The Inka Married the Earth: Integrated Outcrops and the Making of Place

Carolyn Dean

According to a Quechua story told in the Andes today, the ancient Inka (Inca) of that area married Pachamama (Mother Earth) and produced human offspring.[1] A trace of that union is still manifest in the ruins of Inka buildings in the form of rock outcrops-masses of bare rock protruding from the surface of the earth-that were integrated by Inka builders into masonry structures in the fifteenth and early sixteenth centuries throughout the Inka realm, an empire that eventually reached the greatest extent of any pre-Hispanic state in the Americas (Fig. 1). By providing firm, petrous foundations for Inka structures, Mother Earth herself, called Pachamama by the Inka and other Quechua speakers, appears to have readily consented to, if not actually joined in, lnka building activity. Because integrated outcrops occupy the ini rface between nature and art, they exist simultaneously as parts of, and blur the boundary dividing, natural and built environments.[2] As places of union between Inka and earth, integrated rock outcrops also served as powerful signs of belonging in a particular locale, and therefore functioned as imperialist claims to the possession and assimilation of new territories.

The Inka are justifiably renowned for the precision of their cut stonemasonry, which they employed in the most prestigious of structures, and for which blocks of stone were worked to fit one against another without the use of mortar. The carving of large boulders and outcrops has also gained the attention of scholars in recent years (Fig. 2). [3] Largely unexamined, however, is the significance of outcrops that have been used as fundamental, inextricable parts of lnka architecture. These outcrops have been carved with bedding joints so that masonry walls sit firmly on and around them. By focusing here on this particular overlooked aspect of outcrop carving, one that binds it to Inka architecture and renders it inseparable from the built environment, we explore some of the ways the Inka perceived and deployed visual culture within, and as part of, the natural environment. At the same time, Inka practices in which natural and cultural forms are interwoven prompt us to rethink the nature/culture paradigm and its expression in the visual arts.

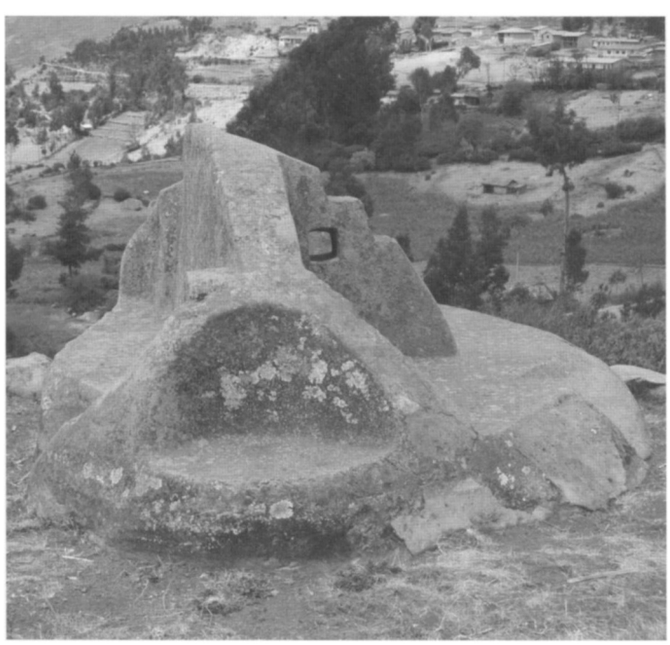
Edward Ranney, the gifted photographer of Inka monuments, has observed, "Archaeological documentation of Inca culture has consistently failed over the years to convey the intimate relation between the monuments and their surroundings."[4] What Ranney describes as an "intimate relation" between built and natural environments parallels the relationship between Inka and earth described in the Quechua story related above. Such sites of intercourse between the Inka built environment and the natural environment are a hallmark of many Inka settlements, for it was a common Inka practice to employ outcrops of living rock-that is, rock in its natural state-as parts of the foundations of their structures. Indeed, integrated rock outcrops can be found in the humblest, most functional areas of settlements, as well as in their sacred sectors. While the Inka are not the only people to incorporate rock outcrops in building, their usage of them is more consistent and widespread than that of any other Amerindians or, for that matter, of any other culture in the world.[5] The ongoing Inka practice of integrating rock outcrops into their structures suggests a strategy akin to grafting, wherein Inka walls appear to grow from the earth's stony skeleton, rather than being set on it (Fig. 3). Beddingjoints, manually pecked from outcrops with hammer stones, provide firm footings for worked blocks. Often ashlars are snuggled into gaps in or between outcrops, purposefully confusing the juncture between living rock and worked masonry (Fig. 4). In fact, it might be more accurate to replace the word "buildings" with "graftings" when describing those Inka structures incorporating rock outcrops. In such structures, grafted edifices appear to grow from foundations of living rock, like plants depending on stable and well-grounded roots to support them as they emerge from the earth's surface.

The Inka practice of grafting structures onto rock outcrops served to interweave the built environment and the natural environment, creating a stunning amalgamation of nature and architecture. In the early twentieth century, the anthropologist and archaeologist Adolph F. Bandelier puzzled over what he called the "strange" incorporation of outcrops and boulders into buildings at the Inka site of Pilko Kaina (Pilco Kayma) on the Island of the Sun in what is today Bolivia. He confessed, "The purpose of making a rude mass [of rock] an integral part of the side of a room is not clear to me."[6] Since Bandelier's day, little has changed. While many scholars of lnka architecture have commented on the frequent integration of natural outcrops, few have attempted to offer a convincing rationale for the Inka's integration of outcrops into their structures, and none has examined its possible significance beyond observing that rock was important and often sacred to the Inka. On a practical level, grafting structures onto bedrock provided stable foundations in the Andes, an area prone to earthquakes, and so was utilized wherever natural conditions allowed.[7] Yet the incorporation of outcrops was clearly more than a utilitarian adaptation to sometimes unstable Andean plate tectonics, as integrated rocks are the featured monuments at many sites, with the locations of outcrops frequently affecting the form and placement of structures, as well as the overall design of settlements or parts of settlements. [8] The significance of integrated outcrops during the period of the Inka imperium can be better understood by looking not only to what we know of Inka beliefs and practices but also to ethnographic sources-information from and about modern-day indigenous Andean peoples who also articulate their relationship with the earth through the ways they build with and on it. Of course, much has changed in the Andes since Spanish colonization in the early sixteenth

1 Inka, integrated outcrop, Pisaq, Peru, 1438-1530 (photograph by the author)

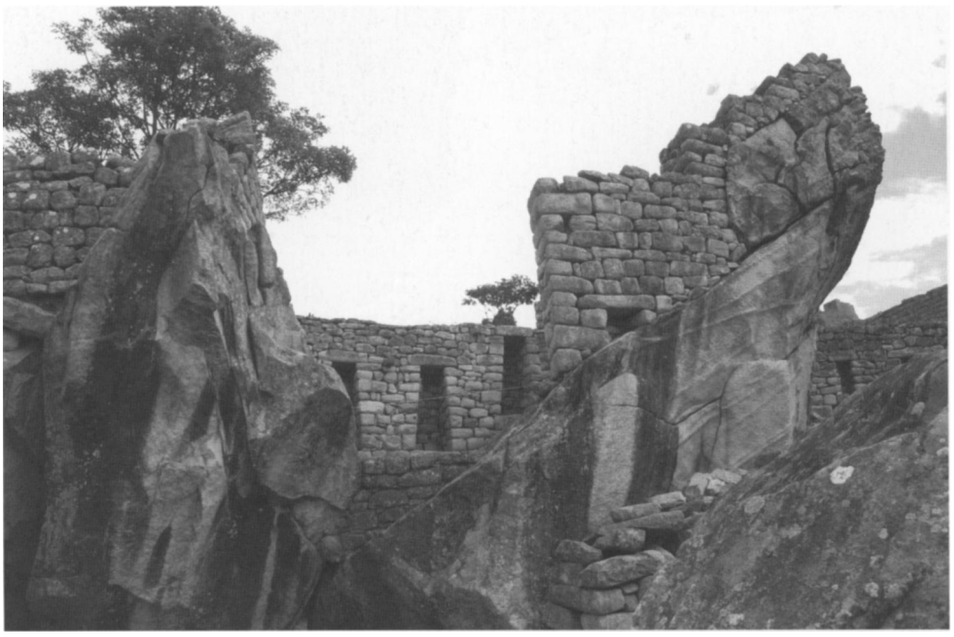
century, and ethnographic information must be weighed carefully in light of manifold economic, political, and social upheavals. Nonetheless, it would be folly to reject out of hand the contemporary insights of indigenous Andeans, many of whom have a firm sense of their own culture and its history.[9] While modern stories about the ancient Inka and their relationships with rocks cannot be taken literally, they ought to be taken seriously.

The integrated rock outcrop occupies the boundary, the threshold, between what the Inka perceived as ordered and unordered spaces, a fact that has heretofore remained unexplored in the scholarship on Inka visual culture. According to Inka oral culture, architecture (like agriculture, animal husbandry, and weaving) was a means of bringing order to untamed areas and peoples of the Andes. John Bierhorst, in his study of Andean stories, past and present, observes that agriculture and architecture are inextricably linked as human activities that give order to the natural world and make it comprehensible according to Andean ways of thinking.[10] The Inka, participants in this worldview, articulated their particular understanding of building as a fundamental ordering activity through the incorporation of natural-and therefore unordered-outcrops into their structures, where the outcrops remained as signs of what existed prior to the establishment of Inka order. The integrated outcrop, linked as it is to both unordered nature and the regulated Inka world, can be seen as the necessary interstitial space between domesticated places and wild spaces. It is also the location where



2 Inka, *Third Stone,* locally known as the Intiwatana, Saywite, Peru, 1438-1530 (photograph by the author)

complementary opposites meet. Sites that represent the conjoining of complements occupy a special place in Inka and, more generally, indigenous Andean thought. Quechua

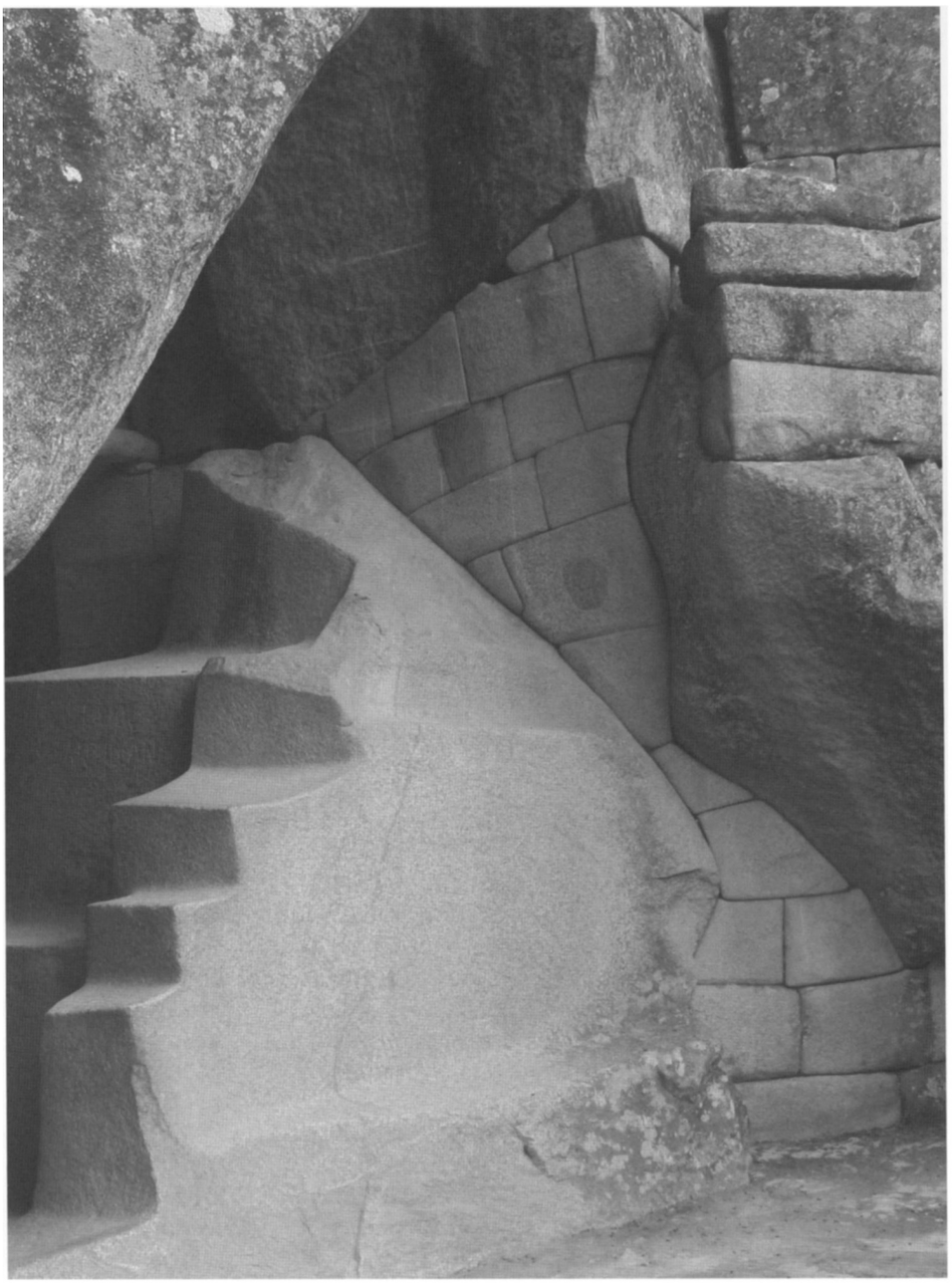


3 Inka, "Prison Group," also known as the Temple of the Condor, Machu Picchu, 1438-1530 (photograph by the author)

speakers, such as the Inka, use the word *tinkuy* or its cognates to identify places where, or events in which, complements merge: the confluence of rivers, ritual battles between necessary enemies, and so on. *Tinkuy,* then, identifies a conjoining of complementary forces or entities. A related concept, *yanantin,* is used by the contemporary Macha of Bolivia to describe a thing in which complements are united. As the ethnographer Tristan Platt explains, *yanantin* can be translated from the Quechua as "helper and helped united to form a unique category"; glossed simply as the word "pair," it is equivalent to the more familiar Quechua term *qhariwarmi,* meaning "man-and-woman" as a single entity composed of complementary opposites brought togetheru. Platt relates how the Macha instructed him that "everything is man-and-woman *[tukuy ima qhariwarmi],"* meaning that the essential structure of the universe is complementary opposition.[12] Whatever expresses the union of complements is an example of *qhariwarmi.*

The intertwined concepts of *tinkuy,* the conjoining of complements, and *qhariwarmi,* conjoined complements, have deep roots in the Andean area. In the second decade of the seventeenth century, the indigenous Andean author Juan (Joan) de Santa Cruz Pachacuti Yamqui Salcamaygua depicted the complementary workings of the cosmos with glosses in Spanish and the native languages of Quechua and Aymara (Fig. 5).[13] Many scholars have discussed and analyzed Santa Cruz Pachacuti's drawing, which distinguishes among four hierarchical levels divided into two complementary columns with a mediating center.[14] While the drawing's right side (that is, right from the perspective of the drawing itself) is generally associated with masculine concepts and figures, the left comprises feminine ones. In the upper pictorial right (viewer's left) is the sun, shown as the great-grandfather of man. Below, Venus as morning star is glossed as man's grandfather, and, still lower, the mountains of earth appear as his father. On the pictorial left (viewer's right), the moon is shown as the great-grandmother of woman. Venus as evening star is her grandmother, and the ocean her mother. At the base, located on earth, the mortal couple, male and female, are united to form a *qhariwarmi,* the most basic social unit. In the center, above the human *qhariwarmi,* is another type of *qhariwarmi.* Appearing as an unmarked elliptical figure, it is identified as the androgynous creator Wiraqocha (Viracocha). Although Roman Catholic himself and strongly influenced by Christian precepts, Santa Cruz Pachacuti had an understanding of the creative principle of the universe as androgynous, as a *qhariwarmi,* deeply rooted in the Andean worldview. The human *qhariwarmi* is thus just one reflection of the larger principle of complementarity.

Andeanist Olivia Harris, in her ethnographic studies of the Aymara-speaking Laymi of the central Bolivian highlands, identifies the married (heterosexual) couple (called *chachawarmi)* as the embodiment of society itself, in contrast to unmarried people, who, she says, "in certain respects are relegated to the wild."[15] The Aymara are neighbors to Quechua speakers in the border area between what is today Peru and Bolivia; many of their ideas and concepts, and much of their vocabulary, have a common ancestry. Aymara and Quechua notions of the bonded pair, for example, appear to be very similar. In both, the couple (whether *chachawarmi* or *qhariwarmi),* and whatever exhibits the attributes of a couple, are symbols of domestication. Given how widespread this notion is in the Andes today, it is reasonable to plot it back at least as far as the Inka (and probably a great deal further). Looking at what remains of Inka material culture, we can identify where complements meet as places and things of great symbolic import. It is well known, for example, that many pre-Hispanic Andean settlements, like many present-day communities in the Andes, articulated their notion of necessary and vital complementarity in their division into *anan (hanan,* meaning upper) and *urin (hurin,* meaning lower) components.[16] Thus, a community in its very layout was a place of *tinkuy* and an example of *qhariwarmi.* "El Inca" Garcilaso de la Vega, the mestizo chronicler and childhood

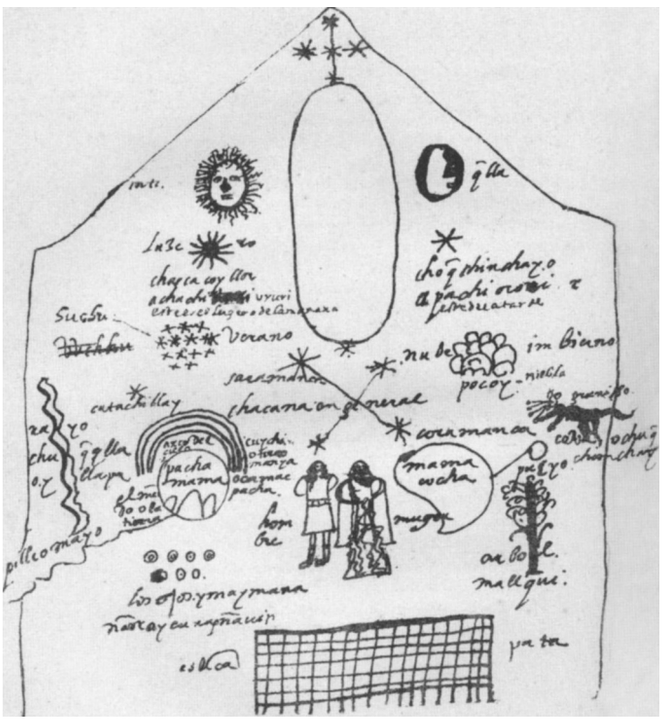


4 Inka, Royal Mausoleum, Machu Picchu, 1438-1530 (photograph by the author)

resident of the Inka capital city of Cuzco, seems to have understood this when he identified *anan* Cuzco as having been settled by Manku Qhapaq (Manco Capac), the male founder of the Inka state, and *urin* Cuzco as having been settled by Mama Ucllu (Mama Ocllo), Manku's sister and mate.[17] Garcilaso's version of Inka history posits that the initial legendary, and literal, Inka *qhariwarmi - that* is, Manku and his sister-wife-is manifested in the *anan-urin* division of the settlement they established.

I suggest that the integrated rock outcrop was used by the Inka to express *qhariwarmi* in the built environment. In particular, it articulates the coming together of natural and built environments, which is to say, the world of Mother Earth and the Inka realm. Bonded both to the body of the earth and the wall of a man-made structure, as the place where Pachamama and Inka meet, it is a place of *tinkuy. As* the site of conjoining, of marriage, the integrated outcrop, at once a part of nature and a part of architecture, expresses an lnka understanding of a proper relationship with Pachamama, Mother Earth. It is precisely the sort of relationship alluded to in the Quechua story referred to above: a relationship of complements leading to a fruitful conjoining (that is, marriage and procreation). Living rock, once merged with an lnka structure, is this relationship made visible. Structures that grow from the outcrop are, in the words from the story mentioned at the outset, the "extremely handsome babies [*sumaq sumaqsi wawachakuna]"* of the union between the Inka as *qhari* and the earth as *warmi.*[18]

While the integrated outcrop is the visual evidence of intercourse between cultural activity and the natural environment, and while we might be tempted to say that these are places where "culture" meets "nature," it better reflects lnka (and, more generally, Andean) thinking to say that these are



5 Juan de Santa Cruz Pachacuti Yamqui Salcamaygua, "Relacion de antigiiedades deste Reyno de! Piru," ca. 1613, ink on paper, fol. 13v (artwork in the public domain)

6 Inka, overview of Machu Picchu, 1438-1530 (photograph by the author)

locations where the ordered world of the Inka meets unordered nature, for Andeans tend not to recognize a dichotomy between human society and the world human beings inhabit. Further, we ought to avoid the gendered notions commonly associated in the West with a feminized nature and a masculinized culture. Because Andean situational gendering runs contrary to the fixed Cartesian dualism that has long dominated Western thought, some brief discussion of the nature-culture debate and its intersections with Andean thinking may be helpful here.[19] Several decades ago, Sherry Ortner, in her influential essay "Is Female to Male as Nature Is to Culture?" argued that in societies where a binary system of classification is employed, domination and value are usually semanticized in gendered terms, associated with masculinity.[20] In familiar binary pairs, such as culture/nature, mind/body, head/heart, reason/emotion, good/evil, purity/contamination, objectivity/subjectivity, victor/vanquished, conscious/unconscious, and so on, the culturally valued, dominant element is gendered male while the dominated is gendered female. Many scholars have responded to Ortner's essay, some offering supporting documentation, others giving case studies that run contrary to her claims..Harris, for example, shows that "Ortner's thesis is clearly not supported by the Laymi case," wherein the opposition married/unmarried is more significant than male/female in analogies to the culture/nature binary.[21] Unmarried adults, as noted above, are identified with the disorderly wild spaces of nature, whereas married adults (conjoined complements) are identified as key features of orderly places.

