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REFINING THE ROLE OF *CERROS DE TRINCHERAS*
IN SOUTHERN ARIZONA SETTLEMENT

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ABSTRACT

Cerros de trincheras in northern Sonora and southern Arizona have traditionally been interpreted as short-term, defensive refuges. This paper reviews recent evidence concerning the functions of such sites by focusing on survey, mapping, and excavation results gained over the past 12 years at several Tucson Basin *cerros de trincheras*. This evidence suggests that the Tucson Basin sites, and probably other *cerros de trincheras* as well, were not used as emergency defensive retreats. They instead were used for a variety of activities during the Hohokam early Classic period. The largest and most complex sites apparently were habitation villages, supporting hillside and hill summit pit houses and masonry rooms, large and small stone terraces, and massive, walled compounds. Artifacts and other evidence indicate that some of the terraces apparently were used for cultivation, and that the compounds may have accommodated ceremonies. Symbolic aspects of *cerros de trincheras*, particularly the highly visible terraces and compounds, are discussed. It is proposed that *cerros de trincheras* of southern Arizona were an important part of widespread organizational and ideological changes that took place during the early Classic period.

RESUMEN

Tradicionalmente los *cerros de trincheras* del norte de Sonora y sur de Arizona han sido interpretados como refugios defensivos de corto plazo. Este trabajo revisa recientes evidencias en relación a la función de estos sitios con base en reconocimientos de superficie, mapeos, y los resultados obtenidos de excavaciones realizadas en varios *cerros de trincheras* del Valle de Tucson en los últimos 12 años. Estas evidencias sugieren que los sitios en el Valle de Tucson así como probablemente otros *cerros de trincheras*, no fueron refugios defensivos ocasionales. En lugar de ello estos sitios fueron utilizados para una gran variedad de actividades durante el período Clásico temprano Hohokam. Aparentemente los sitios mas grandes y complejos fueron villas habitacionales, que soportaban en las laderas y la cima del cerro, casas en pozos y cuartos de mampostería, terrazas de piedra, y voluminosos complejos amurallados. Tanto los materiales arqueológicos así como otras evidencias parecen indicar que

algunas de las terrazas fueron usadas para cultivar, y que los complejos amurallados pudieron haber dado cabida a ceremonias. Se discuten también los aspectos simbólicos de los cerros de trincheras, en particular de las terrazas y los complejos amurallados visibles a distancia. Se propone que los cerros de trincheras del sur de Arizona tuvieron un importante papel en los cambios organizacionales e ideológicos que se esparcieron por toda la región, durante el Clásico temprano.

The term *cerros de trincheras* is applied to sites with dry-laid stone terraces on hills or low mountain peaks in the desert basins of Sonora and southern Arizona (Figure 1) (Sauer and Brand 1931; Fontana and others 1959; Stacy 1974). Location is almost always on dark volcanic hills. Terraces are typically the dominant feature among a variety of walls, structures, and other features that may be present. Individual sites exhibit wide variability in the types, abundance, and arrangement of these stone features.

The word *trincheras* is translated into a number of English terms, including entrenchments, trenches, stockades, or fences (Sauer and Brand 1931:67; Hoover 1941:228; Stacy 1974:20). Traditionally, the non-restrictive morphological criteria and lack of association with a specific archaeological culture have led some to apply the term *trincheras* as far afield as currently farmed terraces at Hopi in northern Arizona (Hack 1942:37) and massive, masonry check dams in the Sierra Madre of the Casas Grandes region in Chihuahua (Howard and Griffiths 1966). The term *trincheras* currently has two separate referents in Sonoran archaeology. *Cerros de trincheras* are defined by the stone terraces and hill locations just cited and most are considered to date after A.D. 1100. A *Trincheras* ceramic complex, including both plain and painted wares, is found over an area of north-central Sonora that only partially overlaps with the distribution of *cerros de trincheras* sites (Johnson 1960, 1963; Braniff 1990:176).

In this paper we propose the following definitions for the terms *cerros de trincheras* and *trincheras*. Following other authors (for example, Sauer and Brand 1931; Hoover 1941; McGuire and others 1993), we define *cerros de trincheras* as terraced, late prehistoric hillside and hill summit sites in northern Sonora and southern Arizona. The term *trincheras* refers more broadly to the individual, dry-laid masonry constructions (terraces, horizontal and vertical walls, trails, enclosures, structures, and so forth) that occur on volcanic hillsides in northern Sonora and southern Arizona. These definitions have two important implications. First, most *trincheras* features occur on true *cerros de trincheras* sites, and most *trincheras* apparently date to the late prehistoric period. However, it must be acknowledged that some *trincheras*-style hillside rock constructions may date as early as the late Archaic period (P. Fish and others 1986), and some rock constructions may have been utilized in the protohistoric or even historic periods. Second, some sites that are not considered true *cerros de trincheras* (that is, do not have terraces) nonetheless have *trincheras*-style masonry features such as walls and structures.

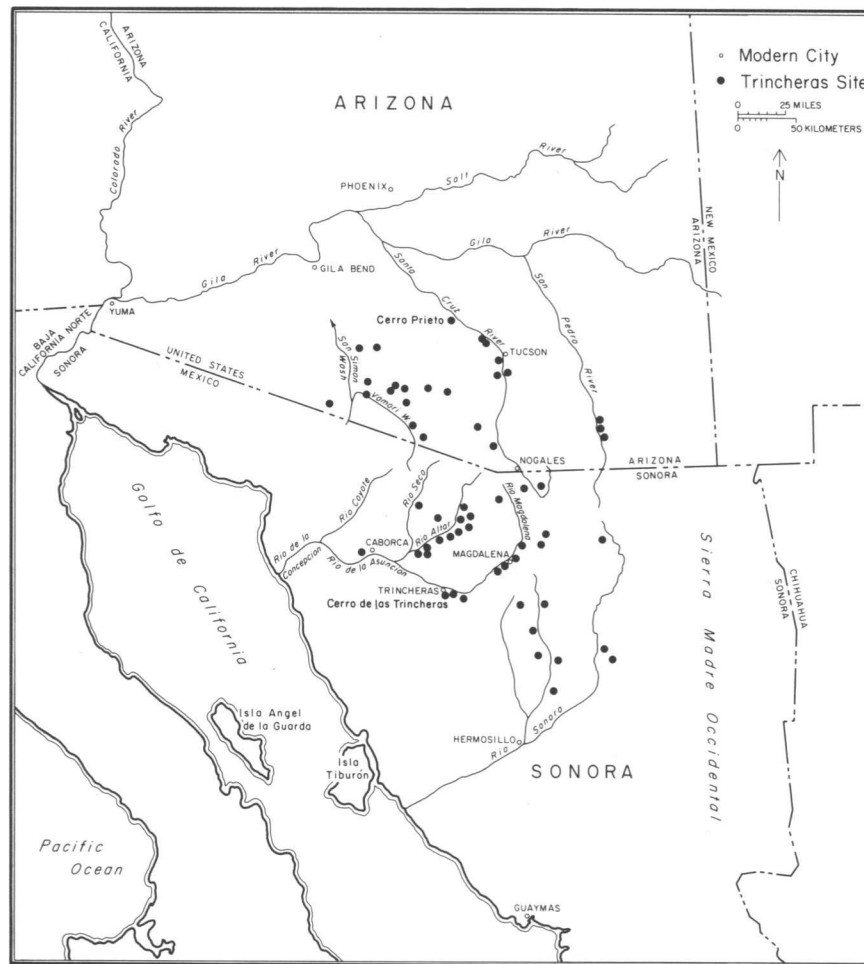


Figure 1. Distribution of cerros de trincheras in Sonora and Arizona.

