Landscape Setting as Medium of Communication at Chavín de Huántar, Peru

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The Central Andean ceremonial centre of Chavín de Huántar is situated in a dramatic, mountainous and dynamic environment high on the eastern slope of the Peruvian Andes, yet the site's landscape setting has remained in the shadow of its monumental architecture, complex lithic art and highly elaborated material culture. Nevertheless, that dynamic landscape setting was an integral part of the site's significance as a ceremonial centre and may be read as evidence of the capacity, worldview and message of the site's builders. First, Chavín's setting is evidence of capacity, demonstrating the considerable degree of labour mobilization and organization, as well as expertise, implied by the site's modified landscape. Second, Chavín's landscape, considered in its Central Andean context, provides evidence of worldview, demonstrating that landscape setting was a medium of interest for Chavín's designers. Third, the modified landscape provides evidence of message, allowing exploration of what Chavín's designers were trying to communicate, and to whom. Focusing on these three aspects in reading Chavín's landscape suggests that landscape setting was a vital aspect of Central Andean Middle and Late Formative Period (1000–500 BCE) ceremonial centres and argues that emergent elites actively exploited landscape setting as a communicative medium and forum for dissemination of ideology, deliberately communicating to multiple audiences.

Introduction

Landscapes are inhabited environments—at once suites of resources, arrays of symbolic features invested with meanings, and spaces constructed and defined through social and political negotiations. The archaeology of landscapes thus encompasses diverse theoretical foci and intellectual strands, ranging from environmentally focused approaches grounded in human behavioural ecology to experiential approaches tethered to phenomenology (Ashmore & Knapp 1999; David & Thomas 2008; Ucko & Layton 1999). These divergent foci share an attention to landscapes as anthropogenically influenced legacies of both incidental and deliberate human actions. I focus here on the deliberate human modifications of a landscape that was not particularly malleable and which was dynamic in its own right, arguing that the modification of a dynamic environment at Chavín de Huántar, Peru, created a landscape setting that was integral to the monumental project undertaken by the site's designers and builders.

The first-millennium BCE Central Andean ceremonial centre of Chavín de Huántar has been a focus of archaeological research in the Central Andes for nearly a century, and the site is generally recognized as being critical for understanding early social complexity and regional interaction in prehispanic Peru. As is common at monumental sites, research at Chavín has focused heavily on art and architecture, while the

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anthropogenic landscape associated with the site has been backgrounded. I argue here that the site's dynamic landscape setting, changeable during as much as 500 years of use as a ceremonial centre due to both anthropogenic and geomorphic factors, does not simply provide context for the monumental centre, but changes the way in which its florescence and place in the Central Andean trajectory can be understood. It is an important focus of investigation in three respects. First, Chavín's landscape is evidence of *capacity*, allowing investigation into what kind of labour mobilization and organization, as well as expertise, is implied by the landscape evidence. Second, Chavín's landscape, considered in the context of Central Andean ethnohistory, provides evidence of *worldview*, enabling inquiry into the very fact that landscape setting was a medium of interest for Chavín's designers. Third, the modified landscape provides evidence of *message*, allowing exploration of what Chavín's designers were trying to communicate, and to whom.

I characterize Chavín's environmental setting below, before turning to a consideration of the ways in which Chavín's setting—architecture embedded in a deliberately modified but still dynamic landscape—may be read as evidence of capacity, message and worldview. Such an approach, I argue, is particularly apt in a Central Andean context, where ethnohistoric analogy strongly suggests that the landscape was understood as animate even as early as the Middle Formative Period. While ethnohistoric analogy must be used cautiously in interpreting the relatively distant past in the Central Andes, even the broad parameters of a Central Andean environmental ontology suggest that the modification of Chavín's landscape constituted part of a network of social relations that included elites, non-elites and supernaturals. As a result, considering landscape evidence at Chavín not only changes the way in which the site's construction must be understood, but also suggests a necessary reformulation of the ways in which author(s) and audience(s) of its message are interpreted. Chavín's setting complements the architectural and material cultural evidence more commonly used to assess the site, demonstrating that the site was simultaneously communicating to multiple audiences.

Chavín de Huántar and collaborative action in the prehispanic Central Andes

Chavín de Huántar is located high on the eastern flank of the Cordillera Blanca, in the north–south trending drainage of the Mosna River known as the Callejón de Conchucos (Fig. 1). The site, a monumental centre dating to roughly 1000–500 BCE (Contreras in press;

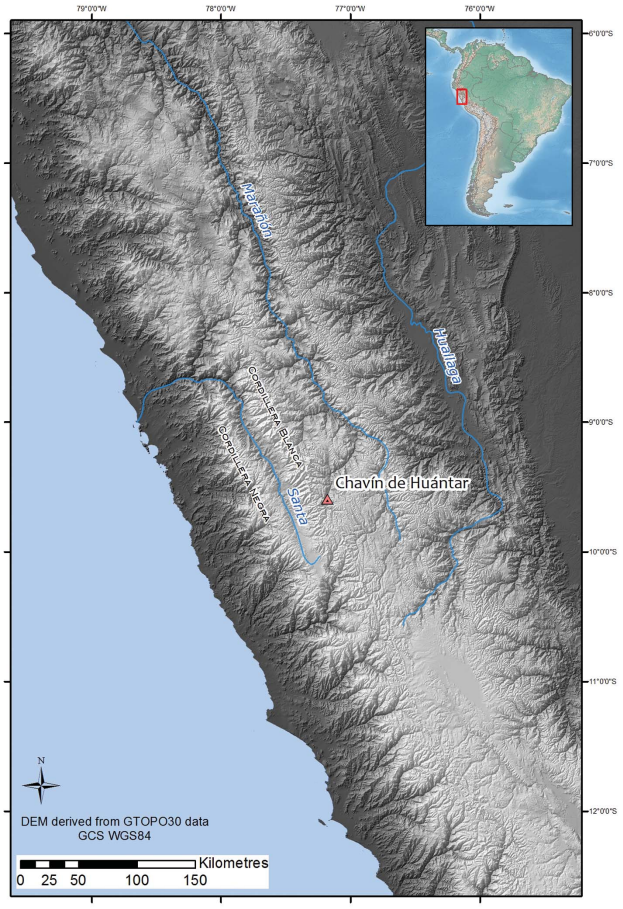


Figure 1. *(Colour online) Chavín de Huántar is located on the eastern slopes of the Central Andes in Peru's Cordillera Blanca.*

Kembel & Haas 2013; Rick *et al.* 2009), consists of a complex of stone-faced platform mounds, terraces and sunken plazas located on the valley floor at 3180 m above sea level (Fig. 2). This monumental core covers approximately 6 ha, while the surrounding landscape was heavily modified over a larger area of approximately 17 ha (Contreras 2007; 2009; 2010a).

