the Hueco Mountains of southern New Mexico (Seymour 2002a, 2004a). Large settlements were sometimes situated in lower settings if sufficiently remote areas could be found. This pattern is reflected in the large habitation sites in the Whitlock (AZ CC:7:11, BLM) and Peloncillo (AZ CC:12:58, ASM) mountains of southern Arizona and Alamo and the Hatchet mountains in southern New Mexico

that were in the “wilderness,” beyond the often-traveled paths and campaign routes of the Europeans. Remoteness was evaluated on the basis of places the Spaniards were known to, or were likely to, have gone versus areas beyond their reach, that were considered by the Europeans to be too out-of-the-way or inaccessible. Throughout this period, hunting and gathering were important subsistence practices but with time trading and raiding increased in importance. As the presence of other groups increased in adjacent areas, raiding increased in magnitude because access to hunting-and-gathering areas was restricted and because it was simply easier to take from concentrated resource patches (Spanish settlements and supply trains) than it was to procure and manufacture items from the environment. Thus as raiding escalated the intensity of retaliation followed.

The Cerro Rojo Site (FB 9609) is a residential site that exhibits multi-group coalescence and cooperation in a high elevation setting dating between the 1400s and 1800s CE, with its most extensive use seemingly in the 1700s. The remoteness of the location provided security from unexpected intrusion allowing a wide range of activities to occur and a freedom of expression. This punctuatedly persistent place is marked by distinctive landmarks that drew people of diverse backgrounds from distant regions together for a short duration. The Cerro Rojo Site is an example of serial but intermittent aggregation at a predetermined location that was used for regrouping following surprise attacks or for important political or ceremonial gatherings of bands that were otherwise usually dispersed. Such favored locations were revisited for certain types of gatherings that involved large groups of people. These specific places of refuge were interchangeable with multiple alternatives available, accounting for the serialized nature of their use. If one such locale was discovered by the enemy another was available for use. If the enemy was nearby or if resources were particularly abundant in another range a different high-elevation gathering place was selected. The use of multiple alternative locations of similar effectiveness created and resulted from a flexibility required by the circumstances. The redundancy of functional equivalent site types in different mountain ranges stems from the pressure imposed by competing and contentious groups.

Episodic use of this site is reflected in the density of the accumulated assemblage. That it was used for short periods is indicated by an abundance of primary refuse, including in situ potbreaks and flaked-stone debris, which was left where it was used because of the expectation of a limited stay (Seymour 2002a). However, with time and repeated visits substantial amounts of debris accumulated forming a relatively dense and diverse artifact scatter that mimics sedentary village patterns. The absence of middens and the failure to remove even hazardous and unusable debris from household areas provides hints of the difference in perception of refuse disposal that comes from short-term occupation: the Mescalero Apache view was that when a site became soiled or unpleasant they simply moved on to a new location (Sonnichsen 1986, p. 17).

Though occupation during any one visit at the Cerro Rojo Site was of limited duration there was an expectation for repeated visits over the years. Consequently, modifications were made to the place so that it more effectively preformed its function as a defensive and defended place. This is reflected in the presence of numerous formally prepared defensive features (defensive walls and ramparts) of

stacked boulders and cobbles, in the construction of special-use structures at the summits of the highest peaks, of functionally distinct structures located side-by-side, and of windbreaks constructed in rockshelters.

The expectation for an extended stay is also reflected in the structured layout of house rings on the site. Rather than house rings being distributed willy-nilly across the landform the segmented village pattern seems to convey information about the number of distinct bands or local groups that came together for these ceremonies, planning events, or to escape pursuit (Seymour 2002a, 2004a, 2008a). Spatial separation between clusters often reflects social distinctions between co-habiting groups (Chang 1967, 1968; Hillier and Hanson 1984; Steward 1937, 1955). Rather than the expectation for an extended stay the orderly arrangement to these structures and their sometimes substantial nature reflects the expectation for unplanned visits that happen to coincide with inclement weather (at this high elevation) and anticipation of recurring visits through a number of years for predictable reasons. The redundancy of feature types, of functionally specific work areas, and of tool forms indicates that different groups likely inhabited the site at the same time, during one of the historically referenced gatherings (Seymour 2002a, 2004a, 2008a). Reuse by the same groups through time tends to result in reoccupation of the same features, rather than the construction of new ones, consistent with their ethos of thrift, expediency, pragmatism, and convenience. Moreover, throughout this region reoccupation by later mobile groups is often seen in the reuse and modification of existing features on and immediately adjacent to previous ones rather than the establishment of entirely new site sectors (Seymour 2009c).

Another materialization of the mobile-group landscape-use strategy is evident in the late 1700s and 1800s CE. As noted, the relative importance of and therefore weight given to certain attributes in place selection varied through time. These changes reflect the prevailing political circumstances related to their raiding activity, power imbalances between competing groups, and relative placement of enemy settlements, presidios, and travel corridors. With an increase in raiding and retaliation, threat of foreign military pursuit became a customary factor in selection of encampment location. As raiding increased encampment choice was determined more by factors of (1) access to supply routes and centers and (2) safety and security and the ability to escape unharmed and regroup, than by any others. Thus, the most prevalent characteristics effecting settlement choice in this third mobile strategy were terrain characteristics that translated to safety. These included rugged mountains with expansive views, convoluted canyons with multiple escape routes, recesses and secluded valleys for hiding dwellings, and prominent locations for regrouping after a surprise attack. Selection of landscape and terrain features is in close accord with safety considerations whereas less of a concordance is apparent in intra-site attributes that lend to convenience of household activities. Convenience of suitable workspaces on the site took a secondary role that is likely reflected in the greater distance (and inconvenience) between workstations and dwellings.

Not only were sites in remote and rugged areas with escape routes but also in the 1700s and 1800s CE an important characteristic of the landscape became the need for an unobstructed line-of-sight and clear overview of the surrounding area. When line-of-sight was added as a distinctive security characteristic it represented an additional requirement to be considered when selecting a place. Some previously

heavily weighted requirements diminished in value, such as proximity to springs; in fact, sites tended to be situated further away from springs during this period so as not to be inadvertently surprised by enemies. Pasturage was also further from camps so that the horses did not lead pursuers directly to a camp, but instead decoyed them to a distant location, allowing sentinels to warn people so they could disperse well in advance of the incursion.

One consequence of this was an expansion of dimensions of the site area used by the group. Using the natural characteristics of the landscape the settlement had (1) to encompass an area to hide the dwellings from visibility at a long distance and (2) to possess the necessary materials so that tools could be made and resources processed, while at the same time (3) it had to accommodate work areas (4) from which people could maintaining line-of-sight with a sentinel. The sentinel maintained a long-distance and expansive view of the surrounding terrain and access routes to the camp that ensured the protection of its occupants. Selection of convenient work areas took a secondary role to the need to maintain line-of-sight and so in many instance these work areas were located at a considerable distance (100–200 m) from dwellings.

A site in Long Canyon (FB 170290 (LA 139028; Long Canyon Tipi Ring Site) in the Organ Mountains of New Mexico provides an example of the separation of work and habitation areas under expectation of imminent attack. The work area is situated on a knoll 200 m east of the dwellings (Seymour 2002a). At this late time these dwellings were tipis or skin tents which would have been highly visible from a distance owing to their size, shape, and monochromatic material used. This knoll was within direct line-of-sight with a lookout location in the saddle about 1 mile to the north. Early warning of an approaching enemy would have allowed escape down one of the many side canyons or into the craggy rock-studded mountains.

Under siege their expectation was for a shorter duration stay with a resulting lack of investment in feature and place construction. This response was opposite that chosen in many other ethnographic circumstances where places are fortified to withstand an assault, such as at the Cerro Rojo Site. The Apachean proclivity to flee in many circumstances rather than stand ground, proved to be a quite viable response. With this came a sense that all would be lost when an unanticipated attack prompted an instantaneous move. As a consequence, there is a lack of attachment to and investment in material goods, which likely accounts for the sparseness and thrifty nature of their assemblage.