The distribution of cerros de trincheras is continuous north from central Sonora into southern Arizona. Clearly the most massive walls, formal construction, and labor investment occur in Sonora. Sonoran sites also display the greatest range in size and complexity of constructions and have the greatest variety of feature types. Arizona sites with trincheras-style masonry constructions have been reported from the Salt River Valley (Schroeder 1940), along the Agua Fria and New Rivers (Spoerl and Gumerman 1984), and even as far north as the highlands of north-central Arizona (Fewkes 1912). However, sites in these areas generally lack the terraces that characterize Sonoran cerros de trincheras. The emphasis on terraces is still expressed at prehistoric

hillside sites in the vicinity of Tucson and to the west (Stacy 1974), though the relative number of terraces seems to decline with distance north. Cerros de trincheras, with the characteristic terrace constructions, also infrequently occur to the east in southern New Mexico (Stephen Lekson, Crow Canyon Archaeological Center, personal communication 1992) and northern Chihuahua (Gerald 1990).

By far the most pervasive interpretation for cerros de trincheras has been as defensible refuges. The term trincheras, and its associated defensive implications, originated with instances of reported use of these or other hills as refuges by local indigenous groups when attacked in post-contact times (Sauer and Brand 1931:69-70; Fontana and others 1959:48-49; Wilcox 1979:15-16; Gerald 1990:61-62). Other functional interpretations proposed over the years for trincheras features include use as habitations (Huntington 1914; Sauer and Brand 1931:118-119; Fraps 1936; Braniff 1990:177-179), refuges from floodwaters (Gabel 1931:39-40), agricultural plots (Huntington 1914:69; Stacy 1974:194-195), signaling stations and lookouts (Sauer and Brand 1931:89; Fontana and others 1959:43; Johnson 1960:50; Braniff 1990:177), and sleeping and storage spaces (Fontana and others 1959:44; Larson 1972:97-99). It has also been observed that the more elaborate cases of terracing transform the shape of a whole hillside and that such constructions may have served for visual display, perhaps by creating the impression of a stepped pyramid (Fontana and others 1959:51; Haury 1976:348).

Excavations at cerros de trincheras have been very restricted, and most functional interpretations have been based on surface indications. Recently, Braniff (1985, 1990) conducted limited excavations at the large site of El Preevadora in northern Sonora. In 1959, as part of his work at the La Playa site in northern Sonora, Alfred Johnson (1960:40-52) of the University of Arizona tested trincheras features on an adjacent hill slope. Only two cerros de trincheras had been excavated in southern Arizona prior to 1980. One, Cerro Prieto, was excavated in 1925 during a weekend expedition by Byron Cummings and archaeology students from the University of Arizona, including Emil Haury and Clara Lee Fraps (now Tanner). Results of these excavations were never published and no records of any kind now exist. The other excavation, involving the Blackstone Ruin near Sells, received only brief mention in the literature (Fraps 1936). Trash mounds and an adobe and masonry room near a third cerro de trincheras, at Ash Hill on the Tohono O'odham (Papago) Reservation, were investigated by Julian Hayden during the University of Arizona's Papaguería Project. The nearby hillside was partly mapped and some surface collections were made. This work remains unpublished (Julian Hayden, personal communication 1991; ASM archives).

Historically, the absence of detailed information concerning individual rock features has undoubtedly strengthened a tendency to assign cerros de

trincheras to a unitary function, usually that of a short-term defensive refuge, rather than to regard them as complexes of associated features with diversified functions. Excavations, detailed mapping, and regional survey in the Tucson Basin of southern Arizona during the past decade permit a fuller understanding of the nature and variability of trincheras sites as well as their place in overall settlement systems. The following review focuses on this recent work and its implications for understanding the trincheras phenomenon.

CHRONOLOGY

A critical issue in the regional study of cerros de trincheras is the timing of their construction, use, and abandonment. Based on recent survey work in northern Sonora, Randall McGuire and Elisa Villalpando (1991) have proposed that some hillside Sonoran sites may have been constructed as early as A.D. 800. Elsewhere in Sonora, Braniff (1985, 1990:179) has reported late prehistoric and even early historic dates for Trincheras wares (purple-on-red, purple-on-brown, and polychrome) and, by association, trincheras features. Thus, the construction of hillside sites appears to have been a longstanding cultural tradition in Sonora, spanning a period lasting from perhaps the ninth through seventeenth centuries A.D. However, most of the Sonoran sites seem to date after about A.D. 1100, and the presence of Gila, Tonto, Babocomari, and Casas Grandes polychromes at some of the largest examples suggests that they were most intensively used or occupied during the fourteenth and fifteenth centuries A.D. (McGuire 1991:356).

Unlike the Sonoran cerros de trincheras, hillside sites in southern Arizona apparently do not contain Trincheras wares, and they appear to have been constructed and used predominantly during the twelfth and thirteenth centuries A.D. With the exception of Nogales Polychrome, the best associations of Trincheras pottery types in Arizona are found only at non-hillside sites in contexts dating before A.D. 1000. None of the intrusive Trincheras types have been recovered from a Tucson Basin trincheras site. Recent surveys and excavations (Fish and others 1984; Downum 1986; Downum and others 1985, 1993) have conclusively associated two of six Tucson area cerros de trincheras (Figure 2), the Linda Vista and Cerro Prieto sites, with the Tanque Verde phase of the Hohokam culture's early Classic period (about A.D. 1100-1300). A case can be made that most of the features at a third Tucson Basin site, Tumamoc Hill, were constructed and used during the same time period. The three remaining Tucson Basin cerros de trincheras, Martinez Hill, Black Mountain, and Rillito Peak, also date predominantly to the Tanque Verde phase.

Among the most intensively studied of the Tucson Basin cerros de trincheras, Tumamoc Hill is the least securely dated. Most (15 of 25) of the decorated sherds from the surface are Tanque Verde Red-on-brown, and plain-

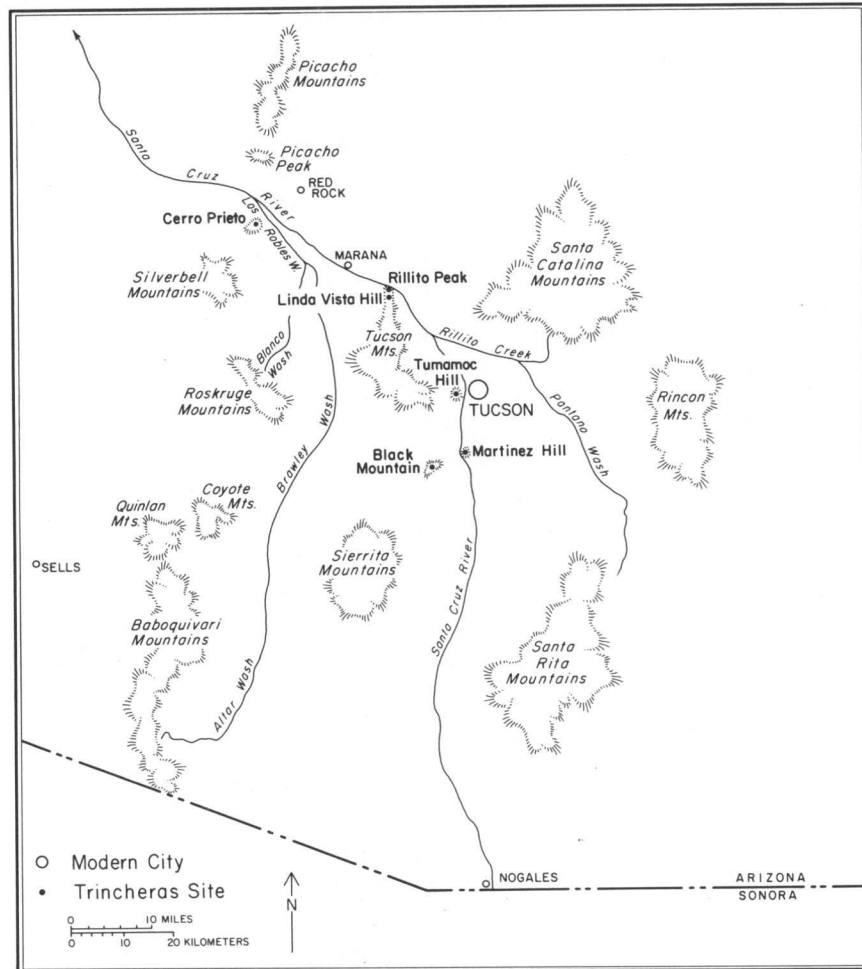


Figure 2. Distribution of trincheras sites in the Tucson Basin.

wares are also compatible with a Classic period affiliation (Hartmann and Hartmann 1979:53-55; McLean and Larson 1979). Of numerous petroglyphs resembling pottery designs, all but one from Tumamoc Hill are rendered in Classic period design styles (Ferg 1979:107; see also Wallace 1983:207). A complete absence of late Classic period polychrome sherds suggests that use of the hill slopes and summit did not persist past about A.D. 1300.

