
Political Expansion and the Creation of Ritual Landscapes: A Comparative Study of Inca and Aztec Cosmovision

Johanna Broda

In Precolumbian Central Mexico and the southern Andes, the Aztec and the Inca states created ritual landscapes that were based on observation of the natural environment and of celestial phenomena, but were also closely connected to cosmovision, defined as the structured view of nature and the universe in relation to man. By means of sophisticated architectural projects the landscape was transformed according to the canons of cosmological concepts, thus unifying time and space into a dialectical interacting whole. Simultaneously, the creation of these sanctuaries also expressed the exercise of power of these expanding states. I analyse several examples of the ritual landscapes created by the Aztecs in the Central Highlands and the Basin of Mexico, that are confronted with examples from the Incas in their immediate domain of influence around their capital, Cuzco. The comparative study of Aztecs and Incas may contribute to a broader understanding of Native American societies and landscape archaeology.

Using an anthropological interdisciplinary approach to analyse how the Aztec and Inca states interacted with their natural environment, in this paper I address the comparative study of ritual landscapes in Mesoamerica and the Andes. How did the Aztecs and the Incas convert the landscape into a political cosmological formation? Merging the social state with the natural landscape, they took possession of it.

From this perspective, the study of prehispanic ritual landscapes in Mesoamerica¹ and the Andes combines several disciplines: archaeology, architecture, anthropology, ethnohistory, cultural geography and astronomy. Archaeoastronomy has been fundamental to this interdisciplinary approach and Anthony F. Aveni (1981; 1991; 2001), in particular, has done pioneering work in both regions.² Archaeoastronomers study solar alignments of Precolumbian architecture, where visual lines directed towards points of sunrise or sunset on the horizon establish so-called 'horizon-based calendars'. Using this approach, indigenous interpretations of landscape features are relevant and collaboration with cultural geography becomes important. The broader theoretical interpre-

tation of the comparative method, however, derives from anthropology.

As an ethnohistorian and anthropologist studying Aztec society, ritual and cosmovision, I became involved in these topics many years ago when I realized the importance of the worship of water, mountains and rocks to ancient Mesoamerican religions (Broda 1987; 1991a,b, 1996; 1997b; 2000; 2001a; 2012). The Aztec homeland is on a high plateau of approximately 2000–2800 m surrounded by prominent mountains. The mountains, called *tepetl* in Nahuatl, controlled meteorology and water resources essential for agriculture, the economic basis of Aztec society. Rural communities and towns were called *altepetl*, 'water-mountain', since the mountains were considered to be hollow vessels filled with water, an important cosmological image in ancient Mesoamerica.

I also realized that the mountain and water cult adopted by the Aztec state from earlier Mesoamerican cultures may be compared to Andean beliefs and practices, particularly to the way the Incas transformed these ancient practices into an expression of their state cult (Broda 1997a, 2001b, 2009). In this

article, I continue a systematic comparison between the two culture areas, using my previous studies on Aztec society as the starting point for comparisons with Inca ritual landscapes, which is the principal new material reviewed in this paper. This review concerns several Inca sites in the vicinity of Cuzco that have received little scholarly attention so far, despite their great historical interest. In the concluding remarks I return to the comparisons with Aztec culture.

Although evidence for ritual landscapes in the Americas has grown over the years, not all experts in the field share a common approach. Ongoing epistemological controversies referring to the significance of ritual landscapes exist, and a variety of theoretical concepts by which to interpret *cosmovision* are used. I agree with Wendy Ashmore that this type of research is ‘shaped strongly by the theoretical perspective and goals of individual investigators’ (Ashmore 2010, 183; Ashmore & Knapp 1999; see also Acuto 1999; Broda 1991a,b; Broda et al. 2001; Farrington 1992; Giménez 2004; Malville 2010; Van de Guchte 1999; Wolf 1999; Zecenarro 2001).

In this paper, I explore how ritual is a vehicle for expressing a *cosmovision*, thus transforming the natural environment conceptually into a ritual landscape. Several years ago, the specific term ‘*cosmovision*’ was introduced into the study of archaeoastronomy and cultural landscapes, particularly in the study field of ancient Mesoamerica (Broda 1982; 1991a; López Austin 1980; Tichy 1982). Since then the term has received general acceptance on the international level, although different definitions of the concept continue to exist (López Austin 2000). By *cosmovision*, I mean the structured view by which ancient Mesoamericans combined their notions of cosmology into a coherent whole. This view implied the observation of nature, but it also related the cosmos to society and to the political order. In this article, I am interested in studying the ways by which cosmological concepts were transformed into material forms, implying at the same time that religious and political institutions existed that were capable of imposing this *vision of place* upon society (Broda 1991b; 2000; 2012). It is evident that both Inca and Aztec states created these types of institutions during the fifteenth and sixteenth centuries AD.

Thus, the concept of landscape implies the dimension of attributing meaning to the natural environment (Giménez 2004). Symbolic value is attached to geographical features like mountains, springs, lakes or caves; they become part of a *cosmovision*. In this way, societies create meaningful *sacred landscapes* that are transformed into *ritual landscapes* by the performance of ceremonies in these places (Broda 1991a).

This process of *taking ritual possession of the landscape* also implies the exercise of political domination, particularly if we are dealing with conquered territories. Monumental architecture, such as existed at Aztec or Inca sites, had a preeminently ideological function. It was designed to impress people, to transmit a message to spectators. Thus, ritual landscapes not only reproduced the concepts of *cosmovision*, referring to man’s place in nature and the cosmos, but also were closely tied to the exercise of power.³

Following this perspective, Conklin, in his review of Hemming’s (1982) work, emphasized that Inca architecture conveyed an important ideological message. Thus, the

... pyramids of ancient Peru seem to have been the effort [of rulers and priests] to relate their earthly world to their cosmic environment ... Retaining the [ancient Andean] concept of *wak’a* but vastly expanding its formal possibilities, the Incas seem to have built complex valley-scaled maps of their cosmic conceptions, marking with stone creations the places of mythical events. It is these sculptural stone maps which Western man looks at and calls cities, architecture and sculpture, and wonders about their function. (Conklin 1986, 129)

According to Conklin (1986, 131), the merit of Hemming’s (1982) approach consists of considering the totality of Inca landscapes — the carved rocks, the mountains, the caves, as well as the architectural structures. Thus, rock sculpture ‘represents an accomplishment as important as the architecture, and in fact provides the key to understanding both the architecture and the culture as a whole’ (Conklin 1986, 131).

The process of attributing meaning to the landscape also involved observing nature and constructing a body of precise knowledge that was projected into the landscape by the site orientations (Broda 1991a,b; 2000; 2001a; 2012). Not only do the sites discussed in this paper reflect *cosmovision*, but their complex construction and sophisticated architecture implies that the Aztecs and Incas possessed a profound knowledge of geography and developed refined engineering techniques that they used to construct these architectural projects, which were often situated at the fringe of precipices in the mountainous landscapes. This means that a body of systematic knowledge existed and was handed down through generations over centuries. This knowledge was used by the people in Aztec and Inca states and their rulers to convey an ideological message through programs of architectural transformation in their immediate areas of domain.