What matters here is that Andean notions of complementarity involve pairs that are flexible and relative rather than fixed and permanent. Also involved is the essential conjoining, so that a pair of complements always implicates a critical third place or thing: the place of coming together or the thing created through the coajoining.[22] The gendering of space, natural forms, and even people shifts depending on the relationship of the complements to one another in a particular instance. In Andean complementarity, both parts of the pair are viewed as essential, and the third part, that formed by the conjoining, is procreative and often very powerful, if not sacred. Importantly, Andean complementarity is not equality; the system subjects the "lower" (*urin)* complement to the "upper" *(anan)* complement. However, although "Inka order" may occupy the *anan* slot in relation to the *urin* of "unordered nature" in one instance, in the next the lnka are *urin* to a powerful unordered natural *anan,* such as sacred mountains that are considered to be the owners of everything within their ranges of vision. Position is thus never fixed, and any attempt to establish an inflexible hierarchy will ultimately prove unsatisfactory.

Today in the Andes the making of dwellings, beginning with the laying of the first foundational stone, is accompanied by offerings of small amounts of alcohol on the ground.[23] In some places this offering is called *tinka,* a cognate of *tinkuy,* and a reference to the conjoining of edifice to earth, something that is done successfully only with the permission of the earth as well as other nature spirits. Catherine]. Allen reports that today in the Quechua community of Sonqo (Department of Cuzco), for example, the community establishes a "relationship with a place by building houses out of its soil, by living there, and by giving it offerings of coca and alcohol"; she also notes that "the relationship is reciprocal, for the Runakuna [people]'s indications of care and respect are returned by the place's guardianship."[24] Today there are no pre-Hispanic Inka to show us all the ways they established

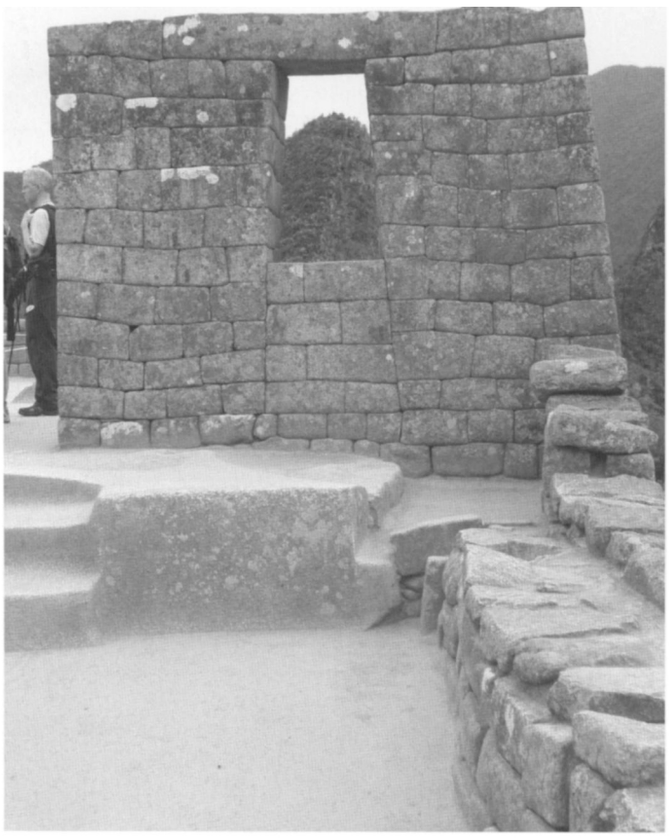
7 Inka, *Sacred &ck,* Machu Picchu, 1438-1530 (photograph by the author)

relationships with the lands they inhabited, but we have their descendants, who tell stories of the Inka's marriage to Mother Earth. We also have Inka architecture grafted onto bedrock, which, I suggest, can be read as visual statements of the relationship that existed-or, rather, of the relationship that the Inka asserted between themselves and the earth.

Many Inka sites, like the renowned Machu Picchu, famously embrace the earth's curving body, adopting building strategies that acknowledge topographic idiosyncrasies; with certain exceptions, they generally do not mask or ignore significant landmarks (Fig. 6). While many other builders from across Andean history (for example, Tiwanaku, Chavin, Nasca, Moche, Chimu) constructed man-made mountains, the Inka consistently emphasized, and often drew attention to, extant natural, rather than artificial, forms. Viewing platforms provide places to survey impressive vistas; stones echo distant mountains, directing attention to the horizon (Fig. 7); and windows and doorways in Inka structures frame mountain peaks, initiating a dialogue between the built environment and its natural surroundings (Fig. 8). [25] Rising from and intertwined with bedrock, Inka sites often appear to be, as Argentinian artist Cesar Paternosto observes lyrically, "an efflorescence" of the land in which they are located.[26] Certainly, Inka site planning differs dramatically from that of the Wari (Huari), as manifested at the site of Pikillacta,just south of Cuzco. Constructed between 500 and 800 CE (some seven hundred years before the Inka developed their distinctive style of architecture), Pikillacta's uncompromising grid imposes itself on the land, ignoring the rolling terrain and all topographic irregularities.[27] Whereas Wari organization at this site is imposed on Mother Earth, Inka structures seem to cooperate with her. The Inka, familiar as they were with Wari sites, could not have failed to notice the different approaches relating the built to the natural environment.[28] In fact, it is likely that the Inka cast their building activity in opposition to groups that employed other site-planning patterns. The Inka claimed a unique relationship with the earth they inhabited, and, from their perspective, not all built environments complemented the natural environment. In other words, not all built environments were the *qharito* earth's *warmi.* The Inka's unique and consistent use of integrated outcrops as well as their famed topographic sensitivity express a desire to make visible a special kind of relationship with the earth, one that was perceived to create an orderly civilization.

The archaeologist Susan A. Niles, author of numerous significant studies of Inka architecture, notes that the incorporation of natural rock outcrops into the built environment is found less frequently in construction within the city of Cuzco, the Inka capital, than it is in buildings outside Cuzco.[29] Perhaps we can account for this, at least in part, by recalling that Inka rulers followed the practice of marrying the daughters of provincial leaders (or marrying them to members of the royal household). In some ways, the integration of outcrops is the architectural equivalent of Inka marriage practices; through the outcrop, foreign Inka architecture married local topography. The conjoining of Inka buildings to fixed features of the landscape lent legitimacy to the Inka presence in newly acquired territories. Thus, the integrated outcrop carries a political message about both belonging to the land and the possession of it. To understand more fully the political implications of the integrated outcrop requires some discussion of lnka imperial strategies and discourses.

The Inka empire, conventionally dated from 1438 to 1532, was called Tawantinsuyu. Often translated as Land of Four Quarters or, less redundantly, Quartered Land, Tawantinsuyu is more accurately rendered "four parts together."[30] Its capital, Cuzco (also spelled Cusco or Q'osqo), was located at the hub of a potentially limitless territory composed of four sections, or *suyus (suyos,* suios).[31] In the early seventeenth century, the indigenous Andean chronicler Felipe Guaman Poma de Ayala drew a map of the Andes that he labeled "mapa mundi del reino de las Indias" (world map of the kingdom of the Indies); it shows the way Tawantinsuyu stretched to the edges of known land itself (Fig. 9).[32] He situated Cuzco at the core, with the four *suyus* (identified as Anti Svio, Conde Svio, Colla Svio, and Chinchai Svio) placed to the north, south, east, and west, respectively.[33] Tawantinsuyu, evidently, consisted of a center and an ever-expanding periphery. By measuring, dividing, and ordering the space of Tawantinsuyu, the heterogeneous and far-flung populations ruled by the Inka were put in their places relative to the lnka center. Each new territory was identified with its quarter of



8 lnka, view through a window, Machu Picchu, 1438-1530 (photograph by the author)

the empire. While there may have been some very general environmental uniformity within each *suyu,* Guaman Poma and other colonial-period chroniclers, following Inka practice, describe the diverse peoples and cultural traits of each quarter as though each *suyu* had, a priori, a distinctive personality. This had the effect of naturalizing the quarters, making it appear as though lnka order merely reflected the natural order of things.[34] Yet Tawantinsuyu is an Inka construct that, in its very creation, involved reordering much of the Andes. It also involved the conversion of non-lnka places into lnka territory, something accomplished, **in** part, through building activity, including the Inka's practice of integrating rock outcrops.

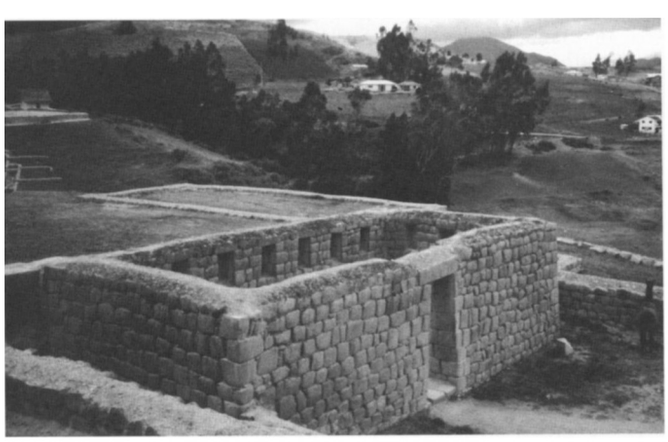
Recall that Inka oral culture links architecture to agriculture, as both were perceived as fundamental ordering activities through which the Inka domesticated and brought order to "wild" areas once beyond their control. The Inka, however, saw both activities as more than signs of order: they were the actuation of Inka order, for they left visible marks on the land that testify to the regulating presence of a state that has altered unordered nature for the benefit of its human occupants. In building, as in planting, the earth is prepared and penetrated. Both pursuits also modify the natural environment in ways that sometimes imperil it in order to serve human needs and desires. Both activities risk upsetting the balance between the world of unordered nature and the orderly world of human beings. This led to a view of both agriculture and architecture as ambivalent, but necessary, pursuits that ordered the natural course of things for the benefit of human life. Garcilaso de la Vega, in the opening sections of his *Royal Commentaries of the Incas* (book 1, chapters 15 through I 7), published in I 609, relates Inka origin stories in which agriculture and architecture are not only coupled but also identified as pursuits that define civilization itself.[35] His stories, apparently told to the young author by his royal Inka uncles in Cuzco, tell of a time before the Inka when the world was in chaos. Human beings lived like wild animals without villages, houses, and cultivated fields. The Inka were sent by the Sun, their father, to give men laws and show them how to build villages, keep house, plant and grow crops, dress, and tend livestock. According to these accounts, the Inka understood themselves to be the divinely appointed agents of order, the civilizers of the Andes. Garcilaso, interested as he was in impressing his European readers with the many accomplishments of the Inka, may have exaggerated his claims, yet it is very likely that his words reflect, in some measure, Inka imperial rhetoric. The Inka clearly viewed their building activity (as well as agriculture, weaving, and animal husbandry) as an actuation of imperial order.

