Regional Research on the Inca

Article *in* Journal of Archaeological Research · September 2001

DOI: 10.1023/A:1016698925820

CITATIONS
57

READS
4,939

1 author:

Charles Stanish
University of South Florida
130 PUBLICATIONS **3,018** CITATIONS

Journal of Archaeological Research, Vol. 9, No. 3, 2001

Regional Research on the Inca

Charles Stanish[1]

The past two decades have witnessed an increase in the amount of regional research on the Inca state of Andean South America. This work has revolutionized our view of the Inca empire and has provided a comparative database for understanding the nature of imperial expansion in premodern empires. This paper places this work in historical context. It then describes the way in which a regional approach has complemented other research to give us a fuller picture of Inca imperial strategies. The Inca state used a variety of strategies to incorporate its provinces into a viable political entity. Regional archaeological approaches provide the best means of defining those strategies, giving us a more nuanced view of premodern states such as the Inca.

KEY WORDS: Inca empire; settlement archaeology; Andes.

INTRODUCTION

The Inca empire, known by its inhabitants as Tawantinsuyu or "land of the four quarters," was one of the greatest ancient states in world history (Fig. 1). From its northernmost reaches in Ecuador to its southern extreme at the Maule River in central Chile just south of Santiago, the Inca state extended over some 4300 km. Their road system cut through coastal deserts, over the Andes mountains, and into the tropical forests. With as much as 1 million km^2 of territory in western South America within their reach, the Inca state incorporated or had access to most major ecological zones on the continent. A myriad of different polities, cultures, languages, and ethnic groups were brought together under the aegis of the Inca empire in less than two centuries. Tawantinsuyu was the largest empire in the prehistoric Americas, larger in territorial extent than the contemporary Aztec empire of central Mexico.

[1]Department of Anthropology, University of California at Los Angeles, 341 Haines Hall, Los Angeles, California 90095-1553; e-mail: stanish@anthro.ucla.edu.

1059-0161/01/0900-0213$19.50/0

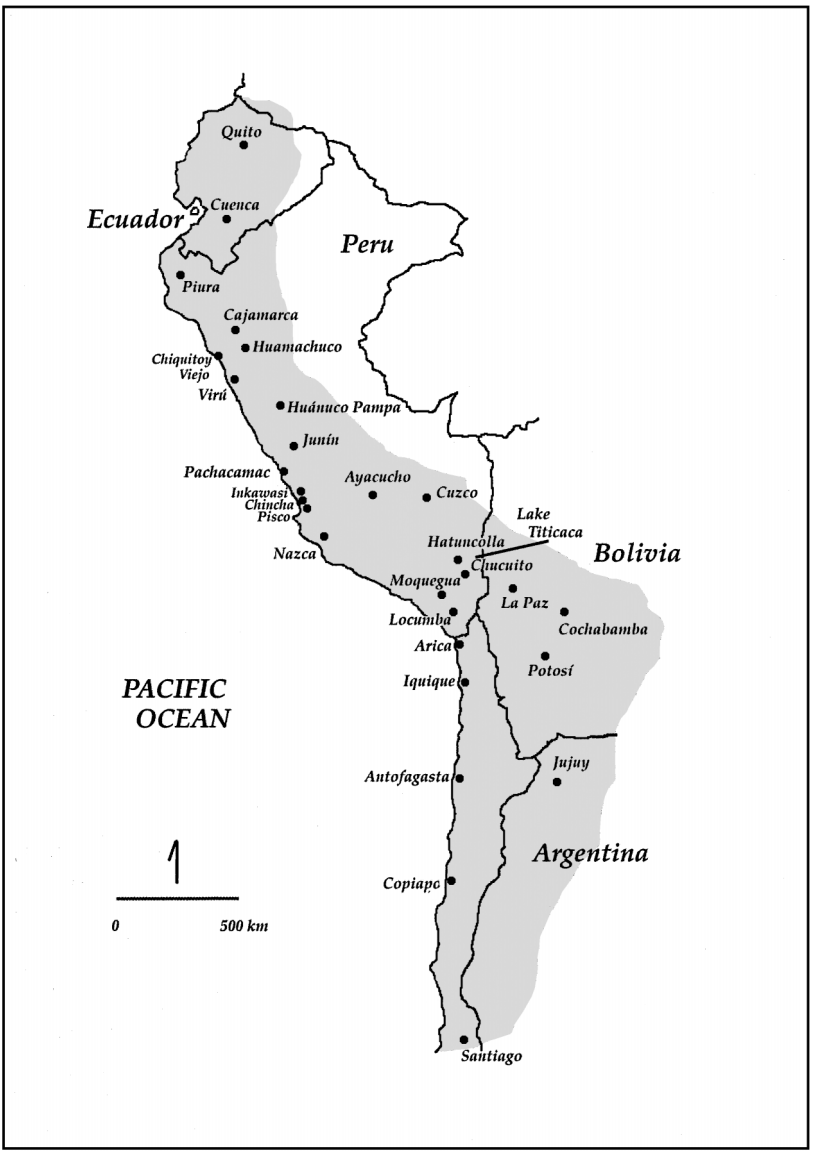

Fig. 1. The Inca empire.

Before the European invasion, Inca intellectuals had already compiled an impressive canon of knowledge about their society. Like scholars of other empires in the ancient and modern world, they focused their efforts on the histories of their royal dynasties and imperial successes. Following the collapse of the Inca state in

the mid-sixteenth century at the hands of European invaders, Spanish historians likewise recorded descriptions of the empire. These Spanish chroniclers compiled many of the political histories as recounted to them by Inca nobility as well as descriptions of the religion, institutions, and lifeways of Tawantinsuyu.

As a result of these efforts by both indigenous and European scholars, there exists a large number of historical documents on the Inca empire. The existence of such a rich documentary base has affected the nature of Inca scholarship over the centuries. Most research on the Inca prior to the middle of the twentieth century was based on these documents rather than on systematically collected archaeological data (Malpass, 1993, p. 2; Morris, 1988, p. 233).

Beginning with scholars such as Cieza de León (1959, 1967[1533]), Cobo (1979[1653], 1990[1653]), Guaman Poma de Ayala (1980[1614]), and many others, Inca research was, and largely still is, driven by historical data. In this research tradition, historical data are viewed as reliable, with contradictions in the texts to be resolved through careful research. Andean scholars working within this tradition seek to place the rich heritage of the Spanish chroniclers and their Andean predecessors into a comprehensive view of the Inca state and its origins. While the most sophisticated of these approaches recognize that there are inherent cultural and personal biases in the documents, and that these biases must be controlled (Julien, 1993; Niles, 1987, 1993; Rowe, 1946; Urton, 1990), a basic premise is that the documents in their totality contain empirically accurate data that provide a coherent picture of the past. In this tradition, archaeological data from the Inca period were viewed as adjuncts to historical research, designed to enlarge the empirical record where documentary sources were silent.

The work of scholars such as Valcárcel Vizguerra (1946) and Rowe (1944, 1946) represent the best of this historical tradition as applied to archaeological interpretation. As Urton notes, Rowe "has approached the task of constructing an Inka culture history by means of the application of logic in the comparative analysis of the data provided in the Spanish chronicles" (Urton, 1990, p. 6). For scholars working within this tradition, the comparative analysis of texts, resolving inconsistencies, and the accurate construction of history from fragmentary evidence take precedence over any other objective, including comparative theoretical issues. Julien, another leader in this historical tradition of Inca studies, is quite explicit about this position: "Comparison with other early empires is a desirable goal, but not at the expense of Andean history" (Julien, 1995, p. 371). In other words, research should combine both historical and archaeological data and comparative anthropological research is important, but historical data must drive the research and interpretation (Julien, 1993, p. 178).

The historical tradition has made, and continues to make, great contributions to our knowledge of the Inca. Parallel to this tradition, however, is a different one that seeks to place the Andean data in a broader theoretical context. In the twentieth century, a few scholars adopted anthropological and comparative frameworks to guide research in Inca studies. As early as 1928, Baudin (1928) argued that the

Inca were a kind of socialist state, a theme again taken up by Arze (1941). Within this general intellectual tradition, Murra's dissertation represents a more anthropologically informed analysis (Murra, 1980[1955]). His work relied on historical data to a large degree and focused almost exclusively on the Inca state. At the same time, Murra analyzed the data within the theoretical framework developed by the economic historian and theoretician Karl Polanyi.

Murra argued that the Inca was a redistributive state. Murra's dissertation and subsequent publications served to situate the Inca empire in broader anthropological terms and to set the stage for future research. In fact, the historical and anthropological work of Murra and Rowe, plus the contributions of later scholars such as Rostworowski de Diez Canseco (1970, 1988), and Pease (1982, 1991), represented the two principal intellectual frameworks for archaeological research on Inca.

In the anthropological approaches, the Inca state is important not only in and of itself as a historical phenomenon, but also as a comparative data base to illustrate broader processes of cultural evolution throughout the world. An entire generation of anthropologists and archaeologists began to work within this framework in the 1970s. This shift paralleled broader intellectual changes in Americanist anthropological archaeology as a whole with the advent of processual archaeology (Billman, 1999; Sanders, 1999; Willey, 1999). Processual archaeologists sought to address the larger issues of state development, collapse, function, organization, ideology, and cultural evolution within the framework of cultural ecological and neoevolutionary theory.

It was during this period that archaeologists began applying regional methodologies to the anthropological study of the Inca state, as opposed to single-site methodologies that characterized much of past and present research. This regional research does not conflict with the research conducted within the historical tradition. Rather, regional research complements the detailed historical studies. The settlement data provide a rich empirical record to reconstruct Inca history as well as test models of imperial growth, consolidation, and decline.

REGIONAL APPROACHES IN ANDEAN ARCHAEOLOGY

Andeanists like to point out that modern settlement archaeology was initiated, in large part, by Willey and his colleagues during the 1940s in the Virú Valley on the northern Peruvian coast. Willey emphasized that his work began at the suggestion of Julian Steward, an anthropologist and one of the pioneers of cultural ecology (Willey, 1999). This association is not coincidental. Settlement methodologies have became a staple of neoevolutionary, processual archaeology in general and cultural ecological theory in particular. In the intellectual history of the discipline, settlement archaeology represents a methodology that closely developed in tandem with a new theoretical orientation.

Prior to Willey's work in Virú, most surveys around the world were designed to discover "sites in order to select a 'good one' for excavation" as Redman points out (Redman, 1982, p. 375). These early surveys were conceived as simply the expansion of single-site methodologies over a large area. While Willey may have been correct to state in 1956 that "there is no settlement pattern approach to archaeology" (Willey, 1956, p. 1), by 1972 Parsons (1972, p. 134) could properly speak of a distinctive "American tradition of settlement pattern archaeology" that was developing out of Americanist roots that reached back generations.

Over the years, settlement pattern survey has been used by archaeologists utilizing a variety of theoretical frameworks, not just cultural ecology (e.g., see Billman, 1999, in the volume edited by Billman and Feinman). From this perspective, settlement archaeology is more than a means of recovering surface archaeological data from a large area. It is a methodology associated with comparative approaches in the discipline to address certain kinds of *regional* problems of anthropological interest. This is the primary defining characteristic of settlement archaeology—it is regional in scope and utilizes models that must be formulated and tested with data from a large area.

A regional approach relies on several kinds of surface survey methodologies as well as excavations, air photograph analysis, and the use of other geographical data. Regional approaches recover data that are qualitatively different from those collected with single-site or community-focused methodologies. The regional approach inherent in settlement archaeology allows us to formulate research questions at a level not available by intensive work at one or a few sites alone (Ammerman, 1981). This qualitative distinction is based on the contextual information that can be derived from regional data. A key point is that, by controlling for context, the whole of the information collected from a region is greater than the sum of the individual sites. For instance, the discovery of an isolated ancient agricultural canal and a contemporary habitation site are two valuable sets of data in and of themselves. But when these data are placed in context—the habitation site is demonstrated to be functionally connected with the canal—the amount of information is greater than the sum of the data from each site. In other words, the association and contextual relationship between the two sites represents a third kind of "data" that would not be recoverable if the canal and habitation settlement were analyzed in isolation from each other. Likewise, regional research designs provide perspective on the long-term, diachronic patterns of land use and landscape alteration through time. Comparing settlement patterns from period to period provides qualitatively different data than can be obtained from the analysis of just a few sites.

A regional methodology can be executed at several levels of intensity. "Intensity" is defined as the total amount of resources committed to a particular area of landscape (Plog *et al.*, 1978, p. 389). Reconnaissance is the least intensive kind of survey methodology. Reconnaissance methodologies simply involve the cataloging of sites in any region, either on foot or through the analysis of air

photographs. It is not intended to provide a precise model of the archaeological materials in the region, but seeks a more general characterization of the nature and range of materials in any area.

Reconnaissance is particularly useful in areas where little work has been conducted. It is a very cost-effective means of characterizing the broad outlines of the cultural history in a region and permits the development of models that can be tested with more intensive survey methodologies. It is also useful to recognize nonsystematic reconnaissance as a bona fide methodology because it incorporates the work of earlier scholars who made great contributions without explicitly utilizing scientific research designs.

Systematic reconnaissance is more intensive. It involves the sampling of locations in a region based on a set of consistently used criteria. Hyslop, for instance, systematically reconnoitered the western Titicaca Basin looking for sites described in sixteenth-century texts (Hyslop, 1976). His purpose was to both test the reliability of these historical documents as well as define the nature of the Inca occupation in the region. Other criteria might be ecological (sampling only on early Holocene river banks), topographical (all hilltops), or cultural (all walled sites). Systematic reconnaissance permits one to control biases better, but it still does not provide a precise characterization of the settlement pattern from a region.

Surveys differ from reconnaissances in that they seek to provide a precise characterization of the extant archaeological materials of a region. The most intensive kind of survey is referred to as full-coverage survey (Fish and Kowalewski, 1990). This technique ideally covers 100% of an area. Full-coverage surveys are preferred by most settlement archaeologists in the Andes because they eliminate any random omission of important sites. Given the arid environment of much of the Andean region, full coverage of large areas is a feasible goal. Less intensive surveys use sampling techniques that, at least in theory, provide data that permit inferences on the nature of the entire region tested. The idea here is to use a sampling method that permits a statistically valid characterization of the entire region.

A common misunderstanding is that settlement archaeology methodologies do not include excavations. This is certainly not the case in the Andes. In most circumstances, excavations following survey are an essential component of a properly executed regional research design. Certain kinds of data, such as botanical, faunal, mortuary, and so forth, are rarely available from the surface. Geomorphological processes can also systematically skew surface data and complicate interpretations. An appropriate regional research design therefore includes both surface and subsurface data to control for natural and cultural skewing of the surface archaeological record.

Regional approaches in archaeology add a qualitatively new means of understanding the past around the world. In the Andes, regional approaches have added

a new dimension to our understanding of the Inca state. The following sections illustrate how regional approaches have altered our understanding of the nature of Inca expansion and addresses what I believe are some of the key issues for future research.

Recent Regional Research on the Inca

Many early historians who wrote in the sixteenth and seventeenth centuries can be considered as the pioneers who conducted the first archaeological reconnaissance throughout the Andes. In this sense, a regional perspective is not unique to processual archaeology, but is a methodological tool that can be used in a variety of theoretical frameworks, even the historical one. The chronicler Cieza de León (1959, 1967[1553]) described a number of archaeological monuments, many of which had been abandoned just a few years before he visited them. Other Colonial period scholars described *tambos* or Inca way stations, as well as other imperial installations (e.g., Guaman Poma de Ayala, 1980[1614]; González de Cuenca [in Rostworowski de Diez Canseco, 1989]; Vaca de Castro, 1908[1543]). Throughout the Colonial period, scholars traveled the length and breadth of the old Inca empire describing and speculating on the age and significance of the monuments that they encountered. Their descriptions of sites in many regions served to highlight the achievements of the Inca in areas where the documents were silent or unknown at the time.

In the nineteenth century, many scholars adopted the natural history tradition of the times and meticulously recorded Inca sites around the Andes. The work of Squier (1877), Rivero y Ustariz and von Tschudi (1855), and Wiener (1880) stand out as particularly notable examples. These pioneers must be viewed as early practitioners of regional research designs, albeit ones carried out over very broad regions within a historical framework. Their publications set the stage for more systematic reconnaissance by future scholars.

In the 1940s and 1950s reconnaissances became more systematic. This work was tied to the space–time systematics paradigm that dominated the discipline. The work of Vásquez (1937, 1940), Romero (1928), and Tschopik (1946) in the Titicaca Basin is a case in point. Along with Kidder who focused on the early sites, their reconnaissances discovered a number of previously unreported sites in the Titicaca Basin. Their work placed the Late Intermediate period and Inca occupations in a broader cultural and chronological context. Throughout the 1940s and 1950s archaeologists conducted numerous reconnaissances in the Andes, locating and describing a host of Inca sites and immediate pre-Inca sites that expanded our knowledge of the empire.

One of the most important articles that came out of this research tradition was published in 1959 by Menzel. Menzel reviewed data on a number of Inca

sites in the southern Peruvian coast. She demonstrated that Inca control was not homogeneous in these valleys by comparing the nature of the Inca sites in different regions. For instance, Inca political control of the Chincha Valley differed from that of Pisco, which differed from Nasca, and so on. The gist of her argument was that the nature of Inca control was based on the degree of pre-Inca political centralization in the conquered territory. Where existing centralization was high, the Inca state built new administrative centers. In these cases, she argued, that the Inca ". . . probably ruled through the native nobility." In other cases, ". . . valleys in which there was no centralized authority already, the Incas imposed their own" (Menzel, 1959, p. 140). In short, using a regional database from several surveys (Menzel, 1959, p. 127), Menzel developed a model of indirect versus direct rule by the Inca state in the south coast of Peru. Indirect rule through native intermediaries was utilized where possible, and direct rule was imposed when the existing political and economic organization was incapable or unwilling to serve the needs of empire.

This observation by Menzel has become one of the core theoretical and empirical problems of regional Inca research. Several scholars have noted the different means by which provinces were incorporated. Building on Menzel's ideas, Malpass (1993, p. 11), Marcus (1987a, p. 393), Morris (1995), Pease (1982), Schreiber (1992, p. 53), and many others note that the Inca altered their imperial strategies in different areas. Schreiber argues that the key factors are preexisting sociopolitical organization, strategic location on roads, potential political challenges, and the economic potential of the province (Schreiber, 1992, p. 62). As Bauer, (1992, p. 14) sums up the issue ". . . the Inca adopted a range of flexible policies to integrate regional ethnic groups into their empire, and the differing examples of consolidation strategies . . . stand in contrast to more traditional perceptions of the Inca Empire as a monolithic polity."

D'Altroy (1992), elaborating on the earlier work of Eisenstadt (1963), Hassig (1985), and Luttwak (1976), formulates this problem, using the theoretical distinction between two different strategies used by the Inca state. This concept argues for a continuum of imperial strategies called a "territorial-hegemonic" model. At one end, *territorial* strategies "entail more-direct occupation and governing of subject territories" while the *hegemonic* strategy "entails a core polity (usually a state) and client polities that are responsible, with varying degrees of autonomy, for implementing imperial policy, extracting resources for imperial consumption, and providing security . . ." (D'Altroy, 1992, p. 19).

One of the principal research questions therefore centers on the nature of the political and economic organization of incorporated provinces. Was the empire monolithic and politically homogeneous? Such a unity is suggested by many of the documents from the sixteenth century, but this is to be expected in histories that relied on Inca indigenous scholars who sought to emphasize the unity of their realm and Spanish chroniclers writing within their own imperial tradition. Or was the empire a heterogeneous set of provincial territories administered and bound to

Cuzco through a highly varied set of military, political, ritual, social, and economic relationships?

Regional archaeological studies are the cornerstone for assessing the nature of provincial incorporation in the Inca state. There are a number of factors in a regional database that provide information on the degree of Inca impact in any area. These include features recoverable in the archaeological record: settlement pattern shifts coincident with Inca control, establishment of colonies of transplanted foreigners (called *mitimae* in the Andes), establishment or enhancement of roads, construction of way stations, storehouses and/or garrisons, abandonment of pre-Inca political centers, establishment of Inca ritual sites, construction of "Inca" style terracing, and changes in pottery styles and manufacturing loci, and so forth.

In the following sections, I review recent regional studies in the highlands and the coast, assessing the degree to which the Inca state altered the preexisting socioeconomic and political organization of each province. These data are important both for understanding the Inca state as a unique cultural phenomenon as well as for using the Andean data in comparisons to other premodern empires around the world.

The Inca Occupation of the Highlands

Most recent regional research in the Andes has been conducted as full-coverage settlement surveys. More rarely, surveys utilized sampling techniques and were not 100% pedestrian coverage. In almost every case, the Inca occupation is just one of the time periods included in a much longer time frame. In recent years, there has been an increase in survey coverage in the heartland of the Inca state itself. Such research provides an essential comparative database for assessing the nature of Inca control in the provinces as well as understanding Inca origins. In the Cuzco area, Bauer (1992) used a regional survey to test models of early state development in the core of the Inca empire itself. Bauer's work combines historical and archaeological data, although it is the archaeological data that drive his interpretations. He notes at the outset of his book (Bauer, 1992) that the questions of early Inca development have been approached primarily through the examination of historical texts, particularly the origin myths collected from Inca intellectuals in the sixteenth century. Echoing Urton (1990) and other critical ethnohistorians, Bauer argues that literal readings of historical texts as representations of concrete "facts" is inadequate at best. Criticizing what he calls the "event-based" view of history, Bauer argues that "researchers should look at this phenomenon [Inca state emergence] as the result of diachronic transformations in Andean social institutions, rather than as resulting from the serendipitous outcome of a single battle and the aspirations of a specific individual" (Bauer, 1992, p. 7).

Within this framework, Bauer intensively surveyed a valley near Cuzco to test the changes between the pre-Inca Killke period and the Inca period. He demonstrated that the settlement patterns of the two periods were very similar.

The major changes in the Inca period is that Cuzco itself grew and regional administrative centers, private estates, and garrisons were constructed throughout the region. Also, contrary to expectations based on the historical data and evidence from most other parts of the Andes, there was little evidence of conflict prior to Inca emergence (Bauer, 1992, pp. 142–144). This evidence suggests that the lack of conflict may have provided an advantage to the Inca in the alliance-formation processes in the early stages of the empire's development. In short, the Inca polity emerged out of the populations already residing in the valley during the Killke period. Not surprisingly, the development of an expansive state in the region had deep roots with the political economic structures of the later empire reaching back early in time.

In contrast, the provinces were abruptly incorporated into the Inca state. Bray (1990), for instance, defined the impact of Inca conquest and settlement in north central Ecuador. In a survey of 120 km^2 combined with test excavations in selected sites, she found that the organization of pottery production differed in this region while under Inca control. There was no change in the scale of production, nor in the degree of competition between producers (Bray, 1990, p. 458). Pottery continued to be locally manufactured. On the other hand, she detected a significant increase in standardization and use of Inca canons. Her analysis indicates that the Inca reduced regional contacts between polities and promoted local autonomy as part of their imperial administration. In short, even in this peripheral area, the effect of Inca reorganization on the local polity was strong.

Hocquenghem (1990, pp. 91–93) reports similar results based on her survey and analysis of historical and archaeological data from highland Piura. Populations were displaced, the Inca road was improved, colonists were brought in, tambos were built, provinces were created, and administrative and ceremonial centers were established in each of the political districts (Hocquenghem, 1990, pp. 92, 93). She argues, based upon documentary evidence, for a two-stage conquest process. Topa Inca first conquered the region. A generation later, Huayna Cápac "returned to impose the Andean order in the region" (Hocquenghem, 1990, p. 91). The notion of a two-stage conquest is particularly fascinating in that a similar process seems to have occurred in the Titicaca Basin in the southern Collasuyu area (Stanish, 1997).

Matos used a regional database to assess the effect of the Inca occupation on the local populations in Junín in the central highlands of Peru. Unlike other highland areas, he finds that the indigenous cultural patterns did not change significantly with the onset of the Inca, but that the Inca did establish a number of large administrative centers (Matos, 1997, p. 397). The local features that survived the Inca occupation included a settlement pattern of small, dispersed sites throughout the region. The architectural plan of house structures, agricultural technology, and pottery styles likewise remained unchanged. Matos argues that the Inca administered the region through the imposition of large, urbanized settlements. Following

Morris (1972), he sees these cities as cases of "compulsory urbanism" in which large political centers are created where the authorities force rural or semirural groups to live.

The administrative site of Pumpu has been analyzed by Matos (1994, 1997) as well. Like many of the other highland Inca sites, this 79-ha settlement was constructed in a new area without a pre-Inca occupation (Matos, 1997, pp. 402, 403). The Inca settlement of Tarmatambo, in contrast, was built over an earlier settlement and measures 45 ha in size. Inca administration and power were manifest in these regional centers. Again, in the local villages, the material evidence of Inca occupation is scarce. Matos suggests that the villagers met their tax obligations in the state centers with little material evidence of Inca life appearing in the villages. Matos concludes that while the Inca occupation was very strong in the central sierra (Matos, 1997, pp. 405, 406), it did not alter local patterns, but was imposed as an administrative apparatus over this area.

Topic and Topic analyzed the Inca occupation in the northern highland Huamachuco area (Topic and Chiswell, 1992; Topic and Topic, 1993). They proposed that the modern town of Huamachuco was an Inca provincial center. The site has a trapezoidal plaza and is built on an orthogonal grid pattern typical of Inca sites elsewhere. Unlike other highland areas, there was little Inca pottery in the region. In fact, Topic and Topic note that it is difficult to distinguish the Inca occupation from the Late Intermediate period occupation on the basis of pottery alone. Taken as a whole, the data from Huamachuco suggest that the Inca state had a strong effect on the local political and economic organization (Topic and Topic, 1993, p. 39). They note in particular that there was "a major settlement shift after the Late Intermediate Period" (Topic and Topic, 1993, p. 40). Furthermore, they also point to the fact that the pre-Inca regional center was abandoned, a new Inca center was established, and the road was improved. They discovered Inca storehouses on the hillsides associated with extensive agricultural terracing, tambos, and roads. Documents indicate that colonists were brought into the region. In short, in spite of the lack of Inca pottery, Huamachuco appears to have many of the archaeological indicators of Inca reorganization.

Schreiber (1987, 1992, 1993) also found very few Late Horizon potsherds (only nine in the entire study area) in the Carhuarazo Valley during the Inca period. Like Topic and Topic, she was able to define the Inca presence by Inca architecture and other nonceramic indicators. Prior to the Inca occupation, the valley was not politically unified. It was instead divided into two–four chiefdoms. The Inca reorganized the valley into a unified political unit, elevating local elites into the imperial bureaucracy. They built some minor administrative facilities in Inca styles, including a building in the former administrative center of the pre-Inca polity, a tambo and two small storage centers (Schreiber, 1992, p. 56). The lack of local Late Horizon pottery is very significant. This suggests that specialized pottery production was not part of the Inca political economy of this province. Rather,

the rehabilitation of some terraces and construction of storage facilities (*colcas*) on roads suggest that the Inca used this area to provision a transport and military system, and to co-opt the local political leadership to avoid rebellion. According to Schreiber, the valley was not a major surplus-producing province in the Inca state, but was an area controlled to ensure access to more productive areas outside of the Carhuarazo Valley. In the nearby region, the territory of the Lucanas, there is virtually no evidence of an Inca occupation even though documents indicate that the Inca controlled the territory (Schreiber, 1992, p. 57).

In the central highland Mantaro Valley, the multiyear UMARP project indicates that there were major changes in settlement patterns at the time of Inca conquest. This includes the abandonment of hilltop fortified sites, a more dispersed settlement pattern, the exploitation of new ecological zones, the construction of over 2,000 storehouses, the forced dislocations of up to 20,000 people, the abandonment of the major pre-Inca political center, and importation of foreigners (D'Altroy, 1987, 1992, pp. 186, 189, 214). The forcible movement of populations for strategic and economic purposes is perhaps the most intrusive, nonlethal means of control for a premodern empire. In the Mantaro Valley, we see a massive forced movement of people. Schreiber (1992, p. 57) describes how almost the entire population of the Río Pampas Valley near Ayacucho was removed and replaced with foreigners.

Using excavation data from Mantaro Valley sites, Hastorf (1990, pp. 262, 285) intensively analyzed excavation data, specifically the botanical remains from various household contexts. Her work indicates that Inca state intervention in the local Mantaro Valley economy was profound and that it reached down to the level of the household. Costin and Earle (1989) analyzed various categories of artifacts from similar household contexts in the valley as well. They conclude that the Inca co-opted authority of local elites by appropriating the role as feast givers and suppliers of exotic goods. The Inca in effect deprived the local elite of economic and ideological power while integrating them into the imperial political hierarchy (Costin and Earle, 1989, p. 710). The Inca occupation of the Mantaro Valley represents a case of very intense Inca reworking of the local political, economic, ideological, and social organization.

Research in the upper Moquegua Valley of southern Peru indicates similar patterns of Inca reorganization (Stanish, 1992). Pre-Inca sites were located on hilltops and were fortified. The political and economic alliances during this Late Intermediate period were with the Colla polity of the north Titicaca Basin, as well as some linkages with coastal polities. During the Inca period, fortified sites were abandoned and populations were resettled in the valley bottoms. The Moquegua region was reorganized as a major Inca–Lupaqa province, reflecting the alliance between the Lupaqa and the Inca. The site of Torata Alta was the primary center of the Lupaqa–Inca settlement in the region (van Buren, 1996). Torata is a large site built on a classic Inca orthogonal grid pattern (Hyslop, 1990). The Late Horizon and later patterns of Early Colonial occupation are similar to that of other Inca

towns in the Titicaca Basin. The site represents a major Inca resettlement of local populations in the valley and is strong evidence that the pre-Inca economic and political relationships between the Titicaca Basin Colla and the Moquegua populations were substantially altered by the Inca state.

There is also good evidence of reorganization of local populations in the Titicaca Basin by the Inca. Data from the southwestern lake region in the Lupaqa area were collected in a survey of approximately 360 km^2 (Stanish *et al.*, 1997). The transition from the Late Intermediate period (known locally as the Altiplano period) to the Inca period is marked by substantial changes in the local political economy. The highest rate of site abandonment occured in the transition between the Altiplano and Inca periods. Likewise, there was a significant change in site size distributions during the Inca occupation. Although the emphasis on small hamlets of the Altiplano period continued, the Inca built huge administrative settlements along the roads. In fact, a substantial percentage of the population lived within 500 m of the road in the Juli-Pomata area. Presumably, much of the population of these centers were imported colonists such as those mentioned in the ethnohistoric documents (e.g., Diez de San Miguel, 1964[1567]; Espinoza Soriano, 1982). In addition, there was an intensification of settlement and land use in the pasture lands and agricultural terrace zones, and a virtual abandonment of the labor-intensive raised field areas (Stanish, 1994). Frye (1997, p. 137) has suggested that the pre-Inca–Lupaqa did not, in fact, have a state-level political organization. His work, also based on a regional data set, indicates that the Lupaqa *señoríos* of the Late Horizon and Early Colonial period were creations of the Inca state. In this case, we can argue for a kind of secondary state formation with the advent of the Inca conquest of the region. The archaeological data support a model of substantial reorganization of this Inca province by state authorities, perhaps even creating the state organization evident in the sixteenth-century documents.

The Island of the Sun in Lake Titicaca was one of the most important shrines in the Andes at the time of the European conquest. Analysis of settlement and excavation data from the island permits us to assess the nature of Inca control of this sacred area. We know from historical documents that the Island of the Sun was profoundly important in Inca religion and statecraft in its southern quarter of Collasuyu. A modest sandstone rock on the Island of the Sun, known as the Titikala, was believed to be the birthplace of the sun and the moon and the birthplace of the first Inca royal couple. Given the political significance of this sacred place, a basic question is whether the Inca created a new shrine or co-opted an existing sacred area and converted it into a pan-Andean pilgrimage site.

A full-coverage survey of the entire island documented almost 80 Inca sites, both domestic habitation and nonhabitation settlements (Bauer and Stanish, 2001; Stanish and Bauer, n.d.). This settlement system included small habitation sites, large sites, and those with standing architecture that may not have been strictly domestic. Most of the habitation sites were small, nondescript scatters of Inca

pottery on domestic terraces associated with good agricultural land. The typical site was less than 1 ha in size. The nonhabitation sites included ritual centers, way stations or tambos, ports, and tombs.

The survey also discovered a significant pre-Inca occupation as well. The data suggest that an earlier Tiwanaku (A.D. 600–1000) occupation also utilized the Titikala area as a shrine of some importance (Seddon, 1998). The Late Intermediate period (A.D. 1100–1450) occupation was much reduced and was not focused on the Titikala area. The conclusion from this work is that the Inca co-opted an existing sacred area that had great ideological and political resonance for the Titicaca Basin populations.

During the time of the Inca occupation, the political and ideological importance of the islands grew to unprecedented levels. This is reflected in the Inca settlement pattern data. During the Inca period there was a substantial increase in the settlement density of the island. As described in the early Spanish documents, the Inca relocated existing communities on the Island of the Sun to the mainland and imported colonists from throughout the empire to maintain the shrines on the island. As with the earlier Tiwanaku period, many of the most impressive Inca sites are located in the shrine area. The Inca greatly expanded the sanctuary area, building a number of state installations within this remote and agriculturally poor area of the island. Similarly, a large ritual complex was built on the nearby Island of the Moon during this time. In short, the archaeological evidence unambiguously supports the historical documents: the Inca controlled the sacred islands of Lake Titicaca and built a massive pilgrimage complex there (Bauer and Stanish, 2001). The Inca not only reorganized the political and economic life of the southern lake area, but usurped much of the ideological legitimacy that the sacred area provided to elites in Collasuyu.

In the Tiwanaku Valley on the south side of the Titicaca Basin, the survey research by Albarracin-Jordan and Mathews (1990, p. 193) indicates that there were important changes coincident with Inca control. They suggest that the Inca occupation did *not* entail profound changes in the local political economy or settlement patterns. They argue for a more indirect control of the region by the Inca state. However, one can interpret these data differently when compared with other settlement patterns from the region. I suggest that their settlement data (Albarracin-Jordan and Mathews, 1990, pp. 215–242) indicate some significant changes in the Late Intermediate/Inca period transition. More than 50% of the Late Intermediate period sites were abandoned at the time of the Inca occupation. Furthermore, the total number of sites in the Late Horizon (492) decreased by almost half from the Late Intermediate levels (948 sites), but later in the Colonial period rebounded to pre-Inca levels (836 sites). Likewise, site distribution by ecological zone shifted in the Inca period, but returned to pre-Inca patterns during the Early Colonial period, at least in the Middle Tiwanaku Valley (Mathews, 1992, p. 14). These data indicate that there were major changes coincident with the Inca occupation,

including a major aggregation of settlement under Inca occupation that disrupted pre-Inca settlement patterns. The collapse of Inca control in the Early Colonial period permitted the population to revert back to pre-Inca patterns prior to the Spanish resettlements.

Research from the Lake Titicaca Basin indicates that the Inca reorganized local political and economic life as part of the imperial process of territorial incorporation. These conclusions are supported by the work of Julien (1983) at the major Inca administrative center of Hatuncolla, located in the northwestern Titicaca Basin. The site is mentioned frequently as the capital of the pre-Inca Colla polity. However, excavations at the site by Julien indicates that the first occupation was during the Inca period (Julien, 1983). This pattern seems to hold for most of the large Titicaca Basin towns. Almost all of the major Early Spanish Colonial towns listed in sixteenth-century documents that were sampled had large Inca components but no pre-Inca ones (Stanish, 1997). In short, virtually all of the major towns were originally founded by the Inca along the road system.

Assessed in its totality, and largely accepting the interpretations of the principal investigators of each of these studies, several patterns emerge. First, the Cuzco area is unique in terms of the changes brought about by the emergence of the empire. Here, the Inca state was an indigenous development. The political and economic organization of empire was built upon the patterns first developed by generations of earlier polities.

The highland areas that experienced the most profound changes as a result of Inca conquest include the Mantaro area to the north of Cuzco, the Río Pampas Valley near Ayacucho, the upper Moquegua Valley, and the Titicaca Basin regions to the south. Each of these regions lies in the territory conquered early in the process of Inca expansion (Rostworowski de Diez Canseco, 1988, p. 19; Rowe, 1946, p. 205)[2]. In contrast, the Junín area and the Carhuarazo Valley were also in the area conquered early on but they were not as intensively reorganized. Instead of any uniform pattern emerging from the highlands, the archaeological evidence for Inca control varies widely, even in the territories held the longest by the Inca state.

The Inca Occupation of the Coast

Inca control of the coast was variable as well. There are a number of very impressive Inca sites in the Pacific coastal valleys, such as La Centinela in Chincha (Morris, 1998; Santillana, 1984), Tambo Colorado in Pisco, Cerro Azul in Cañete (Marcus *et al.*, 1983–1985), the military garrison of Inkawasi in Cañete (Hyslop,

[2]Insofar as the upper Moquegua Valley was culturally and politically linked to the Colla in the late Late Intermediate period (Stanish, 1992), it was probably part of Collasuyu and conquered early. Garcilaso says that it was the very early emperor Mayta Capac who conquered Moquegua (Garcilaso de la Vega, 1966, p. 144). In Rostworowski's map (Rostworowski de Diez Canseco, 1988, p. 19) and reconstruction of Inca imperial expansion, Moquegua was conquered in the first stage of expansion.

1985), Paredones in Nazca, and many others (see Hyslop, 1990, for a comprehensive list of Inca coastal sites). Pachacamac, with a very long history of occupation prior to the Inca, has impressive Inca buildings (Franco Jordan, 1996). In some cases, such as the site of Chiquitoy Viejo in the Chicama Valley, the architecture is clearly in a local style and may have been the residence of an indigenous elite incorporated into the Inca administration (Conrad, 1977; Hyslop, 1990, p. 250). In other cases, the architecture is unmistakably Inca in style, though built with local techniques (Gasparini and Margolies, 1980, p. 178).

Yet coastal archaeologists have by and large argued that Inca influence is not as strongly evident in the archaeological record as it is in the highlands. Menzel pointed out as early as 1959 that the big administrative centers on the south coast were easy to recognize, but that "Most other Late Horizon habitation sites . . . show little or no evidence of Inca influence" (Menzel, 1959, p. 127). Earle (1992, p. 330) noted that the coast has been extensively surveyed, but Inca storage structures are much rarer there than in the highlands. Discussing the Inca conquest of the Chimú, Schreiber (1992, p. 61) notes that the archaeological evidence is minimal: "It is possible that, if we were to rely purely on archaeological evidence, we might be tempted to suggest that the Inka never conquered the north coast . . . "

Silva Sifuentes' work in the central coastal valley of Chillón is typical of many modern coastal surveys in terms of the Inca occupation (Silva Sifuentes, 1992). A few vestiges of the Inca occupation were discovered in the area, including roads, pottery fragments, and some probable administrative sites at the mouth of the river and one at Cerro Zapán, a hill about 50 km up the valley from the sea (Silva Sifuentes, 1992, p. 398). In summing up the Late Horizon data, Silva Sifuentes echoes the paradox that many coastal archaeologists face in studying the Inca occupation of the central and north coasts:

> The sociopolitical configuration of the Chillón Valley was transformed with its incorporation into the Inca Empire. Archaeologically, such a modification is not clearly visible. That is, our survey provides data only on one probable administrative construction in the chaupiyunga [midvalley] apart from Tambo Inga and Puente Inga in the lower Chillón [Valley]. Furthermore, Inca pottery is scarce and local [pottery] predominates. If we did not know from the ethnohistoric documents that the Inca were very interested in the coca fields of Quivi, their presence in the valley would be underestimated based only on the archaeological evidence . . .
>
> (Silva Sifuentes, 1992, p. 400)

In the far southern coast of Peru in the Osmore (Moquegua) drainage, Owen (1993) discovered very little Inca material in an intensive survey of the valley (Inca pottery is found in limited quantities near the port town of Ilo). Curiously, Owen did not find earlier Tiwanaku colonies either. Rather, he found a vigorous coastal tradition in the Middle Horizon and Late Intermediate periods. Both the Tiwanaku and Inca states, two highland polities, apparently did not establish colonies in this immediate coastal area.

A regional project by Covey (2000) in the Locumba Valley just south of Ilo provides a different perspective for the far south coast of Peru. Although Inca sites were indeed rare on the littoral itself, Covey found a significant Inca colony a few kilometers from the coast at the site of Pueblo Tacahuay (Covey, 2000, pp. 131, 132). This 5-ha site had clear altiplano affiliations, suggesting an Inca strategy of colonization by Titicaca Basin populations. Covey's and Owens' research suggests that at least in the far south coast of Peru, the Inca state avoided direct control of the littoral itself and focused on the higher piedmont areas. Imperial strategy in this region sought to integrate colonists with existing political entities to form a more complex production and exchange relationship. As Covey argues "Inka direct rule formalized the movement of goods and intensified intermediate production, but it seems to have allowed some local elites to remain players in the exchange of . . . goods" (Covey, 2000, p. 133).

Wilson (1988) surveyed the Santa Valley. He views the Inca as a militaristic state that conquered the Chimú-dominated areas of the north Peruvian coast. However, based on the archaeological data that were augmented by some historical information, Wilson concluded that "the effect of the Inca incursion on many of the valleys encompassed within the former core area of the Chimú state appears to have been very minor."

In the case of the Chincha Valley, the evidence for Inca reorganization is stronger (Marcus, 1987a,b; Marcus *et al.*, 1983–1985; Morris, 1998; Sandweiss, 1992). Intensive excavations at a major Late Horizon site in Chincha suggest a greater reorganization of specialized fishing production and Pacific coast trade by the Inca. Sandweiss conducted an analysis of documentary evidence and detailed analysis of recovered archaeological middens from a major Late Horizon site. His interpretations differ from the earlier historical work of Rostworowski who saw minimal Inca impact (Rostworowski de Diez Canseco, 1970). He concluded that the evidence indicated a "significant reorganization of the local Chincha economy by the Inka" (Sandweiss, 1992, p. 1).

However, he also notes that, in general, the principles of political and economic organization during the Late Horizon were established by earlier polities. He simultaneously argues that the Inca "modified, but did not originate the kind of economic organization that the ethnohistoric record described for the Peruvian coast during the Late Horizon" (Sandweiss, 1992, p. 1). Sandweiss argues that the incorporation of the Chincha occurred through a treaty and not through military conquest. Echoing Menzel (1959), his data and interpretations indicate an incorporation process whereby already complex societies with intensive maritime economies intensified production and existing sociopolitical hierarchies under Inca rule. There is little doubt from documentary sources that the Inca incorporated the Chincha coastal societies into a tribute-producing population and reorganized local political and economic systems. They furthermore may have realigned administrative trade relationships along the coast (Sandweiss, 1992, p. 10). However,

according to this reconstruction, the Inca imperial strategies left indigenous political and economic structures relatively intact and operated by a kind of indirect control.

In northern Chile, Lynch (1993) has identified an Inca road, tambos, and an administrative site complex (also see Hyslop, 1984, 1990). Lynch noted the near absence of Inca pottery in the main Inca administrative site of Catarpe (Lynch, 1993, p. 133) (although identifiable Late Horizon sherds were found in other sites). The work of the "Inca Road Team" identified many sites in this distant province of the Inca state. This work indicates that even in this far southern province, a recognizable and distinctive Inca presence could be detected. Similar archaeological evidence for the Inca occupation is reported in Chile by several scholars (Calderari, 1991; Focacci, 1981; Piazza, 1981; Santoro *et al.*, 1987; Santoro and Muñoz Ovalle, 1981). As with many other areas on the coast, the evidence was sparse but convincing that the region was controlled by the Inca empire to some significant degree.

This review of the Inca occupation on the Pacific coast suggests that the level and intensity of Inca control varied widely. It also highlights the paradox that we know from documents and eyewitness accounts that the Inca controlled a good portion of the central and northern coast, yet the archaeological evidence is scarce in many cases. This paradox therefore begs the question of whether the pattern is real or is a result of differential preservation, different research traditions, or other factors.

DISCUSSION

There is no question that the Andean coastal environment is profoundly different from the highlands and that this difference affects economic potential, political integration, and intergroup communication. On this, few scholars disagree. What is debated, however, is the degree to which this geographical difference has affected cultural developments through space and time. Rostworowski de Diez Canseco (1977, 1988) argues that the coastal areas of Peru in prehispanic times essentially constituted a "separate economic universe," in the words of Pease (1982, p. 174). Schreiber (1992, p. 45) likewise argues that "The Andean highlands are qualitatively different from the coast in terms of both environment and cultural developments." Marcus notes that scholars have inferred two "ideal" economic strategies: economic self-sufficiency in the highlands and economic specialization on the coast (Marcus, 1987a, p. 393). As Rostworowski describes it, the coast being ". . . totally different [from the sierra] in its geography, was equally distinct in its economy" (Rostworowski de Diez Canseco, 1977, p. 17).

Geography plays a prominent role in this coastal–highland distinction. The highland environment is characterized by an ecological zonation by altitude and, with some exceptions, is characterized by a dispersal of natural resources. The

coast, in contrast, is characterized by high resource concentration along the rivers and at the littoral where the rivers discharge into the ocean. In broadest terms, it has been argued that the highland geography encourages "archipelago" settlement patterns; communities maintain economic self-sufficiency by establishing colonies in complementary ecological zones (Murra, 1968, 1975). In contrast, the coastal geography promotes nucleated settlements that encourage craft specialization and exchange by autonomous or semiautonomous polities. This dichotomy is expressed by Rostworowski in the introduction to *Etnía y Sociedad*:

> The existence of these two modes of organization so distinct, the coastal and the highland, suggest the fact that in the precolumbian Andean area there were two socio-economic systems due in part to these ecological differences. In the coast, the division of labor by specialization and by kinship (parcialidad) gave rise to a principle of commercial exchange, while in the sierra a redistributive agrarian economy was based upon the exploitation of vertical, multiethnic enclaves.
>
> (Rostworowski de Diez Canseco, 1977, p. 19)

This contrast between the coast and highlands is implicit in any number of comparative studies in the Andes and has a long tradition within Peruvian archaeology. This distinction is utilized by D'Altroy in the concluding chapter of his book, *Provincial Power in the Inka Empire*. He hypothesized that the Inca utilized "a territorial approach throughout the Andean highlands from Bolivia to southern Ecuador and perhaps on the central Peruvian coast . . . " (D'Altroy, 1992, p. 217). For the peripheral areas of northern Ecuador, northwest Argentina, Chile, and the Peruvian north coast, D'Altroy sees evidence for indirect control (also see Moseley, 1992; Patterson, 1991).

The implication of this argument is that the difference in Inca imperial strategies could be understood not just by existing political complexity, as suggested by Menzel, but also by the underlying economic organization and broad geographical characteristics of the conquered provinces prior to expansion. From this perspective, the coastal economies fostered indirect control mechanisms by the Inca state. The Inca took advantage of the existing political complexity, intensive coastal trade, easier travel up and down the coast, specialized labor organizations, and so forth. The highlands, in contrast, with a less specialized labor organization and less intensive exchange between autonomous polities, fostered direct control methods.

In an earlier article, I suggested that the lack of price-fixing markets in the Andes promoted more direct, labor-intensive strategies of Inca control in the highlands (Stanish, 1997). The Inca case contrasts with the central Basin of Mexico where price-fixing market mechanisms existed before and during Aztec expansion. In the case of the Aztec, the existence of autonomous traders and large market exchange promoted less intrusive imperial strategies. The Aztec state relied more on tribute-in-kind strategies that left local political economies relatively intact. From this perspective, the Peruvian coast may be considered a case in which market exchange did not exist, but where complex labor specialization and large-scale administered trade existed between autonomous polities. The underlying political

economy, and not just the prior level of political centralization, may be a major variable in the nature of Inca expansion. In short, given the marked contrast of the coast with the highlands, both culturally and ecologically, there appears to be both theoretical and empirical justification for using this dichotomy to explain Inca policies. From this perspective, the Inca control of the coast *was* less intense and direct than in the highlands.

Is the difference between the Inca occupation of the coast and highlands real, however? Hayashida offers us a cautionary note "The apparent lack of Inka remains and the practice of indirect rule through an established local elite indicate that imperial control and reorganization were minimal . . . However, a small but growing body of archaeological evidence suggests that state control has been underestimated" (Hayashida, 1999, p. 340). We have to ask ourselves if the different research traditions between the coast and highlands have altered our interpretations of the data. In short, do archaeologists working in the coast and highlands looking at the same kinds of data interpret those data in very different ways?

In fact, the data for Inca reorganization for many areas of the coast are actually similar to that of the highlands. The cases of highland Huamachuco and coastal Chillón, both discussed above, are cases in point. In both areas, there is little Inca pottery. The investigators from both areas note that without documentary evidence it would be difficult to define the Inca occupation. Both regions have Inca administrative centers. The Inca occupation in these regions did not include the redistribution or use of Inca style pottery at the domestic household level. In short, administrative sites were constructed, some land was probably appropriated, and taxes were paid with corvée labor. In the case of Huamachuco, there were some settlement shifts coincident with Inca occupation, and some storehouses were built in the area. However, the archaeological indications in each case area are fairly similar, particularly if one controls for the much greater postoccupational disturbances in the Chillón area that may have destroyed storehouse walls. Furthermore, the interpretations of each area differ. Topic and Topic (1993) argue that the Inca control of the Huamachuco area was direct, whereas Silva Sifuentes (1992) argues that the Inca ruled the Chillón through indirect control mechanisms. In Huamachuco, settlement pattern shifts are evident, whereas in Chillón the lack of full-coverage survey data make it difficult to assess the impact of Inca occupation.

As mentioned above, Earle noted that Inca storage structures are rare on the coast. Although it is true that they are not as abundant as in the highlands, they do in fact exist. Snead's review of published data in the Andes describes several other coastal Inca sites with storage structures, including Inkawasi, Copiapo, Tambo Viejo, Quebrada de la Vaca, Paredones, and Tambo Colorado (Snead, 1992). Certainly, the massive administrative-storage structure complexes such as those found at Huánuco Pampa and Hatun Xauxa do not exist on the coast (Morris, 1982, 1992, 1998; Snead, 1992, pp. 68, 69). However, Inca administrative centers were indeed established on the coast. Accounting for differential preservation, the use

of local styles in Inca constructions on the coast, and the intensity of Inca research in each of the areas, we can suggest that the differential occurrence of state storage installations, while still quantitatively less, may not be qualitatively distinct. It is worth noting that in the western Titicaca Basin, very few Inca storehouses survive, even though dozens of tambos are known to have existed in the area (see Albarracin-Jordan and Mathews, 1990; Hyslop, 1976; Stanish *et al.*, 1997).

At present, we can say that the examples of the most radical reworking of local populations only occurred in the highlands—Mantaro, Río Pampas, the sierra of Moquegua, and the Titicaca Basin. Likewise, the largest administrative centers—Hatun Xauxa, Huánuco Pampa, Hatuncolla, Pumpu—are found in the highlands. Certainly, there is little evidence from the coast for the removal of large numbers of people. At the same time, there are numerous cases in the highlands where control was far less direct and intrusive at the local level. Similarly, we know that colonists from the north coast of Peru, described as Chinchasuyos in a sixteenth-century document, were placed in the Titicaca Basin by the Inca (Diez de San Miguel, 1964[1567]; Espinoza Soriano, 1982; Stanish, 1997). While coastal administrative centers appear to be smaller than their counterparts in the highlands, important Inca centers were indeed established, roads were enhanced (Hyslop, 1984), garrisons built, pottery-production sites established (Donnan, 1997; Hayashida, 1999), agricultural systems altered, and tambos constructed (Snead, 1992).

The Inca "mosaic of control," as Schreiber (1992, p. 53) refers to it, included strategies that varied markedly from valley to valley and region to region. The difference in Inca control between the central highlands and the coast may not be as great as we previously believed. This may be particularly true about the north central coast where Inca control seems strong (Idilio Santillán, personal communication, 2000). Critically assessing the nature of that control in both the highlands and coast by reexamining our methodological assumptions stands as one of the great challenges for Andean settlement archaeology in the future.

The last generation of research has taught us much about Inca imperial strategies. It is now widely accepted that the Inca empire and its expansionist policies were heterogeneous and varied. Future research, relying on both large-site and regional methodologies, will help us develop more nuanced models of Inca state control region by region throughout the Andes. These data will, in turn, be essential for comparative theoretical purposes. Large-scale regional research designs will be the most effective strategy to define the nature of the Inca state in all of its rich and varied manifestations throughout its huge empire.

ACKNOWLEDGMENTS

This paper benefited from the help of a number of people, including Gary Feinman, Brian Bauer, William Sapp, Joyce Marcus, Christopher Attarian, Elizabeth Arkush, and several anonymous reviewers. I particularly thank Joyce

Marcus and Helaine Silverman for their extensive comments on this paper. The help of all is greatly appreciated. Errors remain the responsibility of the author.

REFERENCES CITED

Albarracin-Jordan, J., and Mathews, J. E. (1990). *Asentamientos prehispanicos del valle de Tiwanaku, Vol. 1*, