

**Trade on the Mesoamerican Frontier: Evaluating the
Significance of Blue-green Stones at La Quemada, Zacatecas, Mexico**

by

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Abstract

The movement of Pre-Columbian turquoise from the American Southwest to Mesoamerica has long been considered an important factor in the emergence of complex societies in North and Northwest Mexico, including the one at La Quemada. This movement is often interpreted as an expansionary process involving the acquisition of rare resources by Central Mexican empires. I evaluated the proposition that turquoise was an important item for exchange and of personal wealth and status at La Quemada by examining the intrasite distribution of blue-green stones from excavated contexts. My analysis suggests that although turquoise was a precious and restricted good at the site, it was not valued locally for reasons associated with large-scale political economy. This study does not minimize the importance of turquoise exchange, but raises doubts about the turquoise trade as a primary factor in the development of some northern sites, and is a step toward understanding why blue-green stones may have circulated.

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Trade on the Mesoamerican Frontier: Evaluating the Significance of Blue-green Stones at La Quemada, Zacatecas, Mexico

Introduction

The site of La Quemada is located in Zacatecas, Mexico, on the northern edge of the 'Mesoamerican frontier' (Figure 1). From A.D. 500-1300, during the Late Classic, Epiclassic, and Early Post-Classic, this area in Northern Mexico experienced a florescence of complex societies, which included the society centred on La Quemada in the Malpaso Valley (A.D. 500-900). Prior to and following these developments, more mobile hunter-gatherer groups and small farming hamlets occupied the area. This increase and later disappearance of densely aggregated communities has been described as an oscillation of the boundary of Mesoamerican civilization (Armillas 1964: 69; Braniff 1974; Nelson 1992: 5-6). The construction of monumental sites such as La Quemada indicates the possible emergence of an elite that was capable of mobilizing labour in a way not possible in earlier or later periods. It has been suggested that the mining and trading of turquoise was instrumental in the development of complex northern frontier societies (Di Peso 1974; Kelley 1956, 1971, 1995; Weigand 1968, 1982; Weigand and Harbottle 1993).

In this paper I extend the examination of the role of the inter-regional turquoise trade between the Southwest and Mesoamerica by considering the contexts in which the material occurs at the monumental site of La Quemada and two of its outlying villages. Most of the work on this topic to date is geochemical, and most of the specimens that have been analyzed in this way are from surface contexts. My approach is not geochemical, but instead involves intrasite analysis; I examine the distribution of turquoise and other blue-green stones recovered from excavated contexts in order to evaluate their potential as wealth commodities.

Archaeologists have long been interested in pre-Columbian interactions between the American Southwest and Mesoamerica. The favoured approaches employ trade or globalist (a.k.a. world systems) models, focusing on the political economy of the two areas (Figure 1). In this scenario, powerful Central Mexican states, such as Teotihuacan and Tula, are instrumental in precipitating the social change evident in Northern Mexico and the Southwest. The emergence of complex societies in these areas, such as Alta Vista, La Quemada, Casas Grandes, and Chaco Canyon, has frequently been attributed to the Central Mexican demand for and subsequent control of the trade in turquoise (e.g. Di Peso 1974; Kelley 1995; Weigand 1982; Weigand and Harbottle 1993). Turquoise is found in Mesoamerican archaeological sites as early as 600 B.C., and is most abundant from the Late Classic through the Post Classic. Turquoise sources are not found in Mesoamerica (unless they were exhausted during the pre-Columbian era), and the most likely sources for these precious stones are found in the American Southwest (Vokes 2001: 17; Weigand and Harbottle 1993; Weigand *et al.* 1977). Raw or unworked turquoise virtually disappears from the Mesoamerican archaeological record after A.D. 900, suggesting that it was imported as a finished product after that time (Vokes 2001: 19; Weigand 1982).

Inter-regional or regional interaction potentially translates into power locally. Prestige goods acquire a special worth beyond their use value because of their rarity and investment in time, labour and skill (Bradley 1993; Earle 1987; Goldstein 2000). Control of the turquoise trade would have been an important source of economic power (Earle 1987; Hirth 1999), but the exchange of exotic goods can provide a base for elite status and power in other ways as well, which will be discussed fully below.

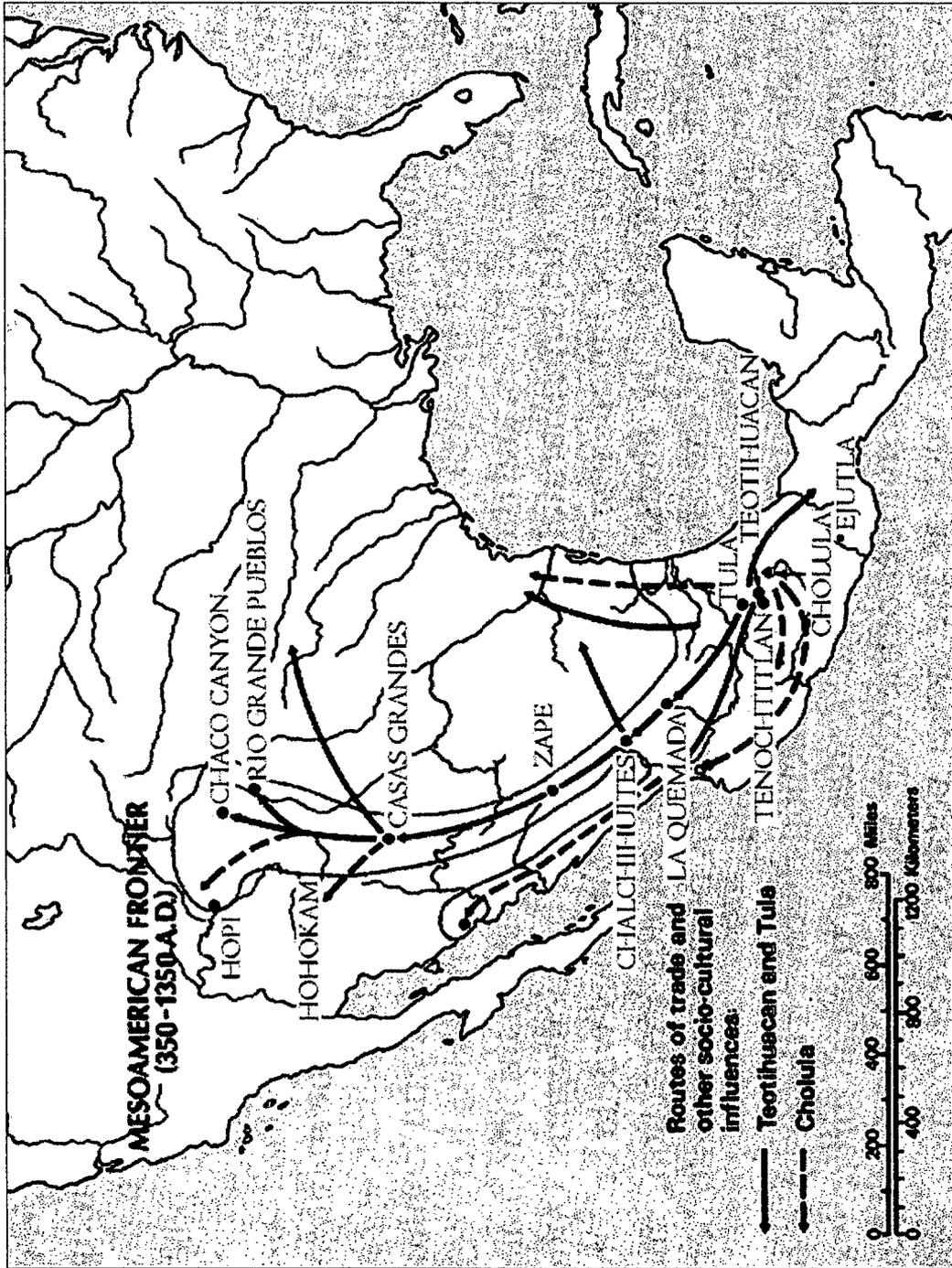


Figure 1. Mesoamerican Frontier including sites mentioned in the text. Adapted from Wolf 1982:66.

I have analyzed a collection of blue-green stones from the Malpaso Valley in an effort to determine whether or not they were an important commodity and source of prestige and power for the elites there. These particular stones were selected because of their colour (including light turquoise blue, dark blue-green, and dark blue and green), and have not been chemically analysed or examined by a mineralogist. The three sites that produced samples are La Quemada, Los Pilarillos (a secondary centre), and El Potrerito (a small hamlet). My specific questions are: 1) were blue-green stones (whether turquoise or not) economically important, and 2) were blue-green stones (as wealth) as important as other means of creating and maintaining status and power? In the next section I will give the geographic and cultural context of the site. Following that I will present a theoretical framework for my analysis, the context for the 'turquoise trade argument', and hypothetical expectations drawn from the two. I will then present my analysis of the intra-site distribution of the blue-green stones, followed by final discussion and conclusions.

Background

La Quemada & the Malpaso Valley

La Quemada is a fortified hilltop site in the Malpaso Valley of south-central Zacatecas, Mexico. It dates to the Late Classic and Epiclassic (500 – 900 AD), with its main occupation falling from approximately 600 to 800 AD (Jiménez Betts 1989a; Nelson 1997; Trombold 1990). The ridge that it was built upon is over 1 kilometre in length (from north to south), and ranges between 300 and 400 metres wide (the following section is from Kelley 1971: 774-777 and Trombold 1985: 237-247, unless otherwise noted). The height of the ridge would have provided a clear view up and down the valley, and the steep cliffs (rising from 10 to 30 metres) on the eastern and western sides would have provided excellent defence from would-be attackers. A

series of artificial terraces further protected by tall masonry walls were constructed on the tops of the cliffs, and the builders often used the natural contours of the bedrock in their design (Nelson 1995: 606). The northern end of the plateau, where there are not steep cliffs to aid in defence, is surrounded by a massive masonry wall that stands 2 to 3 metres in height, and frequently is as wide as it is high (Figure 2).

The site can be envisioned as having three main areas. The first area is at the lower south end of the ridge, and appears to be the primary entrance to the site by way of a 35 metre wide causeway that is flanked by two small pyramid altars. The main structures in this area are a large sunken patio, the Hall of Columns, the Votive Pyramid, and an 'I' shaped ball court (Figure 2). The Hall of Columns is immediately adjacent to the patio, and has fourteen round masonry columns that once supported a roof. The ball court runs from the Hall of Columns to the base of the Votive Pyramid, which is a small-based, 10 metre high, steep sided, pyramid. There is a staircase on the southern side leading to the truncated top, and it is likely that a temple structure once stood on top of it. There are a number of smaller structures, patios, and altars surrounding these major features.

The second area is higher up on the ridge and is accessed by staircases and a causeway. This monumental core of the site (including the 'Cuartel' – see Figure 2) is built on contiguous terraces, and contains pyramids, altars, ball courts and temples, with very little space given over to residential structures (Nelson 1995: 603). To the west of these is a series of artificial terraces (Terraces 1 through 23) that contain patio-banquette style residential complexes.