For the Inka, building was part of an imperialistic strategy that expressed itself through place-making practices. By "place making" is meant the conversion of foreign land into visually familiar Inka territory. This the Inka did by building in a distinctive style, using particular types of structures. Graziano Gasparini and Luise Margolies, authors of a seminal work on Inka building, coined the phrase "architecture of power" to convey the way the Inka stamped their presence throughout Tawantinsuyu by means of their readily recognizable style of building.[36] This architectural style consists of mostly rectangular structures with pitched roofs, wall batter, trapezoidal niches, and trapezoidal openings of windows and doorways (Fig. I 0). Whatever the usage of a specific building, whether administrative, military, religious, residential, or some combination of functions, most featured the same "look," a repetition of form and arrangement modeled, at least symbolically, after the built environment of Cuzco. Such architecture declared the Inka presence wherever buildings in this style stood.[37] When the predictable rectilinearity of the Inka's architectural forms is broken, it is often in order to embrace or reflect the curvature of specific topographic features. This can be seen in terracing and retaining walls, as well as the integration of many rock outcrops.[38] Such exceptional locations-these places that interrupt the regular predictability of the built environment-are liminal zones situated at the junction of unordered and ordered worlds, often sacred sites. They are also signs of Inka order brought to (imposed on) new territories and, as such, indices of both conquest and settlement.

It is particularly interesting to note that Inka walls are often built around rock outcrops, providing housing for earth's petrous protrusions (Fig. 11). In these cases, outcrops become denizens of the Inka settlement. Even as they retain something of their old, unordered selves, they have been given new, orderly Inka identities. Once thoroughly incorpo-

9 Felipe Guaman Poma de Ayala, *Mapa mundi del reino de las Indias,* from *El primer nueva coronica y buen gobierno,* ca. 1615, ink on paper. The Royal Library, Copenhagen, GKS 2232 4to, fols. 983-84 (1001-2) (artwork in the public domain; photograph provided by The Royal Library, Copenhagen)

rated into the settlement, they present evidence of the Inka's civilizing presence. This is a different kind of integration from that discussed above, but one that also tames natural rock and brings it into the Inka world. While all integrated rock outcrops are special sites of conjoining and, therefore, symbolically important, the most compelling statements are found in sites of integration where the finest **Inka** masonry hugs living rock, as happens at the Intiwatana sector of Pisaq and the so-called Tower, or Torreon, at the site of Machu Picchu (Fig. 12). In these cases, sacred rock is enveloped by carefully worked ashlars; the high quality of the stonework reflects and enhances the value of the outcrop that is held in its masonry embrace. In the Inka's language of Quechua, to build an ordinary wall was *pirkani.* The lnka referred to the working of finely joined masonry, however, as *canincakuchini,* which is derived from the verb *canini,* meaning "to bite or nibble."[39] "Nibbling" quite vividly describes the process of, and techniques for, creating well-joined, mortarless masonry, which has been identified and re-created by Jean-Pierre Protzen.[40] Once the block was roughed out, hammer stones, ever decreasing in size, were used to refine the shape. While initial strokes took large bites from the stone, final work persistently nibbled away at the block to achieve the desired result. Blocks



10 lnka, rectangular structure with trapezoidal portal and niches, Ingapirca, Ecuador, 1475-1530 (photograph by the author)

were nibbled at the site of construction until they fit precisely on top of, and next to, their nibbled peers. Walls where stone has apparently been removed reveal the precise bedding joints achieved through the time-consuming, but not technically difficult, process of pecking, fitting, pecking, refitting,

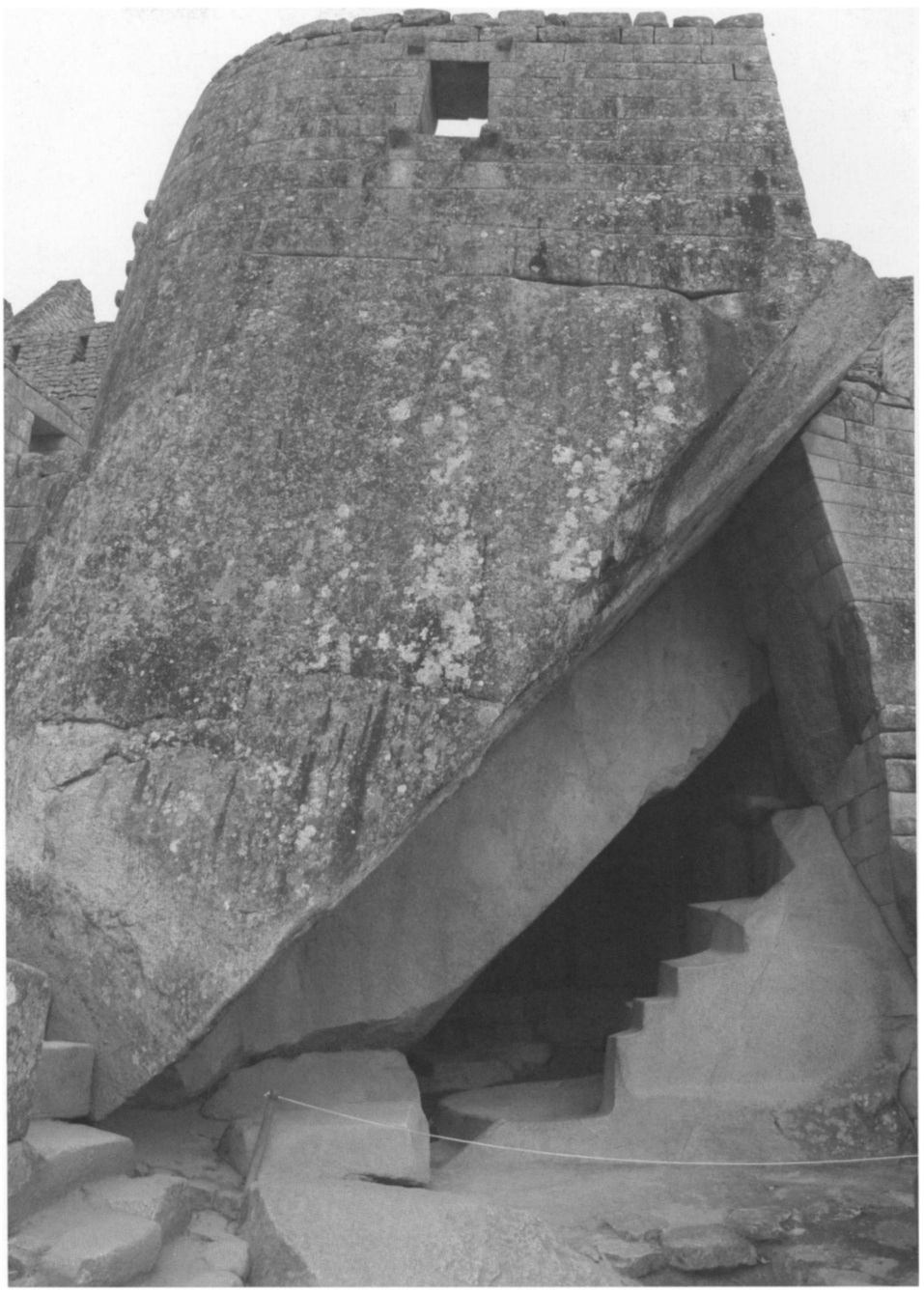
11 Inka, structures and outcrops, Machu Picchu, 1438-1530 (photograph by the author)

and so on (Fig. 13). The phrase "nibbled masonry" thus preserves Inka ways of thinking about well-dressed and finely joined masonry as the result of innumerable minute and patient bites.

The Inka's cut and fitted stonemasonry has been studied extensively, and numerous different ways of categorizing its types or styles have been offered.[41] Most authors, following the observation's of the eminent Andeanist John Howland Rowe, recognize two broad "styles" of well-worked stone wall construction, both of which consist of "nibbled" blocks that are joined without mortar.[42] Depending on the style employed, the face of the wall is either coursed, referring to parallelepipeds placed in relatively regular courses or giving the appearance of coursed masonry (Fig. 14), or uncoursed, referring to polygonal blocks of irregular shapes that interlock without forming courses (Figs. 15, 16).[43] In "coursed" masonry, we still often find stone blocks of irregular height and shape creating wavy or discontinuous horizontal joint lines; Protzen and Stella Nair introduced the useful term *quasicoursed* to acknowledge masonry that looks coursed but is not consistently so.[44] Further, the two styles are sometimes blended in the same wall, where the uncoursed, irregularly shaped masonry of lower walls gradually assumes courses composed of more rectilinear blocks. Walls such as this allude to the transmutability of nature under Inka ordering. In the tiered walls of the architectural complex of Saqsaywaman, for example, mostly megalithic polygonal blocks remain, **but** we can yet see how the walls originally moved from uncoursed polygonally faced stones to roughly coursed rectangularly faced blocks (Fig. 17).[45] Walls seem to grow from the barely "tamed" megaliths at ground level, becoming increasingly regular, separating almost imperceptibly from their "natural" foundations to merge with the domesticated world of the Inka built environment.

Since Rowe first defined the two basic styles of Inka masonry, scholars have worked to refine its types and categories. Santiago Agurto Calvo has rendered perhaps the most detailed study of types of Inka masonry to date; he identifies four varieties of fitted-stone (what I call nibbled) masonry as follows: cellular, for uncoursed masonry in which polygonal stones have rectilinear sides; fitted, for uncoursed masonry in which polygonal stones have curved edges; cyclopean, for uncoursed masonry employing megaliths; and sedimentary, for masonry of parallelepipeds arranged in relatively straight courses.[46] There is no general agreement on the development of Inka masonry styles to complement the myriad masonry descriptors.[47] What matters to this discussion is that in all cases of well:ioined block construction, whether mostly coursed or mostly not, the cut stones were pounded with hammer stones of various sizes, being persistently "nibbled" in order to fit precisely in one, and only one, location within a wall.[48] Thus, regardless of the final appearance, and however refined our categories become, each "nibbled" wall results from nearly identical stone-working techniques.[49]

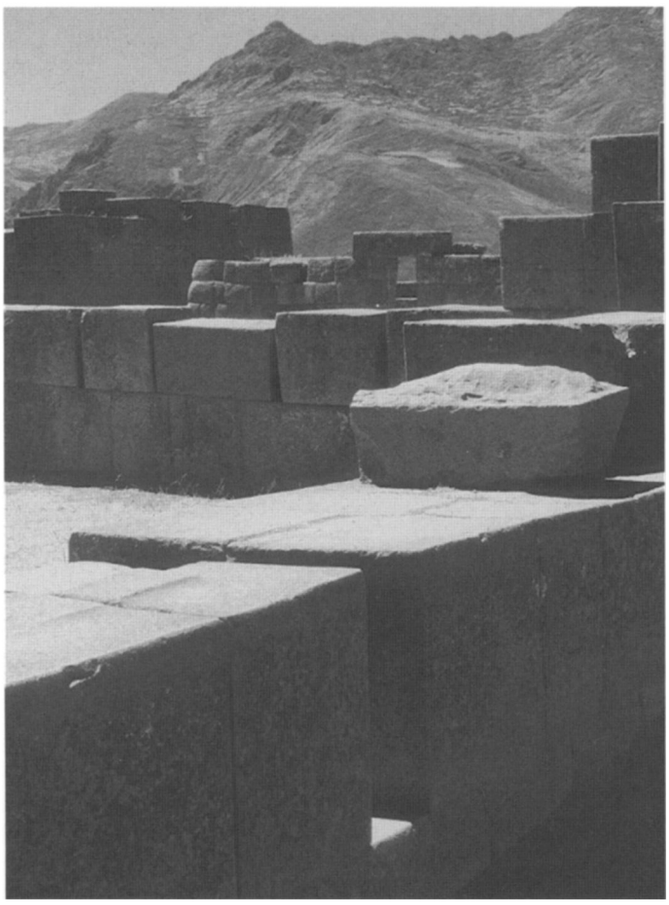
Seventeenth-centuryJesuit observer Bernabe Cobo, one of the few Spaniards to show much interest in masonry techniques, noted that the working of stone blocks in the Inka manner "is very hard and tedious" and explained, "In order to fit the stones together, it was necessary to put them in place and remove them many times to check them, and since the stones are very big, as we see, it is easy to understand what a lot of people and suffering were required."[50] Cobo stressed the time involved in producing a wall of nibbled stone. The key to an Inka perspective, then, may well be the concept of nibbling in which the *process,* the careful working of individual blocks, not the end *product,* the overall shape of the blocks, is emphasized. That the finest Inka masonry walls are mostly plain and undecorated can be understood as the result of efforts to draw attention to the fitting process, to the nibbling that leaves its trace in the peck marks visible in the finest of fitted stone walls. The trace of facture therefore assumes the greatest importance for the Inka. The Inka's perspective is antithetical to the current trend to identify representational forms (mostly animal figures) in clearly non-



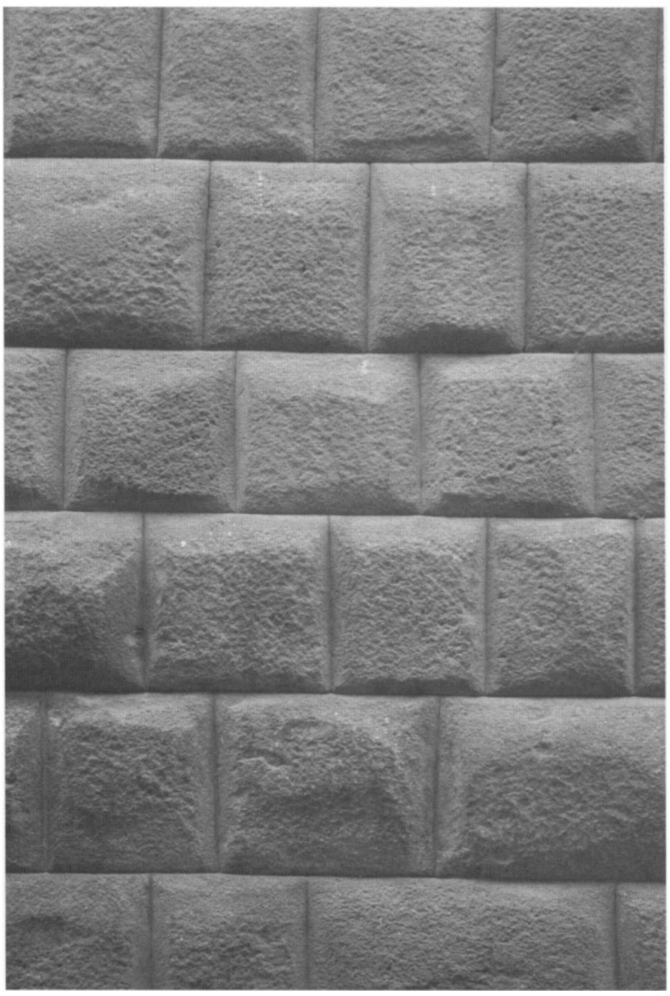
12 Inka, *Torreon,* Machu Picchu, 1438-1530 (photograph by the author)

representational Inka rock work. Viewers today seek to discover zoomorphic figures in Inka rock patterns, much as they might look for recognizable shapes in clouds. Although this pursuit of imagery, which can be characterized as an exercise in iconocentrism, is found primarily in popular literature and is practiced mostly by tour guides and tourists, increasingly-and disturbingly-it is finding its way into scholarly writing on the Inka.[51]

Given the consistent linkage of architecture and food production as dual civilizing activities in Andean stories, the Inka's notion of "nibbling" stone also underscores the orderliness of the process, highlighting the ways the Inka consumed disorder. We are reminded of the somewhat infamous Inka practice of turning the skulls of vanquished enemies into cups; the ceremonial consumption of *chicha* (a beverage made from fermented maize) from the head of a foe symbolized the successful transformation from the disorder of warfare into the order of Inka occupation.[52] In both cases, whether metaphorical nibbling or actual quaffing, chaos was taken into the body Inka, where it was put into order. Those integrated outcrops that are still visibly part of unordered nature, but also carefully and purposefully nibbled so as to join them to well-nibbled ashlars, are the actuation of Inka ordering activity. The arduous process of domesticating/



13 Inka, bedding joints, Pisaq, 1438-1530 (photograph by the author)



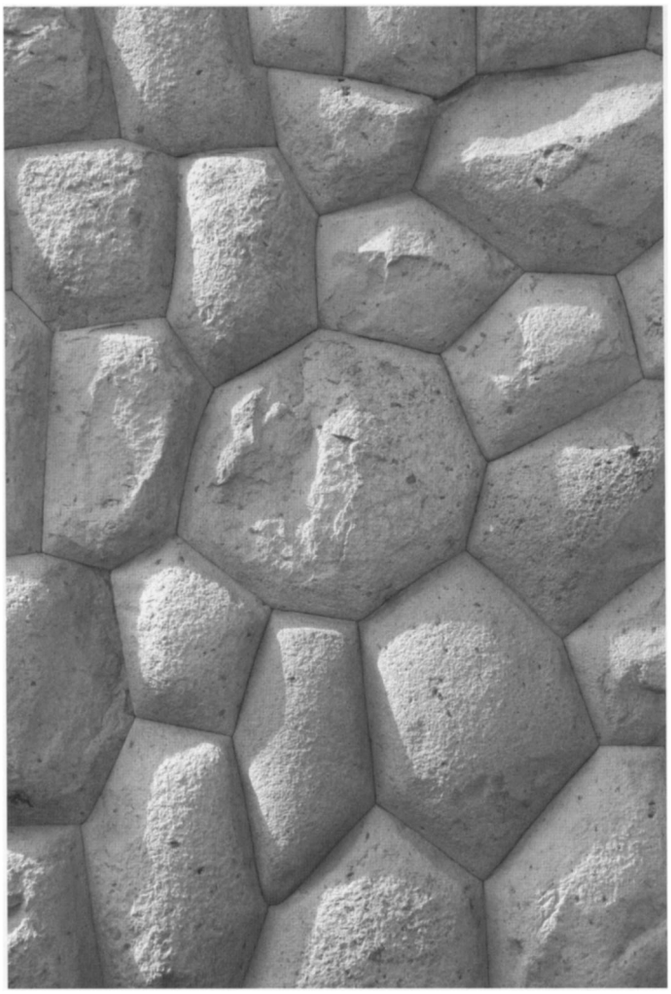
14 Inka, coursed masonry, Cuzco, Peru, 1438-1530 (photograph by the author)

digesting rock outcrops is visible in the precise beddingjoints that wed them to readily recognizable Inka walls.

Besides demonstrating the domestication of nature and the subduing of captive territory, buildings served as repositories of history. From linguistic understandings of the past in Quechua, Rosaleen Howard-Malverde concludes that buildings have been frequently used as mnemonic devices for remembering the past. Royal Inka estates, in particular, may have borne the stamp of the individual rulers (and their descendants) who had them built.[53] Niles convincingly demonstrates that the royal estates, built specifically for individual rulers and constructed by conscripted labor, stood as particular emblems of the conquests conducted under the command of the ruler who owned them.[54] Clearly, the construction of a royal estate, with its residences, temples, terraces, and storage facilities, served as a testament to land acquisition, and memories of particular conquests were attached to the buildings themselves. The ruler Pachakuti Inka Yupanki (Pachakuti for short) founded estates at Pisaq, Ollantaytambo, and Machu Picchu, each time following a successful military campaign.[55] He also undertook the renovation of Cuzco just after his triumph over the invading Chanka (Chanca), the event that, according to legend, made him the ninth Inka emperor.[56] Thupa Inka Yupanki, the tenth ruler according to traditional lists, initiated the construction of Tumipampa (Tomebamba) as a second Inka capital in Ecuador at the northern reaches of Inka territory after successfully invading that area.[57] After his death, Wayna Qhapaq (Huaina Capac), the eleventh ruler, continued the building at Tumipampa in the name of his mother and father.[58] There, edifices in distinctive Inka style reminded the newly and unhappily subjected Cayambi and Canari of the Inka presence in and control over their homelands.[59] Ingapirca, also on Canari land, faced resistant groups beyond the northern boundaries of Tawantinsuyu; it is perhaps the most dramatic of architectural structures built in the Inka's borderlands (Fig. 18). Within the Inka's visually distinctive built environment-which often stood in contradistinction to the settlements of people whom the Inka compelled to their order-the well-nibbled integrated outcrop symbolized the domestication of once-resistant territory. Like rebellious subjects, the unordered rock was brought into order. What is more, by incorporating local topography, the Inka bypassed recalcitrant subjects to conjoin the very land on which those subjects lived.

In fact, Inka construction in many places went further than declaring Inka control over acquired territories. It is likely that particular styles of Inka building were associated with individual rulers, so architecture not only indexed the Inka

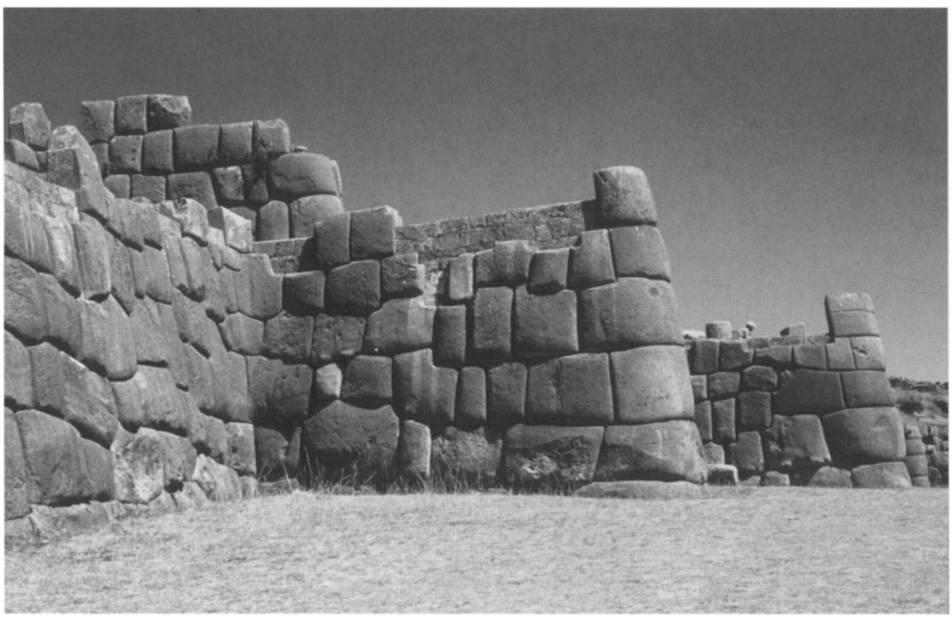
15 lnka, uncoursed masonry, Ollantaytambo, Peru, 1438-1530 (photograph by the author)