The site has a complex architectural history, characterized by near-continuous construction in five major stages (Kembel 2008), and consists of an array of architectural forms that have diverse antecedents, including the U-shaped mound complex and platform-and-sunken-plaza arrangements common on the coast in the preceding millennium and the small Mito-style structure focused on a central hearth found in both highland and coastal sites (Contreras 2010c; Williams 1985). The final form was a multi-level arrangement of plazas, staircases and structures that were decorated with complex lithic art with iconographic ties to a wide array of sites throughout much of the Central Andes (see Bischof 2008 and Rowe 1962, among many)

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Figure 2. *(Colour online) Looking down at Chavín from the slopes east of the site. Structural designations follow Tello (1960); the sunken square plaza north of Structure E is approximately 50×50 m. The toe of the Cochas earthflow is visible upslope of Structure A to the southwest.*

and housed a diverse array of interior galleries, canals, and ducts. Both architectural sequence (Kembel 2008) and associated ^{14}C dates (Kembel & Haas 2013; Rick *et al*. 2009) demonstrate that the final form of the complex consisted of the areas previously termed 'Old Temple' and 'New Temple'; in fact these functioned simultaneously and were products of what Kembel (2001; 2008) terms the Black and White Stage, which constituted the site's apogee in terms of architectural expansion and elaboration.

General consensus has it that the site was a ceremonial centre where ritual activity was staged (Moore 2005, 56). Research foci over nearly a century of archaeological attention have varied, including Chavín's putative role as a Central Andean 'mother culture' (Tello 1943), its character as a pilgrimage and cult centre with ideological influence throughout much of the Central Andes (Burger 1988; 1992a; Lumbreras 1989; 1993; Patterson 1971) and its pioneering role as a locus of the institutionalization of authority and socio-political complexity (Kembel & Rick 2004; Rick 2005; 2008; Tantaleán 2011). Nevertheless, diverse investigators working with varied data and approaching Chavín from various theoretical perspectives have generally agreed that the site was a ceremonial centre, implicitly suggesting that its construction constituted devotional activity on the part of adherents. That is, labourers were motivated by their embrace of the centre's ideology and participation in its worldview and associated rituals.

Rick and Kembel (Kembel & Rick 2004; Rick 2006b) have problematized this devotional model, arguing that while Chavín was indeed a ceremonial centre, the participants in its ceremonies, target audiences of its performative rituals and beneficiaries of its successes were local elites and their peers at other comparable centres—and *not* the local population who presumably provided the labour involved in the site's construction. In focusing on the way in which Central Andean ceremonial centres *functioned*, however, such an argument elides an important question of process: who built, maintained and supported Chavín, and why?

To the extent that Rick and Kembel (and previous investigators) at Chavín have focused primarily on elite activity, this has reflected primary interest in the site's monumental architecture, remarkable craft elaboration and participation in a widespread network of shared iconography. In addition, colluvial activity and subsequent settlement have obscured any domestic or proto-urban areas associated with the monumental centre and, indeed, buried much of the monumental architecture as well (Contreras 2009). As a result, Chavín's local community is known only through small snapshots—e.g. Burger's small excavations around the site periphery (Burger 1984) and more recent excavations across the Mosna River east of the monumental centre in the area known as La Banda (Rick 2005; Sayre 2010).

Nevertheless, a centre of the scale and elaboration of Chavín necessarily implies commoners, even if they were not central actors in ceremonies nor in many cases even an intended audience. Even if the ceremonial centre was *for* elites, in important ways it

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was not *by* elites. The scale of labour investment—monumental construction, landscape modification, and craft elaboration—is evidence that planners were a minority of the overall workforce necessary. In fact, even the most elite-focused interpretations of Chavín contain implied commoners, whether imagined as motivated by communal ethos, religious devotion, or *chicha* and the lash; no investigator has envisaged trudging lines of elites quarrying stone and carrying baskets of earth. As a result, two major interpretive issues at Chavín are the related questions of workforce and audience. Who comprised each of these groups, did they overlap in their constituencies, and what motivated the participants to participate in such a collaborative project?

The questions of who and why are thus intimately linked, and are common to sites containing monumental architecture throughout the Central Andes. The issue of who was involved in the construction, maintenance and use of the monumental centre has profound implications for understanding both Chavín and ceremonial centres more generally. Were such sites the products of broadly inclusive phenomena involving integrative ritual, or exclusive arenas more tied to the creation, maintenance and naturalization of socio-political difference?

Chavín and its contemporaries from the first millennium BCE occupy a span of time potentially key to resolving this issue (cf. Rick 2006b). By 1000 BCE in the Central Andes, construction of monumental ceremonial centres was a well-established trope; indeed many of the coastal centres of the second millennium BCE (and even earlier in the Norte Chico) are of a scale that dwarfs later sites. At the same time, although evidence for the existence of institutionalized hierarchy established elites is unequivocal by the early first millennium CE, it remains ambiguous at best for the second millennium BCE.

The precise period and circumstances of the emergence and institutionalization of sociopolitical inequality are still debated, but the first millennium BCE was evidently a time of significant change. This issue—and the related phenomena of interregional interaction, shared ideology and craft specialization—frames Chavín's significance in Peruvian prehistory. The linked internal and regional dynamics of which this highland monumental centre was part formed a Central Andean trajectory that ultimately produced the expansionist, militaristic and profoundly hierarchical Inka Empire. Two millennia separate Chavín and the Inka Empire, however, and debates continue over when and where states emerged in the Central Andes (see Stanish 2001; while subsequent research has expanded the data base and pushed back the early dates, the parameters of the debate remain similar). As in anthropological archaeology more broadly (cf. Carballo *et al.* 2014), these debates hinge on the question of collaborative action. The monumental scale of early (3000–1000 BCE) mound-and-plaza complexes in the valleys of Peru's arid central coast (e.g. Caral and the sites of the Norte Chico region and the several early monumental sites in the Casma Valley) leads some (e.g. Haas & Creamer 2006; Pozorski & Pozorksi 2005; Shady Solís 2006) to see evidence of state-level organization. Others (e.g. Burger 1992a; Tantaleán 2011; Vega-Centeno 2007) do not see the monumentality of these constructions as itself sufficient to imply systematized hierarchy and reserve the term 'state' for the more clearly centralized and militaristic polities that emerged in the first millennium CE in various parts of the Central Andes (e.g. Moche, Tiwanaku, Wari). The debate is partly terminological—turning on just what comprises a state—and partly theoretical, resting on whether large-scale collaborative activity (e.g. mound-building, construction of irrigation networks and exchange of subsistence resources) necessarily implies institutionalized hierarchy.