Aztec ritual landscapes

Tenochtitlan and the Basin of Mexico

Ethnohistorical research on Aztec cosmovision and ritual, combined with an interdisciplinary approach, has shown that the conception of sacred landscapes formed the common religious background of the different peoples who inhabited Mesoamerica through time. The Aztecs integrated these elements into their state religion; the ruler as well as the official priesthood and the nobility participated actively in ceremonies that incorporated mountain worship into the state cult of the Templo Mayor of Tenochtitlan. Besides, the majority of offerings buried at the Templo Mayor evoked the fertility of water and the sea (Broda 1987; López Luján 1994). In this context, the Aztecs transformed the landscape of the valley by creating sanctuaries related to the mountains that surrounded the waters of the lake. The foundations of many of these Aztec places of worship go back to the times of Teotihuacan (Early Classic Period, 200–600 AD) or even to the Preclassic Period (Middle to Late Preclassic, 1200 BC–AD 200). An example is the monumental round pyramid of Cuicuilco, situated to the southwest of the Basin, that was later covered by the volcanic eruption of Xitle. This site apparently was known to the Aztecs when, some 1500 years later, they built their temple complex on near-by Zacatepetl, amidst the inhospitable lava flow (Broda 1991a; n.d. b).

The ethnohistorical information about the ceremonies taking place during the 18 months of the Aztec solar calendar is very detailed, and I have dedicated many years to its study and interpretation. Many of these rites took place outside the Templo Mayor in the surroundings of the Valley of Mexico. They were centred on petitions for rain and the mountain and water cult, which was at the same time, an agricultural cult that promoted the growth of the maize plant (Broda 2001a). However, what really makes the interpretation of Aztec rain ceremonies so interesting is their projection into real space. There, the anthropological interpretation of ethnohistorical sources meets with archaeology and its research into ritual landscapes. We discover that Aztec ritual landscapes were designed from the capital of Tenochtitlan, and integrated ceremonial routes of pilgrimage that embraced the entire Basin of Mexico. As Lawrence E. Sullivan (1991, 211) has pointed out, it certainly was an impressive landscape, where the high mountains and the monumental imperial temple architecture were reflected in a myriad of specular images in the waters of the lakes.

The unique situation of these data on Aztec ritual, provided by the sixteenth-century chroniclers, is that they can be confronted with archaeological evi-

dence that still exists in the Basin of Mexico, despite its exorbitant process of recent urbanization.

One of the most important mountain shrines dedicated to the worship of the Aztec rain god was Mount Tlaloc. The Aztec ruler, as well as his nobles and allies, ascended to this sacred mountain at the end of the dry season, in order to offer child sacrifices in petition for rain (Broda 1991a,b; 2001b). Its ruins still exist at the summit of the mountain, at an altitude of 4120 m. Some archaeological work has been done there in recent years. The sanctuary consisted of a walled precinct and a 125 m long causeway that led up to the site facing east. In its opposite western direction, the pathway pointed towards Templo Mayor, the symbolic centre of Tenochtitlan (Aveni *et al.* 1988). Facing sunrise at dawn along this causeway, the procession with the sacrificial victims advanced towards the summit of Mount Tlaloc.

The site is very interesting in terms of its astronomical alignments. From the shrine on Mount Tlaloc sunrise can be observed behind the broad profile of the summit of the prominent volcano of La Malinche. Also, Mexico's highest mountain, Pico de Orizaba, aligns with La Malinche, and in this way sunrise behind the profile of these two important volcanoes precisely marked five days between 7 and 11 February, just before the Aztec beginning of the year on 12 February (Iwanizewski 1994; Morante Lopez 1997).

It was possible to reconstruct the existence of a considerable number of sacred places worshipped by the Aztecs in the Basin of Mexico (Fig. 1). These sites include temples, ceremonial precincts and causeways, monumental carved boulders and rocks, as well as miniature models with steps and canals carved in stone, all of them apparently belonging to the mountain and water cult that is so abundantly documented in the ethnohistorical sources. I have registered more than 30 significant places through fieldwork and historical or ethnographical documentation (Broda 1991a,b; 1996; 1997b; 2001a; n.d. b). The extreme growth of Mexico City over the past 50 years, particularly since the 1990s, however, makes it almost impossible to continue this research today.

Most of these places of worship show interesting alignments towards sunrise on the eastern horizon of the Basin with the spectacular view towards the great volcanoes Popocatepetl and Iztaccihuatl, as well as Mount Tlaloc and Cerro Papayo (Broda 2001a; Broda *et al.* 2001; Tichy 1991). This means that the Aztecs chose significant natural elevations within the Valley that could be coordinated with solar horizon observations significant in terms of the Aztec calendar and its 18-monthly festivals. These sites were visited periodically at certain calendrical dates.

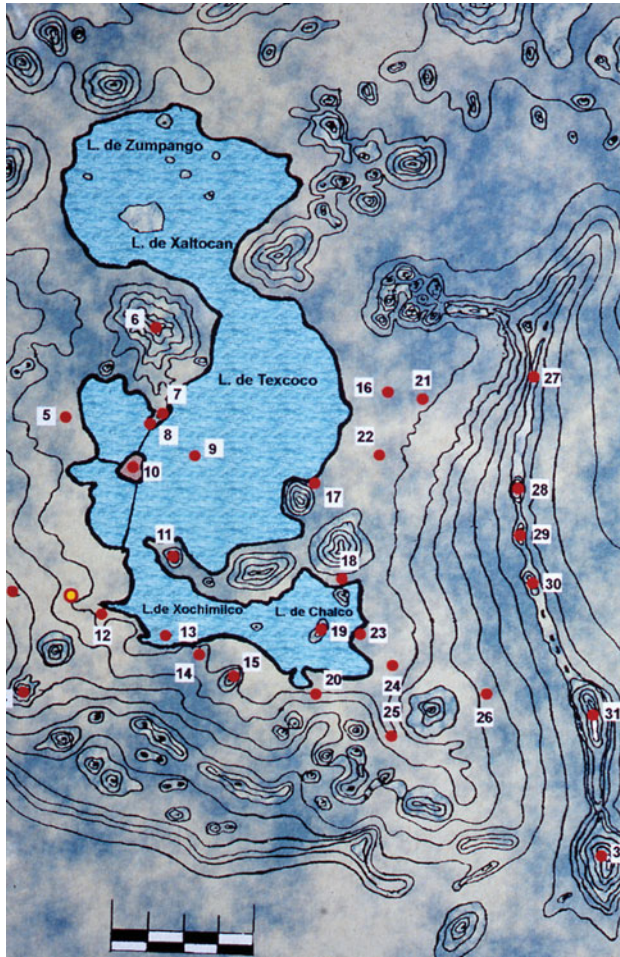


Figure 1. (Colour online) The Basin of Mexico with its lakes and mountains on the eve of the Spanish Conquest. Sites 1–32 studied by J. Broda (2001a, b). (Map based on Parsons 1971, adapted by A. Robles.)

The Central Highlands

Tepoztlan: cliff sanctuary of the Wind God. The ritual geography designed by the Aztecs also included places of worship and pilgrimage situated outside the Basin, an area that may be called the ‘Outer Aztec heartland’ in comparison with the Incas (Farrington 1992) (Fig. 2). To the southwest of the Valley, today the state of Morelos, similar sanctuaries existed at Huaxtepec, a place of abundant water, and at the mountain shrine of Tepoztlan, El Tepozteco (latitude north 19°00′00″; longitude 99°06′03″; altitude 2100 m), situated on a steep volcanic ridge some 400 m above the Valley (Fig. 3). This cliff sanctuary, built by the Aztecs at the end of the fifteenth century on top of previously existing structures, attracted pilgrims from as far away as Guatemala. It was dedicated to the Aztec Wind God (Ehecatl-Quetzalcoatl). The temple not only has

an interesting western orientation (Aveni 2001, 314; Šprajc 2001, 358), but also is aligned towards the second archaeological site of ‘El Vigilante Nocturno’ (Yoaltecatl) to the east. El Vigilante Nocturno controls the southeastern access to the Valley of Tepoztlan, just as El Tepozteco and the mountain of Chalchiuhtepetl control the northwestern limits. From Tepozteco it is also possible to discern the sacred mountains of Chalcatzingo on the distant eastern horizon, an important Preclassic site that remained a place of worship through Classic and Postclassic times (Broda & Robles 2004).

Malinalco: rock sanctuary and artificial cave of jaguar and eagles. Yet more important than Tepoztlan was Malinalco, the rock sanctuary where the Aztecs carved its magnificent temple precinct from mountain bedrock (Fig. 4). Malinalco (latitude north 18°57′08″, longitude 99°30′08″; altitude 1870 m) is situated to the west of the Basin of Mexico, today the state of Mexico, and was an important local sanctuary that was conquered by the Aztecs in 1476. In 1501, the Aztecs initiated an ambitious building project at the site that reveals the political and religious importance that Malinalco represented to them (Broda 1977). The whole mountain, today called Cerro de los Ídolos, was converted into a sanctuary; the main temple buildings are situated halfway up the summit (Fig. 5). Its main temple is carved from the cliffs of the mountain and imitates a cave, with an entrance evoking the fangs of the earth monster. It is the entrance into the interior of the earth. Inside, in the dark artificial cave, three eagles and a jaguar carved from the bedrock represented the hides of dead animals. These were seats for powerful people.

Besides this important religious symbolism, the site shows remarkable alignments. One points towards a natural crevice in the nearby mountain range. As seen from the entrance of the temple cave, the alignment towards this cleavage is precisely to the south, suggesting that the precinct orientation was deliberate. The other alignment occurs on the eastern side of the cliff sanctuary, at the remains of a once spacious hall hewn from bedrock. It is oriented towards the eastern horizon across the Valley towards a natural cut in the horizon line where the sun rises in its annual movement on two highly significant dates of the annual calendrical cycle. These dates are 12 February and 29 October (azimuth 105°31′), according to Galindo (1990) and previous measurements and visits to the site by Aveni, Hartung, Tichy, and this author (Broda 1977; Aveni 2001, 117; Tichy 1991). These dates refer to a highly significant subdivision of the Aztec calendar, by dividing the year into 260+105



Figure 2. (Colour online) *The Central Highlands of Mexico, with Tepoztlán and Malinalco indicated.*



Figure 3. (Colour online) *The Temple of El Tepozteco. (Photograph: J. Broda.)*

days and marking the initial date of this calendar on 12 February. No recent measurements have been undertaken at the site.

The ruins of Mount Tlaloc, Tepozteco and Malinalco are the most important examples of Aztec sanctuaries dedicated to the cult of mountains and the earth; at these sites it is also possible to show the existence of astronomical alignments of calendrical significance and, apparently, these orientations were designed deliberately. Additionally, these sites belong to the Aztec conquests of historically important places

and preexisting shrines in the vicinity of the Valley of Mexico; thus the building projects of these sanctuaries became an architectural as well as an ideological expression of Aztec expansion and growing political domination (Pasztor 1983).

Comparative studies between Aztec and Inca ritual landscapes

The argument presented in this article, that Aztec temples were intentionally integrated within the



Figure 4. *General view of the cliff sanctuary of Malinalco, Estado de México. (Photograph: J. Broda.)*



Figure 5. (Colour online) *The Monolithic Temple of the Jaguars and Eagles at Malinalco. (Photograph: J. Broda.)*

surrounding landscape in order to form a unity with mountains, water resources and carved boulders, was the result of a prolonged research process accumulating evidence for this interpretation (Broda 1987; 1991a,b; 1996; 1997b; 2001a,b). In that respect the comparison with Inca architecture is of great interest. Inca ritual landscapes in and around Cuzco provide innumerable examples for this type of phenomenon and have attracted the attention of numerous local historians, archaeologists, ethnohistorians, anthropologists and astronomers. This area, due to its remoteness, high altitude and thus far only incipient urbanization, has preserved Inca architecture and ritual landscape

to a much greater degree than is the case of Aztec architecture in and around the Basin of Mexico, which today is the crowded home of more than 20 million inhabitants.

Department of Cuzco. Inca architectural remains convey Andean cosmological concepts that have clearly shaped the ritual landscapes that can still be perceived today. These sites in the vicinity of Cuzco, the Inca heartland, may be compared to the surroundings of Tenochtitlan within the Valley of Mexico, although naturally many differences exist regarding the landscape, altitude and architectural styles. I contend that

by means of sophisticated architectural projects, the Incas as well as the Aztecs transformed the landscape according to the canons of their respective cosmological concepts, thus unifying time and space into a dialectical interacting whole.

The Aztec and Inca states surrounded their respective capitals by creating places of worship that consisted of temples, precincts including canals, fountains and ponds, and carved rocks, as well as miniature cosmological models situated in their territories of political domain. Thus a deliberate integration, a grand scheme, was created between the symbolic centres of Aztec and Inca political power, their capitals of Tenochtitlan and Cuzco as the centre of their respective universes, and the surrounding landscape. It is also true that many of these sites show continuity with the previous cultures that started their worship as sacred places.

In both areas the cult of water and mountains was an ancient cultural practice, although in the Andean landscapes the altitudes and mountain peaks are much higher in elevation. Nevertheless, in both areas, mountains are associated with meteorology and the climatic cycle, the formation of clouds that bring the desired rains necessary for agriculture. This applies even to the high altitudes of the Andes situated over 3000 m that, however, are still appropriate for agriculture. The high mountains and certain characteristic geological formations, above all, conspicuous boulders, were transformed into cosmological symbols of political and religious domain. In many respects, these symbolic connotations of the landscape have survived up to the present day in both regions.

One interesting aspect of Aztec and Inca religion that can be studied comparatively is the child sacrifices that took place in this sacred geography (Broda 1997a; 2001b). Aztec child sacrifices in petition for rain were executed at mountain shrines dedicated to the rain gods, while in the Inca ceremony of the *capac hucha* children were led to the summit of Andean peaks and buried there. These mountains were meteorological deities, but the sacrifices also expressed territorial claims of the Inca state. It is intriguing that the above-mentioned rituals share numerous common elements in both cultures that go back in time to periods prior to either Aztecs or Incas. It seems that these religious concepts and ritual practices are better documented archaeologically in the Andes than in Mesoamerica. Many Andean specialists have analysed these beliefs and practices in archaeological findings as well as in historical chronicles (Carrión Cachot 2005; Reinhard 1985; Reinhard & Ceruti 2005). As Mariscotti de Görlitz (1978) stated many years ago, the Incas shared with earlier Andean cultures the veneration of

Pachamama, the sacred Earth Mother, and the cult of mountains, water, lightning and thunder. The deified mountains called *apus* each had a distinctive personality and name of their own. These beliefs continue to exist up to today, just as in Mexico each Indian community has one or several sacred mountains. The sea also played an important role in this cosmovision; among the Incas it was considered to be the origin of all the waters, just as the Aztecs viewed the sea as the absolute symbol of fertility (Broda 1987).

To an even greater degree than the Aztecs, the Incas were obsessed with visualizing big natural rocks, selecting certain geological formations deliberately, transforming them into sacred places called *huacas* by carving in them steps, platforms, niches as well as monolithic 'thrones' and 'mesas'. Another striking feature is that they surrounded certain selected rocks by walled enclosures built in fine coursed stone in the most refined Inca architectural style, a circumstance that denoted the importance of these particular sites. Generally these particular rocks were combined with canals and springs that transported crystalline waters that came down from the mountains. Thus, the canals established links to the sacred mountains above. Each Inca site had a specific relation with its surrounding mountains; one or several of these *apus* were particularly important and became the centre of their veneration.

Many writers, beginning with the sixteenth-century chroniclers, have commented on these features of Inca religion. Modern authors have pointed out that the Incas carved 'thrones', canals, ponds and other ritual scenarios in the bedrock and also produced models and stone maps of the landscape (Alcina 1997; Broda 1997a; 2009; Carrión Cachot 2005; Dean 2010; Hyslop 1990; Kendall 1985; Mariscotti de Görlitz 1978; McEwan & Van de Guchte 1993; Niles 1993; Paternosto 1989; Sherbondy 1982; 1986; Thiemer-Sachse 1996; Van de Guchte 1990; 1999; Zecenarro 2000; 2001; Zuidema 1981a,b; 1995; 2010).

In this context the Quechua concept of *huaca* is particularly significant. Sixteenth- and seventeenth-century Andean chroniclers give multiple meanings for the term that Van de Guchte (1990, vol. 2, 345) defined as any 'material object or location that received ritual attention, and the "force" which inhabited that object or location'. There existed, and still exist, different classes of *huacas* that can be natural as well as architectural features (shrines or portals, for example), which are inhabited by this particular energy or life force that has been a fundamental concept in Andean cosmovision since ancient times. The verb *camay* was equally important and 'means to generate life force to animate material objects, and render them

efficacious' (Zawaski & Malville 2007–2008, 22). It was also inherent to running water and water circulating in canals (Malville 2010). The use of stone idols of different sizes as well as the symbolic importance of a variety of small natural stones also belongs to this complex (Flores Ochoa 1997).

The integration of Inca architecture with the surrounding landscape exists at the main sites around Cuzco: the Coricancha, Sacsayhuaman, Qenqo, Lacco, Machu Picchu, Ollantaytambo, Pisac and Tipón. These are the principal Inca ruins visited by tourists nowadays. Many other sites do not yet enter into these circuits of tourism; however, some have been restored recently by the archaeologists of the Ministry of Culture at Cuzco, while other sites remain practically untouched and still preserve much of their original architecture: they are silent witnesses to the fact that the imprint of Inca power in the area can still be perceived today. Besides, these sacred places are still meaningful to the inhabitants of the region.

It is necessary to state at this point that the so-called *ceque* system of Cuzco, described by ethnohistorical sources, was first of all an expression of Inca ritual landscapes. Its interpretation is such a complex topic that it motivated Tom Zuidema to dedicate his entire academic life to the study of historical information in relation to the Inca calendar and social organization, an admirable effort that resulted in his encyclopaedic book on this subject (Zuidema 2010). Other authors have also studied the *ceque* system. The work of Brian Bauer (Bauer 1998; Bauer & Dearborn 1995; Bauer & Stanish 2001) is an important contribution to the reconstruction of the archaeology of the *ceque* system and the localization of a great number of *huacas* that composed it. We should also mention in this context the work of Aveni (1981; 2001), Dearborn & Schreiber (1986), Dearborn & White (1989), Farrington (1992), Gullberg (2010), Malville (2010), Sherbondy (1982; 1986), Van de Guchte (1990; 1999), Zawaski & Malville (2007–2008), Zecenarro (2000; 2001) and Ziolkowski & Sadowski (1989).

The *ceque* system concerned 328 visual lines — the *ceques* — that were radially designed from the religious centre of Cuzco, the Coricancha. They spread out into the Valley of Cuzco and were defined by shrines as well as natural landscape features including boulders, rocks and springs. Modifications included carving the rocks and canalizing the water resources.

Several case studies of Inca shrines and the veneration of sacred rocks

In 2010, I initiated a project on Inca ritual landscapes in the Department of Cuzco to study the phenom-

ena outlined above from a comparative perspective. From the standpoint of my Aztec studies, continuing this research in Cuzco is most challenging because of the Andean landscapes, in general, and for the excellent state of archaeological preservation that still exists, in particular. Due to the conditions of relative isolation that have existed in the mountainous regions of the Department of Cuzco up to today (conditions changing only recently because of the penetration of tourism and increasing urbanization), these spectacular ritual landscapes with their innumerable archaeological sites have been preserved to a much greater degree than in the Basin of Mexico with its destructive, all-encompassing urban growth.