Clearly, the use of the landscape for intermittently mobile people and for people under siege differed from that of settled and peaceful people. The protohistoric and early historic periods were times of strife and stress not only because of the intrusion of the Europeans but also because of hostilities and divisions between “indigenous” groups. This resulted in distinctive ways in which the landscape and specified places were used. Even the earliest documentary records from the area mention how fires were constructed away from sleeping areas, encampments were placed away from springs and known access routes, and sham camps were constructed. Fires were sometimes built away from the location of use (and away from dwellings) to draw aggressors to the wrong location, allowing people time to escape a surprise attack. Houses were built while families slept on the open ground at some distance away surrounded by brambles. Trenches were excavated and covered with brush while warriors lay within them for the night expecting to ambush nighttime aggressors

drawn toward fire-lit structures separated from where families slept in safety. Small clusters of structures were distributed across the rocky slopes so that in case of an attack some members of the group would be allowed time to escape (Seymour 2002a; also see Ayer 1965, pp. 12–13; Ball 1970, pp. 17, 26, 74; Betinez and Nye 1959, p. 131; Hodge 1990, p. 84; Russell 1975).

Although some modern Western Apache attribute low artifact densities to ancestors picking up after themselves, much of the absence of artifacts at these Apache-War-period sites is accounted for by the separation of refuse-producing work areas from dwelling areas. Moreover, as was mentioned previously, the use of more durable reusable materials meant that less maintenance debris was produced, artifacts retained value after use and therefore were transported from location to location, and easily portable tools were safeguarded from loss. Increased mobility, owing to enemy pressure, also contributed to the less frequent discard or loss of materials in any one location although it probably increased loss while in transit and on sites that had been ambushed. Overall, accumulation of property was not beneficial because it tended to burden stealthy escape and render their presence more visible and traceable during and after occupation. The fainter residues and traces left near dwellings and work areas reflect the lack of investment that is characteristic of high mobility in a variety of worldwide ethnographic circumstances.

The final example relating to place selection and duration of stay to be discussed here occurred in the late 1800s, as reservations were set aside and distinctions were made between subdued and rebellious natives. For those considered converted and manageable—who were within the political and economic control of the missionaries and Indian agents—settlements tended to focus on accessible riverside settings. Clearly, exposure was no longer a liability, at least not within the safety of the reservation. Although groups of renegade Apache still raided north from Mexico until the 1930s (Meed 1993; Walley et al. 2005), most previously free-ranging Apache were transported to Florida or confined to reservations (Sonnichsen 1986).

The converted Apache of the late nineteenth century who acquiesced to reservation life established a more sedentary lifestyle that included farming and ranching as well as acceptance of rations. Within (or near) the protective boundaries of the Mescalero Reservation, they were isolated in a range (Sacramento Mountains) that was not of much interest to Whites or Hispanic residents of the surrounding valleys. The freedom of movement within these reservation boundaries, the removal of threat from hostile incursions, and acquiescence by local non-native ranchers were reflected in the choice of settlement locations and in the arrangement of space.

Rock rings outlining the former locations of tipis are strung along low-lying watercourses and are situated adjacent to travel routes (wagon roads and trails) to and from the more central settlements where supplies could be obtained and church could be attended. Single structures and linear arrangements of up to 10 dwellings utilize flat parcels of convenience, oriented to take advantage of morning sunlight and natural terrain features and situated near arable land. Some artifacts are situated in and adjacent to dwellings indicating some tasks were conducted here, attesting to the diminished need for attentiveness to safety and to the increased duration and continued persistence of occupation. Denser clusters of artifacts suggestive of communal work areas are situated near roasting pits, on and adjacent to natural features with readily available raw materials (knolls, ridge margins, cobble

outcrops), and in areas of historic glass and metal concentrations left from previously abandoned historic Anglo and Hispanic ranches and homesteads.

The availability of canvas and bailing wire for dwelling construction also meant that tipis replaced brush structures as the dominant dwelling type. Tipis require relatively level surfaces in order to ensure that they do not blow over, in comparison to the traditional domed brush structures (wickiup) that were nestled in rocky areas, their flat surfaces leveled into an otherwise sloped ridge or cliff face. Thus, the freedom from incursion allowed for new and more visible (white versus the natural camouflage of brush) forms of dwellings to be adopted that were situated in accessible and flat locations. Whereas brush structures were reconstructed using new materials each time a dwelling was established, tipi coverings were reusable and therefore retained value. Without the burden of military pursuit, canvas could be transported to new locations by horse and later in wagons and trucks along with more durable tools and containers. Although flaked-stone tools were retained that are reminiscent of many of the previously used tool forms, a new more durable technology became commonplace that involved the modification of Euro-American materials (glass and metal) and items (cans, barrel straps, buckets, baling wire, pieces of cast iron pans and fence staples and wire) into tools and containers suited to native uses. These items were not lost and destroyed during surprise attacks and so could be retained, or more importantly, there was an expectation that they would be retained. Because of this expectation, the increased durability of glass and metal, and the increased challenge and cost to replace technology that was made using these desired materials, they were retained for multiple episodes of use. Thus, accompanying the changes of settlement location were the beginnings of a commensurate set of changes in conceptions regarding property ownership and consumption.