Approaches to the who and why of collaborative action at Chavín, as at other Central Andean centres, have focused on architecture, iconography and material culture. At Chavín, recent research (e.g. Kembel 2008; Kembel & Rick 2004; Moore 2005; Rick 2008) has emphasized architecture, considering evidence for organization and planning, access patterns and spatial design. Studies focused on material culture, most notably portable artefacts like ceramics but including also lithic art, have emphasized iconography, seen as evidence of culture contact (e.g. Burger 1992a; Druc 2004; Lumbreras 1993). In the Central Andes more broadly, craft production has been seen as evidence of status difference and products used to create and display such difference (see Vaughn 2006). Craft goods have also been considered as media through which ideology might be materialized and communicated (e.g. DeMarrais *et al.* 1996), while architecture has also been examined for what it may imply about labour investment and organization (e.g. Feldman 1987; Smailes 2011; Vega-Centeno 2007).

Interest in collaborative action at the landscape scale, however, has largely been confined to agricultural engineering, primarily focusing on construction of irrigation networks, terracing and raised-field complexes (e.g. irrigation associated with political consolidation in Moche (Billman 2002) and raised fields associated with Tiwanaku (whose relationship to a putative state has been much debated, as summarized by Janusek & Kolata 2004). Nevertheless, large-scale

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collaborative projects in the Central Andes included not only architectural endeavours and agricultural infrastructure, but also landscape modifications not directly associated with production. At Chavín, as I have argued elsewhere (Contreras 2009; 2010a), the architectural core represents only a fraction of the site, as the monumental structures of the core area were set in a heavily modified landscape. In that light, the focus on architecture and craft production, productive though it has been, has largely ignored a valuable source of insight: landscape settings.

Setting

At Chavín, setting has been discussed as resource endowment (Miller & Burger 1995), sacred backdrop (Reinhard 1985a) and crossroads of trade routes (Burger 1992a) and, referencing the built architectural area more specifically, designed space (Kembel 2008; Moore 1996; 2005; Rick 2008). As I have detailed elsewhere (Contreras 2010a; 2014), this setting consists of a landscape that is both anthropogenically modified and geomorphically dynamic. As a result, setting—that is, the environmental and architectural space occupied by Chavín's inhabitants—is crucial to interpretation of this ceremonial centre. Examining Chavín's landscape has the potential to shed light on both the sacred—understandings of the environment—and the mundane—the social and political organization enabling its modification. That such diverse aspects may be read from palimpsests of landscape evidence is an issue that has been the subject of considerable archaeological attention (e.g. Anschuetz *et al.* 2001; Ashmore & Knapp 1999; David & Thomas 2008; Ucko & Layton 1999).

Archaeological and geomorphic research at Chavín has produced abundant evidence that Chavín's landscape was both anthropogenically modified and dynamic during the use-life of the ceremonial centre (Contreras 2007; 2009; Contreras & Keefer 2009; Turner *et al.* 1999). Landscape changes include both anthropogenic effects and environmental changes independent of human activity. The anthropogenic effects range from very direct and intentional modifications to the landscape (e.g. megalithic terracing, canalization of rivers, platform construction) to inadvertent and less direct effects (e.g. changes in earthflow behaviour and erosion regimes potentially associated with anthropogenic burning and deforestation associated with cultivation and/or pastoralism). Environmental changes relatively independent of human agency include earthquakes, landslides and fluvial activity.

Anthropogenic setting

The modern landscape around Chavín is a palimpsest resulting from anthropogenic and geomorphic processes (Contreras 2007; 2009; 2010a; Contreras & Keefer 2009; Turner *et al.* 1999) and as such is of critical interest in understanding how and why Chavín's builders constructed the extensive ceremonial centre and its sociopolitical infrastructure. Indeed, interpreting that palimpsest is integral even to understanding just *what* they constructed. Such interpretation is made possible by the reconstruction of the Chavín-period landscape from the discontinuous data provided by excavations and stratigraphic exposures in the monumental core and its near periphery (Contreras 2007; 2009). The result is an increasingly broad picture of a first-millennium BCE construction project consisting simultaneously of architecture (Kembel 2001; 2008) and landscape engineering (Contreras 2009; 2010a; Rick 2005; 2008). This revision of exactly what constitutes the monumental project of Chavín is one of scale and also one of type.

Extensive landscape engineering, less immediately visible today than the partially excavated major structures, was also a key part of the construction of the monumental core. The expansion of the monument apparently involved the diversion of the Mosna River and the reclamation of the riparian corridor for construction (Contreras 2007, 166–79; Rick 2005, 65–6; 2008, 13–14). Remnants of walls that canalized the Mosna River are still visible today and Mejia Xesspe's photographs from 1940 show similar wall fragments lining the Wacheqsa River (Tello 1960, Lámina XLV); the latter were destroyed by the debris flow that buried the site in 1945 (Indacochea & Iberico 1947). Ongoing excavations, as well as investigations of natural exposures, now demonstrate that much of the near periphery of the monumental core, although it does not today appear to be part of the built complex, consists in fact of series of terraces and platforms that have been obscured by subsequent colluvial and alluvial deposition (see Contreras 2007; 2009) (Fig. 3).

On the basis of GIS reconstruction of the pre-Chavín landscape (Contreras 2009), it is now possible to estimate that the central structures at Chavín (the monumental core, or central 6 ha of the site) amount to about 25,000 m^3 of material. Those 6 ha have traditionally been considered to *be* the site, implying the project of Chavín was a purely architectural one. However, the coherence and extent of the landscape engineering surrounding this core area demonstrate that in fact something more like 17 ha is heavily modified, demonstrating that the project of Chavín was *both* architectural and environmental. The estimated