The third area is referred to as the 'Ciudadela' (Lelgemann 2000), and is at the northern end of the ridge. This area has a temple, sunken patio, and pyramid-altar complex. It is connected to the core of the site by a 4 metre wide causeway, and a large staircase leads to another series of structures lower down within the northern enclosure (Figure 2).

Survey and mapping of the Malpaso Valley occurred as early as 1833, and excavations of monumental public structures at La Quemada have been undertaken since 1947 (Kelley 1971: 774). One remarkable feature of the site is the quantity of human bone that has been found in ceremonial areas, such as the Hall of Columns and a small pyramid in the Cuartel. The bones buried at the foot of the Cuartel pyramid were primarily long bones and crania. Many of the long bones exhibited cut marks from dismemberment and defleshing. Some of the crania had perforations at their apex, which were probably used to suspend them by a thong or string. It is likely that these remains represent sacrificed enemies or community members who were dismembered for public display (Jiménez Betts 1989; Nelson *et al.* 1992: 306-307; Pijoan and Mansilla 1990).

Excavations of the temple complex in the Ciudadela by Achim Lelgemann (2000) revealed another type of mortuary practice. An individual burial of a young male in a flexed position was discovered in a small pyramid. The bones were articulated except for the lower right leg, which was amputated and placed in a position perpendicular to the rest of the body (Lelgemann 2000: 232-233). Several relatively rich offerings were also found in the pyramid, including painted ceramics (an *olla* and four *copas*), a small mosaic mirror, and a bead necklace of shell, turquoise and jade (described in more detail below). The inclusion of the mirror and the amputated leg are both specific traits of offerings to the Northern Mexican god Tezcatlipoca, and it is likely that this individual was a sacrifice to this warrior god (Lelgemann 2000; 234-235).

The only domestic area of the site to be thoroughly excavated is Terrace 18 (by the Malpaso Valley Project). Surface examination of other terraces suggests that Terrace 18 is representative of the other residential terraces (Nelson 1995: 603). While the monumental core of the site is primarily masonry, the structures in residential areas were constructed of a combination of stone and adobe on elevated banquettes around central sunken patios. In addition to domestic structures there was also a temple (and possibly three smaller temples) and a ball

court on Terrace 18 (Nelson 1995: 603-604). Human bone was also discovered in the temple on Terrace 18, and similar to other areas of the site it consisted mainly of long bones as well as cranial fragments, scapulae, hipbones, ribs, and mandibles. Vertebrae, hand bones and foot bones were not found (Nelson *et al.* 1992: 302). The distribution of the bones on the floor indicated that they had not been buried but instead had been suspended from the ceiling (Kelley 1978; Nelson *et al.* 1992: 303). Unlike other areas of the site, however, the bone found here did not display cut marks suggesting a different mortuary program for these individuals. Rather than being dismembered at death the bodies were likely permitted to decompose to the point where they could be pulled apart without cutting (Nelson *et al.* 1992: 304). Nelson and colleagues (1992) believe that the temple on Terrace 18 functioned as a charnel house, where ancestors and important community members were memorialized and venerated.

La Quemada was certainly an important central place in the Malpaso Valley, and a network of roads connected it to smaller sites in the valley (Figure 3). The roads were elevated and constructed of stone slabs with rubble fill. La Quemada is not 'central' in this system geographically; it is in fact on the northeast corner of the road system, and all roads do not radiate outward from it, or even lead to it. Many roads connect smaller sites or elevated points in the valley (possibly defensive look-outs or places of ceremonial significance). Although not spatially central, La Quemada is on the highest point in the landscape and is by far the largest and most elaborate site in the valley. All of the wider roads (up to 15 metres) are in close proximity to La Quemada, and it appears as though the roads immediately surrounding the site were surfaced with red clay (Trombold 1985: 244).

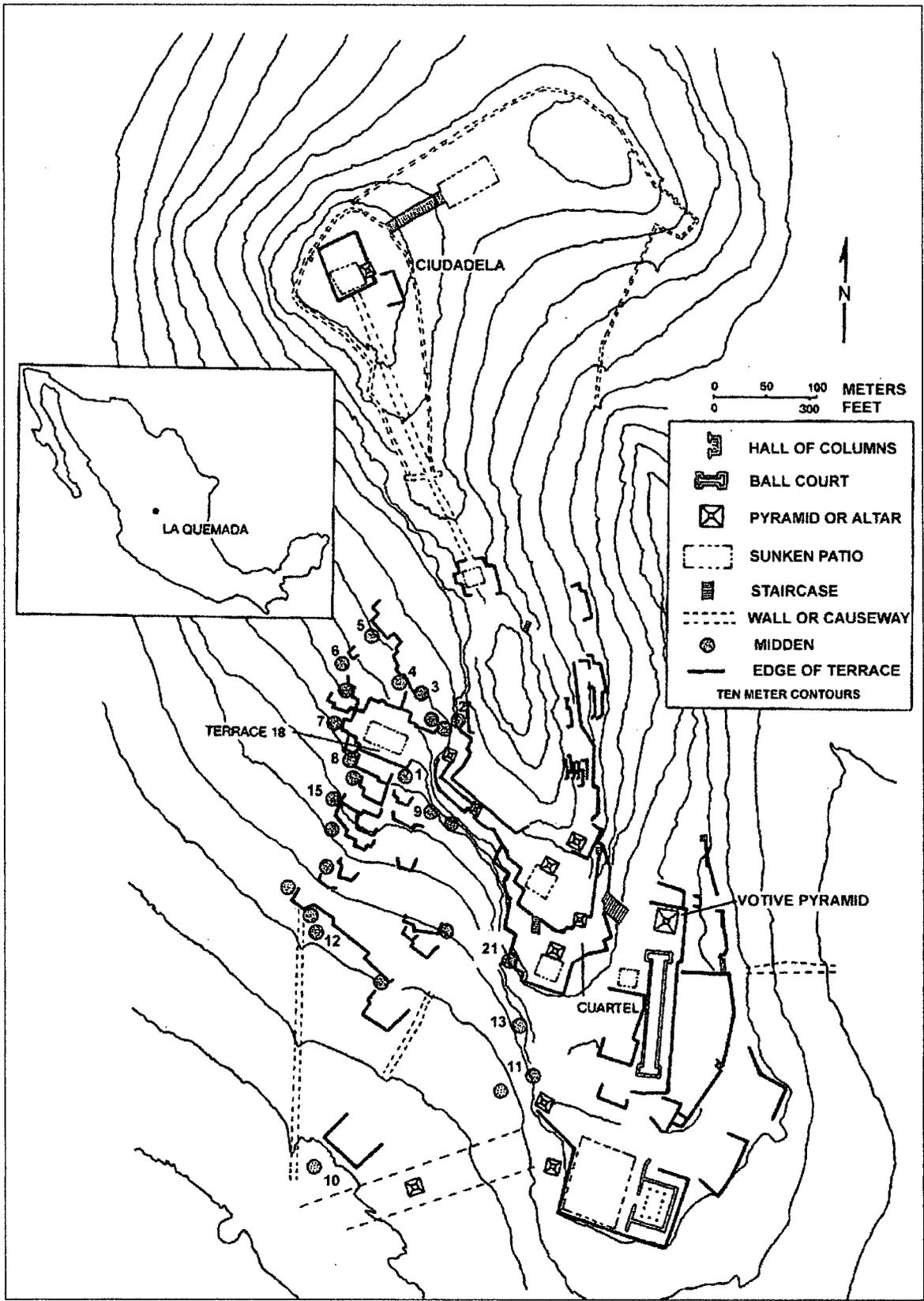


Figure 2. Map of La Quemada including middens. Adapted from Nelson *et al.* 1997: 26.

Los Pilarillos is slightly larger than 5 hectares in size, making it a likely secondary centre in the site hierarchy. There are several other sites of a similar size to Los Pilarillos (Nelson 2002, personal communication); however, the majority are quite small, ranging from .25 to .5 hectares in size. Few sites other than La Quemada and Los Pilarillos are known to contain public architecture, although further excavation at some of the larger sites would likely uncover some. Domestic structures throughout the valley are of the patio-banquette style found at La Quemada, but the structures are generally built of adobe or wattle-and-daub instead of stone masonry.

The Chalchihuites Culture Area

The material culture found at the sites in the Malpaso Valley is referred to as the Malpaso Culture, and appears to be a regional development that is part of or at least closely associated with a larger Chalchihuites Culture (Jiménez Betts and Darling 2000: 157; Kelley and Kelley 1971: 175). There are particular similarities with the ceramics of the Suchil Chalchihuites Culture immediately to the north – best represented at the site of Alta Vista (Figure 4). Alta Vista was occupied at roughly the same time as La Quemada, from approximately 500 to 900 AD (Kelley 1985: 274-275; Weigand 1982), and the close resemblance between the incised-engraved wares from the two sites has led to the proposal of parallel developments in the two areas (Kelley 1971: 776). The designs on the incised-engraved wares from La Quemada are simpler and not as well executed as those at Alta Vista, indicating that it was part of a local development rather than simply imported or copied from the north (Jiménez Betts and Darling 2000: 162). Some of the more elaborate polychrome, negative painted, and pseudo-cloisonné ('paint cloisonné' at Alta Vista) ceramics also bear close similarities to examples from Alta Vista; however, there are also types that are clearly influenced in design by other regions to the south, making the assemblage from La Quemada distinct from that found at Alta Vista (Jiménez Betts and Darling 2000: 164).