At Linda Vista Hill (Fish and others 1984; Downum 1986), surface collections and test excavations disclosed only a few Preclassic sherds predating A.D. 1100. Of 49 decorated sherds collected over an unspecified area of the

site during an Arizona Archaeological and Historical Society site tour in the late 1970s, 24 were Tanque Verde Red-on-brown, with 4 identified as Rillito Red-on-brown (about A.D. 900 to 1000), and 21 as Rincon Red-on-brown (about A.D. 1000 to 1150) (Hartmann and Hartmann 1979:62). An Arizona State Museum collection of surface artifacts in 1980-1981, taken specifically within and between rock features on the hill, was dominated by Tanque Verde Red-on-brown ($n = 67$), with only a single sherd each of Rillito and Rincon Red-on-brown (Downum 1986:227). Because of the direct association between rock features and the ceramic sample, the 1980-1981 collection may more accurately date the construction and use of trincheras features at Linda Vista Hill. Also, four pit houses built on terraces were completely excavated, and their contents supported the site's Tanque Verde phase assignment. All identifiable decorated sherds and vessels from the floors and fill of these structures were typed as Tanque Verde Red-on-brown. A radiocarbon date of A.D. 1350 ± 80 from one pit house placed this structure toward the end of the phase (Downum 1986:223).

Dating of Cerro Prieto (Figure 3) relies on generous samples of surface and excavated sherds. Of the hundreds of identifiable decorated ceramics observed at the surface of this site during an intensive mapping project

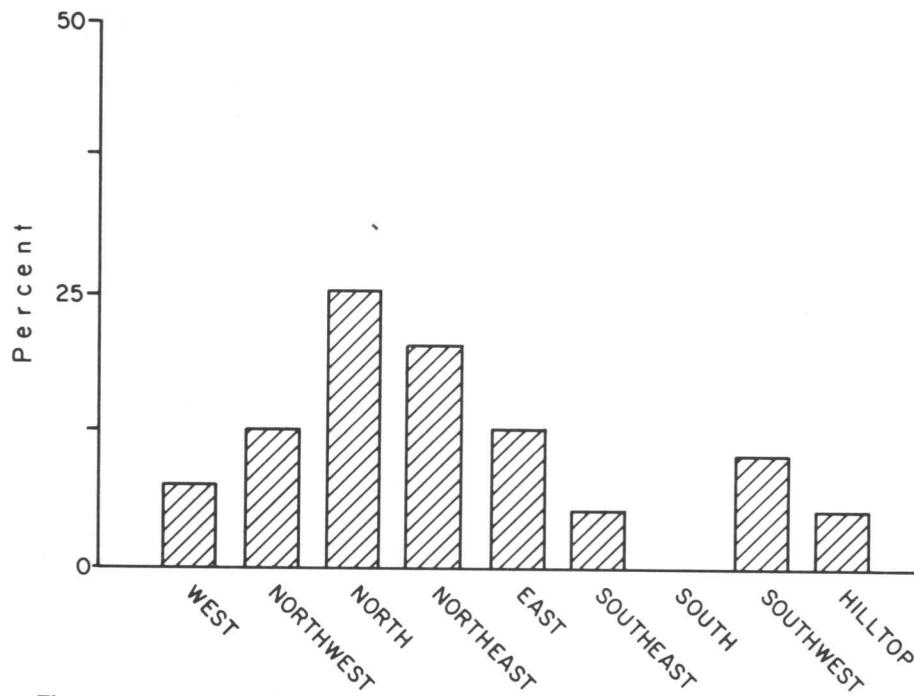


Figure 3. Histogram of trincheras feature distributions, by aspect.

(Downum and others 1985, 1993), all were the Classic period types Tanque Verde Red-on-brown or Casa Grande Red-on-buff. All identifiable decorated sherds ($n = 56$) recovered from test excavations within a masonry room and a large terrace were Tanque Verde Red-on-brown. These results, in combination with a complete absence of Preclassic and late Classic period ceramics, place Cerro Prieto in the early Classic period.

Limited information on the remaining Tucson Basin cerros de trincheras also point toward early Classic period construction and use. At the Black Mountain site, 16 of 17 decorated sherds were Tanque Verde Red-on-brown, with one equivocally identified as Rincon Red-on-brown (Martyneec 1987:15). Surface collections at Martinez Hill (Hartmann and Hartmann 1979:62) and Rillito Peak (Wallace 1983:194) produced five decorated sherds at each site, and all were Tanque Verde Red-on-brown.

Tucson-area cerros de trincheras therefore appear to have been constructed and used primarily during the early Classic period, about A.D. 1100 to 1300. None seems to have persisted into the late Classic (about A.D. 1300 to 1450). A few Preclassic sherds from the surfaces of the Tumamoc and Linda Vista Hill sites probably indicate use by inhabitants of earlier villages in the vicinity, as does a broad trail leading from the predominantly Preclassic St. Mary's site to the summit of Tumamoc Hill. In fact, at Tumamoc Hill some type of hillside use extends back to the late Archaic period. A single test trench in a terrace near the summit of Tumamoc Hill disclosed an older surface bearing preceramic projectile points and corn dated by radiocarbon as early as 2700 B.P. (Fish and others 1986).

Earlier interest in the low volcanic hills chosen for later use as cerros de trincheras sites is not surprising, and probably was due to a number of factors. Among these are the presence of wild resources, favorable microclimates, and an agricultural potential that will be discussed in greater detail below. It also seems possible that because of their elevation and appearance, volcanic hills had longstanding religious and ritual significance. Among contemporary Piman groups, the summits and rocky outcrops of hills are common locations for shrines (Russell 1908:254-256, Plates XL-XLI), and several legends tell of powers and beings that inhabit the hills. Recorded Piman belief has it that improper behavior on the hills, such as disturbing shrines or sacred offerings, will unleash violent wind storms (Russell 1908:255; Hartmann and Hartmann 1979:64; Hartmann 1989:47).

Specialized use of some volcanic hills into the protohistoric and historic periods is attested by the presence of Piman burial cairns and pits (Fontana and others 1959:44; Stacy 1977:16; Madsen 1988, 1993). These activities, and the reported historic period use of hill slopes and summits as temporary retreats or refuges from Apachean or Spanish attackers, appear unrelated to prehistoric constructions. This conclusion is based on two facts: (1) the

Piman burial cairns and pits are often situated on hillsides totally lacking in prehistoric trincheras features, and (2) to our knowledge there is no documentary evidence that the prehistoric hillside rock features discussed in this paper were ever used or modified for defensive purposes in historic times (see also Stacy 1974:201-202, and Wilcox 1979:15-16).

FUNCTIONAL INTERPRETATIONS OF CERROS DE TRINCHERAS

Warfare

Defensive functions for cerros de trincheras have been argued on the basis of (1) the inherent security and defensibility of hill slopes and summits; (2) terraces and walls as defensive features; and (3) reported and observed use as historic refuges by groups distinct from the builders and engaging in warfare involving horses, firearms, and raiding patterns typical of the contact period. The interpretation of cerros de trincheras as defensive refuges has long been a key element in models of cultural dynamics and change in southern Arizona and northern Sonora (for example, Hoover 1941:237-238). In recent years, no new evidence has been collected that would bear directly on the defensive hypothesis, other than in the negative sense that additional functions can now be strongly supported. Nonetheless, new circumstantial arguments have been advanced, and cerros de trincheras, including those of the Tucson Basin, continue to be cited as evidence of significant inter-regional conflict or threat of conflict (Wilcox 1979, 1991a:273; Doelle and Wallace 1990:244-248).

Evidence now suggests that many cerros de trincheras of the Tucson Basin were neither constructed nor used primarily as emergency defensive retreats. In a detailed and well-reasoned argument favoring a defensive use of hillside rock features, David Wilcox (1979) proposed that the terraces of Tumamoc Hill would have served as effective platforms for using prehistoric weaponry against attackers climbing the slopes. Based on surface observation, a presumed absence of soil in terraces was cited as prohibitive of alternate uses (Wilcox 1979:27). However, large terraces at this site and at Cerro Prieto, and smaller terraces at Linda Vista Hill, have now been tested for soil depth. As discussed in more detail below, at the time of their construction in prehistoric times, none lacked sufficient sediments for either planting or pit house construction.

Another reason for doubting the defensive hypothesis is the strong preference for directional orientation of Arizona trincheras features, particularly terraces. Concentration on north aspects and avoidance of south-facing slopes has long been noted (Sauer and Brand 1931:69; Stacy 1974:122-180; Fish and others 1984) and has been quantified by Katzer (1993) for nine mapped

trincheras sites in the Tucson Basin and Papaguería in western Arizona. In Katzer's study, nearly 60 percent of linear terraces and walls occur on north, northeast, and northwest facing slopes (Figure 3). Avoiding the late day sun, these slopes offer cooler and more mesic microenvironments than south and west aspects. In contrast, southeast, south, and southwest facing slopes contain less than 15 percent of linear features. South slopes support less than 1 percent. Attackers, on the other hand, might be expected to approach a hillside settlement or refuge from any direction, and climb even south-facing slopes if those aspects were poorly defended.

Further evidence against a defensive function for cerros de trincheras comes from a consideration of the settlement systems within which these sites occur. Full-coverage survey in the northern Tucson Basin has defined comprehensive settlement patterns for two extensive, multi-village Hohokam communities surrounding the trincheras sites of Linda Vista Hill and Cerro Prieto (Fish and Fish 1989, 1990; Fish and others 1989, 1992; Downum, 1993). These early Classic period communities, respectively designated the Marana and Los Robles communities, have central sites with platform mounds and a variety of site sizes and types in their surrounding territories. The cerros de trincheras of both communities lie near an outer territorial boundary and would have been immediately accessible to only a small segment of the total population. Linda Vista Hill is more than six miles distant from the Marana platform mound site, and Cerro Prieto is two miles distant from the Los Robles mound. Thus, no protective function for community leaders and their households could have been served without appreciable advance warning.

This puzzling situation is especially pronounced for the Los Robles community. A logical topographic setting for a fortified refuge near the Los Robles mound would have been the slopes and summit of the adjacent volcanic hill of Pan Quemado. This location would seem an especially desirable defensive retreat, as Pan Quemado is about two miles closer than Cerro Prieto to the majority of early Classic period habitations along Los Robles Wash, and it surrounds a water catchment apparently used for a prehistoric reservoir. Curiously, however, Pan Quemado was never developed into a cerro de trincheras, and shows only a few talus pits, small terraces, and other minor features.

Finally, as we discuss in more detail below, there is ample evidence that at least two of the Tucson Basin cerros de trincheras, Linda Vista Hill and Cerro Prieto, were far more complex constructions than temporary defensive refuges. Instead, these sites are now known to have been extensive hillside villages, incorporating stone-outlined pit houses, blocks of rectangular masonry rooms, terraces, walled compounds, and other substantial masonry constructions. On this basis, we suspect that other cerros de trincheras within and be-

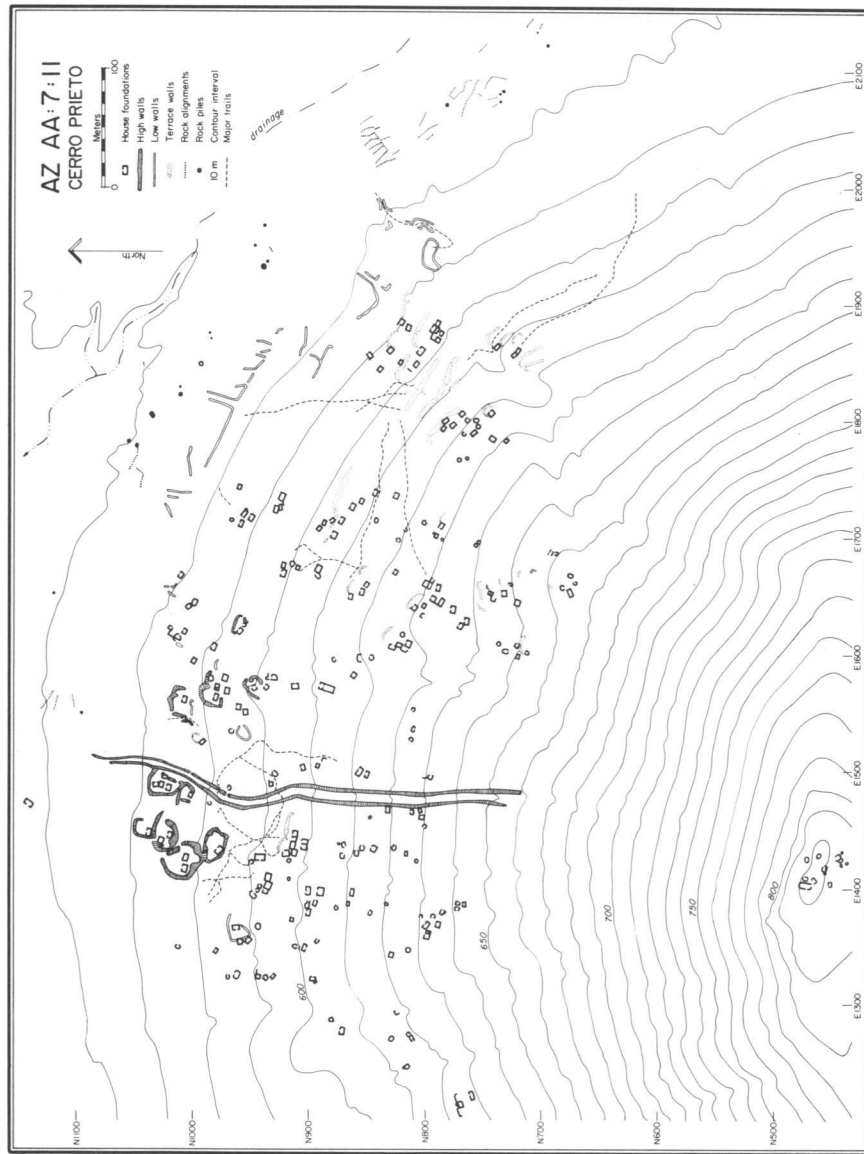


Figure 4. Overall map of the Cerro Prieto site.

yond the Tucson Basin were also settlements. Tumamoc Hill, for example, shows a pattern of house foundations and other features consistent with use as a habitation, and Martinez Hill may also have been used for residence.