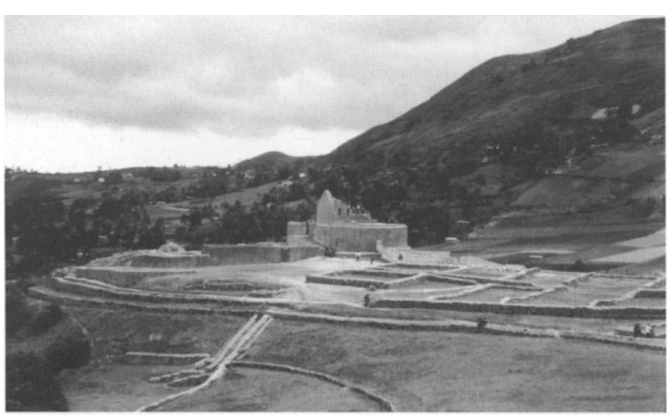
16 lnka, uncoursed masonry, Tarawasi, Peru, 1438-1530 (photograph by the author)

generally but perhaps also recalled the specific ruler under whose authority the Inka entered into and claimed particular territories to which they then wedded their buildings.[60] Niles identifies the integration of outcrops with the ninth ruler, Pachakuti, even while noting that it occurs in the Inka built environment throughout the period of the imperium.[61] Pachakuti is the same ruler credited with initiating expansion, redesigning Cuzco, and placing markers of transition between distinct territories. Although the historicity of Pachakuti's reign, including the veracity of accounts that attribute nearly all major Inka accomplishments to him, is doubtful, we can surmise that those sites credited to him are, at the very least, early in the history of the imperium.[62] Niles particularly contrasts Pachakuti's architecture with that of Wayna Qhapaq, the ruler who died just before the Spaniards entered Tawantinsuyu.[63] As an example, she describes Wayna Qhapaq's estate in Urubamba Valley, which ignores natural topography to a considerable degree. Be that as it may, several sites just finished or still under construction at the time of the Spanish arrival in the Andes, such as Ingapirca and Tumipampa (both in Ecuador), prominently feature integration.[64] How might we account for these circumstances? If, as suggested above, the integrated outcrop is indeed the symbol of conjunction between Inka order and disorder (whether of nature or subjected peoples), then nowhere is it so important as in places where the Inka desired to make powerful statements about the twin states of belonging and possessing. In the early years of Inka expansion (the era associated with the ruler Pachakuti), the integration of outcrops would have been important as a statement of ownership of any newly incorporated lands. Later, visible statements about the naturalized relationship between the earth and the Inka would still have been important in areas, such as the northern reaches of the empire, where the Inka presence was still relatively new and so somewhat precarious. In contrast, visible statements about belonging to and possessing a particular place would not have been so necessary on Wayna Qhapaq's estate, located as it was on undesirable swampland in an area unlikely at that time to be challenged. Thus, it was in imperial buildings in highly visible locations or at the remote ends of the empire overlooking hostile subjects that the integrated rock outcrop functioned as an especially useful and vocal place-making statement.

One function of rock outcrop integration was surely to naturalize Inka architecture, to make it an inextricable part of acquired territories. The fact that Inka structures are lo-



17 Inka, Saqsaywaman, Peru, 1475-1530 (photograph by the author)



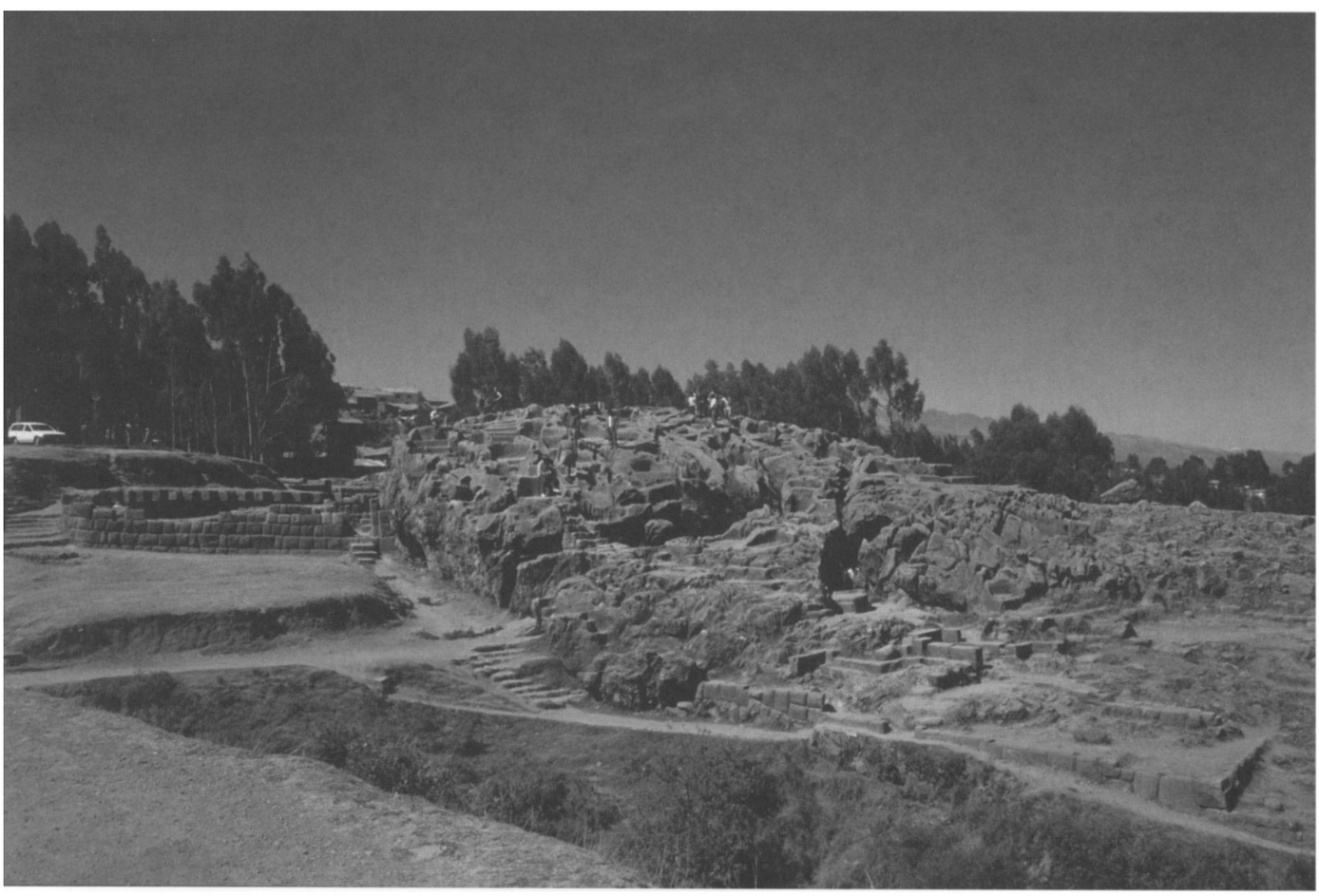
18 Inka, Ingapirca, 1475-1530 (photograph by the author)

calized through integration with indigenous topography serves to render the Inka presence in specific locations natural, logical, even proper. However, because Inka architecture is so readily recognizably Inka, the integrated outcrop is itself delocalized even as Inka presence in (once) non-Inka lands is naturalized. In other words, Inka structures, given their relatively uniform style, when intertwined with necessarily localized outcrops by means of integration served to delocalize conquered territories, making them akin to other regions of Tawantinsuyu and, thus, establishing Inka ownership. Such pronouncements were especially powerful when the rocks that Inka masons integrated were considered sacred to local residents. In pre-Hispanic times, rocks could be sacred for a variety of reasons; some were thought to be the petrified owners of territories, others to be petrified ancestors or cultural heroes. When such rocks were integrated into Inka walls, it was as though the Inka had seized and possessed these entities. Seizure was, in fact, the Inka practice with regard to the sacred objects of conquered groups that could be spirited away to Cuzco, where they were held hostage as honored guests in Inka temples or, if the group continued to resist, punished.[65] We might say that sacred immobile outcrops were seized and imprisoned in situ by means of integration.

The integration of rock outcrops into masonry walls also relates to the Inka practice of carving rocks, whether freestanding or outcrops, with architectonic forms that refer to the human occupation of, and activity on, the earth (Fig. 19).[66] While occasionally zoomorphic forms are found, the most frequently carved shapes are terraces, seats or niches, platforms, and steps. All of these forms recall the character of the Inka built environment, bringing to mind Inka order. Many such carved boulders and outcrops sit at significant sites of passage within Tawantinsuyu, especially at points where Inka order abutted disorderly lands and people who resisted becoming part of the empire.[67] The Saywite monolith (Fig. 19) sits on the border between the Inka homeland and the Chanka, the ancient enemy referred to above.[68] Other examples of carved borderland outcrops include Samaypata in Bolivia, which looks toward the Amazonian forest, an area renowned for rejecting Inka order, and Coyoctor, strategically located among the rebellious Caiiari in Ecuador. In both these latter locations, integrated outcrops as well as the architectonically carved outcrop intertwine built and natural environments. Like the integrated outcrop, then, carved rocks may well be examples of *qhariwarrni,* of the conjoining of wild spaces and tamed places. Carved stones also pepper the landscape near Cuzco, as if to emphasize the orderliness of the Inka's capital. At the site of Q'enqo (Kenko), for example, located just outside and above the city of Cuzco, both the extensive carving of a rock outcrop and the integration of parts of that outcropping are found (Fig. 20). Q'enqo sits along a well-traveled route where its combination of carving and integration work together to define a significant passage out of, or into, Cuzco, the heart of Inka order.

Places are made and remade through acts of alteration, destruction, and construction; places are also made through memory. Tawantinsuyu, as a conceptual metaplace, was produced not just through the conquest and physical control of

19 lnka, carved monolith, Saywite, 1438-1530 (photograph by the author)



20 lnka, carved and integrated outcrop, Q'enqo, Peru, 1438-1530 (photograph by the author)

land but also through the social processes of remembering events that had happened in particular locations.[69] The Inka deployed various building strategies to visualize their particular sense of place and cause certain locations to be remembered in specific ways. In particular, the Inka strategy of inextricably linking their distinctive built environment with the natural environment through integrated outcrops made clear and permanent visual statements about intertwining

with Pachamama, the earth, at particular sites. As a consequence, integrated outcrops spoke to Inka ownership of specific territories. The Inka employed the integrated outcrop as a means of transforming Andean land into Inka territory,just as they integrated unordered nature into their orderly world. The wall grafted onto bedrock makes visible the complementary relationship between undomesticated Andean natural forms (the rock) and orderly Inka cultural norms (as expressed in architecture). Natural space and cultural place are produced as necessary complements through building activity that purposefully draws attention to locations where worked and unworked rock coajoin. The separation between earth and Inka is purposefully blurred in order for the Inka to create and occupy the interstitial, procreative space of coming together. At the site of every integration we witness the introduction of Inka order. We also see the powerful act of conjoining through which the Inka world was produced. So long as the rocks remain, Inka order will endure. Thus, even though they exist today mostly as parts of ruins, integrated outcrops can and do sustain beliefs about ways the Inka made their way-not in or through the world, but of and with it. Such notions have been integrated into oral histories that are still told in the Andes today, stories about how the Inka married the earth.

Carolyn Dean, professor of history of art and visual culture at the University of California, Santa Cruz, studies lnka (Inca) visual culture both before and after Spanish colonization. Her current book project considers lnka understandings of rock as articulated in and through a variety of stonework [History of Art and Visual Culture Department, University of California, Santa Cruz, 1156 High Street, Santa Cruz, Calif 95064, csdean@ucsc.edu].

Notes

I thank Steve Chiappari, Constance Cortez, Stella Nair, and *The An Bulletin's* anonymous readers for their helpful suggestions. Field research was funded by the Arts Research Institute and faculty grants from the University of California, Santa Cruz.

1. According to the version of the story recorded in Quechua by Alejandro Ortiz Rescaniere in the central Andes in 1971, "The Inka married Mother Earth. Then they had two babies, two extremely handsome babies *[Inka casadarukusa Mama Pachawan. Chaymanta iskay wawan karun. Sumaq sumaqsi wawachakuna]."* Ortiz Rescaniere, "El Mito de la Escuela," in *Ideologia mesitmica de/ mundo andino,* ed. Juan M. Ossio A. (Lima: Colecci6n Biblioteca de Antropologia Ignacio Prado Pastor, 1973), 238-43.
2. I use here the definition of art as: "Human skill as an agent, human workmanship. Opposed to *nature." Oxford English Dictionary,* 2nd ed., s.v. "art," def. 2a.
3. The most complete study of Inka rock carving was undertaken by the anthropologist Maarten Van de Guchte, whose dissertation focused on the meaning and significance of carved outcrops in the region around the Inka capital of Cuzco. Van de Guchte, "'Carving the World': Inca Monumental Sculpture and Landscape" (PhD diss., University of Illinois, Urbana-Champaign, 1990). Important observations about Inka rock carving can also be found in Cesar Paternosto's book *Piedra al>-stracta: La escultura Inca; Una vision contemporanea* (Lima: Fondo de Cultura Econ6mica, 1989), which was revised and published in English as *The Stone and the Thread: Andean &ots of Abstract Art,* trans. Esther Allen (Austin: University of Texas Press, 1996).
4. John Hemming and Edward Ranney, *Monuments of the Incas* (Albuquerque: University of New Mexico Press, 1982), 9.
5. Many years prior to the Inka, the Chachapoya, at Vira Vira, for example, built circular structures into crags at the upper, elite end of the site. See Keith Muscutt, Vincent **R.** Lee, and Douglas Sharon, *Vira Vira: A "New" ChachapO'Jas Site* (Wilson, Wyo.: Sixpac Manco, 1993). For examples of integration throughout Tawantinsuyu (the Inka empire), from Ecuador in the north to Bolivia in the south, see John Hyslop, *Inca Settlement Planning* (Austin: University of Texas Press, 1990), 117-19.
6. Adolph F. Bandelier, *The Islands of Titicaca and Koati* (New York: Hispanic Society of America, 1910), 195.
7. Jean-Pierre Protzen and Stella Nair, "Who Taught the Inca Stonemasons Their Skills? A Comparison of Tiahuanaco and Inca Cut-Stone Masonry," *journal of the Society of Architectural Historians* 56, no. 2 (1997): 146-67, at 160.
8. Hyslop, *Inca Settlement Planning,* 102-28. See also Margaret Greenup MacLean, "Sacred Land, Sacred Water: Inca Landscape Planning in the Cuzco Area" (PhD diss., University of California, Berkeley, 1986).
9. **M. J.** Weismantel, "Maize Beer and Andean Social Transformations: Drunken Indians, Bread Babies, and Chosen Women," *MLN* 106, no. 4 (1991): 861-79.
10. John Bierhorst, *Black Rainbow: Legends of the Incas and Myths of Ancient Peru* (New York: Farrar, Straus and Giroux, 1976), 20.
11. Tristan Platt, "Mirrors and Maize: The Concept of *Yanantin* among the Macha of Bolivia," in *Anthropological History of Andean Polities,* ed. John V. Murra, Nathan Wachtel, and Jacques Revel (Cambridge: Cambridge University Press, 1986), 228-59, at 245.
12. Ibid., 241.
13. The illustration used here was published in Joan de Santa Cruz Pachacuti Yamqui Salcamaygua, *Tres relaciones de antiguedades Peruanas* (Madrid: Imprenta y Fundici6n de **M.** Tello, 1879), between 256 and 257. See also idem, *Relaci6n de antiguedades deste Reyno del Piru,* Travaux de l'Institut Fran&#xfffd;ais d'Etudes Andines, 74, ed. Pierre Duviols and Cesar Itier (1613; Cusco: lnstitut Frarn;ais d'Etudes Andines; Centro de Estudios Regionales Andinos Bartolome de Las Casas, 1993), 208 (fol. 13v).
14. See, for example, Samuel A. La Fone Quevado, "El culto de tonapa," in *Tres relaciones de antiguedades peruanas,* ed. Marcos Jimenez de la Espada (Asuncion: Editorial Guarani, 1950), 287-353; R. Tom Zuidema and Dipiano Quispe, "Un viaje a dios, en la comunidad de Warkaya," *Wamani* 2, no. I (1967), trans. as "A Visit to God: The Account and Interpretation of a Religious Experience in the Peruvian Community of Choque-Huarcaya," in *People and Cultures of Native South America,* ed. Daniel Gross (New York: Natural History Press, 1968), 358-76; Billie Jean Isbell, "La otra mitad esencial: Un estudio de complementariedad sexual en los Andes," *Estudios Andinos* 5, no. I (1976): 37-56; idem, *To Defend Ourselves: Ecology and Ritual in an Andean Village* (Austin: Institute of Latin American Studies, University of Texas, 1978); Pierre Duviols, "Punchao: Idolo mayor de! Coricancha; Historia y Tipologia," *Antropowgia Andina* 1-2 (1976): 156-83;John Earls and Irene Silverblatt, "La realidad fisica y social en la cosmologia Andina," *Actes de XL!Ie Congres International des Americanistes* 4 (1978): 299-325; and Constance Classen, *Inca Cosmology and the Human Body* (Salt Lake City: University of Utah Press, 1993).
15. Olivia Harris, "The Power of Signs: Gender, Culture and the Wild in the Bolivian Andes," in *Nature, Culture, and Gender,* ed. Carol P. McCormack and Marilyn Strathern (Cambridge: Cambridge University Press, 1980), 70-94, at 90.
16. Likewise, Aymara communities are divided into upper and lower moieties called *alasaa* and *masaa,* respectively.
17. "El Inca" Garcilaso de la Vega [Gomez Suarez de Figueroa], *Comentarios reales* (Lisbon, 1609), trans. Harold V. Livermore as *RO'Jal Commentaries of the Incas and General History of Peru,* 2 vols. (Austin: University of Texas Press, 1966), vol. I, 44.
18. Ortiz Rescaniere, "El Mito de la Escuela," 239.
19. Binary thinking runs very deep in the West and in Christianity. See Carol H. Cantrell, "Analogy as Destiny: Cartesian Man and Woman Reader," in *Aesthetics in Feminist Perspective,* ed. Hilde Hein and Carolyn Korsmeyer (Bloomington: Indiana University Press, 1993), 218.
20. Sherry B. Ortner, "Is Female to Male as Nature Is to Culture?" in *Woman, Culture, and Society,* ed. Michelle Zimbalist Rosaldo and Louise Lamphere (Stanford: Stanford University Press, 1974), 67-87.
21. Harris, "The Power of Signs," 90.
22. For a discussion of the concept of the between space, *chawpi* in Quechua and *taypi* in Aymara, see Therese Bouysse-Cassagne and Olivia Harris, "Pacha: En torno al pensamiento aymara," in *Tres rejlexiones sabre el pensamiento andino,* ed. Bouysse-Cassagne et al. (La Paz: HISBOL, 1987), 11-59.
23. See, for example, Jorge A. Flores Ochoa, *Los pas/ores de Paratia: Una introducci6n a su estudio* (Mexico: Instituto Indigenista Interamericano, 1968), trans. Ralph Bolton as *Pastoralists of the Andes: The Alpaca Herders*

of Paratia (Philadelphia: Institute for the Study of Human Issues, 1979), 50.

24. Catherine J. Allen, *The Hold Life Has: Coca and Cultural Identity in an Andean Community* (Washington, D.C.: Smithsonian Institution Press, 1988), 106.

25. Susan A. Niles argues that Inka sensitivity to topographic features-the framing of mountains by windows and doorways, for example-is more evident in early Inka architecture than it is in later buildings, which tend to use more straight lines and right angles. Niles, *The Shape of Inca History* (Iowa City: University of Iowa Press, 1999), 290-92.

26. In this passage Paternosto, *The Stone and the Thread,* 60, refers specifically to the site of Machu Picchu. His observations can be applied more generally, however.

27. Rebecca Stone-Miller and Gordon McEwan, "The Representation of the Wari State in Stone and Thread," *Res* 19-20 (1990-91): 53-80, at 57.

28. There were also some commonalities between Inka and Wari site planning. At the Wari site of Chokipukio, for example, a large stone located in the center of a courtyard near water canals suggests that the Wari, like the later Inka, also identified natural stone within the built environment as symbolically important.

29. Susan A. Niles, "The Provinces in the Heartland: Stylistic Variation and Architectural Innovation near Inca Cuzco," in *Provincial Inca: Archaer,-logi,cal and Ethnohistorical Assessment of the Impact of the Inca State,* ed. Michael A. Malpass (Iowa City: University of Iowa Press, 1993), 146-76, at 157.

30. Brian S. Bauer, "Ritual Pathways of the Inca: An Analysis of the Collasuyu Ceques in Cuzco," *Latin American Antiquity* 3 (September 1992): 183-205, at 184.

31. The Inka were not alone in characterizing their realm as consisting of four parts. Naram Sin, the Mesopotamian king of the third millennium BCE, took the title Lord of the Four Quarters, proclaiming himself to be the center where north, south, east, and west meet, and from which the world could be measured infinitely in all directions; also, Cyrus of Persia, in the first millennium BCE, dubbed himself Lord of the Four Quarters. See David Summers, *Real Spaces: World An History and the Rise of Western Modernism* (London: Phaidon, 2003), 221, 224.

32. Felipe Guaman Poma de Ayala, *El primer nueva cor6nica y buen gobierno,* ed. John V. Murra and Rolena Adorno, Quechua trans. Jorge L. Urioste, 2nd ed., 3 vols. (1980; Mexico City: Siglo Veintiuno, 1988), 914-15, fols. 983-84 (1001-2). A complete facsimile and annotated transcription of Guaman Poma's work is available at www.kb.dk/elib/mss/poma/, a Website established by the Royal Library, Copenhagen.

33. The actual *suyus,* or quarters, to which the four major roads out of Cuzco traveled, extended more to the northeast, southwest, southeast, and northwest. The northeast and northwest quarters were born in *anan* (upper) Cuzco, while the southeast and southwest quarters emerged from *urin* (lower) Cuzco. For further discussion of Guaman Poma's drawing of the world, see Juan M. Ossio A., "Guaman Poma: *Nueva cor6nica* o carta al rey; Un intento de aproximaci6n a las categorias de! pensamiento de! mundo andino," in Ossio A., *Ideologia mesi-{mica del mundo andino,* 155-213; and Nathan Wachtel, "Pensamiento salvaje y aculturaci6n: El espacio y el tiempo en Felipe Guaman Poma de Ayala y el Inca Garcilaso de la Vega," in *Sociedad e ideologia: Ensayos de historia y antropologfo andinas* (Lima: Instituto de Estudios Andinos, 1973), 163-228.