The field research that I carried out between 2010 and 2012 resulted in my study of several sites that were sanctuaries — doubtlessly *huacas* (sacred places) — but were situated outside the capital of Cuzco and its *ceque* system of 328 *huacas*. Concerning these sites, although the Peruvian Ministry of Culture did some excavation and archaeological restoration there recently, only a few publications exist so far, particularly in relation to the surrounding landscape.⁴ The following descriptions are the result of my own research and they address the topics investigated in this article.

These sites belong to the area characterized by Farrington (1992, 376, fig. 3) as 'the outer Inka heartland' (Fig. 6). The distinction that Farrington establishes between the inner and the outer heartland is very interesting. He contends that 'the inner heartland was clearly a ritual landscape with carved rocks, springs, fountains, reservoirs, channelized streams and terraced hilltops. It was also a functioning agricultural landscape' (Farrington 1992, 375). In contrast, he characterizes the outer heartland 'as a ritual landscape of shrines, mountain top *apus* and Inka sites ... [In this zone there also occurs] a totally transformed landscape' (Farrington 1992, 378, 382). In this outer heartland Farrington also establishes its relation to the symbolic division of the four quarters of the Tahuantinsuyu and to certain '*ceque* extensions' that are interesting in relation to the sites studied in this paper. According to the map (Fig. 6), *ceque* I-1a passes in a western direction through the Pampa de Anta, Zurite and Quillarumi (location added [J.B.]), while *ceque* III-1a passes in a northern direction directly through Huchuy Qosqo (see below).

Quillarumiyoc: sanctuary of water, mountains and sacred rocks. Quillarumi, the 'moon stone', belongs to the territory of Anta (latitude south 13°26'38"; longitude west 72°18'33") and is situated at an elevation between 3639 m and 3723 m, adjacent to the Pampa de Anta, a very interesting historical region, which seems to have

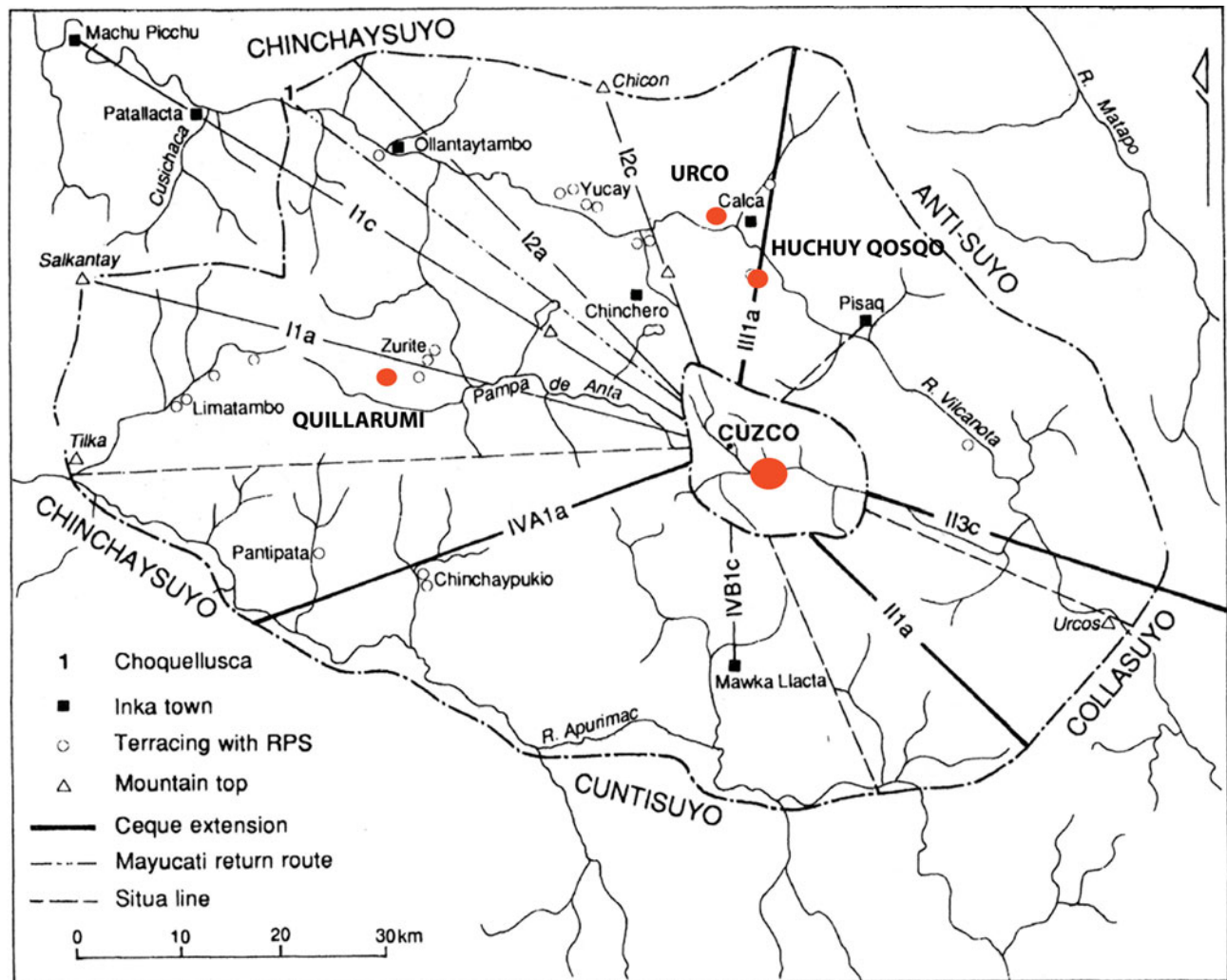


Figure 6. (Colour online) The outer Inca heartland. (Adapted from Farrington 1992, 376.)

had its own *ceque* system, according to Bauer (1998, chapter 10). It is also known for its impressive system of agricultural terraces from Inca times that still exist between Huaracundo and Zurite, and apparently continued at Quillarumi, where on the southwestern slope of the site terraces (*andenes*) of considerable importance were restored.

This interesting site was a sanctuary dedicated to the veneration of sacred rocks (*huacas*), water and mountains. It consisted of three precincts that were integrated into what apparently was a much bigger site. Quillarumi (Fig. 7) was a spectacular calcareous boulder with a semi-circular image deeply carved into the rock and framed like a crown by seven superior sections. It represents a carved masterpiece that the local inhabitants refer to as the 'moon stone', although this interpretation has not been confirmed so far (Franco Inojosa & González 1939). The orientation

of the axis of the stone carving points towards the east and thus may have been related to solar rather than lunar observation. The horizon line is obstructed by a nearby hill, however, and the view is not conspicuous. Barreda Murillo (*Proyecto de restauración del conjunto arqueológico de Quillarumiyoc-Ancahuasi-Anta* 2006, 10) suggested that the site might have been dedicated to the God of Lightning, Illapa.⁵ The carved *huaca* forms a unit with the architectural complex that is situated several metres below, where a precinct was created between natural rocks and a canalized brook descends from the mountains to the north forming a spectacular cascade (Fig. 8) and continues in a canal built in fine Inca masonry. There, a rectangular precinct was created between the canal and the wall that was adapted to the hillside; this wall is worked in fine monumental Inca architecture forming several *hornacinas* (niches) that face east where the canalized brook is flowing.



Figure 7. Quillarumi, 'the Moon Stone', Quillarumiyoc Site, Province of Anta, Cuzco. (Photograph: J. Broda.)



Figure 8. Cascade in the lower section of the sanctuary of Quillarumiyoc. (Photograph: J. Broda.)

This precinct was doubtless dedicated to the cult of water.

Ascending the slope of Quillarumi, where different levels of construction can still be recognized, one reaches an ample space that once consisted of several *canchas* or plazas and in the centre we again find an enormous natural boulder that was worked at its base with several niches. In front of this rock, a large unexcavated mound is situated, which, however, is delimited by the remains of a curved wall made of the finest Inca masonry, comparable to the Coricancha or to Pumamarca (San Sebastián, Cuzco) (Figs. 9, 10). This wall, although only partly excavated, nevertheless indicates that we are dealing with a very important ceremonial building, probably an *ushnu*.⁶ On top of the unexcavated mound a small stone carved with five steps attracts the attention.

Continuing the ascent, one's view is directed towards the mountain range in the north with its conspicuous high canyon where clouds, mist and rain constantly form. One enters a strange and beautiful landscape scattered with rocks: it might be called a 'rock garden'. One finally reaches the upper sanctuary (Fig. 11). A huge natural boulder contains a cave at its base. It was artificially modified inside with walls of fine Inca masonry containing several niches. Its opening is oriented towards the west, from where the sunset in the direction of the Abra de Willke can be observed in the middle of March (Broda n.d. a, field observation, 11 March 2011). It is not clear whether this cave once served as a burial chamber for an important



Figure 9. (Colour online) Central section of the sanctuary of Quillarumiyoc showing another enormous boulder and the unexcavated ushnu, view towards the high mountain range to the north. (Photograph: J. Broda.)



Figure 10. (Colour online) Oval-shaped wall of fine Inca masonry delimiting the unexcavated platform of the ushnu. (Photograph: J. Broda.)

personage or if it was a shrine. *Huaqueros* (treasure hunters) destroyed part of it looking for buried offerings at the place. Another noteworthy fact is that this artificial cave, called *Sala-kaka* according to Franco Inojosa and González (1939, 264), is located at a distance of some 700 m almost exactly to the north of the ‘moon stone’.

The site of Quillarumiyoc is a sanctuary, a place that inspires contemplation and quietude, where Inca mastership of stonework and the cult of water, mountains and natural rocks, was integrated in a spectacular way with the natural surroundings of the Pampa de Anta in the Department of Cuzco. Whether it was dedicated to the worship of the



Figure 11. (Colour online) The upper sanctuary of Quillarumiyoc with its artificially adapted cave. (Photograph: J. Broda.)

moon, the sun or lightning, however, remains an open question.

The rock shrine of Huchuy Qosq'o (Caquia-Xaquixahuana). Huchuy Qosq'o (latitude south 13°21'39"; longitude west 71°57'03"; altitude 3672 m), situated in the Province of Calca, is a monumental Inca site, today partially restored.⁷ According to the sixteenth-century chroniclers Cieza de León and Betanzos, the Inca Viracocha and his son Inca Urcon sought refuge there when they faced enemy attack by the *chancas*. Hyslop (1990) points to its location at the height of an enormous rock formation. From this elevated position the site overlooks the Vilcanota Valley and the settlements of Calca and Lamay. Hyslop (1990, 126) asserts, 'it is intriguing to think that this outstanding natural feature might have been decisive for the selection of the site itself'.

With respect to Huchuy Qosq'o, I will comment upon a single feature of this very important site, which doubtlessly has many other interesting characteristics (Broda n.d. a, field observations, July 2011).⁸ In the context of its urban program an extraordinary building exists that was erected around a large natural sandstone boulder. It is a solid block associated with another smaller rock: both rocks display the contours or shape of mountains. These two monumental rocks were surrounded on three sides by a high building; the lower part of its walls consist of the finest Inca masonry, while the higher part is of adobe (mud brick)

and the ruins, which were heavily damaged, are today partly restored (Figs. 12, 13).

According to Zecenarro (2000, 12), this building was hypothetically called Intiwasi, 'the abode of the Sun', since during the equinoxes the rays of the setting sun projected their light upon a niche inside the building; in it the mummy of Viracocha Inka might have been kept. Apparently this building was oriented according to the cardinal directions; however, more precise measurements are required.

Inside this remarkable construction, the Inca priests doubtless practised some kind of worship. These boulders probably represented the significant high mountains situated across the Sacred Valley, the *apus* of Pitusiray and Sahuasiray located to the north of Calca. Conspicuously, the view in this very direction — almost exactly towards the north — as seen from inside the 'Building of the Rocks', hits these mountains precisely on the horizon, and particularly two prominent rocky towers that belong to the elevation of Pitusiray (Fig. 14). With respect to these two rocky towers, a myth that is well known in the area tells the love story of an Inca Virgin of the Sun and a shepherd, who, being persecuted, fled to these mountains and were converted into these conspicuous rocks that still can be seen today (Angles 1988, vol. 2, 476–85, 501, 515). Different versions of this myth exist; however, all of them have the two rocky towers as their central theme (Sánchez & Golte 2004).



Figure 12. *Huchuy Qosq'ó: Inca architecture of an extraordinary building of masonry and adobe, erected around two large natural boulders. (Photograph: J. Broda.)*



Figure 13. (Colour online) *Huchuy Qosq'ó: The Sacred Rock and the fine masonry walls on the lower part of the building. (Photograph: J. Broda.)*

Thus, the site of Huchuy Qosq'ó expresses an Inca cosmovision that sanctified mountains and the landscape in which terraces or *andenes*, springs and canals played a prominent role. At Huchuy Qosq'ó there also exist imposing *andenes* that testify to the importance of this site. In an elegant undulation, these terraces were adapted to the mountainous terrain.

Urco: another rock sanctuary in the Vilcanota Valley. At this archaeological site, situated in the vicinity of Calca (latitude south 13°19'15", longitude west 71°58'59", altitude 2993.5 m), the remains of an Inca road that connected Urco with other settlements in the Sacred Valley can still be seen. Urco is situated in a fertile plain, at the foot of the *apu* Pituisiray, with abundant



Figure 14. View from inside the 'Building of the Rocks' towards the north with the mountain of Pitusiray and its two rocky towers in a visual alignment. (Photograph: J. Broda.)

waters flowing down from this important mountain range. In prehispanic times, the site was surrounded by imposing *anden*es similar to those that exist in the Pampa de Anta. Since the land is very fertile, the site of the sanctuary has been heavily affected by agricultural activities during Colonial and modern times.

It is an important historical site that had a continuous occupation from the Late Intermediate Period (Killke) to the Late Horizon (Inca). The chroniclers referring to the Inca government related the history of the site to Inca Viracocha's retreat to Huchuy Qosq'o, accompanied by his son Inca Urco. As a consequence of the *chancas'* defeat, however, Cusi Inka Yupanqui (Pachakuteq) became the new Inca and had his half-brother Inca Urco assassinated. Nevertheless, apparently not much is known about the sanctuary of Urco that has survived the vicissitudes of history.⁹ Yet it is noteworthy that the site of Urco, which was historically related to Inca Viracocha, his son Urco and thus to the residence of Viracocha at Huchuy Qosq'o, was situated almost exactly to the north of the latter (Fig. 6).

The integration of Urco within the fertile Valley at the foot of Pitusiray conveys a peaceful atmosphere that induces contemplation (Broda n.d. a, field observations, 2011, 2012). It is surrounded by canals carrying the abundant water that descends from the mountain. The soil is fertile, and corn and potatoes as well as colourful flowers are grown around the site. Only a few Inca buildings have been preserved and these

were recently restored. On a small elevation next to the site, a conspicuous round building overlooks the remaining buildings. At the centre of the precinct, a huge natural rock attracts attention; it is situated between two high adobe walls on its southern and northern side (Fig. 15). According to local tradition, this boulder represents an enormous toad (Kendall 1985, vol. 2, 266; Angles 1988, vol. 2, 488) (Fig. 16). The axis of this rock with its enclosure, as well as a nearby fine masonry wall, show the orientation of 112° towards the December solstice.¹⁰ The view towards the east is obstructed, however, by the high mountains bordering the Sacred Valley.

A small canal encircles the huge rock and formerly conducted the water that used to be brought in by a canal from the mountain. At the end of the canal the enigmatic face of a snake is carved into the rock. This mysterious carved boulder is yet another example of the veneration of rock sanctuaries in the core area of Inca political power.

Concluding remarks

In this article, I have presented an analysis and systematic comparison between Inca and Aztec ritual landscapes. The study has focused on the two most important Native American states on the eve of the Spanish conquest, which were still in the process of expanding and consolidating their borders. These polities already held control over vast extensions of



Figure 15. (Colour online) Urco: another rock sanctuary in the Urubamba Valley. (Photograph: J. Broda.)



Figure 16. (Colour online) Urco: the rock representing an enormous toad. (Photograph: J. Broda.)

Mesoamerica as well as South America. We inquired into the ideological processes of taking ritual possession of the landscape, of territories that formerly belonged to other ethnic groups. Aztecs, as well as Incas, however, shared many common elements of their religion and cosmovision with these conquered groups. Situated in mountainous highlands with extreme climatic conditions, the worship of mountains and water conspicuously formed the most ancient core of the agricultural religions in both culture areas.

In the case of Mesoamerica, it is difficult to study the material imprint of Aztec domination in the Basin of Mexico, due to the exorbitant process of urbanization that has taken place in the past 100 years. By interpreting the abundant sixteenth-century historical information, combined with fieldwork and an interdisciplinary approach, however, it was possible to reconstruct an image of Aztec ritual landscapes centred on the worship of water, mountains and carved rocks. The Aztecs also built cliff temples carved from the bedrock that expressed their particular cosmovision by means of extraordinary architectural projects. This architecture also propagated the ideology of the Aztec state immersed in its program of political expansion.

Whereas in Aztec studies these interpretations were proposed in pioneer studies by this author (Broda 1987; 1991a,b; 1996; 1997a,b), in the case of Inca research of the area around Cuzco, the circumstance of Andean veneration of mountains, carved rocks and

water resources has been pointed out by many authors over the years and is still very much alive in the cosmovision of the local population. Several modern authors (Alcina 1997; Carrión 2005; Farrington 1992; McEwan & Van de Guchte 1993; Niles 1993; Paternosto 1989; Van de Guchte 1990; Zecenarro 2001) have documented in detail the existence of this ritual landscape of carved rocks, springs, water reservoirs, channelized streams and terraced hilltops. The Incas implemented this transformation of the landscape by means of sophisticated architectural and engineering projects that enhanced the existing features of the landscape. These projects were based on an acute observation of the natural environment and a profound knowledge of its material conditions.

In the context of this line of research, I presented descriptions of three Inca shrines belonging to the outer heartland that Ian Farrington (1992) has defined for Inca rule of the area around Cuzco. Very few publications with this particular approach exist on these sites and thus my intention has been to add new material to an ongoing discussion. The shrines of Quillarumi (Anta), Huchuy Qosq'o (Calca) and Urco (Calca) document the Inca rulers' endeavour to create a ritual landscape according to the canons of their cosmovision and establish their role as warrantors of cosmic harmony.

We have seen how mountains, rocks and carved boulders were integrated into the ideological building programs of both Precolumbian states. In this way, they are a testimony of the process of taking ritual possession of the landscape, that is, of the territories conquered in their core area by both Inca and Aztec states during the fifteenth and sixteenth centuries AD. These processes formed part of the institutionalization of an official state religion in the two politically dominant Native American civilizations that flourished at the moment of the Spanish Conquest. They were expanding their respective territories and were creating an imperial form of government that integrated culturally and ethnically diverse groups. Simultaneously natural phenomena were imbued with political significance, because the conquering states of both Aztecs and Incas took possession of the shrines of the groups and peoples that preceded them in the exercise of power.

In this process, however, they also built on pre-existing political and social forms of organization. Both culture areas, Mesoamerica and the Andes, were the product of a long cultural evolution that had shaped their religious universe, their cosmovision. In it, the veneration of these natural phenomena — a kind of 'meteorological' cult — had great antiquity in Mesoamerica as well as in the Andes. These ancient

concepts shaped the reinterpretation of the ritual landscapes that were created by the new overlords.

In both areas, one of the basic philosophical concepts of their religion was that the human world and the cosmos consisted of dialectical interacting forces that could be influenced by ritual action. The sacred sites were related to geography and to visual alignments towards mountains and boulders as well as shrines. It seems that most of these sites of the ritual landscape were also coordinated with the calendar and its periodical celebrations. Although Inca and Aztec calendars had a completely different internal structure, nevertheless, coordination with the movement of the sun, and probably of the moon as well, was important to the Aztecs as well as the Incas. However, it should be kept in mind that the sanctuaries described in this article were not observatories intended to establish astronomical observations, but rather sought to coordinate the landscape with the calendar and the geometry of orientations and visual perspectives. A sophisticated knowledge of the movement of celestial phenomena and the construction of a calendar formed the point of departure for these architectural projects. This body of astronomical and mathematical knowledge was handed down through institutions created by the priesthoods and the ruling elites. The ritual landscapes were the expression of this knowledge accumulated over the centuries, not its source.