Admittedly, the fact that some hillside sites served as villages is not necessarily at odds with a defensive function. However, at the Tucson Basin sites with which we are familiar, individual houses and clusters of houses are not commonly surrounded by encircling walls, and houses are dispersed over the hillsides, including instances near the hill bases. Curiously, the large, walled compounds at Cerro Prieto and the Linda Vista Hill site contain few or no domestic structures and lie far from the densest concentrations of houses. All available evidence, including styles of masonry construction, artifact distributions, and stratigraphic relationships, indicate that the houses and compounds were contemporaneous. Furthermore, at Cerro Prieto as at Tumamoc Hill, broad trails lead toward residential areas (Figure 4). At Cerro Prieto, the trails begin near the base of the hill and angle upslope toward concentrations of houses. At Tumamoc Hill, a very broad trail or corridor, outlined in stone, begins on the lower slope of the hill's north side and proceeds more or less directly to the top. At the summit, the trail penetrates a massive boulder wall through a slightly curving gap that "appears obviously designed to allow passage of the main trail through the wall" (Hartmann and Hartmann 1979:41). From here, the trail leads to unprotected masonry structures and other features on the summit. A second trail at Tumamoc Hill leads directly up the hill's east slope; it too penetrates a massive boulder wall at the summit, and proceeds directly into significant clusters of masonry structures. These circumstances are unexplained by the defensive hypothesis, but are compatible with the idea that the sites were used for multiple and complex functions, including habitation, cultivation of crops, and ceremonial activities.

Agricultural Use

Use of at least some terraces for crops has been a recurring speculation in the literature (Huntington 1913:396-397, Plate 3; 1914:69; Fontana and others 1959:51; Stacy 1974:194). Recently, some of the microenvironmental parameters of hillside cultivation have been quantified and evaluated (Stacy 1974:186-187; Fish and others 1984; Katzer 1993). For example, there are significant inversion effects in Tucson and surrounding desert basins. On the slopes of hills, winter freezes are fewer, minimum temperatures are higher and less prolonged, and the season of frost danger is approximately one month rather than the five months on the valley floor (Hastings and Turner 1965:17, also see Fish and others 1984:66 for a more detailed discussion of implications for prehistoric cultivation). Highest and most extended seasonal moisture content in hillside soils occurs with winter rains (Shreve 1934:149). In order to produce small, early crops from winter rains before harvests of the major

summer growing season, terraces would have offered protection from frosts and added ground warmth in the evenings as the heat absorbed by dark volcanic rocks was reradiated (Fish and others 1984:66). In some years, these conditions might have prevented or substantially mitigated frosts, allowing perennial plants like chiles to survive for multiple seasons. Volcanic soils are also advantageous in being clay rich and moisture retentive.

Preferred north and east exposures for terraces would offer some advantages in reduced afternoon sunlight and shade from the hill mass. Slopes above terraces act as water catchments that generate several higher magnitudes of runoff than direct rainfall (Katzer 1993). In test excavations of multiple terraces at three Tucson sites, stratigraphic sequences of fill sediments revealed that soil depth was sufficient for planting. The distribution of stones and soil within the terraces indicated that they had been intentionally filled with cobbles and soil, perhaps scraped down into the terrace from upslope. Classic period potsherds and other artifacts were present even in the terraces' lower levels, indicating that artifacts had been incorporated into terrace construction. In all terraces, sherds and other artifacts (some lying flat) were often clustered in the terraces' upper levels, suggesting that the prehistoric terrace surfaces had been within a few centimeters of the present ground surface.

Archaeological evidence for an agricultural use of hillside rock features is provided by pollen samples, artifacts, and the form and location of terraces. At the site of Linda Vista Hill, where 215 terraces were mapped and measured, probable agricultural function was attributed to 146 terraces too narrow to have supported houses (Fish and others 1984; Downum 1986). These terraces show a marked tendency toward concentration on the middle and upper portions of the northeastern slope. The distribution of ironwood, a frost-sensitive species, is coincident with the terrace locations. The recovery of corn and agricultural weed pollen in multiple sample columns of terrace fill suggests that corn was cultivated in terrace plots. Pollen of yucca or sotol, not indigenous to the hillside, was also recovered from terraces, and a charred yucca stalk was found on the floor of a nearby burned pit house (Downum 1986:223). Tabular knives, steep-edged scrapers, and large unworked cobbles were recovered in and among the terraces, suggesting that agave, sotol, or yucca leaves were harvested and processed on the hillside.

We therefore envision that cultivation took the form of small gardens around habitation structures on some terraces and of plots on other terraces with more specialized agricultural function. Crops could have included corn, beans, squash, and other traditional cultigens. Depending on microenvironmental conditions, speciality crops such as cotton, amaranth, and chiles might have been grown as well. Rows of agave and other succulents likely would have been grown along many terrace edges for stabilization.

At the site of Cerro Prieto where foundations of masonry surface struc-

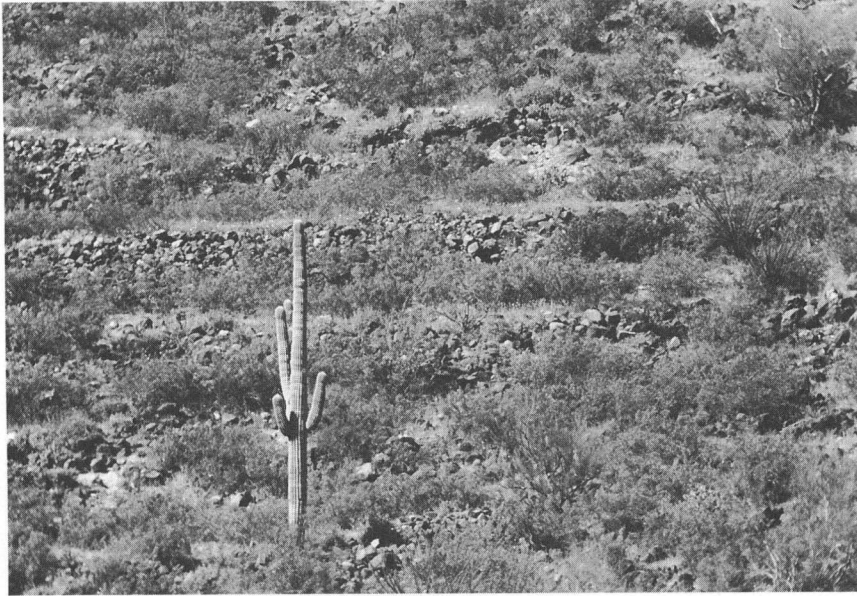


Figure 5. Large terraces on northeastern slope of Cerro Prieto. (Arizona State Museum, University of Arizona, Neg. 86827.)

tures are easily visible, series of terraces often lack architectural indications. The largest of these (Figure 5) are also associated with ironwood trees. Near the bottom of the hill, large terraces grade into a variety of smaller terraces, check dams, waffle gardens, and other features with clear agricultural function. Walls and stone diversions appear to channel slope runoff onto some of the Cerro Prieto terraces. Agricultural features of all types at this site are concentrated on the northeast slopes (Downum and others 1993). Though no pollen samples have yet been analyzed for Cerro Prieto, abundant tabular knives have been observed there, fashioned from raw materials available at the hill summit. Piles of fire-cracked rock, perhaps associated with agave roasting pits, have also been observed on the hillside.

Architectural Styles

Recent excavations have revealed three distinct styles of structures at Tucson Basin cerros de trincheras: (1) oval to circular free-standing houses; (2) rectangular rooms, sometimes built in contiguous blocks; and (3) large hillside or summit compounds. All appear to date to the early Classic Tanque Verde phase.