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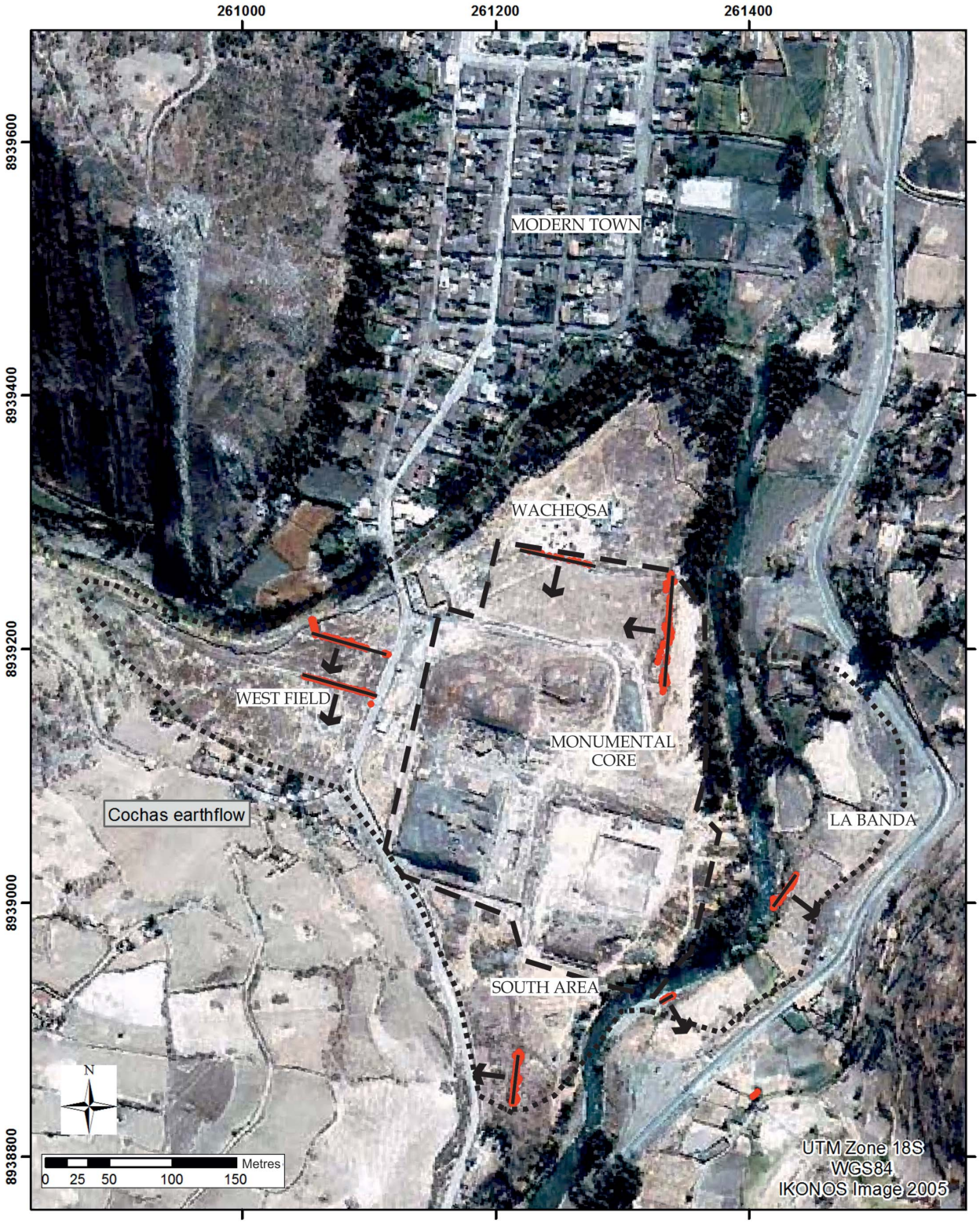


Figure 3. *(Colour online) Landscape engineering surrounding the site core. Wall fragments indicated are either platform facades or retaining walls; black arrows indicate direction of retention and presence of at least partially artificial fill. The approximate extents of the monumental core and the modified landscape are indicated by the dashed and dotted lines, respectively. The fin of quartzite north of the West Field is the Shallapa outcrop, likely source of much of the site's building stone.*

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25,000 m^3 of material that comprises the 6 ha of the monumental core consist primarily of stone fill in a prepared clay matrix, but also of shaped blocks of quartzite, sandstone, limestone and granite that make up the site walls. The broader 17 ha comprise approximately 59,000 m^3 of material, primarily stone and earthen fill, more than doubling the volume of construction (see Figs. 2 & 3).

Geomorphic setting

Chavín lies at the junction of the Wacheqsa and Mosna rivers high on the eastern slope of the Cordillera Blanca, where steep topography and tectonic activity make environmental hazards endemic. The principal elements of the valley geomorphology are steep slopes thinly covered with colluvium, alluvial fans created by small tributary drainages perpendicular to the valley axis and earth flow complexes extending from high up the valley walls to the valley floor (see Fig. 4 and Contreras 2010a, fig. 11–2). Bedrock outcrops are also scattered throughout the valley at all elevations. The resistant quartzitic layers tend to form steep near-vertical fins, while the more easily eroded shales form more moderate slopes (Cobbing *et al.* 1996, 83–90; Turner *et al.* 1999, 48).

Buried Chavín-period architecture testifies to earthflow activity in the last three millennia, while fresh scarps and damaged architecture visible on the lower slopes in the valley suggest that additional movement has taken place in recent years or decades. Although estimates of the precise rates and frequency of movement of these earthflows around Chavín remain tentative, they have now been well mapped (see Contreras 2007; 2009; 2010a; Turner *et al.* 1999) and the areas potentially affected delimited.

Chavín's inhabitants would have been aware of earthflow as well as several other types of geologic activity. Dramatic hazards formed part of Chavín's setting, as the site's location in a steep highland valley made the presence of at least some substantial geologic hazards inevitable. The Central Andean highlands are generally steep, subject to high seasonal variation in rainfall, glaciated and seismically active (Blodgett *et al.* 1998; Cobbing *et al.* 1996; Schwartz 1988). As might therefore be expected, there is a long and substantial documentary record of catastrophic geological events in the region (e.g. Carey 2005; 2010; Dorbath *et al.* 1990). Seismic hazards are magnified by a steep and landslide-prone landscape capable of producing catastrophic debris flows of astonishing speed and power. Most locally to Chavín, the 1945 *aluvión* is historically documented (Indacochea & Iberico 1947; Spann 1947), and deposits in the *quebrada* of the Wacheqsa suggest at least one other debris flow may have occurred in the Late Holocene (Contreras & Keefer 2009).

Reading Chavín's setting

Examining these anthropogenic and geomorphic aspects of Chavín's setting provides a means of addressing the problem of collaborative action at the site: the abundant evidence of coordinated group effort begs the question of how such a group was motivated to participate, organized and supported. Most investigators have focused on the site's architecture and iconography (manifest in both permanent and portable media) as means of considering collaborative action and have thus been limited in their interpretations to considering the author(s) and audience(s) of those aspects of the site. The conjunction of a deliberately modified landscape with the extensive evidence of restricted-access elite ritual activity (e.g. interior spaces and small plazas; see Burger 1992; Kembel & Rick 2004; Moore 2005; Rick 2006b), however, suggests that Chavín was simultaneously addressed to multiple audiences. Although a binary model certainly over-simplifies a social structure about whose details have little direct evidence, these audiences evidently included *both* elites and non-elites.[1]

In the cases of both architecture and iconography, it seems likely that author and audience were primarily elites (see Kembel & Rick 2004), but Chavín's landscape setting provides the necessary evidence and theoretical warrant for considering not only elite agency, but also broadly shared ideological concepts related to landscape and environment during the Chavín period. Chavín's setting provides insight into the design intentions of Chavín's planners, and also into the ideological motivations of the intended audience for that setting.