Thus, these sanctuaries are evidence for the cultural embeddedness of astronomical observations in the ancient societies of the Americas. It is very important to consider this cultural embeddedness of astronomical alignments. By using statistics of azimuths and alignments as the only method, the function and cultural significance of these orientations cannot be apprehended, although naturally correct measurements are fundamental. In their 'archaeoastronomical survey of major Inca sites in Peru', Zawaski and Malville (2007–2008, 36) reach similar conclusions. They confirm that, although astronomical phenomena were present at many of the sites they studied, the locations of these *huacas* were not exclusively determined by these astronomical phenomena but rather by their unique geographical features.

Above all, the ritual landscapes constitute a testimony to the cosmovision of these societies based on the philosophical comprehension of a dynamic universe and the intention to integrate society into this interacting totality. It was the endeavour to transform the natural environment into a planned scenery that could be influenced for the benefit of society as well as of its rulers, priests and elites. These societies pursued control of the coming of the rains and avoidance

of excessive climatic phenomena that were a constant threat to growing crops and the welfare of animals and human beings. By means of staging great public ceremonies, Aztec and Inca societies tried to exert influence over these processes of nature. By creating these sophisticated architectural projects that imposed a new human order upon the landscape, they pursued the goal of integrating society within the cosmos. This pursuit also provided the foundation for political leadership.

Conklin (1986, 131) considered that ‘perhaps the most important clue to the religious or secular nature of a structure [built by the Incas] lies in its relation to landscape — not in its shape or arrangement — [in] total contrast to Western architecture. Thus, buildings that incorporate or relate to specially shaped natural stone outcroppings seem bound to be religious in nature, since the Incas generally worshipped such natural phenomena’. From this point of view, Conklin (1986, 133) concludes that ‘it becomes increasingly clear that the form of Inca cities is the best clue we will ever have to the form of the Inca mind’. One might add that the same characterization applies to Aztec temples and shrines at Tenochtitlan and its surrounding landscapes.

With this perspective, the comparative study of Inca and Aztec societies is useful if one compares and contrasts elements within a strictly defined thematic framework. On the one hand, it makes one realize that there are common processes of cultural development as well as differences within the major cultural traditions of Precolumbian civilizations. On the other hand, different approaches to these interpretations, and to interdisciplinary research in general, can also be noticed in the respective fields, and these different approaches and methodologies may stimulate new insights in the other regions. After all, the comparative perspective is a fundamental asset of anthropological studies.

Acknowledgements

For periods of my research in Cuzco during 2010, 2011 and 2012, I received the financial support of the *Programa de Apoyos para la Superación del Personal Académico* (PASPA) de la Universidad Nacional Autónoma de México (UNAM), as well as of the Instituto de Investigaciones Históricas and the Coordinación de Humanidades, also UNAM. In Cuzco I am indebted, above all, to Javier Kallañaupa Bolívar for his invaluable guidance in fieldtrips and the stimulating exchange of ideas about Inca as well as modern Quechua perception of landscape. I further acknowledge the valuable information that I received from Gissel Meza, Teresa Polo, Alicia Pílares, Concha Olivera and Gloria Heredia, of the Ministerio de Cultura, Delegación Cuzco, as well as of Juan

Pablo Villanueva, of the Universidad Nacional Mayor de San Marcos, Lima. At UNAM I acknowledge the technical help provided by Graciela Alvarado in the preparation of the manuscript. Finally, I thank the two anonymous reviewers for their valuable comments on the first draft of this article. The additional bibliography suggested by Reviewer 2 also proved very useful.

Notes

1. *Mesoamerica* refers to the culture area of Mexico, Guatemala and parts of Central America that is characterized by common historical roots and fundamental cultural traits (Kirchhoff 1943). In the course of the evolution of its shared characteristics and interactions of more than four millennia, however, the cultural limits of this area fluctuated considerably (Broda 2000; López Austin & López Luján 1996).
2. In this respect, I acknowledge the stimulating exchange of ideas and the relationship that I have maintained over the years with Anthony F. Aveni. I have benefited greatly from reading his many scholarly publications as well as sharing numerous field trips conducted by him.
3. For the relation between culture and political power, see Wolf (1999).
4. *Proyecto de restauración del conjunto arqueológico de Urco* (2008); *Proyecto de restauración del conjunto arqueológico de Huchuy Qosqo* (2005); *Proyecto de restauración del conjunto arqueológico de Quillarumiyoc-Ancahuasi-Anta* (2006). I want to thank Teresa Polo and Gissel Meza from the Ministerio de Cultura, Delegación Cuzco, for providing me with valuable information on these projects.
5. Barreda Murillo performed restoration work at the site in 2002 (*Proyecto de restauración del conjunto arqueológico de Quillarumiyoc-Ancahuasi-Anta* 2006, 10). See also Hemming (1982, 169); Zawazki & Malville 2007–2008, 34).
6. *Proyecto de restauración del conjunto arqueológico de Quillarumiyoc-Ancahuasi-Anta* (2006, 12). An *ushnu* was a variously shaped platform that formed the centre of Inca ceremonial precincts.
7. *Proyecto de restauración del conjunto arqueológico de Huchuy Qosqo* (2005). I acknowledge the valuable information on Huchuy Qosq'o provided to me by Alicia Pílares Calero, Ministerio de Cultura, Cuzco.
8. Concerning this important site, see the reports of Hyslop (1990); Kendall *et al.* (1992); and Zecenarro (2000).
9. Some archaeological work has been done at the site recently (*Proyecto de restauración del conjunto arqueológico de Urco* 2008); see also Candia (2008); Kendall (1985, vol. 2, 266).
10. GPS measurement, December 2012.

Johanna Broda
Instituto de Investigaciones Históricas
Universidad Nacional Autónoma de México
Circuito Mario de la Cueva, Zona Cultural

Ciudad Universitaria, Delegación Coyoacán
C.P. 04510. México, D.F., Mexico
Email: jbroda@prodigy.net.mx

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Abbreviations

ENAH Escuela Nacional de Antropología e Historia
IIA Instituto de Investigaciones Antropológicas
IIH Instituto de Investigaciones Históricas
INAH Instituto Nacional de Antropología e Historia
UNAM Universidad Nacional Autónoma de México

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Author biography

Johanna Broda, PhD, is Professor at the Instituto de Investigaciones Históricas, Universidad Nacional Autónoma de México. Specializing in ancient Mesoamerica, Aztec ritual, calendrics, cosmovisión, observation of nature, archaeoastronomy and cultural landscapes, she combines anthropology with archaeology, ethnohistory, as well as modern ethnography. Broda's recent research includes comparative studies between Mesoamerica and the Andes (Aztec and Inca cultures).