Oval to circular outlines of tumbled cobbles in southern Arizona sites have traditionally been termed sleeping circles and interpreted as windbreaks

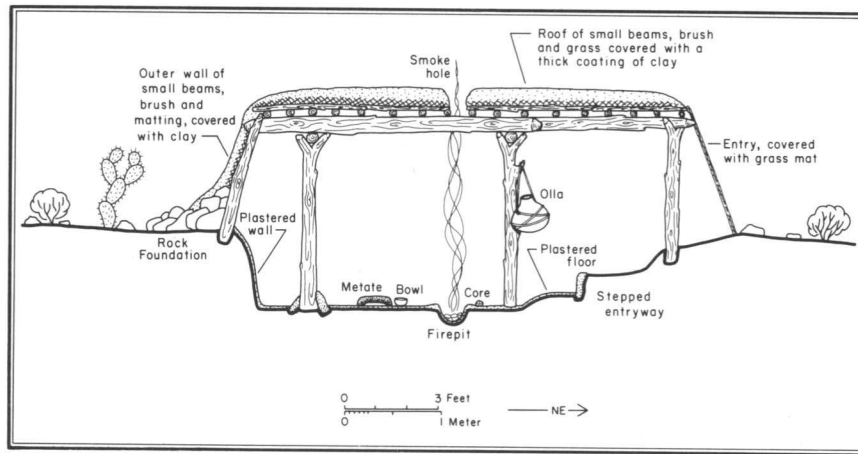


Figure 6. Reconstruction of excavated pit house (Feature 1987-1), Linda Vista Hill.

or ephemeral structures used during defensive or other temporary occupations (for example, Ezell 1954:3-5; Fontana and others 1959:44; Larson 1972:97-99; 1979:71-76; Stacy 1974:197-198, 207; 1977:15). However, at Linda Vista Hill, three such outlines proved upon excavation to be burned pit houses with plastered floors and pit walls, formal hearths, and substantial assemblages of household artifacts (Downum 1986, 1987). One had a stepped entryway constructed of stone slabs (Figure 6). Abundant samples of roof and wall clay showed that the structures had dome-shaped exteriors. Structural wood was mostly desert willow (*Chilopsis linearis*). Low stone foundations enclosed the walls of each pit house, probably serving to deflect runoff and to stabilize the superstructure. The varied domestic assemblages of the pit houses were within the range of contemporary Tucson Basin structures elsewhere, with some emphasis on tabular knives, steep-edged scrapers, and unworked cobbles. As with similar assemblages found on terrace surfaces, these artifacts can reasonably be interpreted as tools used for processing fibers, perhaps from yucca or agave plants cultivated in the nearby terraces.

The second architectural type was documented in an excavated surface structure at the site of Cerro Prieto (Figure 7). Tumbled stone walls of rectangular shape proved to have been formally arranged for a flat, even, interior wall surface. The surrounding wall rubble indicated a room with substantial walls, perhaps more than 1.5 m high. A doorway was clearly defined by two upright stones accompanied by a ground-level slab step. The room had burned and quantities of hardened roof clay, preserving the impressions of roofing material, were recovered. Although only a portion of the room interior was sampled in the excavation, abundant artifacts were recovered from

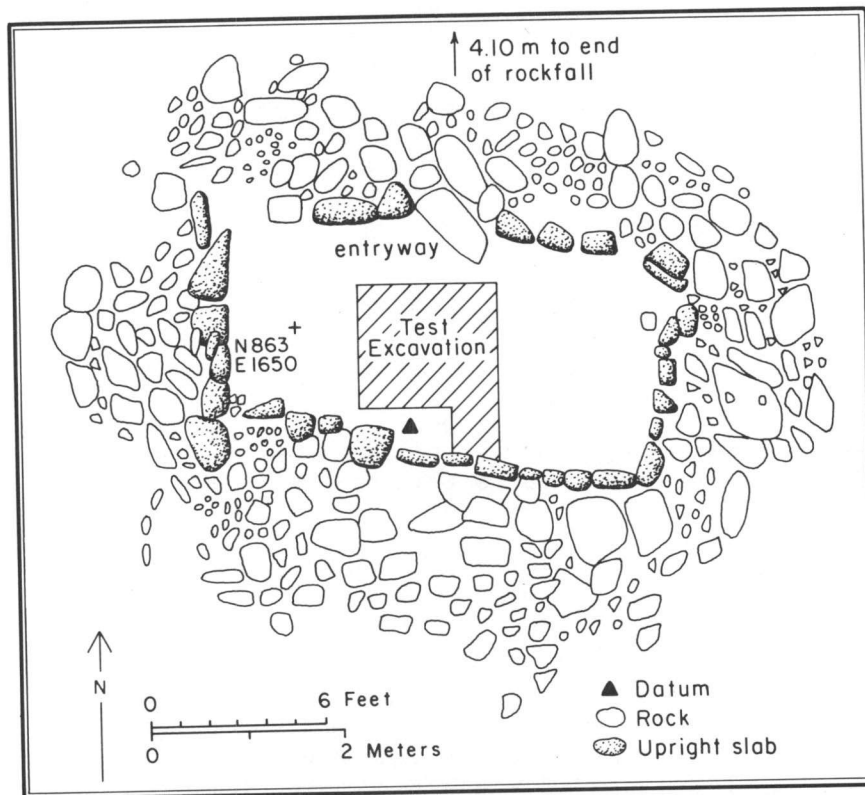


Figure 7. Plan view of rectangular masonry room at Cerro Prieto (Feature 4), showing location of 1981 test excavations.

floor and fill. Included were plain ware and Tanque Verde Red-on-brown sherds, a variety of chipped and ground stone implements, a bone awl, and pigment stones.

More than 250 additional structures have been documented by a recent mapping project at Cerro Prieto. Many of these were rectangular rooms with walls formed by a core of irregular cobbles placed between rows of dry-laid slabs. Collapsed stone is sufficient in many cases to suggest full wall height of masonry construction (Downum and others 1993). Oval and circular foundations, identical in form to those at Linda Vista Hill, were also discovered among the rectangular room foundations.

The third type of architectural form for Tucson Basin cerros de trincheras was documented in test excavations of a stone compound near the top of Linda Vista Hill (Figure 8). Similar hilltop features are often referred to in the literature as plazas or corrals (Sauer and Brand 1931:90, 102; Hoover