Discussion

This article has addressed duration of occupation and its material expressions from a spatial perspective. In all of the examples provided there is a redundancy in site use—all are habitation sites—yet the duration of short-term use falls along a continuum and the dataset presented illustrates many different manifestations. These differing degrees of occupational duration are difficult to quantify because site layouts do not follow a predictable pattern. This is because mobile group site layout is not based on preexisting cultural conceptions of a properly structured settlement, but is determined on the basis of the natural characteristics of the terrain presented at any one location. Points along a scale of occupational duration can however be distinguished archaeologically and the behavioral bases for these differences can be ascertained with the aid of ethnohistoric and ethnographic sources. Degrees of impermanence and intransience can be distinguished in archaeological contexts based upon the characteristics of a place selected, the way space is used, and the degree of modification and structure imposed. Many other factors influence the formality of place-making behavior (including intensity of use and repeated intermittent occupation), but longevity of expected stay is among the most important. Because certain aspects of spatial patterning reflect degree of mobility, spatial patterning may be a more sensitive indication of transformation under

conditions of rapid change than accumulation measures and technological organization indices, because as degree of mobility changes people may continue to adhere to passé subsistence practices or retain outdated technologies. Space use as an index of mobility is important because the relationship with a place and the interaction with space change in fundamental ways when people impose order to organize and routinize their lives as they settle down.

The archaeological record indicates that mobile groups used space within an encampment in very different ways than their more sedentary neighbors. Because of this, the spatial relationship between structures and associated artifact scatters on sites provides an important link to recognition and assessment of degree of mobility. Because highly mobile groups do not build their setting (other than the construction of rudimentary shelters) or make a place, the naturally occurring characteristics of the landscape become all the more important. The natural attributes of distinctive places and suitable spaces must accommodate certain requirements, which sometimes necessitate the use of a much larger portion of the landscape as a site. The pursuit of suitable places entails use of a large region that can accommodate multiple localities that possess appropriate attributes. Consequently, depending upon the most important characteristics sought, expanses between work areas of different types or work areas and dwellings involved in the same occupational event may vary considerably between residential sites. Understanding of this fundamental difference between mobile and sedentary groups presents interesting possibilities for cross-cultural comparative studies that address higher-level issues of adaptive use of the landscape and the intersection of agency and determinants of the terrain in encampment selection.

The construction of a built environment and the formalization of space represent a different interface and interaction with place than is experienced by people whose activities are largely accommodated by the natural features of the landscape. The reconfiguration and enhancement of a place is accomplished by imposing oneself on and exerting control over the place. Patterns discernable in place-making behavior convey continuity of notions regarding appropriateness and suitability of modifications, the range of tasks expected, the roles and requirements of people performing them, and the predictability of productivity relative to place. The persistence of the pattern attests to the longevity of the practice and the entrenched nature of notions regarding the way interaction with the surrounding world is improved and controlled. To the degree possible, nature and place are to be acted and imposed upon rather than a people being acted and imposed upon by nature.

For the current study, examples were intentionally selected from the same general region, thereby controlling some of the important variables that effect space use. The ethnohistoric and ethnographic records provide invaluable hints as to some of the processes behind noted changes. This ability to hold certain variables constant and to understand the specific historical factors operating to create change is important in constructing higher-level inferences. The validity of the observations should not be seen as being limited to this area, however, as the findings have a broader relevance.