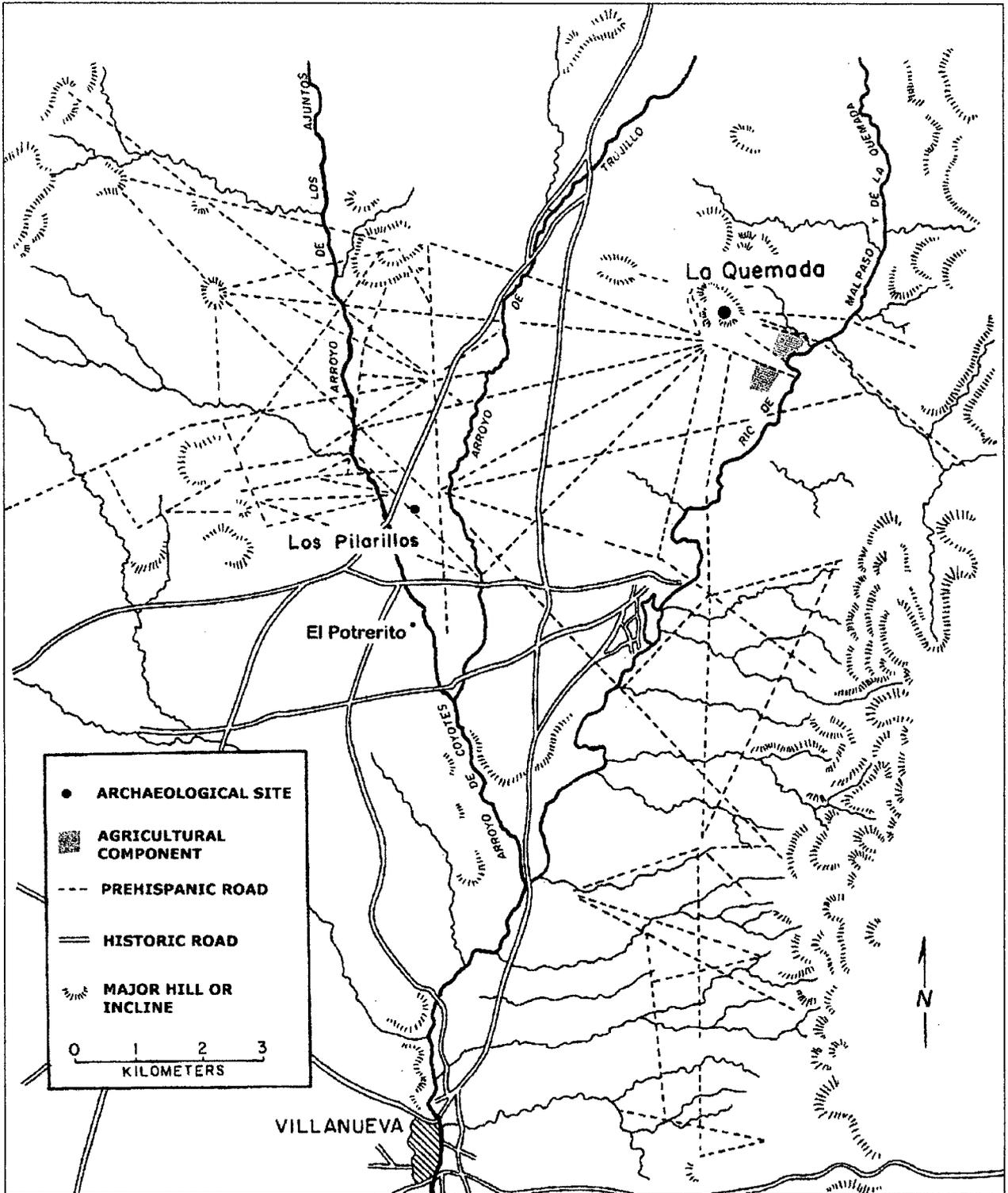


Figure 3. Malpas Valley including ancient road system. Adapted from Nelson *et al.* 1997: 25.

There are some additional similarities between Alta Vista and La Quemada. First, there are pyramid-altar complexes and a columned hall at Alta Vista as at La Quemada. Second, quantities of processed human bone have also been discovered in ceremonial contexts at Alta Vista. The bones are primarily long bones and perforated crania, although mandibles and hipbones are also common (Kelley 1978: 109-117). Many of the long bones and crania have cut marks from dismembering and defleshing, and appeared to have been suspended from the ceiling, or, in some cases, from 'skull and long bone racks' (Kelley 1978: 117). Third, an individual burial of a young male was excavated in the Hall of Columns at Alta Vista which has also been interpreted as a sacrifice to Tezcatlipoca based on the accompanying offerings and "other evidence" (Kelley 1978: 116).

There is a final feature of Alta Vista that is relevant to my discussion: it appears that the production of turquoise goods was an important activity there. A large "turquoise workshop" was discovered at Alta Vista, and offerings in high status burials and in the Hall of Columns included over 17,000 pieces of turquoise (Weigand 1982: 91; Weigand and Harbottle 1993: 173). Extensive pre-Columbian mining operations were conducted in the Río Colorado Valley immediately surrounding Alta Vista as well as in the neighbouring Río San Antonio Valley (Weigand 1982: 93, Figure 1). Weigand (1982: 100) estimates that there are over 750 mines present, and that they represent several million tons of spoil. Culturally valuable minerals such as cinnabar, hematite, and chert have been found in the mines, as well as small amounts of malachite (i.e., copper carbonate) – a type of blue-green stone (Weigand 1982: 97). The mines are located in semi-consolidated alluvial deposits, which means that it is highly unlikely that turquoise (i.e., copper and aluminum phosphate) was a target mineral of the miners; turquoise is mainly found in hard rock environments (Weigand and Harbottle 1993: 164). Furthermore, the concentration of so many mines in such a relatively small area is not consistent with turquoise

mining: "Turquoise deposits are spread out over vast geographical regions in much more varied geological conditions" (Weigand and Harbottle 1993: 164). It appears that any locally obtained blue-green stones were malachite, and that raw turquoise was acquired from the Southwest (Weigand 1982: 91; Weigand and Harbottle 1993: 173).

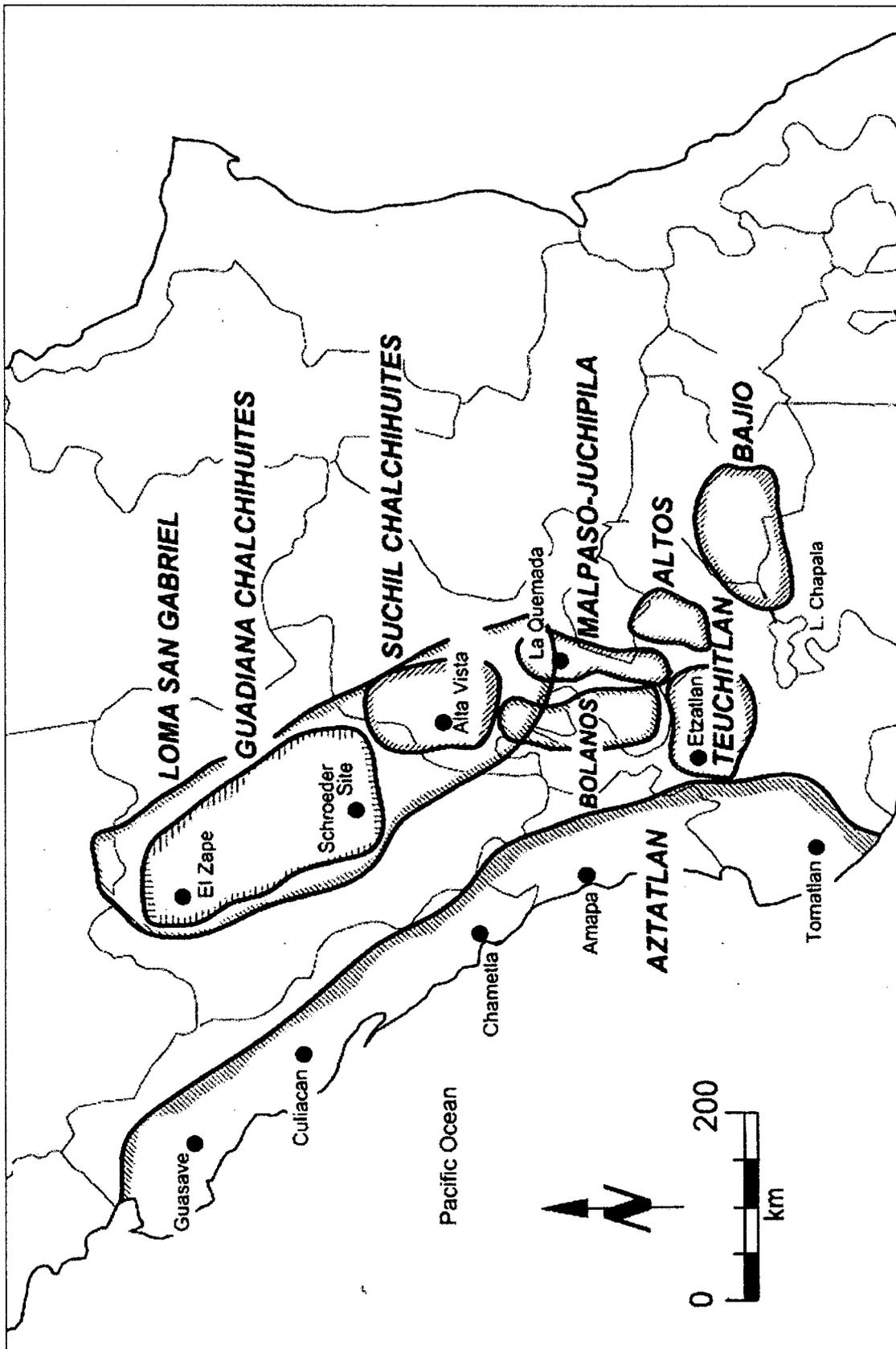


Figure 4. Northwest Mexican archaeological cultures and traditions. From Jiménez Betts and Darling 2000: 156.

Wealth and Power

Long-distance exchange of non-utilitarian valuables is understood as an important source of local power for a number of reasons. First, they are often associated with foreign power, and the acquisition of these goods can legitimize high status and local control (Bradley 1993; Earle 1987; Hirth 1999; Helms 1979: 76-77; 1993: 195). The ability to travel to distant powerful places, which are usually conceived of in supernatural terms, as well as the accumulation of wealth on those journeys can be a source of prestige (Helms 1979: 133; 1993: 136). Second, the objects themselves are often imbued with supernatural power and associated with exotic esoteric knowledge (Earle 1987: 299; Helms 1979: 76). This is often expressed through their frequent use in ceremony (Bradley 1993; Helms 1993: 118; Mathien 2001). Because of their rarity and associations with supernatural power, the possession of prestige items serves to set elites apart from local commoners, and sumptuary laws may further limit the distribution of such goods. By possessing and displaying prestige goods, individuals declare not only their social status but also their supernatural right to power (Brumfiel 2000). Third, the exchange or gifting of such valuable items can be used to create alliances and gain support, not only with foreign elites, but also with local elites and sub-elites (Bradley 1993; Blake and Clark 1999; Earle 1987; Helms 1993: 136).

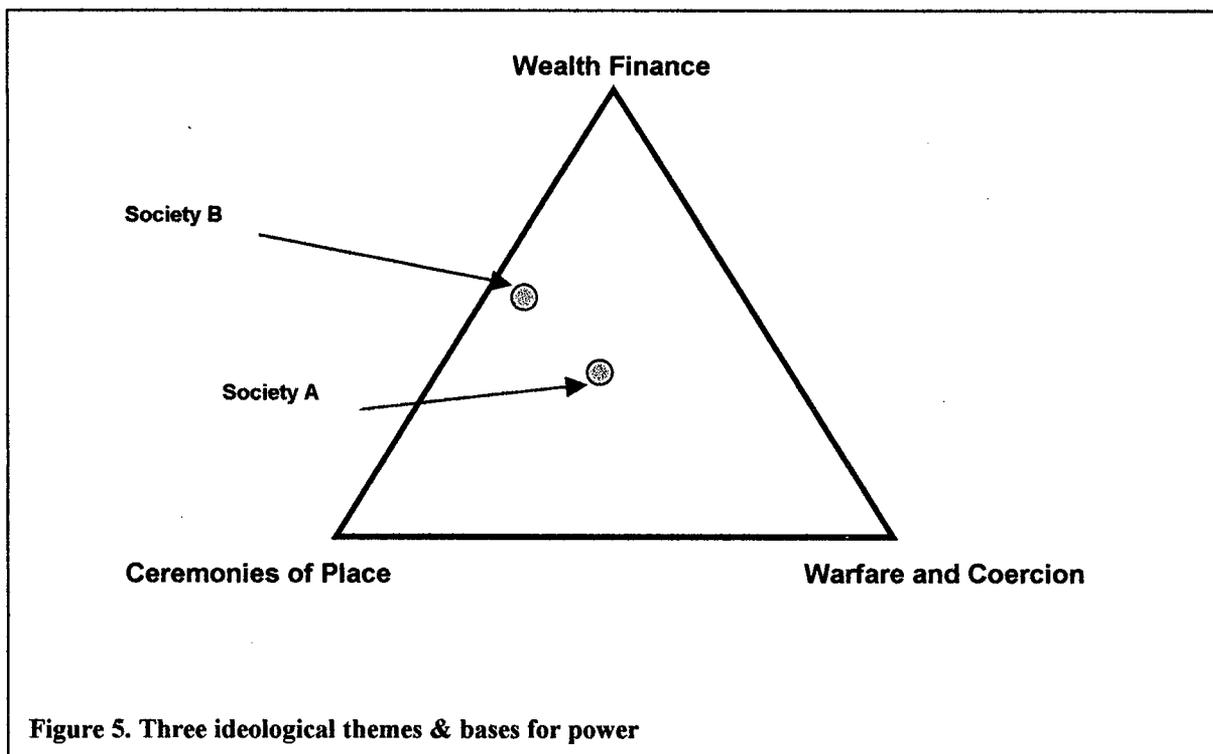
Turquoise was a valuable prestige good with supernatural associations in Mesoamerica. Ethno-historically, blue-green stones, or *chalchihuitl*, were highly desirable and frequently associated with the gods (Sahagún 1956; Weigand 1982). Even though all blue-green stones were desirable and imbued with special properties, the finest turquoise stones were the most sought after, and were referred to by the Aztecs as *teuxiuitl*, from 'god' (*teotl*) and 'turquoise' (*xiuitl*), meaning 'property of the god'. They are referred to as the 'mother' of all stones, and appear to represent the earth, growth and new life (Sahagún 1956; Weigand 1982). There is significant evidence of Mesoamerican influence at La Quemada including ball courts, pyramids, altars, sunken-patio residences and the colonnaded hall (Nelson 1995), astronomical alignments

and measurement units (Lelgemann 2000), and symbolism in architecture (Medina 2000). In this context it is reasonable to suggest that the people of La Quemada gave blue-green stones an ideological value similar to other Mesoamerican peoples. If the elites of La Quemada were trading turquoise or any other blue-green stones, it is likely that some of them would enter the local system as prestige goods.

Prestige goods or wealth, however, are only one possible base for power. Earle (1987) identifies three ideological 'themes' that can be found in the archaeological record and suggests that they can be tied into different bases of power and control. "*First* are the ceremonies of place associated with the creation of a sacred landscape with monumental constructions" (Earle 1987: 299, italics mine). In this case leaders become intermediaries between the sacred and the profane, and are often seen as gods on earth (Earle 1987: 298; Helms 1980; Sahlins 1985: 78). It is their action of creating bounded sacred spaces and performing rituals within them that is the source of their power. "*Second* are the symbols of individual position within a society as seen most vividly in the burials" (Earle 1987: 299, italics mine). This theme is connected to the discussion of prestige goods above, and is frequently referred to as 'wealth finance'. "*Third* are the symbols of warrior might represented in the burial assemblages of many chiefdoms" (Earle 1987: 299, italics mine). This type of symbolism speaks of military superiority as well as power and domination through intimidation and violence. Earle suggests that such reminders are often so powerful that a demonstration of these qualities is not necessary, and the threat of violence is enough to keep those in power at the top. Frequently, however, actual participation in warfare and the enacting of institutionalized violence (such as human sacrifice) are just as important as displaying the symbols of military successes and might in the quest for power through coercion (Helms 1980; Sahlins 1985: 73-76).

These three 'themes' (1. ceremonies of place; 2. wealth finance; 3. warfare and coercion) are not mutually exclusive and aspects of all three can be found in many societies; often it is their

interaction that contributes the most to the development of social hierarchies. However, Earle (1987) suggests that the emphasis on one particular theme over another in a given society may indicate a particular basis for power and status. It is possible to visualize these three bases of power as points on a triangle (Figure 5). A society with strong material evidence for all three themes can be imagined as falling somewhere near the center of the triangle (e.g., Fig. 5, Society A). If, as Earle suggests, sometimes there is an emphasis on one or two of the themes over another, those societies could fall closer to one side or one point of the triangle. For example, a society where there is substantial evidence of long-distance exchange and ceremonies of place but little evidence of warrior symbolism may be represented the way that 'Society B' is in Figure 5. These three themes (or bases of power) provide a useful framework with which to evaluate the relative significance of trade in blue-green stones as a source of power at La Quemada.



Earle (1987) suggests that elites depend on the control of staple finance where there is not strong evidence for wealth finance. However, clear evidence that staple finance was a basis for power at La Quemada (such as underground central storage areas) has not been uncovered (Turkon 2002, personal communication). Therefore, in my discussion of the relative importance of ceremonialism and warrior might, I consider alternate ways that these factors can operate as sources of elite power.

Context of the Turquoise Trade Hypothesis

Before I present my analysis of the blue-green stones I need to more clearly explain the context from which these questions emerge. Turquoise, along with other exotic goods such as marine shell, has long been believed important in social developments along the Mesoamerican frontier (e.g., Di Peso 1974; Kelley 1995; Weigand 1982; Weigand and Harbottle 1993; Whitecotton and Pailes 1986). Weigand and Harbottle (1993) suggest that it was the demand for turquoise in Mesoamerica that triggered the emergence of complex North Mexican and Southwestern societies, including the one centred at La Quemada. This inference is made primarily because of La Quemada's position on the most efficient route between Central Mexico and the Southwest, and from extrapolation from the nearby site of Alta Vista (see Figure 1). Relatively little excavation had been done at La Quemada at the time these arguments were first proposed, so it was reasonable to expect that blue-green stones (both turquoise and possibly locally mined malachite), which were apparently so important at Alta Vista, would also be important at La Quemada because there are so many cultural similarities between the two sites and they are only about 200 kilometres apart.

On the basis of more recent research, it is unlikely that the powerful Central Mexican states of Teotihuacan or Tula had anything to do with the development of La Quemada because of timing (Nelson 1993, 1997); the main occupation of La Quemada occurs after the decline of

Teotihuacan, and before the emergence of Tula. It is possible, however, that the interests of smaller Mexican city-states such as Xochicalco and Cholula would have been sufficient to instigate change along the frontier (Weigand 1982: 89-90). There certainly is an increase in the appearance of turquoise in Mesoamerican sites following the collapse of Teotihuacan at the end of the Classic Period (Vokes 2001; Weigand 1982). Additionally, Weigand (1982: 88) argues that mining societies do not generally occur independently from state pressure or colonization.

One of the reasons that wealth or prestige goods have been emphasized so heavily in past analyses is the nature of the theoretical models used to explicate Southwestern-Mesoamerican interactions. The two most important and prevalent approaches used have been trade or '*pochteca*' models (e.g., Di Peso 1974; Kelley 1995; Lister 1978; Reyman 1978) and globalist or 'world systems' models (e.g., Weigand 1982; Weigand and Harbottle 1993; Whitecotton and Pailles 1986). The *pochteca* model is based primarily on ethno-historic accounts of elite Aztec long-distance traders who infiltrated distant areas for the purpose of locating and exploiting resources (generally of high value and low bulk) such as cotton, feathers, shell, jade, turquoise, copper and gold (Berdan 1988; Sahagún 1956; Santley and Pool 1993; Soustelle 1978). It has been suggested that the presence of similar traders from earlier Central Mexican states can explain the existence of Mesoamerican culture traits as far north as the Southwest. Generally these traders are not only attributed with transporting goods and ideology, but also with establishing colonies where, as elites, they controlled the extraction of local resources such as turquoise (Di Peso 1974; Kelley 1986, 1995; Lister 1978; Reyman 1978). In this model, it is the interaction of individuals rather than that of societies that is emphasized. Di Peso (1974, Vol. 1: 59; also see Foster 1960: 93) lists three main attributes of *pochteca* contact:

1. The two complete systems never interact, and parts of the dominant or conquering society may be consciously withheld by its agents (i.e., *pochteca*).
2. Only part of the range of phenomena offered by the dominant society will be selected by or forced upon the conquered population – this process is largely unplanned and informal and is based primarily upon personal individual choice.

3. Contact of this kind not only influences personal choices, but also creates the opportunity for entirely new ideas and items to emerge.

Within the context of this model, La Quemada has been described as a *pochteca* outpost and frontier fortress, protecting Mesoamerican trade routes and interests (Di Peso 1974; Kelley 1971). The *pochteca* model has come under intense criticism (e.g., McGuire 1980) and has generally fallen out of favour, but it was instrumental in instigating further interest in and research on the interaction between the Southwest and Mesoamerica (Bradley 1993).

The globalist approach is often based on 'world system theory' as proposed by Wallerstein (1980) and elaborated by anthropologists such as Wolf (1982). It is the model employed by Weigand and Harbottle, and is similar to the *pochteca* model in terms of assuming economic integration of the "Mesoamerican metropolis" and the hinterland to the north: "the ancient mining and trading societies of Zacatecas were dependent on the metropolis and... they were integrated into the ancient world system by means of the long-distance trade economy" (Weigand 1982: 90). The main difference is that foreign colonists are not necessary to this model (although they are frequently employed), and the control of the extraction of resources, production, and distribution can be based locally. A small group of indigenous elites emerged on the frontier, acquiring power and status that was dependent upon their relationship with the core, thereby explaining the social changes in the Malpaso Valley and elsewhere in Northern Mexico and the Southwest.

In summary, blue-green stones (and particularly turquoise) are assumed to have been important at La Quemada because of its geographic location, its similarity and proximity to Alta Vista, and the economically focussed approaches used to model long-distance interaction and social change along the Mesoamerican frontier. Political economy, while useful, can also be limiting, and cultural and historical dimensions of the processes of social change are often neglected (Sahlins 1994). While the main focus of this paper is an analysis of blue-green stones

from the Malpas Valley and a determination of their role (as wealth) in the emergence of powerful elites, I also explore other possible sources for power (following Earle's [1987] model) and their relative importance in my final discussion.