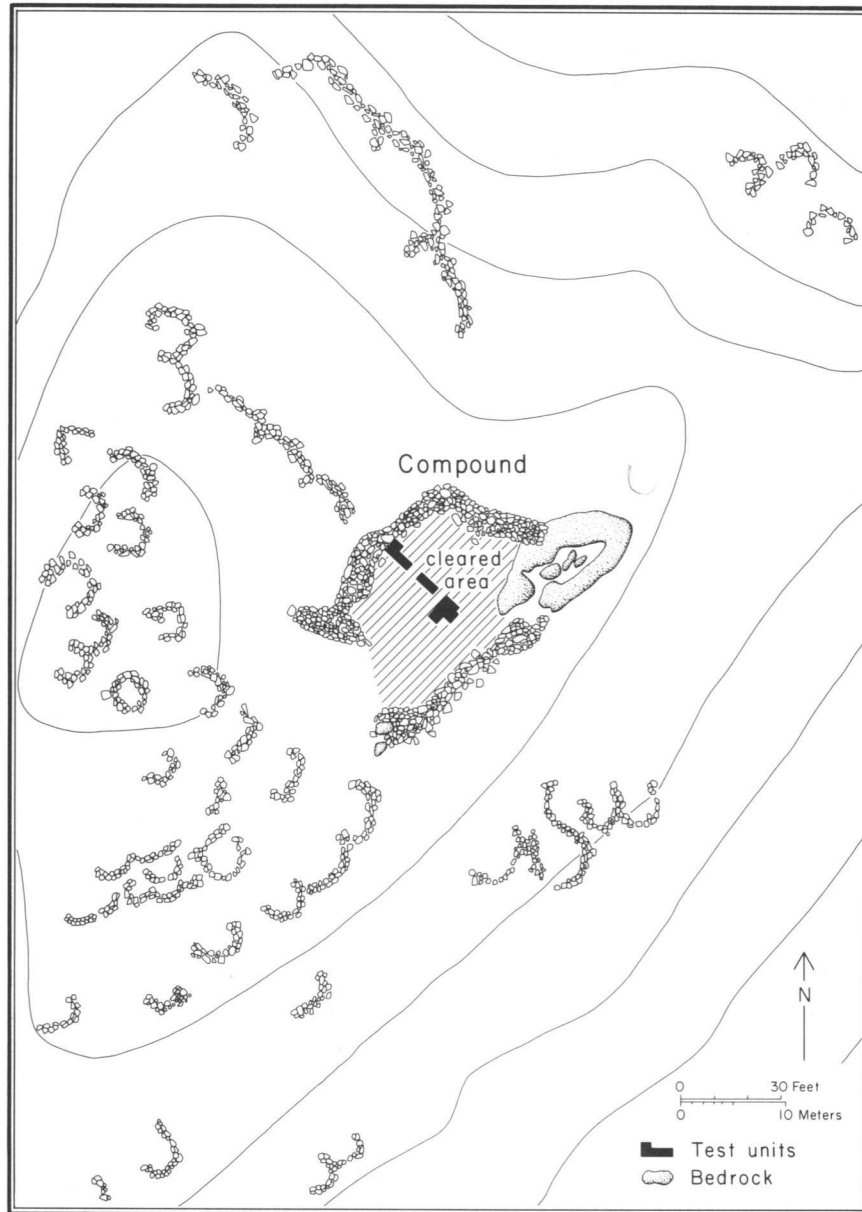


Figure 8. Features near the summit of the Linda Vista Hill site, including masonry compound.

1941:230). At Linda Vista, the compound consisted of a rectangular stone wall enclosing a flat area of approximately 13 by 20 m just downslope from the hill's summit. Limited trenching produced the remains of at least one free-standing structure with post reinforced adobe walls, but having unknown shape and dimensions. Also recovered were a small stone bowl associated with a stone pestle that had been embellished by carving to resemble a human phallus. Such artifacts suggest that the Linda Vista compound served as a ceremonial feature, rather than as a short-term defensive refuge.

It is interesting to note that the compound atop Linda Vista Hill is quite similar in size to the nearby contemporaneous Marana platform mound, perhaps reflecting comparability in the magnitude of ceremonies conducted at each locale. Of further interest is the fact that a shell trumpet (*Strombus galeatus*) was found in a room adjacent to a roughly similar and probably contemporaneous hilltop compound at site T:4:8 in the New River Area (Ravesloot and Spoerl 1984:90-92). Shell trumpets in other Hohokam contexts are usually found at platform mound sites, often from within or near the platform mound itself (Nelson 1991:68-70, 81). Thus, the Linda Vista and T:4:8 sites provide tantalizing clues that stone-outlined, hilltop compounds supplemented Hohokam platform mounds as significant ceremonial features in some areas during the early Classic period.

At Cerro Prieto, 12 walled compounds exist on the hill's lower slopes in a restricted precinct of the northwestern portion of the site (Figure 9). They are separated by a double wall that divides the compounds into groups of five and seven on either side. Each of the compounds is surrounded by substantial boulder walls, some of which were constructed using a more massive version of the rubble core masonry technique described above for Cerro Prieto's rectangular rooms. The amount of collapsed wall rubble suggests that compound walls originally stood up to 2 m high. Interiors of the compounds were formed by cutting and filling to achieve a level grade. In one compound, at least a meter of solid caliche was cut away on the upslope side, and all compounds were leveled with substantial quantities of rock and soil.

A lack of excavation prevents detailed description of architecture, features, and artifacts within the Cerro Prieto compounds, but most contain surface indications of masonry structures. The number of rooms within each compound is small. The largest compound contains only two rooms; three other large ones contain only a single room, and one has no rooms. Such small numbers of enclosed structures and the clustering of compounds within one part of the site suggest a function other than ordinary residence (Downum and others 1993). Again, we suggest the importance of ceremony, rather than defense. Certainly the compounds at Cerro Prieto, being separated from the highest concentrations of rooms at the site, penetrated by wide doorways, and located on the hill's relatively flat lower slopes, would not have been ef-

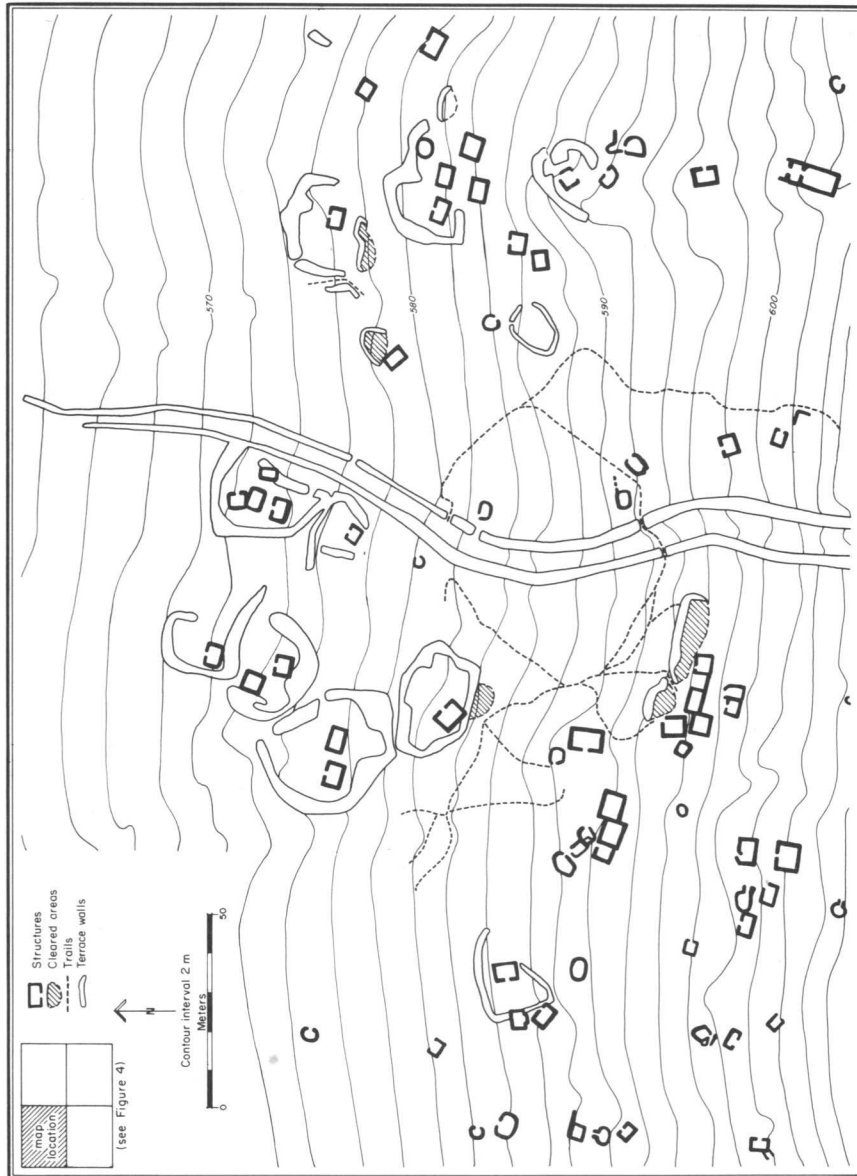


Figure 9. Detail map of northwestern slope of Cerro Prieto, showing compounds, houses, small terraces, and double wall of boulders dividing the site into halves.