The wider applicability of these concepts can be appreciated when comparative information is enlisted from groups elsewhere in the world. Because most studies focus on the “structure” of site space and on description of the scale and degree of modified space, features, and facilities, many of the relevant landscape attributes are

often not purposively recorded ethnoarchaeologically or archaeologically. Yet, a brief consideration of the context of a couple of these data sources makes it possible to assess a few of the reasons why ethnoarchaeological studies carried out among modern-day hunter-gatherers frequently produce quite variable results regarding space use, including the distribution of and distance between areas in camp (see for example O'Connell et al. 1991, pp. 72–73). The differences among modern-day hunter-gatherers found in the literature can sometimes be accounted for by the specific circumstances confronting the groups studied including climatic conditions, stability of subsistence base, access to a wider economy, and inter-group contact.

These historically calibrated archaeological examples from a single region are useful for theory building because extreme environmental conditions affect the way the landscape is used and also the way space within a shelter is modified. The Nunamiut (Binford 1983) are hunter-gatherers but during winter weather they are stationary for many months. Being confined to enclosed spaces the intensity of use increases resulting in the formalization of intramural space. Places are modified to endure the extreme weather and structured outdoor areas are close to dwellings to minimize exposure. Similar patterns of intensive and formalized space use can be seen among some tipi-using Plains groups (Cree, Sioux, Crow, Arapaho) who were mobile but because of extreme environmental conditions in the winter conducted many activities indoors. This practice intensified the regularity of activities focused in a confined space and resulted in structured space. The permanence of the structure itself probably also contributed to the formalization of use areas inside the tipi because the structure itself remained the same, and the hides and poles that formed personalized and heritable space were transported from place to place.

The Southwestern groups discussed in this paper were exposed to varying degrees of inter-group contact and conflict as conveyed in the ethnohistoric record. Some of the changes in space use and selection can be traced to these contacts and represent a departure from earlier patterns of space use and place selection. In the same way, information contained in O'Connell and others (1991) and my own observations during a recent visit indicate that the Hadza of northern Tanzania exhibit a combination of traits that reflect use of landscape characteristics in an expedient manner, as with highly mobile groups, and formalization of household areas, as occurs under conditions where the expectation is for a longer-term stay. The combination of these characteristics is telling with regard to the transformation this group is undergoing. This state of transition is charted by the maintenance of practices indicative of both high mobility and semi-stationary patterns. So while specific areas for encampments are selected because of distinctive performance characteristics indicative of mobile groups (shade, water, brush, rocky areas providing safety from elephants, rock outcrops used for grinding, tress and brush for storage and shelter) there is an expectation for longevity of occupation and an ensuing making of place. This expectation arises because of the stable subsistence base, which is assured by the proximity of camps to agricultural fields that attract monkeys to be hunted and that provide seasonal wage labor. Closeness to roads and villages provide contact with tourists. With currency obtained in the tourist trade certain Hadza groups are able to participate in the market economy, providing access to stores of corn in periods of food shortage. The shrinkage of territory (through encroachment of neighboring groups, government resettlement policies, and removal

of key hunting areas into national parks) also contribute to increased stability of settlement locations. On the other hand, adherence to certain aspects of their subsistence strategy and settlement style allow them to remain attractive to tourists, which means a persistence of the use of space and selection of place that are in some ways consistent with those of more mobile groups. Thus, Hadza camps use distinctive features of the landscape (consistent with other mobile groups) that are juxtaposed with a partially built environment because of the transformations they are undergoing as a consequence of inter-societal contact that lead to a persistence of place.

Archaeological and historical archaeological perspectives provide insights derived from a time depth not available to modern day hunter-gatherer studies. Such a *longue durée* viewpoint suggests that, all things being equal, selection of place for its distinctive performance characteristics is especially relevant to highly mobile groups and that this reduces the need to modify and actively organize space. The action-oriented choices occur up front during the place selection process. Factors introduced into the equation (including inter-group contact and extreme environmental conditions) effect space use and configuration in definable ways because they influence the intensity of short-duration occupation, lead to repeated short-term occupation of the same location on many different occasions, require allocation of a circumscribed landscape to many different and sometimes competing groups, and effect the reliability of the subsistence base. The combination and number of factors active in the transformation of a group provides the basis for additional investigations of space use. It is clear, however, that as people change their relationship to one another (as individuals in relationships and as one group to another), change is visible in their relationship with the landscape. This is demarcated in the placement of features that control access to intramural and intra-area space, the preparation and reservation of personalized and group space, and in the preconceived notions of one's relationship with the land and with others as reflected in the degree and rigidity of planning.

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