Hypothetical Expectations

It is possible to derive certain expectations from the theoretical framework and arguments presented above, and I have used other archaeological examples to further develop them (Table 1). Alta Vista is a useful site for comparison of quantities, but other information for comparison is not easily accessible. I have chosen instead to use shell data from Casas Grandes (or Paquimé), Chihuahua and Ejutla, Oaxaca to generate expectations as far as the distribution of blue-green stones in the Malpas Valley. Both are inland sites, and it appears that they imported unworked marine shell for production and redistribution (Bradley 1993; Di Peso 1974; Feinman and Nicholas 1990, 1993, 2000; Minnis 1998, 1999; Whalen and Minnis 2001), which is a process similar to the one proposed for blue-green stones at La Quemada. Marine shell was also an important imported prestige item in pre-Columbian Mesoamerica, and the patterns in the distribution of shell at these two sites should be similar to what would be expected for blue-green stones at La Quemada. I restricted my comparison to the Medio period at Casas Grandes (approximately 1200-1450 AD, after Dean and Ravesloot 1993), and Monte Albán II/IIIa at Ejutla (approximately 200 BC – 250 AD) to account for temporal considerations.

Incidentally, shell does not appear to have been a significant trade or prestige item at La Quemada, and less than 200 pieces of marine shell have been collected in excavations at the site; 166 shell beads came from a single burial context (Lelgemann 2000), and an additional 23 pieces of modified and 1 piece of unmodified shell came from other contexts (Wells and Vargas 2001).

Table 1. Expectations For Turquoise as an Important Source of Wealth, Power, and Status

Expectations	Archaeological Evidence
1. Large quantities of blue-green stone present	Roughly standardized comparison of amounts between sites
2. Various stages of production represented	Raw (i.e., no clear evidence of working), partially worked, formed, finished, goods & debitage all present
3. Specialization, high volume production, and elite control	High concentrations of debris, worked stone & tools – household or midden contexts, possibly restricted geographically
4. Blue-green stones important in the expression of status & finished goods limited to elite contexts	Burial goods, Elite residences (identified by architecture, location near site core/ceremonial precincts), ceremonial areas

1. There would be large quantities of blue-green stones present.

If the control of trade in blue-green stones was the primary source of elite power and wealth at La Quemada then there should be relatively large quantities present in various contexts at the site. For the reasons discussed above, I would expect some of the stones to enter the local system as prestige items. If raw (i.e., unworked) materials were worked prior to export, it would produce waste that would also find its way into the archaeological record (Mathien 1993).

2. Various stages of production would be represented.

Blue-green stones of any kind would have been worked not only for local consumption, but also to add value before export. With the rise of the Chaco Canyon system (circa A.D. 900) raw turquoise practically disappears from the archaeological record in Mesoamerica, but at the time of La Quemada's main occupation (650-750 AD) unworked turquoise was still being imported into Mesoamerica (Vokes 2001: 18-19; Weigand 1982). The stages of production are represented archeologically by the materials themselves (whether they are raw, worked, or finished) and by the tools used to work them. The ratio of finished goods to samples representing earlier stages of production can suggest whether the goods were made primarily for exchange or for local consumption (Feinman and Nicholas 1993, 2000).

3. *Specialization, high-volume production, and elite control*

I would expect high-intensity craft specialization, entailing the production of goods for consumption outside of the household, to be evident at the site. High-intensity or high-volume production does not necessarily mean large-scale production (see Feinman and Nicholas 2000), nor does it necessarily indicate a full-time household activity; for example, jewellery makers may not have participated in agricultural activities, but likely made other goods such as stone tools or ceramics as well (Feinman and Nicholas 2000; Mathien 2001: 110). In terms of the production of beads, pendants, or *tesserae* (i.e., mosaic tiles) made of turquoise (or another blue-green stone), high-intensity production would result in concentrations of debitage or micro-chips and raw materials in domestic midden or floor contexts (Mathien 2001; Vokes 2001; Weigand and Harbottle 1993). In addition, I would expect stone working tools such as lapidary abraders and stone drills to be concentrated in production areas (Mathien 2001: 108).

It is more difficult to predict the location of production areas within the site. When discussing specialization, particularly in regard to prestige goods, it is necessary to address the issue of 'attached' versus 'independent' specialists (e.g., Arnold and Munns 1994; Brumfiel and Earle 1987; Clark 1995; Costin 1991; Inomata 2001; Stein 1996). Generally, 'attached specialists' produce non-subsistence or non-utilitarian goods under elite sponsorship and supervision, and high status households are the most likely location for craft production areas (Brumfiel and Earle 1987). It is also possible for the skilled creation of craft goods to confer elite status (Helms 1993; Inomata 2001). Therefore, evidence of craft activities is most likely to be found in elite residential contexts even if specialists are not 'attached' (i.e., they hold rights over the alienation of their goods) or under the direct sponsorship or supervision of an elite (Inomata 2001). However, there are also examples of prestige good production occurring in non-elite contexts (Arnold and Munns 1994; Feinman and Nicholas 2000; Mathien 2001; Whalen and Minnis 2001: 184). It is possible that the control over the distribution and/or consumption of

prestige goods reduces the need for close elite controls on production; in addition, when there is control over distribution, close supervision of crafting becomes an inefficient use of elite resources (Arnold and Munns 1994). In the case of Southwestern turquoise, the possible procurement of raw materials would likely rely on elites, as the long journey and mining activities would require a large investment in time and resources (Weigand and Harbottle 1993: 164). Also, if the turquoise (or other blue-green stones) were being worked for export to Central Mexico, it is conceivable that the transport of the goods over that distance would also rely on elites (Helms 1993). Finally, requiring tribute or quotas from craft producing households could ensure elite control over the finished goods (Arnold and Munns 1994).

To summarize, there should be evidence of high-intensity turquoise production at La Quemada. Production areas are most likely to occur in, but will not necessarily be limited to, elite residential areas of the site. In this case I believe it is likely that production areas (should they occur) will not be highly restricted geographically since *tesserae*, bead, and pendant production is not an especially skilled activity, (Mathien 2001: 105).

4. Blue-green stones would be important in the expression of elite status and finished goods would be restricted to elite contexts.

Since blue-green stones were exotic goods with social and ideological value, the consumption of jewellery made of blue-green stones, and particularly turquoise, would be limited to elites. There is also the possibility of some distribution (likely of inferior stones) to sub-elites for the purpose of garnering support and making alliances (Blake and Clark 1999; Bradley 1993; Earle 1987, 2001). Some finished goods could potentially appear in non-elite production areas, albeit in relatively small quantities (Feinman and Nicholas 2000; Mathien 2001).

Burials are one of the most common archaeological contexts for prestige goods, and are also one of the most important indicators of an individual's status during life. If individuals were primarily interred in the ground at La Quemada, I would expect to find 'status burials' with rich offerings including turquoise. Ceremonial contexts can also provide evidence of elite ritual behaviour, and I would expect turquoise to be important in these contexts as well (Mathien 2001; Renfrew 2001; Vokes 2001). This can include burials and accompanying offerings or separate offerings ('caches') found in ceremonial contexts. Becker (1992) suggests that an attempt should be made to differentiate between dedicatory burials and memorializing structures. That is, the burial of an individual (whether a sacrificial victim or not) under or within a ceremonial structure can be considered part of the whole offering given to dedicate the construction rather than envisioning the building as a monument to the individual (Becker 1992). In these cases the burial goods may represent the offerings of a number of people rather than the personal wealth of one individual (Becker 1992; Earle 2001; Mathien 2001). Offerings of blue-green stones such as turquoise in ceremonial contexts still reflect elite status, but that of a group rather than of an individual.

Blue-green Stones at La Quemada

I have tested the four expectations discussed above using data collected by the La Quemada-Malpaso Valley Project and the Ciudadela Project. In the following section I describe the collection and the contexts from which the samples were collected, and then test the hypothesis using other archaeological examples to develop the expectations and as points of comparison.

The Collection

The collection of blue-green stones that I have analyzed includes 37 samples from La Quemada, seven samples from Los Pilarillos, and two samples from El Potrerito (a total of 46),

which were excavated by the Malpaso Valley Project between 1989 and 1999. They include very small fragments that were recovered from the heavy fraction of flotation samples. All are unidentified (i.e., their chemical composition is unknown). Most of them do not appear to be turquoise to me. Several have intense dark blue as well as blue-green portions (indicated in Table 2), which leads me to believe that they are samples of malachite and azurite. Both minerals are copper carbonate (malachite being blue-green and azurite being azure) and are regularly found in association with each other; malachite crystals frequently replace azurite crystals naturally (Chesterman 1979). There are additional raw and partially worked blue-green samples that closely resembled the stones with the dark blue inclusions, and I believe that they are likely malachite as well (a total of 22 pieces including those with and without dark blue). Since malachite and azurite were likely available in the Chalchihuites mines around Alta Vista (Weigand 1982: 97), this conclusion does not seem unreasonable.

I also categorized the samples according to the stage of production that they represent – their category reflects whether they are raw (i.e., no clear evidence of working), partially worked (i.e., clear evidence of grinding or flaking), formed (e.g., pendant or bead blank), debitage, or finished goods. I have listed all the samples in Table 2 including their category, weight and dimensions, and notes on their colour, form and location. There are an additional 177 finished pieces (*tesserae* and beads, not included in the table) that have been identified as turquoise by Achim Lelgemann (2000). They all come from a single burial in a pyramid in the Ciudadela area of La Quemada excavated by Lelgemann (2000: 217-218). I did not have the opportunity to examine these samples myself, but they are well described in Lelgemann's (2000) report.

Table 2. Malpaso Valley Blue-green Stones

Key: LQ = La Quemada; LP = Los Pilarillos; EP = El Potrerito
A = raw material; B = clear evidence of working (grinding or flaking); C = formed piece; D =
debitage; E = finished piece

	Site	Category	Wt (g)	LxWxTh (mm)	Dk. Blue & green	Notes	Location
1	LQ	E	0.1	3.7x3.2x0.6		tessera	Midden 11
2	LQ	E	0.1	3.9x2.1x0.8		Bead fragment	Midden 7
3	LQ	E	0.35	12.3x7.4x2.1		Rectangular pendant; bevelled edges	W. Banquette (T. 18)
4	LQ	E	0.42	15.9x9.7x2.1		Rectangular pendant	W. Banquette – temple (T. 18)
5	LQ	D	<0.1	too small			W. Banquette (T. 18)
6	LQ	D	<0.1	Small frag		From flot.	Midden 13
7	LQ	D	<0.1	micro frag			Midden 11
8	LQ	D	<0.1	Small frag		From flot.	Midden 11
9	LQ	D	<0.1	2 small frags			Midden 11
10	LQ	C	0.2	3.7x3x?			Midden 13
11	LQ	C	0.8	14.4x11.3x3.9			Midden 10
12	LQ	B	2.5		✓		E. Banquette (T. 18)
13	LQ	B	1.6	16.4x11.9x6.6	✓		E. Banquette (T. 18)
14	LQ	B	2.9	22.2x11.6x9.05			Midden 11
15	LQ	B	9.2	2.0x20.9x18.1			Midden 11
16	LQ	B	8.1	28.7x31.55x8.5			Midden 11
17	LQ	B	0.3	9.9x5.1x3.4			Midden 6
18	LQ	B	0.1	7x6.7			Midden 10
19	LQ	A	9.2	31.2x20.5x11			N. Banquette (T. 18)
20	LQ	A	9.7	30.9x23.8x14.8			N. Banquette (T. 18)
21	LQ	A	6.7	2 frags	✓		S. Banquette (T. 18)
22	LQ	A	2.1	16.5x15.5x10.8			E. Banquette (T. 18)
23	LQ	A	20.9	43.1x33.1x16.9	✓		Midden 15
24	LQ	A	1	13.1x9.4x7.4			Midden 13
25	LQ	A	7.5	29.7x18.6x8.5	✓		Midden 12
26	LQ	A	1.7	6.8x5.1x4.9	✓		Midden 12
27	LQ	A	6.2	20x25.3x13.1			Midden 12
28	LQ	A	0.6	4.1x7.5x5.5			Midden 11
29	LQ	A	3.8	20.9x14.7x11			Midden 11
30	LQ	A	1.55	13.3x9.9x9.2	✓		Midden 11
31	LQ	A	8.1	40.3x14.1x11.7	✓		Midden 11
32	LQ	A	0.45	2 small frags		From flot.	Midden 11
33	LQ	A	9.2	28.6x25.7x7.5	✓		Midden 11
34	LQ	A	0.6	14.3x9x5.4			Midden 11
35	LQ	A	0.5	2 small Frags	✓		Midden 6
36	LQ	A	0.25	11.2x6.3			Midden 6
37	LQ	A	3.9	19.3x19.3x6.8			Midden 6
38	LP	E	0.6	2.9x8.3x3.5		Bead or pendant frag. – broken at edge of drilled hole	burials
39	LP	D	<0.1	2 sm frags		From flot.	Midden 1
40	LP	D	0.15	Small round 'chunk'		From flot.	burials
41	LP	C	1.8	14.2x12.8x3.4			Midden 1

42	LP	C	12	38.7x26.6x9.2	Gray ground stone oval pendant 'blank' w/ turquoise coloured 'face'	E. Banquette
43	LP	B	0.15	approx. 6x6		E. Banquette
44	LP	B	0.6	9.9x9x6.3		burials
45	EP	D		4 frags		midden
46	EP	E	4	18.9x20.9x8.7	Irreg. shaped oval pendant	midden

Key: LQ = La Quemada; LP = Los Pilarillos; EP = El Potrerito

A = raw material; B = clear evidence of working (grinding or flaking); C = formed piece; D = debitage; E = finished piece

Very few artifacts were found in structures during excavations at the site, and they were likely removed over the course of abandonment (Kelley 1971: 776; Nelson 2001: 14). It is not surprising then that most of the blue-green stones (29/46) were recovered from midden contexts (see Table 3). Midden 11 had the highest concentration of stones (14 in total), including a single finished piece that is likely turquoise (a *tessera*). Midden 11 is located at the base of a rock face that supports terraces associated with the central core of the site (Figure 2), and it is assumed that these terraces were the primary source of the deposits in the midden (Nelson *et al.* 1995: 25). Other possible sources of the material discarded in Midden 11 include activities that occurred in the large patio outside the Hall of Columns and at the main ceremonial entrance of the site. These areas include public structures (such as the causeway, temples and pyramids) and high status households. The high status of the households is inferred from the large size of some of the structures (arranged around sunken rectangular patios), their stone masonry (as opposed to simpler adobe constructions at the periphery of the site and in smaller settlements in the valley), and their associated walls, staircases, causeways, and the artificial terraces themselves, which all speak of a high investment of labour (Nelson 1995: 605-607; Trombold 1985: 238). There were fancy painted and pseudo-cloisonné sherds in the midden (Nelson *et al.* 1995: 26), which also suggest a high status for the residents above. Excavation of this midden was conducted over two field seasons in 1990 and 1992. The midden does not appear to have been disturbed greatly and

the deposits are stratified, but the layers were not apparent at the time of excavation so arbitrary levels were used (Nelson 1997: 97; Nelson *et al.* 1995: 25).

Most of the remaining blue-green stones were recovered from six other middens and Terrace 18. Middens 6, 12, and 13 produced a few samples each (Table 3). Midden 13 is just to the north of Midden 11, and is associated with the central precinct of the site (Nelson *et al.* 1995: 26). A total of nine stones, including two of the four finished pieces, were recovered from the banquettes on Terrace 18. The two finished pieces are small blue-green pendants (both less than 1.5 x 1 cm). They are simple rectangular pieces, and one has bevelled edges. Both were found on the West Banquette of Terrace 18 in units associated with the temple; one was inside the temple (Unit 24), and the other was in the patio just in front of it (Unit 46). Another finished piece (a bead fragment) came from Midden 7, which is located below the western edge of Terrace 18 (Figure 2) and is also associated with the temple on the West Banquette (Nelson *et al.* 1995: 24). The final finished piece is the *tessera* from Midden 11 mentioned above.

Table 3. Summary of Contexts for Blue-green Stones at La Quemada

Location	Category Totals					Totals
	A	B	C	D	E	
Midden 6	3	1				4
Midden 7					1	1
Midden 10		1	1			2
Midden 11	7	3		3	1	14
Midden 12	3					3
Midden 13	1		1	1		3
Midden 15	1					1
W. Banquette (Terrace 18)				1	2	3
E. Banquette (Terrace 18)		2	1			3
S. Banquette (Terrace 18)	1					1
N. Banquette (Terrace 18)	2					2
Totals:	17	8	3	5	4	37

Key: A = raw material; B = clear evidence of working (grinding or flaking); C = formed piece; D = debitage; E = finished piece

The Ciudadela pyramid and enclosed burial excavated by Achim Lelgemann (2000) yielded a total of 177 pieces of turquoise – a large amount relative to the number of blue-green

stones collected from other areas of the site. The great majority of these are small *tesserae* that range from 0.4 to 0.8 millimetres thick. Most of the *tesserae* are rectangular (square or trapezoidal), but some are multisided and one is oval-shaped. The smallest piece is 1.3 mm square and the largest is approximately 8.2 x 5.6 mm (Lelgemann 2000: 217-218). It is likely that these were part of a small mosaic mirror; they were found with similar sized pyrite *tesserae*, and both types have the remains of a dark brown resin on their backs. There are also five tiny (less than 5 mm long), finely worked pieces of green Pachuca obsidian that were likely part of the mosaic as well (Lelgemann 2000: 223). In addition to the *tesserae*, there are also six round turquoise beads. The smallest bead is 1 mm thick with a diameter of 2.2 mm, and the largest is 1.6 mm thick with a diameter of 4.9 mm (Lelgemann 2000: 218). The beads appear to have been strung into a necklace with 166 small shell beads and a single large jade bead (Lelgemann 2000: 222, 224). This relatively large cache of turquoise actually only represents two finished goods, and most of the pieces were part of a single small mosaic-mirror.

The Malpaso Valley Project collected a total of nine additional samples from excavations at two other sites (Table 2). Six were recovered from Los Pilarillos – a stone with significant grinding and a pendant blank came from a ceremonial banquette (East Banquette), a pendant blank came from a midden (Midden 1), and a bead or pendant fragment, a single debitage chip, and a stone with grinding on one side came from a plaza area between two major mounds (Unit 204). The pendant or bead fragment was found on the upper edge of a pear-shaped pit in the same unit. This pit may have contained a burial that was later exhumed, and it is possible that the fragment was part of the interment and was left behind when the bones were removed. However, the soil from the upper part of the pit and the soil just above the pit were indistinguishable, so the fragment may not be directly associated with the pit or possible burial (Nelson *et al.* 2002).

At El Potrerito, four small debitage fragments and a single irregularly shaped ovoid pendant were found in midden material beside a small mound (Units 8 and 11). These units also

contained a large pit (1 metre in depth and diameter), and the pendant was found within the pit. However, the soil matrix within the pit and the surrounding midden were indistinguishable from each other, so the pendant was likely part of the midden deposit (Nelson *et al.* 2002).

Testing of the Hypothesis

This is not a very large collection relative to the amount of excavation that has been done. The total number of samples from La Quemada alone (including those from the Ciudadela burial) is 214. This is from a site approximately 35 hectares in size that was inhabited for about 350 to 400 years, and intensely for at least 100 of those years. There has been extensive excavation in a number of different areas of the site, and in both ceremonial and domestic contexts, so this should reasonably be a representative sampling (although it is certainly possible that there are other rich offerings in unexcavated ceremonial structures). For a very rough comparison, I looked at the collections of turquoise alone (not including other types of blue-green stones) from Alta Vista and Casas Grandes. The site of Alta Vista is similar in size to La Quemada and likely played a similar role as the main center in its region. It was occupied for a similar length of time between 500 and 900 AD (Kelley 1985: 274-275; Weigand 1982). The apparent importance of turquoise at the site makes it an appropriate example for developing the expectation that there should be large quantities of the mineral at La Quemada. Over 17,000 pieces of turquoise – most of them finished *tesserae* – were collected at Alta Vista (Weigand 1982: 91). This is significantly (nearly eighty times) more than the entire collection of blue-green stones (including possible samples of malachite and azurite) from La Quemada.

Di Peso (Di Peso *et al.* 1974, Vol. 8: 187; also see Weigand and Harbottle 1993: 174) believed that turquoise was the most important commodity at Casas Grandes (even though shell is found in much greater abundance), and that it was the Mesoamerican desire for turquoise that spawned the Medio Period fluorescence. Turquoise probably had high social and religious value,

but the argument that it was an important trade item has been contested (e.g., Bradley 1993: 127; Whalen and Minnis 2001: 36-37). Casas Grandes is similar in size to La Quemada at about 36 hectares (Di Peso 1974, Vol. 2: 370). The Medio Period was approximately 250 years long (1200-1450 AD), so it covered a time span much shorter than the occupation of La Quemada. There were over 5,000 pieces of turquoise recovered from Medio Period contexts (Di Peso *et al.* 1974, Vol. 8: 187). This is over twenty times more turquoise deposited over a shorter period of time at a site where it has not yet been convincingly argued that it was an important trade item.

All stages of production are represented in the collection of blue-green stones from La Quemada. Table 4 summarizes the totals for each category. The collection from the Ciudadela pyramid is not included because it is an aberrant case and swamps the counts. Also, since it actually only represents two finished ornaments, its inclusion could be misleading.