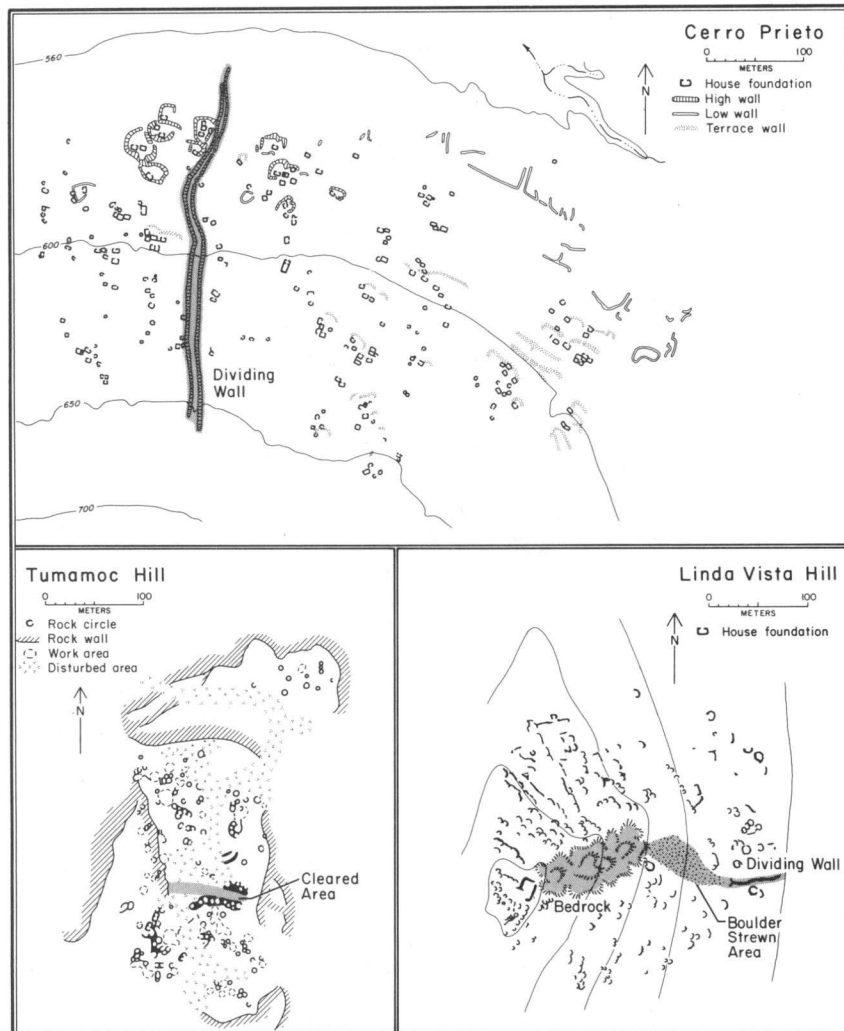


Figure 10. Linda Vista Hill, Cerro Prieto, and Tumamoc Hill sites, showing locations of linear features.

fective fortifications. However, several features of the compounds suggest that they would have been well-suited for ceremonial activities, particularly if these involved large numbers of performers acting within a prescribed field or stage. High walls formally demarcate the areas encompassed by the compounds and might have offered seating for relatively large numbers of spectators as well as privacy from children or uninvited guests. Level compound

surfaces would have offered an unobstructed area suitable for dances and other group activities. Doorways leading into the compounds, and the nearby trails connecting with adjacent compounds and houses, might have played an important role in the choreography of hillside ceremonies. The few structures that exist within the compounds might have been used for staging the ceremonies, or as resting areas for dancers or other participants.

Alternatively, it can be proposed that the compounds served as workshops or market areas, used periodically to accommodate relatively large numbers of people. If so, the compound structures might have been places to store raw materials or finished craft products or to house visiting exchange partners. In any case, further work is needed to clarify the nature of activities conducted within the compounds.

No compounds have yet been identified at Tumamoc Hill, although modern disturbance in the central portion of the site raises the possibility that one may have been present. Large walled or cleared areas, perhaps analogous to the compounds of Linda Vista Hill and Cerro Prieto, have been reported from the Tucson Basin sites of Martinez Hill (Gabel 1931:38; Hartmann and Hartmann 1979:60-62) and Black Mountain (Martyneec 1987:30-33).

Habitation Layout

At the three Tucson cerros de trincheras sites where structures have been extensively mapped, distributions are not random but can be largely accounted for by clusters of several houses each (Larson 1979:73-76; Downum and others 1985:548, 1993; Downum 1986:229-230). Clusters range from 2 to 13 structures and in many cases appear to share cleared work spaces or activity areas that sometimes consist of terrace surfaces without structures. These clusters have been interpreted as households of related persons (Downum and others 1993).

Reasonably complete counts of structures are available for the three Tucson Basin trincheras sites that have been mapped. Numbers range from 77 at Linda Vista Hill, to 125 at Tumamoc Hill, to 232 at Cerro Prieto. At all three sites, a linear feature separates structures into two groups on either side (Figure 10). The feature at Tumamoc consists of a wide cleared area flanked on both sides by lines of closely spaced structures (Larson 1979:75-76). A bedrock outcrop and an adjoining rock wall vertically bisect the village on Linda Vista Hill. Rocks bordering both sides of a vertical cleft or drainage, created by an ancient natural rock and mud flow at Cerro Prieto, were modified into straighter and more wall-like structures, separating the village into halves. An organizational division of village houses between two moieties has been suggested for these patterns (Downum and others 1993).

Discussion and Conclusion

Recent research on Tucson Basin cerros de trincheras has yielded significant insights into the trincheras phenomenon. The Tucson Basin sites are now known to have been constructed and used primarily during the early Classic period (A.D. 1100 to 1300) of the Hohokam cultural sequence. At least two of the sites (Linda Vista Hill and Cerro Prieto) served as habitation villages, and two more (Tumamoc Hill and Martinez Hill) probably were villages as well. Individual masonry features show a variety of confirmed or proposed functions, including use as residences, agricultural plots, and ceremonial compounds. Interpretation of the Tucson Basin hillside and hilltop sites as short-term defensive refuges can no longer be supported, and there is in fact much evidence that contradicts the defensive hypothesis. At least three Tucson Basin trincheras sites are split by linear features, perhaps representing the physical manifestation of moieties or other significant social divisions.

These specific findings raise important general issues regarding the place of the trincheras phenomenon in the culture history of the Greater Southwest. Of particular interest are the dates for trincheras sites north of the international border. Because the construction and use of cerros de trincheras in southern Arizona was largely confined to the early Classic period, the appearance of such sites closely followed the demise of the ballcourt-oriented Hohokam regional system (Wilcox and Sternberg 1983; Wilcox 1991b), and accompanied the construction of platform mounds as significant ceremonial features for segments of the Hohokam after about A.D. 1100. These changes have been widely interpreted as signaling important shifts in belief, ritual, and organization during the early Classic period. To date, trincheras sites have been largely overlooked as a component of these changes. However, with location on prominent volcanic hills and massive masonry constructions such as terraces, compounds, and broad, cleared corridors, cerros de trincheras may have had considerable symbolic and ritual importance, in addition to their more utilitarian functions (at least at some sites) as habitations and agricultural plots. If so, their organizational and ideological role in the Pre-classic to Classic period transition deserves particular emphasis in future investigations. The apparent end date for Arizona cerros de trincheras, around A.D. 1300, is also of considerable interest, as this marks the onset of the late Classic period Civano phase. Significant cultural changes took place across the Hohokam world during the late Classic, and the abandonment of trincheras sites should now be regarded as an important aspect of these developments.

One logical next step in trincheras research is the placement of Arizona sites in the context of the larger international phenomenon. Arizona findings have raised specific questions about relationships with similar sites in Sonora, including combinations and distributions of particular functional and symbolic

elements, relative chronology, and patterning of these sites within settlement systems in both regions. Such issues are now shaping research being conducted at the site of Las Trincheras in Sonora (McGuire and others 1993), and these investigations should provide insights into many of the questions posed here.

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