The evidence of Chavín's setting opens three avenues of engagement with the problem of collaborative action that cannot be explored using only the site's architecture and material culture:

1. an estimate of the organizational, motivation and engineering abilities of the site's administrators (*capacity*);
2. an examination of Chavín's interaction with its environment as indicative of social and cosmological understandings (*worldview*); and
3. a reading of the setting as medium of deliberate communication (*message*).

Capacity

Reconceptualizing Chavín as consisting of 17 ha of built landscape rather than a series of structures occupying a 6 ha area involves revising estimates of

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Figure 4. *(Colour online) View west across the Callejón de Conchucos. The ceremonial centre is visible to the lower right (1), where the Río Wacheqsa enters the valley of the Río Mosna. The Cochas earthflow (2) is visible upslope of the site to the southwest.*

the labour organization, motivation and direction involved in the site's construction. While the site's architectural and landscape complexity is such that precise quantification of the labour involved remains a substantial future project (the potential of sophisticated modelling of construction efforts and scheduling has been demonstrated at Chan Chan: Smailes 2011), volumetric estimates and other studies of prehispanic construction permit quantified estimates of what Chavín's construction likely entailed and enable relative comparisons.

Purely in terms of volume of construction, a 6 ha architectural project comprising 25,000 m^3 (see Contreras 2009) implies approximately 71,250 person-days of labour.[2] This estimate includes only the labour of transporting basic constituent materials, without taking into account transport of select materials from further afield, nor the time and expertise involved in construction or preparation of materials. In the case of Chavín, the result is a very conservative estimate, as it accounts only for structural and landscape fill and does not consider the procurement and preparation of the blocks of stone (quartzite, sandstone, granite, and limestone, commonly weighing more than a metric ton and, in the latter cases, available only from outcrops several kilometres distant) that make up the architectural facades or the preparation of the matrix for the fills, which at Chavín is often a carefully prepared sterile clay (Contreras 2010a, 237). As a result, these calculations undoubtedly produce a substantial underestimate of the amount of labour involved in Chavín's construction, but are nevertheless useful in that they may be contrasted with those produced if we consider instead the estimated 17 ha covered by the site more broadly construed (as Rosenwig & Burger (2012, 9) point out, the uncertainties inherent in labour estimates make them best suited to *relative* comparisons of monumentality).

Employing the same method, it is possible to calculate that the 59,000 m^3 of the 17 ha of modified landscape imply approximately 168,150 person-days of labour: as in the case of the above calculation, this is an extremely conservative estimate. This might be reconceptualized as 561 person-years of 300 working days and contrasted with the low estimate of 238 person-years. As the raw volume hints, a doubling of labour required is involved. How that labour might have been scheduled, and thus how many labourers are implied, is of course a separate question. Addressing that issue in appropriate detail would require developing more detailed and accurate estimates of necessary labour (e.g. Abrams & Bolland 1999; Smailes 2011), which might be coupled with the improving chronology of Chavín's construction (Contreras in press; Kembel 2008; Kembel & Haas 2013; Rick *et al.* 2009) to suggest the scale of labour

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mobilization required (see, for example Erasmus 1965, fig. 1).

Such a scale of construction is certainly not unique within the Central Andes at the time (e.g. Burger & Rosenwig 2012; Donnan 1985). However, at Chavín, as at other monumental centres throughout the Central Andes (and elsewhere), the question of how such labour was not simply *mobilized* but also *motivated* looms large. Identifying which social groups participated in the construction of monumental architecture, and how those groups were organized, is a challenge closely linked to interpreting the significance of such architecture (cf. Vega-Centeno 2007). Most simply, given a certain amount of labour necessary for construction, monumental constructions may either be the product of small groups acting over long periods of time or large groups acting over short periods of time. These alternatives may have distinct organizational implications and entail the involvement of populations of very different sizes; they also may encompass efforts that are either participatory or tributary in character.

As Rosenwig and Burger (2012, 7–8) emphasize, explanation of monumentality should draw on lines of evidence other than scale in order to avoid the circular supposition that the monumental *necessarily* implies centralized authority. In Chavín's case, not only the scale, but also the character of construction and landscape engineering suggest coordinated collaborative action, rather than simple aggregation of individual efforts.

Rick and Kembel, focusing primarily on the monumental core of the site, have argued for a model of 'built authority' at Chavín—a vision of monumental construction and ritual practice at the site as part of a carefully designed elite project of naturalizing social inequality and institutionalizing authority (Kembel 2008; Kembel & Rick 2004; Rick 2005; 2006b; 2008). Their pre-eminent argument for the existence of developing sociopolitical authority at Chavín is that of *design*. That is, they argue that the extensive evidence of continuity in architecture and apparent centralized planning are evidence of a directed, rather than collective, construction effort. Rick argues further that evidence for the form and content of ritual at Chavín supports this contention, and that the ceremonial centre itself was built with the specific goal of impressing—in the sense of rendering impressionable—visitors and adherents (Kolar *et al.* 2012; Rick 2005; 2006; 2008a). Moore's assessment of Chavín's ceremonial architecture in Andean context offers further support for this argument; he concludes that the permanence, continuity and regional significance of Chavín's architecture argue for the presence of canonically based authority. That is:

> where ceremonial architecture is generational or multi-generational in permanence, is found at the regional or interregional level, is large-scale and incorporates public-far and public-distant spaces, religious authority will not be based on ecstatic shamanism … [it] will be characterized by canonism or another class of authority will be involved, such as kin-based political leaders. (Moore 2005, 121)

Broadening the focus from architecture to landscape setting at Chavín reinforces this conclusion, offering evidence of substantial labour requirements and centralized long-term planning. The major landscape engineering projects at Chavín (e.g. the re-channelling of the Mosna River: see Contreras 2010a, 235–6), inasmuch as they had to be carried out in a single organized effort rather than piecemeal, similarly argue for an element of design.

Chavín's modified setting testifies to a significant mobilization of labour, degree of planning and engineering capacity. I explore below the ways in which this display of capacity was embedded in a relationship with a manifestly powerful environment that was likely understood as animate, and argue that this relationship comprised a vital part of the message that Chavín sought to communicate.

Worldview

Chavín's efforts at landscape engineering were undertaken in a landscape which, Central Andean ethnohistory and ethnography strongly suggest, was understood to be animate. While in the absence of written testimony this cannot be directly established for Chavín itself, contact-period ethnohistory and modern ethnography of Central Andean peoples testify to a widespread and deep-rooted Central Andean tendency to understand landscapes as animate, populated by named features that had agency and might be considered as having a sort of personhood also (see, for example, Salomon 1991; 1998; Sillar 2004; 2009; on agency, see Bray 2009). While, like other ethnohistoric and ethnographic observations, this characterization should not be incautiously projected onto the past, a substantial corpus of archaeological evidence argues that such a worldview had significant time depth as well as geographic spread (e.g. Glowacki & Malpass 2003; Reinhard 1985a; Schreiber 2005; see discussions in Contreras 2010b, 263–5; 2014).

Concepts and terms drawn from later Andean beliefs—e.g. *apus* (deified mountain peaks) and *tinkuy* (river confluences)—have previously been applied in

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interpretation of the site (e.g. Burger 1992b, 274–5; 2008, 684; Reinhard 1985a). While the ubiquity of such environmental features in the region makes establishing their particular significance at Chavín difficult (see Contreras 2014), this is not to say that they were not significant elements of the site's landscape setting. In highland Ancash more generally, Lau (2011, 123–6) argues that particular stones were ascribed significance at least as far back as the Recuay period (the first millennium CE), likely as lithomorphized ancestors serving in part as territorial markers (and see also Duviols 1979). This and other concepts from later Andean peoples may have parallels at Chavín: for instance, Cummins (2008) argues that the Lanzón monolith was a stone monument analogous to others from the succeeding two millennia, and several scholars have noted evidence of dualism in the site's architecture and sculptural iconography (e.g. deliberate use of black limestone and white granite, oppositions between male and female figures, pairings of *Spondylus* and *Strombus* shells; see, for instance, Rowe 1962 and Burger & Salazar-Burger 1993). The profusion of analogies to later Andean beliefs perhaps testify as much to modes of Andeanist scholarship as to long-term continuities in Andean beliefs, but the argument for an emphasis on dualism, for instance, is compelling for the abundance and variety of evidence that can be mustered. Such convincing links in some symbolic realms, in spite of the temporal remove, suggest that the application of later Andean environmental concepts may well also be warranted.

An understanding of the landscape as animate could be, in Chavín's case, accurate in a very literal sense. As I have discussed above, and in more detail elsewhere (Contreras 2007; Contreras & Keefer 2009), Chavín's surroundings have been consistently active on a humanly relevant timescale throughout the Late Holocene. That activity has included—and continues to include today—earthflow movement and landslide activity more generally, river channel avulsion, and catastrophic debris flows. At Chavín, the non-built aspects of place would have included not just the impressive—steep valley walls, running rivers, towering peaks—but also the dynamic—landslides, floods, debris flows, and even earthquakes. If, in addition to comprising part of an environment that was dynamic and fraught with environmental hazards, Chavín was situated in a landscape that was understood as being populated with named and sacred features, the worldview implicit in the site's modified setting was likely intimately tied to this dynamic environment.

The degree to which environmental dynamism was causally linked to human activity is difficult to establish precisely, but several connections are likely. Most notably, the construction and expansion of the Chavín complex may have exacerbated landslide problems. As monumental construction expanded southward (Kembel 2001; 2008), it certainly would have come ever closer to the earth flow southwest of the site (clearly visible in Figs. 2, 3 & 4); construction may even have involved removal of material from the earth flow toe in order to clear and level architectural space. While landscape engineering at such a scale is not uncommon at Chavín, excavation of the toe of the earth flow would have increased shear stresses, making landslides more likely and endangering the ceremonial centre (see Cruden & Varnes 1996, 69–70 on landslide causes). Such contribution to increased landslide risk was likely exacerbated by expansion of cultivation on the slope itself, which would have decreased slope cohesion with the removal of root structures and reduced evapotranspiration, increasing pore pressure in the slide.

Similarly, the reclamation of the riparian corridor of the Mosna River—in fact, any manipulation of the river channels—could easily have destabilized the surrounding slopes and caused landslides. These, in turn, would also have had the effect of altering river channels, as in the twentieth-century cases of avulsion in La Banda and the West Field (Contreras 2007, 173 and fig. 4.8).

Whether landscape activity was causally linked to human activity or not—and a further issue is whether (and how) Chavín's inhabitants would have perceived and understood such links—the existence and location of the centre seems to have been related to the active landscape. Rick and Kembel (Kembel & Rick 2004; Rick 2006b; and see above) have argued that the site was designed, and that the design was implemented over the long term. Such continuity implies multiple generations, as the site had a use-life measured in centuries, centred around a coherent construction phase of one to two centuries (Contreras in press; Kembel & Haas 2013; Rick *et al.* 2009). Over such a span of time, given the frequency of geomorphic activity, environmental risk is highly unlikely to have slipped from the local consciousness and planned construction unlikely to have been carried out in ignorance of the possibility of environmental consequences. As a result, one of the effects of documenting geomorphic dynamism at Chavín is the suggestion that construction at the site was not apparently risk-averse.[3] It is clear, for instance, that, rather than building in areas least vulnerable to fluvial erosion, Chavín's builders canalized both the Mosna and Wacheqsa rivers, altering the course of the former. The very location of the monument within the valley may speak to this issue as well; the ceremonial

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centre was sited in an area conspicuously more vulnerable to flooding and landslides than other options north of the Wacheqsa or east of the Mosna (Rick & Contreras 2006). Moreover, the expansion of the monument to the south and east in the final major phase of construction (Kembel 2008) placed it more directly in harm's way. Both the flood risk from the Mosna and the landslide risk from the earth flow southwest of the monument were exacerbated at this time.

The interaction between Chavín's builders and their environment thus suggests an emphasis on a relationship with a landscape that was both animate and figuratively and literally powerful. In the context of a dynamic environment populated with landscape features understood to be animate—i.e. have personhood and agency, and engage in social relations as any other person might (see Bray 2009)—any building programme would have carried ideological freight. The public display of a particular relationship with a powerful environment comprised part of the statement the site made to any viewer.

Message

Landscape modification should also be seen as a communicative act and as such its content and target audience may be evaluated. That is, the content of the message embodied in Chavín's setting can be examined and its author(s) and intended audience(s) considered. Certainly landscape setting was not the only medium through which Chavín's designers communicated, but I focus here on adding setting to the catalogue of media. Although other media (e.g. architecture, lithic art and ceramics) have received much previous attention, considering landscape-as-medium re-integrates a major component of the site and indicates a much broader audience.

Like Chavín's architecture, its built environment comprised at least in part a deliberate communication; the project of monument and landscape construction involved a deliberate inscription—materialization—of ideology in the architecture of the monument and in its landscape setting. DeMarrais and colleagues (1996) have suggested the importance of using portable media for such purposes in the prehispanic Andes and highlight the possibility of reading them in the present. Such materialization of ideology in the architectural and landscape media that make up the site's setting begs the question of who comprised the audience for such messaging. Silverman notes of landscape in the Central Andes that 'Through the act of physical construction ... the landscape was made to target an audience: the members of the construction group, others of the same society, others outside the society, both groups, different groups within a society and so on' (Silverman 2004, 5). While this may be broadly true, the significance of individual landscapes and monuments lies in their specific audiences rather than the broadness of their multiple appeals. In other words, if Chavín is at least in part a project designed to communicate and impress, at whom is it aimed?

The engineered environment in which Chavín is embedded seems primarily to reflect the design of local elites (who might be construed as theocrats, canonists, Machiavellian schemers, etc.; see Burger 1992a; Lumbreras 1993; Moore 2005; Rick 2005). The ceremonial centre itself by definition aims to communicate—whether to adherents or supernaturals, and whether directly via symbolic media and use of space or indirectly via implicit messaging and experiential effects. The designing elites are obliged, however, to utilize a broadly intelligible symbolic idiom. In fact, if the target audience included not just locals but also elites from peer polities (see Kembel & Rick 2004, 68–71), then that idiom *had* to be broadly intelligible regionally as well as socially. The concepts of animate landscape and powerful environment were widely shared throughout the prehispanic Central Andes, and Chavín communicated a particular instantiation of those general concepts. The long lifespan and extensive regional linkages of the site suggest the intelligibility of at least some of this ideology to the elites of distant peer polities, while the collaborative action implied by the site's very existence suggests a need for communication also with locals of various statuses.

Dual messaging (to elites and non-elites alike) is *not* reflected in many aspects of the site, which cater to limited audiences (e.g. restricted-access spaces, lithic art appreciable only at close quarters, and high-value portable media). This perhaps reflects a hierarchy of audience: although the labour of local commoners may have been necessary, the limited potential benefits of winning them over make them an unlikely *primary* audience. As Rick and Kembel have argued (e.g. Kembel & Rick 2004; Rick 2005; see above), the scale of and investment in the site is out of proportion with an audience comprising a relatively limited local population, and the emphasis on replication of Chavín iconography in expensive media (lithic art, fine ceramics, metals, textiles) throughout the network of interacting sites suggests a significant (if not necessarily exclusive) elite component. Such media were generally at least somewhat restricted in their production and distribution, and played communicative roles at a relatively intimate scale. As a result, Kembel and Rick argue that elites from other peer polities were the primary audience for both iconography and the restricted-access built space that constitutes the

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architectural foci of the ceremonial centre itself (Kembel & Rick 2004; Rick 2006b).

These media that are best suited to limited audience may be contrasted with monumental architecture, landscape modification, or geoglyphs. Where the former are suited to relatively intimate communication unless particularly widely diffused, the latter are of such scale and visibility that they might be usefully construed as broadcast media. Setting may be viewed simultaneously by many and cannot help but be observed by all in the area. As such, setting is a logical medium of communication with which to reach a broad audience; Earle (2001, 107) notes, 'Landscapes provide a particularly good medium from which to construct social institutions, because they furnish scale (ability to be experienced by a large group of people), exposure (daily experience), and permanence (stability across time)'. In addition, they can be both experienced and viewed. Chavín's use of landscape-as-medium in this way has no obvious antecedents in the Central Andes, though construction of mound complexes on the coast was of a scale that might be construed as similar (and modified landscapes are less easily mapped and dated, so likely remain underreported). Nevertheless, the innovation was likely not unique to Chavín: the shift from elaboration of petroglyphs to geoglyphs in the Palpa Valley (Reindel 2009, 448; Reindel & Isla 2006, 241–4), which occurred at approximately the same time as Chavín's florescence, might be understood as another manifestation of a shift to broadcast media.

In the Central Andes, moreover, the audience for broadcast might be construed as including deities/supernaturals themselves. Ritual activity in the Central Andes has traditionally been understood as efficacious action and constitutive of reciprocal obligations between humans and supernaturals (see Benson 2001; Bray 2009; Sillar 2004; 2009 among many). In consequence, communication with *both* society and the supernatural was fundamental to ritual, and the use of landscape as a medium for communication is attested by a growing body of literature (e.g. Bauer 1998; Glowacki & Malpass 2003; Goodman-Elgar 2009; Gose 1993; Reinhard 1985b) that suggests that sacred landscape features in the Central Andes were foci of ritual activity and construction (see Contreras 2010b). Moreover, landscape features served as such foci simultaneously for cosmological and sociopolitical purposes. Ritual focused on environmental elements had both overt ends that were at once practical and metaphysical—the effecting of phenomena associated with the animate landscape by influencing supernatural beings—and served, as any ritual practice, as an arena for the statement, reproduction and/or contestation of the sociopolitical order. Benson, for instance, highlights the practical role of ritual in her discussion of sacrifice in the Andes, arguing that the goal of ritual sacrifice was to establish 'contact and contract' with supernatural powers (Benson 2001, 11) and Sillar (2004) focuses on ritual as interaction with an animate world. Duviols, in a contrast that is complementary rather than contradictory, argues of the Inka practice of *capacocha* (state-sponsored ritual practice that included a component of child sacrifice) that '*la* capacocha *constituía un sistema de control social y cultural en manos del Estado centralizador, especialmente útil para contener las tendencias independentistas y garantizar la unidad imperial*'[4] (Duviols 1976, 29).

The issues of audience and actor at Chavín offer a potent reminder that a landscape replete with animate and sacred features is a landscape of power in two senses. It is full of Eliade's 'irruptions of the numinous' (characterized by Burger & Salazar-Burger (1985, 114) as apt metaphors for prehispanic Andean understandings of the sacred landscape) on the one hand—fonts of the sacred, visible to all. At the same time, however, not all can necessarily identify those sacred features, much less access them, perform the appropriate rituals at/on them, or even modify them. As Tilley (1994, 26) notes, landscapes are marked by differential access to and through their features, and by unevenly distributed ability to interpret and even modify them: 'The experience of these places [locales and landscapes] is unlikely to be equally shared and experienced by all, and the understanding and use of them can be controlled and exploited in systems of domination'. Landscape modification and its display, then, constituted simultaneously the avowal of a particular ideology and the proclamation of the existence of hierarchy.

This emphasizes the importance of laying claim to a landscape by modifying it: such materialization of ideology through engineering is in effect a claim on the legitimate, canonical interpretation of the landscape. This process may be seen as analogous to the materialization of ideology in artefacts—the 'transformation of ideas, values, stories, myths and the like, into a physical reality' (DeMarrais *et al.* 1996, 16). Those able to modify the landscape, where such ability is determined by both physical and economic as well as social and political means, inscribe their ideology upon it, rendering such ideology more visible, reified, and naturalized. Ability to interpret such messaging in turn becomes another means of differentiation. The message materialized in Chavín's setting, then, seems to suggest a differentiated world, with varied roles and abilities (and, one suspects, concomitant privileges). The targets of this message,

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encouraged to recognize their roles in asymmetric relationships of reciprocity with the site (and those affiliated with it), were apparently both elites and non-elites—and perhaps supernaturals as well.

Conclusions

Chavín's setting, as well as the architecture within it, was an important medium of communication that targeted elites, non-elites, and supernaturals simultaneously. The construction of Chavín's setting was a statement of capacity—such a project visibly projected the ability of those behind it, not only to mobilize labour and plan massive construction, but also to negotiate with an animate landscape from a position of relative strength and to manage a reciprocal relationship with the animate environment, not simply as a supplicant, but as a partner. The abundance of evidence demonstrating that the project of monument- and authority-building at Chavín included massive modification of the local setting argues that Chavín's planners understood the landscape as an important component of their project; they were actively interested in communicating in broadcast media. The geomorphic activity of the environment also apparently played an important role, providing a tangible reminder of (super)natural power and a motivator for coordinated action.

Such an assertion is a statement of power and ability in any setting and is particularly so in an evidently powerful environment and in the context of a landscape understood to be animate. Strategically-minded elites seeking to create, legitimize and maintain political authority employed the setting of this ceremonial centre as a broadcast medium, utilizing landscape as a forum for materialized ideology, with setting rather than object serving the communicative role suggested by DeMarrais and colleagues (1996).

The visible modification of that powerful and animate landscape situated the ceremonial centre in a deliberately public dialogue with the power-full Andean landscape. Such an intermediary role might be seen as analogous to shamanic liminality, and shamanic practice (or at least reference to its principles) was apparently a significant component of ritual practice at Chavín (Burger 1992a; Rick 2006). A role as intermediary is also compatible with Lumbreras' (1993, 359–70) suggestion that knowledge of environmental phenomena served as a means to power for an emergent theocratic elite; an advertised relationship with a landscape that was powerful in both empirical (i.e. immediately and tangibly observable) and theoretical (i.e. in accordance with a Central Andean ontology that included animistic principles) terms was apparently fundamental to Chavín.

Communication was not, moreover, the limit of the ambition of Chavín's builders. Llobera (2007, 53) has argued that visualscapes 'open the prospect of investigating the material conditions that were used to guide or structure people's attention in the past'. The case of Chavín de Huántar demonstrates that a site's landscape setting can provide analogous evidence, as the site and its setting were designed and built to structure not only attention but also experience. When considered in tandem with the evidence for strategic elite behaviour and emergent sociopolitical inequality, the engineered setting at Chavín suggests that recognition of the structuring effect of landscape—what Moore describes as the way in which 'places reflect human experience and, in turn, create it' (2005, 217)—may underlie the extensive landscape modification documented at Chavín. In other words, Chavín's planners—presumably local elites—appear to have understood the potentially structuring effect of the landscape and employed it, not only communicating to viewers but structuring the experiences of visitors. This use of setting echoed the function of architectural space at Chavín (Moore 2005; Rick 2005; 2006) and perhaps prefigured the employment of architecture and setting other Central Andean ceremonial centres (e.g. Tiwanaku: see Vranich 2006).

Chavín, as the product of collaborative action, must be considered as simultaneously ideological construction and participatory manifestation. It aimed at multiple audiences and perhaps served at once to materialize and communicate ideology and as tangible reminder of community, rather than simply elite, investment. As such, the engineering of Chavín's dynamic and risk-fraught landscape suggests a project which for aspiring elites could serve self-aggrandizing ends and reify sociopolitical distance, while simultaneously *also* serving perceived or asserted communal needs. Chavín's elites, of course, operated in a world of structures as well—cultural, social, and physical. While they appear to have been able to manipulate their relationship(s) with non-elites in part by manipulating the site's structure, they would have done so within a shared set of understandings of the world, and at the same time would necessarily have sought arenas of change where the benefits—or at least the *perceived* benefits—were shared by all parties. One of these arenas was likely religious practice (see Aldenderfer 2010; Rick 2006). Building upon a shared worldview in which reciprocal human relationships with an animate and powerful environment were critical to well-being and even survival, emergent elites at Chavín apparently manipulated the site's setting in

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order to define and make evident their own privileged relationship with that environment.

Both elites and non-elites were apparently recipients/targets/consumers of the site's message(s) and involved in its ritual life—but not equally so, and ritual activity at Chavín was evidently not entirely communal and participatory. Rather, it seems to have simultaneously involved both inclusionary/participatory/communitarian and exclusionary/hierarchical components. An ideology that could resolve these contradictions was evidently vital to the site's success and integral to the institutionalization and naturalization of socio-political inequality that characterized the first millennium BCE in the Central Andes.

Notes

1 Although the particulars of class dynamics at the site remain difficult to reconstruct, there is an abundance of evidence for the existence of sociopolitical inequality at Chavín. This includes differentiation in domestic architecture in La Banda (Rick 2005, 72), highly elaborated craft production (involving lithic art, ceramics and bone- and metal-work), imports of exotic goods, and extensive labour mobilization (see Burger 1993). At the contemporary and related sites of Kuntur Wasi and Pacopampa, richly furnished burials have also been excavated (Onuki & Inokuchi 2011; Seki *et al.* 2012).

2 This estimate is derived from Erasmus' (1965) calculations of 900 kg/day as an amount of rock that might reasonably be transported by each labourer from a quarry that averages 250 m distant, and assumes a fill consisting of 70 per cent rock and 30 per cent earth (see Contreras 2010a, fig. 11–6 for an example of Chavin construction fill). Quartzite, the predominant building material, has a specific gravity of approximately 2.65, and so one cubic metre of quartzite weighs roughly 2650 kg; Erasmus' figure for earth is 1300 kg/m^3. The closest outcrop of quartzite that could have served as a source of raw material is the promontory today known as Shallapa, 100–450 m northwest of the site but across the Wacheqsa River (see Figure 3).

3 Though this of course raises questions of perception and cultural construction of risk, a subject of considerable attention in anthropology and geography (e.g. Adams 1995; Beck 1992; Douglas & Wildavsky 1982). In the Andes specifically, several researchers have focused on modern geologic hazards and the ways in which they are locally understood and managed (e.g. Carey 2005; Degg & Chester 2005; Oliver-Smith 1986; Oliver-Smith & Hoffman 1999).

4 'the *capacocha* constituted a system of social and cultural control in the hands of the centralizing State, especially useful for containing independent tendencies and guaranteeing imperial unity' [my translation].

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