Table 4. Summary of stages of production from La Quemada

Category	Description	# of pieces	% of collection
A	Raw, unworked material	17	45
B	Partially worked material (clear evidence of flaking or grinding)	8	22
C	Formed items (e.g. bead or pendant 'blanks')	3	8
D	Debitage	5	14
E	Finished goods (beads, pendants, or <i>tesserae</i>)	4	11
Totals:		37	100

The ratio of finished goods to raw or partially worked material is not entirely useful here, as the raw goods may not represent the same activity as the finished goods do. If the majority of raw materials and partially worked pieces are not turquoise (as I suspect they are not), then they may represent other activities as well as jewellery making, such as the grinding of pigments for the production of painted ceramics (Strazicich 2002). This becomes particularly significant if the

collection of turquoise from the Ciudadela is taken into consideration. Since most of the debitage and some of the worked pieces do look like turquoise to me, it appears that some production of turquoise goods occurred at the site. However, most of the finished pieces could have easily been imported from Alta Vista where there is much stronger evidence for turquoise production (Lelgemann 2000: 219; Weigand 1982). Other kinds of blue-green stones, such as malachite and azurite, could have been imported raw from the mines around Alta Vista for making simpler jewellery or for grinding pigments. If this collection does represent two separate processes, then the likelihood that the production was for export decreases. Even though raw materials outweigh finished goods in the table above (usually an indicator that production is for consumption outside of the site), it may just be that all the actual finished goods (such as painted ceramics) are not represented here.

Turning to other archaeological examples, the patterns are far clearer. At Ejutla, there is ample evidence for the production of shell crafts, but very few finished goods (Feinman and Nicholas 1993: 110, 2000: 130-131). Of the entire shell assemblage from Ejutla (over 24,000 pieces of shell), about 60% consists of broken shell and debris, about 35% has evidence of some working (such as abrading, drilling, cut edges, or string-cut marks), and the remaining 5% includes finished and unfinished ornaments as well as whole shells (Feinman and Nicholas 2000: 126). The kinds of ornaments produced at Ejutla also contributed to the amount of waste generated. Most were not whole shell beads, but rather were formed ornaments such as plaques, disks, bracelets, and formed pendants (Feinman and Nicholas 2000: 127-128). The large amount of broken shell and debris relative to the number of finished objects suggests that the people of Ejutla were not producing ornaments for local consumption but rather for exchange. This is further supported by the fact that Ejutla has more evidence for shell ornament production and a much higher ratio of broken or unworked shell to finished goods than any other site in Oaxaca (Feinman and Nicholas 1993: 110, 2000: 130-131).

In contrast, at Casas Grandes there is less debris from production relative to the large quantities of finished shell beads. Approximately 95% of the assemblage consists of whole shell beads, about 2.8% consists of unmodified shell, and the remaining 2.2% consists of finished or unfinished formed ornaments (Bradley 1993: 135; Di Peso *et al.* 1974, Vol. 8: 170). The ratio of finished goods to debitage likely has more to do with the fact that the creation of whole-shell beads (the most common shell artifact at the site) does not produce much waste, rather than with the relationship between production and local consumption (Bradley 1993: 135). It is likely that the shells were imported whole and modified at the site rather than imported as beads (Di Peso 1974, Vol. 2: 504; Di Peso *et al.* 1974, Vol. 8: 170). However, within a regional context, it is not as clear that Casas Grandes was as important in the production of shell ornaments for export as Ejutla was; very little shell has been found at other sites in the region (Bradley 1993: 137; Minnis 1984: 186).

The pattern at La Quemada initially appears more similar to the one at Ejutla than the one at Casas Grandes. However, there is another issue with the data from La Quemada in addition to the questionable chemical make-up and intended purpose of the blue-green stones discussed above. There are actually very few whole, unworked shells from Ejutla, while at La Quemada the largest percentage of the collection is raw material rather than debitage. Lapidary work produces a great deal of debitage; for example, 6,000 pieces of turquoise debris were collected from a pit (Other Pit 1) in a turquoise production area at Chaco, and it was estimated from a soil sample that the pit contained over 500,000 micro-pieces (Mathien 2001: 108; Windes 1993: 230). If the production of blue-green stone jewellery was important at La Quemada I would expect there to be a very high percentage of waste, as at Chaco and Ejutla.

Since all stages of production are in evidence, it may be possible to determine the location of production areas in the site. If blue-green stones were an important commodity there should be clear evidence of high-volume and high-intensity production areas. The most

promising evidence for turquoise production comes from Midden 11, which contained seven pieces of raw material, three partially worked stones, four pieces of debitage, and a single finished *tessera* of approximately 3 mm square (see Table 2). No obvious lapidary tools (such as lapidary abraders, lapidary lapstones, files, or drills [Mathien 2001: 108]) were found in the area, although it is possible to work stone such as turquoise using more generalized abraders, such as metates, and perishable cane or wood tools (Di Peso 1974, Vol. 2: 507). I would expect, however, lapidary specialists in a high-volume production area to be using specialized tools. For example, that same pit at Chaco (Other Pit 1) contained three chalcedony drills and 34 lapidary abraders (Bradley 1993: 108; Akins 1997). It is likely that some kind of craft activity involving blue-green stones took place on the terraces associated with Midden 11, but probably not of high-volume. Three pieces of debitage came from the heavy fraction of flotation samples, and I expect that if there had been high-volume or intense production in the associated structures there would have been a great deal more debitage recovered. None of the other areas of the site contain a large enough sample of stones to even be seriously considered as a production area (see Table 3).

The question of manufacturing at sites other than La Quemada and whether there was elite control over production can be addressed through an examination of the pieces of blue-green stone found at Los Pilarillos and El Potrerito. The two pendant blanks and the ground piece from the East Banquette at Los Pilarillos and the debitage from El Potrerito all suggest that it is possible that some kind of craft activity did take place outside of La Quemada. Since there is not clear evidence of high-volume production at La Quemada, it may have been of a similar intensity at all three sites. Certainly there is relatively more evidence for the manufacture of jewellery (or other products requiring blue-green stones) at La Quemada, but that may have more to do with the larger resident population than with control over production.

Other archaeological sites in addition to the example from Chaco clearly illustrate what a production area looks like. At Ejutla, the large shell collection mentioned above was found mainly in middens associated with a single domestic structure (Feinman and Nicholas 2000: 124, 130). Some shell debris (including micro-flecks recovered from the heavy fraction of flotation samples) and two of the partially finished ornaments were also found in association with the floor of the structure, which serve to connect the working of shell with the occupants of the structure (Feinman and Nicholas 2000: 130). The large quantity of shell suggests that the production of shell ornaments was a primary activity of this household, and possibly the surrounding *barrio* (Feinman and Nicholas 2000: 125).

At Casas Grandes, areas of shell ornament production have been identified by the presence of “caches of shell in open pits” and associated shell-working tools (abraders, pestles, saws, gravers and drills) in a number of domestic areas throughout the site (Di Peso *et al.* 1974, Vol. 6: 402). The greatest concentration of unmodified shell, tools, and unfinished ornaments occurred in two roomblocks and their associated features – Units 8 and 14 (Di Peso *et al.* 1974, Vol. 6: 385-525, Vol. 8: 170). These two units clearly suggest high-volume production of shell beads. Two rooms in Unit 8 (Rooms 15 and 18) contained over 3 million whole shell beads and more than 74% of the unworked shell found at the site (Bradley 1993: 134; Di Peso 1974, Vol. 2: 383). The large number of finished beads and the apparent working conditions of the room (with a ceiling height of only one meter) led Di Peso (1974, Vol. 2: 501) to conclude that slaves were consigned to these quarters to spend all their waking hours drilling holes in the small shells. The numerous smaller production areas in other parts of the site suggest that some of the shell ornaments were produced in much smaller volume than the whole shell beads (Whalen and Minnis 2001: 184). It appears that there was differentiation in shell craft activities; the pieces recovered from a production area in another roomblock (Unit 16) suggest that the artisans there spent their time working on more elaborate carved pieces rather than the simpler whole shell

beads. It is possible that different households specialized in different kinds of ornament manufacture (Bradley 1993: 137; Di Peso 1974, Vol. 2: 501-504).

Both Ejutla and Casas Grandes provide clear examples of production areas whether as large amounts of debris in middens, or caches of materials and tools in rooms. It is even possible to distinguish between the work areas of different types of shell artisans at Casas Grandes. It is possible that a similar high-volume production area for blue-green stones exists at La Quemada on a terrace that has not been sampled yet, but careful surface examination of the terraces has not produced any samples of blue-green stones (Ben Nelson 2002, personal communication). At Ejutla, it was the "unusual densities" of shell on the surface that prompted the excavations (Feinman and Nicholas 2000: 123), and even early visitors to Casas Grandes in 1890 commented on the shell and turquoise scattered on the surface of the site (Whalen and Minnis 2001: 28). If such a production area existed at La Quemada, some evidence of it should have been found in surface surveys.

Finally, the distribution of the finished blue-green ornaments can suggest how they related to elite social status and what kind of restrictions (if any) may have been placed on their consumption. The best example of elite use of prestige goods at La Quemada comes from the Ciudadela pyramid and the collection of turquoise found there. In addition to the turquoise beads and *tesserae*, there were also other high-status goods such as painted pottery, shell, pyrite, malachite, and jade. Two issues come up, however, when considering these offerings as a display of personal wealth and status. First, it is not possible to associate the goods directly with the human remains, and the offerings may have been placed in the pyramid at a different time (Lelgemann 2000: 233). Second, it seems likely that, as a Tezcatlipoca sacrifice, the human remains are part of the offering to memorialize the pyramid's construction and the ritual that accompanied it, rather than the pyramid and the offering being part of a memorial to the individual buried within (Lelgemann 2000: 235; also see Becker 1992). Being a sacrificial victim

does not rule out the possibility that this was a high status individual; however, there is a significant difference in the symbolism associated with the offered goods and the ritual act of interment when an individual is sacrificed rather than buried after an unintentional death (Lelgemann 2000: 236).

An additional consideration is that no other similar burials, or in fact any high-status interments that include rich offerings, have yet been discovered at the site. Instead, it appears that high-status individuals received special secondary treatment and public display of their remains, such as in the proposed charnel house on Terrace 18 (Nelson *et al.* 1992). The articulated burial in Ciudadela altar likely does not represent an exception to this pattern, but rather symbolizes a different set of relationships between the deceased and the living who performed the rituals (Nelson *et al.* 1992: 309-310). Even if this is not the burial of a high-status individual, it certainly represents elite ritual activity and is in the most elevated and restricted precinct of the site. It contains the highest concentration of turquoise (or any prestige goods) so far discovered at the site, most of the finished turquoise pieces, and the most finely crafted ornaments. The uniqueness of the altar's contents suggests that turquoise (if not all blue-green stones) was a highly restricted material even though it does not appear to have been a symbol of personal wealth and status.

The four other finished pieces of blue-green stone from La Quemada are small and unremarkable: two simple small pendants, a single *tessera*, and what appears to be a bead fragment. All are associated with the elite core of the site. It is possible that the two pendants found associated with the temple on Terrace 18 also represent the use of blue-green stones in ritual, but it seems unlikely. They were not found in caches, and no other caches of blue-green stones were found in any of the excavated structures, such as the ball courts or the Hall of Columns. Whatever ritual occurred at these other structures, unlike the Ciudadela pyramid, it apparently did not include the deliberate deposition of turquoise. The *tessera* was found in Midden 11, which is also where there is the best evidence for craft activity. It does not appear to

have been part of a mosaic (i.e., there is no evidence of resin on it), so it may be a finished product that never left the production area.

There were only two finished goods from the other two sites in the Malpaso Valley. The first piece is the irregularly shaped blue-green pendant from the midden excavation at El Potrerito. This site was a small hamlet and certainly does not constitute a high-status context. However, as mentioned previously I would expect some finished goods to appear in non-elite contexts (just not proportionally very many). Additionally, this is not a very fine piece, and does not compare to the mosaic-mirror or elaborate turquoise, shell, and jade bead necklace from the Ciudadela. The second piece is the single blue-green bead or pendant fragment from the plaza excavation at Los Pilarillos, which may or may not be associated with a burial. In any case, the apparent mortuary program found here, as a La Quemada, does not follow a pattern of individual articulated burials with offerings. Instead, there is a complex of mortuary practices represented in this plaza context; the excavators found a multiple disarticulated burial, a single disarticulated burial, a single flexed burial, and the possible individual burial in the pear shaped pit (Nelson *et al.* 2002). The wealth finance model predicts that prestige goods would be used to make alliances and gain support, and Los Pilarillos would be an excellent candidate for this kind of interaction. However, a single pendant from El Potrerito and a single bead fragment from Los Pilarillos cannot support an argument for the importance of wealth finance in the creation of alliances, power, and status.

Ejutla is not entirely helpful for developing a model for this expectation, as the areas excavated are not in a high-status part of the site. However, the fact that very few finished shell ornaments and only a single bead in a burial were found in this non-elite context suggests that access to the finished goods was limited as at La Quemada. Shell ornaments apparently were very important articles of exchange as suggested by the evidence of high-volume craft activity,

but were not consumed by the people who were producing them (Feinman and Nicholas 2000: 128).

Casas Grandes presents a fuller picture and an interesting pattern. Most of the shell (99%) associated with the early occupation of the site (Viejo period) was found with burials (Di Peso *et al.* 1974, Vol. 6: 390). Of the 76 burials excavated, 13 contained varying quantities of shell ornaments (Bradley 1993: 136; Di Peso 1974, Vol. 8: 343-354). By the Medio Period, most of the shell was found in the storage pits or hoards discussed above, and less than 1% was found in other contexts, such as burials or offertory caches (Bradley 1993: 136). Only 0.2% of the large Medio Period shell assemblage was found in 27 of the 576 burials excavated, and most of it was with burials in high status areas of the site (Units 13 and 14). For example, there were two elaborate subfloor tombs in Unit 13 that contained relatively very rich offerings including shell (Ravesloot 1988: 34). So, at the same time that the total amount of shell found at the site increased (from 1,384 pieces in the Viejo to 3,907,709 in the Medio), it appears that access to it as a personal adornment or burial good became highly restricted. It is likely that its increased value in elite competition led to tighter controls over distribution (Bradley 1993: 137). Nearly all of the finished shell goods at Casas Grandes were found in high status contexts – either in the few privileged burials or in the pits in Units 8 and 14. The pattern at La Quemada is similar, but it does not appear that the value and restriction placed on blue-green stones was due to their role in the accumulation of personal wealth or gifting in elite competition.

Discussion

Most of the expectations of the ‘turquoise trade hypothesis’ are not fulfilled at La Quemada or in the surrounding Malpaso Valley. There is not a large quantity of blue-green stones, and although some craft activities involving the stones took place, it does not appear to

have been of the volume or intensity predicted. Naturally, this does not rule out the possibility that La Quemada was an important center of trade for some other commodity (perishable items such as macaw and parrot feathers are always good candidates), but it is highly unlikely that turquoise from the Southwest or any other type of blue-green stone played a considerable role in the economy at La Quemada. Neither were blue-green stones significant in the expression of status. It does appear, however, that items made of blue-green stones were highly valued and access to them was tightly controlled. How can this apparent contradiction be explained?

The ethnohistoric record suggests that blue-green stones were precious to Mesoamericans not simply for their rareness or economic value, but because of their cosmological associations. This is also a possible reason why they were included in the pyramid offering in the Ciudadela. Cosmology is frequently reflected in ceremonial architecture. Since it appears that the offering inside the pyramid was to the god Tezcatlipoca, it is probable that the temple above it was also dedicated to the same god (Lelgemann 2000: 236). The pyramid likely represents the earth and all its associations – for example, the underworld, night, death, and winter. Tezcatlipoca represents the sky and all things in opposition to earth – such as the day, the sun at its zenith, and new life – and the temple above likely symbolized this celestial sphere (Lelgemann 2000: 236). The turquoise offering within the pyramid would have been an important symbol of the earth, but also the new life that Tezcatlipoca represented.

Lelgemann (2000: 237) suggests that the turquoise in the offering was of cosmological significance in another way as well. An example of every type of imported material known from La Quemada was found in the pyramid offering. It is possible that these items represent the boundaries of the world as the residents of the site perceived it, with La Quemada at the center of the cosmos. The mosaic-mirror alone can be interpreted as a mini-cosmogram, with the Pachuca obsidian representing the extreme south and the turquoise representing the extreme north (Lelgemann 2000: 237). Access to the symbolically charged items necessary to enact rituals

within this sacred space would have served to reaffirm and legitimize the power of the elites at La Quemada.

Blue-green stones at La Quemada may therefore represent an alternate source of power. Rather than control over the trade of prestige items, the elite of La Quemada may have established and maintained power through the construction of sacred spaces and their performance of ritual activities within them. The amount of labour invested in ceremonial structures (see Nelson 1995) indicates that these kinds of activities were central at the site. Large public structures on the lower southern portion of the site, such as the entrance causeway and patio, suggest the participation of large numbers of people who likely came from all over the Malpaso Valley. The actual performance of rituals within the Hall of Columns, on top of the Votive Pyramid, and on the ball court was likely restricted to a far more exclusive group of people.

Participation in ceremonial activities in the core of the site was probably more limited than at the lower level, and the size of the patios and open areas in this part of the site suggest much smaller congregations of people (see Figure 2). Additionally, since a single staircase provided access, it would be relatively easy to limit it to residents of the site. Beyond the simple physical barriers, the symbolic restriction of walls and staircases would reinforce differentiation in access to ceremonial precincts and consequently differentiation in social status. The Ciudadela, located at the highest point on the ridge and removed from the rest of the structures at the site appears even more exclusive. It is reached from the core of the site by a single causeway and walls completely enclose it (see Figure 2). Over time, the staircases connecting the different levels of the site were reduced in size, and some were completely sealed off, apparently restricting access even further. This activity has been interpreted as a defensive strategy (Jiménez Betts and Darling 2000: 166), but it could have also served to physically and symbolically reinforce the idea that sacred spaces were reserved for a select few.

The form of this sacred landscape can indicate something about social relationships at La Quemada. Constructed environments have associated behaviours, which serve to reconfirm and legitimize the social order (Nelson 1995: 613-614). The ritual behaviours associated with ceremonial structures are generally linked to ideology, and ideology supports claims to status and power (Earle 1987). The ideology symbolized in the pyramid-altar complexes at La Quemada involves the domination of one individual or group of individuals over others. The actors in the rituals were segregated from or elevated above the other participants (or audience), and this may have symbolized their domination. The human remains with cut marks found in some ceremonial precincts at La Quemada (e.g., the Cuartel) show that social domination was enacted as physical domination through the sacrifice of war captives or community members (Nelson 1995: 614).

Success in armed conflicts would have been key to the success of coercive power, not only to supply sacrificial victims for public demonstrations of dominance, but also to exhibit physical and social superiority in another arena. Proper conduct and prowess in war confirms a leader's right to power, while victory increases his prestige, reinforces his connections to the supernatural, and undermines the claims of his rivals (Kirch 1984). La Quemada stands out on the landscape, perched on its ridge top with its massive defensive walls, as a monument to military might. The road system could have been used to quickly move troops throughout the valley or to evacuate valley residents to safety at La Quemada (Hers 1989; Trombold 1985, 1991). Many of these roads lead to elevated points in the valley (see Figure 3), which could have served as lookouts or defensive positions (Trombold 1985, 1991). Medina (2000), on the other hand, sees the functions of the road system as primarily ideological and cosmological. Evidence of burning at the site (e.g., fire-altered areas of the adobe floor in the Hall of Columns) can also be seen as an indication of the prevalence and importance of conflict during the history of the site and at its abandonment (Kelley 1971; Trombold 1985).

Conclusion

This paper attempts to answer the two research questions stated at the end of the introduction on page 3 – whether or not the exchange of blue-green stones played an important role in the creation of power at La Quemada, and how important that role was in relation to other possible sources for power. Referring back to the theoretical framework based on Earle's (1987) three ideological themes, it appears that at La Quemada ceremonies of place and warfare were relatively more important bases of power than wealth finance, for which there is little evidence at this point in time. My analysis of the blue-green stones demonstrates that even though they were precious, they were not important items of commerce or personal wealth.

An important conclusion that can be drawn from this is that the 'Mesoamerican metropolis' likely had less to do directly with the development of La Quemada than originally thought. Large-scale analyses are important for drawing attention to the long-distance interaction that occurred, but it may require smaller scale studies to better understand how these interactions relate to local developments (Goldstein 2000; Spence 2000). Some work of this type has already been done in Northern Mexico using 'peer polity' models (e.g., Bradley 1993; Jiménez Betts and Darling 2000; Minnis 1989; Whalen and Minnis 2001). Unlike macro-regional models, in peer polity it is the flow of information that is of primary concern instead of the movement of material goods, and ideology and symbolism can be exchanged even where commodities are not (Renfrew 1986: 8). Although long-distance contacts are considered important to the emergence of complexity (as 'reference polities'), it is the stronger interactions between regional polities that are of greater significance (Renfrew 1986: 7). The assumption that the presence of Mesoamerican ideology at La Quemada is evidence of the 'periphery's' economic and social dependence on the 'core' does not appear to be supported, and peer polity offers an alternate explanation for the evidence.

This definitively shows that unlike Alta Vista, blue-green stones did not play a significant role in the development of La Quemada. The site does not give the impression of being an important node in a trade network. Unlike Casas Grandes, Chaco Canyon, and Alta Vista, very few imported goods (such as the small collection of marine shell mentioned above) have been found at the site whether in survey or excavation. Knowing what was not happening, however, is only a first step, and more work is needed to better understand the social practices that were ongoing at the site. Long distance interaction was probably a very important factor in the development of the site, as evidenced in imported Mesoamerican architecture and associated ideology, which likely included the value attached to blue-green stones. It may be that exotic goods such as turquoise were important mainly because of what they represented in the local cosmology (Lelgemann 2000). This raises questions about the role that other kinds of blue-green stones played in social interactions at La Quemada. Determining the actual purpose of the blue-green stones (if not for jewellery) would be one interesting line of inquiry to pursue. This could lead to a better understanding of how imported goods are incorporated in the local system and contribute to the consolidation of power in ways that are not always directly related to economic concerns.

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