34. Interestingly, royal estates, because they were the personal property of the ruler, were not considered to have any *suyu* affiliation or identity. For more on Inka royal estates, see Susan A. Niles, "The Nature of Inca Royal Estates," in *Machu Picchu: Unveiling the Mystery of the Incas,* ed. Richard L. Burger and Lucy C. Salazar (New Haven: Yale University Press, 2004), 48-68.

35. Garcilaso de la Vega, *Rayal Commentaries of the Incas,* vol. 1, 42-45.

36. Graziano Gasparini and Luise Margolies, *Inca Architecture,* trans. Patricia J. Lyon (Bloomington: Indiana University Press, 1980), 195-303.

37. Gasparini and Margolies, *Inca Architecture,* 5, credit the ruler Pachakuti with developing the characteristic and repetitive style of lnka architecture known as the Cuzco style about 1438. They maintain that Pachakuti's successors, the rulers Tupaq Inka Yupanki and Wayna Qhapaq, relied on Pachakuti's standardized model over the remaining eighty years of Inka dominance in the Andes. Terence N. D'Altroy, however, notes in his review of *Inca Architecture* that archaeologists have found considerable variability in Inka architectural style over time. D'Altroy, "Review of *Inca Architecture* by Graziano Gasparini and Luise Margolies," *American Antiquity* 47, no. 2 (April 1982): 455-56. See also Jean-Pierre Protzen, *Inca Architecture and Construction at Ollantaytambo* (New York: Oxford University Press, 1993), 283, who writes, "There is, no doubt, an amazing formal unity in Inca architecture; many of its elements were indeed standardized, and proven solutions were replicated over the whole empire. But to stress standardization and repetition is to disregard the range of variations and of subtle differences that do exist from one building to the next and from one site to another, and it is to distract from discovering the richness of Inca architecture."

38. Storage structures and tombs were also sometimes circular; this feature likely responded to the need for climate control in order to better preserve the contents of the building.

39. Early Spanish-Quechua dictionaries define *pirkani* as "edificar" (to build) or "hacer pared" (to make a wall), *canincakuchini* as "trabar bien la pared" (to join a wall well), and *canini* as "morder" (to nibble). See Domingo de Santo Tomas, *Grammatica o arle de la lengua general de las Indios de las Reynos del Peru* (1560; Lima: Universidad Nacional Mayor de San Marcos 1951), 116; and Diego Gonzalez de Holguin, *Arie y diccionario Qquechua-Espanol.....*(1608; Lima: Imprenta de] Estado, 1901), 51, 271.

40. Jean-Pierre Protzen, "Inca Quarrying and Stonecutting," *Journal of the Society of Architectural Historians* 44, no. 2 (May 1985): 161-82; idem, "Inca Stonemasonry," *Scientific American* 254, no. 2 (1986): 94-105; and idem, *Inca Architecture and Construction,* 185-209.

41. The following studies all propose ways of categorizing Inka masonry styles or types:John Howland Rowe, "An Introduction to the Archaeology of Cuzco," *Papers of the Peabody Museum of American Archaeology and Ethnology* 27, no. 2 (1944): 3-59; Gasparini and Margolies, *Inca Architecture;* Ann Kendall, *Aspects of Inca Architecture: Description, Function, and Chronology,* pts. 1, 2, British Archaeological Reports, International Series, no. 242 (Oxford: BAR, 1985); Protzen, "Inca Stonemasonry"; Santiago Agurto Calvo, *Estudios acerca de la construcci6n, arquitectura, y planeamiento incas* (Lima: Camera Peruana de la Construcci6n, 1987); Valerie Fraser, *The Architecture of Conquest: Building in the Vicerayalty of Peru, 1435-1635* (Cambridge: Cambridge University Press, 1990); Hyslop, *Inca Settlement Planning,* Vincent R. Lee, *Design by Numbers: Architectural Order among the Incas* (Wilson, Wyo.: Sixpac Manco Publications, 1996); Protzen and Nair, "Who Taught the Inca Stonemasons Their Skills?"; Craig Morris and Adriana von Hagen, *The .Cities of the Ancient Andes* (London: Thames and Hudson, 1998); and Francesco Menotti, *The Inkas: Last Stage of Stone Masonry Development in the Andes,* British Archaeological Reports, International Series, no. 735 (Oxford: BAR, 1998).

42. Rowe, "An Introduction to the Archaeology of Cuzco."

43. Paternosto, *The Stone and the Thread,* 35, prefers the terms *rectangular* and *polygonal* to describe the two styles. Rowe, "An Introduction to the Archaeology of Cuzco," not only identifies the two basic categories, coursed and polygonal uncoursed, but also traces their ancestry to common mud-brick construction and unworked fieldstone construction, respectively.

44. Protzen and Nair, "Who Taught the Inca Stonemasons Their Skills?" 148-50.

45. The architectural complex of Saqsaywaman was used during the Spanish colonial period as a source of squared-off ashlars for the construction of both public and private edifices in Cuzco. These stones were removed from the upper courses, leaving the larger, polygonal stones that are seen today. See Carolyn Dean, "Creating a Ruin in Colonial Cusco: Sacsahuaman and What Was Made oflt," *Andean Past* 5 (1998): 161-83.

46. Agurto Calvo, *Estudios acerca de la construcci6n, arquitectura, y planeamiento incas,* discusses other aspects of Inka masonry, including typical stone block shapes, differing types of joints, and diverse cross-sections, profiles, and surface textures. In most cases, these aspects can be combined in various ways even within a single wall.

47. Although both Ann Kendall and Niles have identified certain styles of Inka architecture that correspond to particular individual rulers, they have not understood particular styles of masonry to reflect the chronological development of Inka masonry. Kendall, "Descripci6n e inventario de las formas arquitect6nicas inca; Patrones de distribuci6n e inferencias cronol6gicas," *Revista del Museo Nacional* (Lima) 42 (1976): 13-96; and Niles, *The Shape of Inca History.*

48. For a description of the Inka's one-on-one fitting and laying technique, see Protzen, "Inca Quarrying and Stonecutting," 169-80; and idem, *Inca Architecture and Construction,* 259.

49. Protzen, "Inca Quarrying and Stonecutting."

50. Bernabe Cobo, "Historia de! Nuevo mundo," 1653, trans. and ed. Roland Hamilton as *Inca Religi,on and Customs* (Austin: University of Texas Press, 1990), 228.

51. For further discussion of iconocentric looking and its impact on the reception and interpretation of Inka rock work, see Carolyn Dean, "The Trouble with (the Term) Art," *An journal* 65, no. 2 (2006): 24-32, at 28-29.

52. For more on the Inka's association of ritual drinking with specialized

vessels and order, see Thomas B. F. Cummins, *Toasts with the Inca: Andean Abstraction and Colonial Images on Quero Vessels* (Ann Arbor: University of Michigan Press, 2002), 80-98.

53. Rosaleen Howard-Malverde, *The Speaking of History: "Willapaakushayki" or Quechua Ways of Telling the Past,* Institute of Latin American Studies Research Papers, no. 21 (London: University of London, 1990), 73-83.

54. Niles, *The Shape of Inca History,* 133; and idem, "The Nature of Inca Royal Estates," 50.

55. For a discussion of Pachakuti's claim to Machu Picchu as another of his royal estates, see John Howland Rowe, "Machu Picchu a la luz de documentos de! siglo XVI," *Hist{mca* 14, no. 1 (1990): 139-54.

56. For accounts of the Chanka war, see Juan de Betanzos, "Suma y narraci6n de los Yngas," 1557, trans. Roland Hamilton and Dana Buchanan as *Narrative of the Incas* (Austin: University of Texas Press, 1996), 85; Pedro Sarmiento de Gamboa, *Historia de los Incas,* ed. Angel Rosenblatt, 2nd ed. (1572; Buenos Aires: Emece Editorial, 1943), 85-91; and Santa Cruz Pachacuti Yamqui Salcamaygua, *Relacion de antiguedades deste Reyno de/ Piru,* 217-21 (fols. 18r-20r). Given the lack of archaeological evidence, both Pierre Duviols and R. Tom Zuidema have questioned the historicity of the Chanka war. See Duviols, "La guerra entre el Cuzco y los chancha: historia o mito?" in *Economia y sociedad en los Andes y Mesoamerica,* ed. Jose Alcina Franch, Revista de la Universidad Complutense 28, no. 117 (Madrid: Universidad Complutense de Madrid, 1979), 363-71; and Zuidema, "The Lion in the City: Royal Symbols of Transition in Cuzco," *journal of Latin American Lore* 9, no. 1 (1983): 39-100.

57. Tupaq Inka Yupanki's estates were at Chinchero, Urcos, and Huayllabamba.

58. Urubamba and Yucay were estates that belonged to Wayna Qhapaq and his descendants.

59. Niles, *The Shape of Inca History,* 264.

60. Ibid., 262-97. Building palaces and developing lands was important symbolically because such projects established the new ruler's legitimacy. Architectural projects identified the ruler as being like all ruler-builders before him.

61. Ibid., 268; and idem, "The Nature of Inca Royal Estates," 60.

62. As Catherine J. Julien cautions, "Oral tradition can collapse events which took place over a long period into a single flurry of activity or perhaps reorder sequences entirely." Julien, "Finding a Fit: Archaeology and Ethnohistory," in *Provincial Inca: Archaeologi,cal and Ethnohistorical Assessment of the Impact of the Inca State,* ed. Michael A. Malpass (Iowa City: Iowa University Press, 1993), 178-233, at 219.

63. Niles, "The Provinces in the Heartland," 161-63.

64. Nearly all ethnohistoric accounts written in the sixteenth and seventeenth centuries report that Saqsaywaman was begun during the reign of the Inka's ninth ruler (Pachakuti) or his son, the tenth ruler (Tupaq Inka Yupanki). Many report that the work was continued by succeeding rulers and finished, or nearing completion, at the time Francisco Pizarro and his company arrived in the Andean area in 1532.

65. If a region rebelled, we are told, the Inka had its sacred object displayed in Cuzco's public square and "whipped ignominiously every day until such province was made to serve the Incas again." See Cobo, *Inca Religi,on and Customs,* 3-4.

66. Because the distinction between "sculpture" and "architecture" seems to dissolve when looking at the Inka's carved rock outcrops, Paternosto, *The Stone and the Thread,* 61, calls them "sculptarchitecture."

67. Gordan McEwan and Maarten Van de Guchte, "Ancestral Time and Sacred Space in Inca State Ritual," in *The Ancient Americas: Art from Sacred Landscapes,* ed. Richard F. Townsend (Chicago: Art Institute of Chicago, 1992), 359-71, at 368.

68. Van de Guchte, "Carving the World," 228.

69. The geographer Yi-Fu Tuan, who investigates cross-cultural notions of place, reminds us that "places," whether large or small, are social constructs as well as existential experiences. See Yi-Fu Tuan, "Rootedness versus Sense of Place," *Landscapes* 25 (1980): 3-8.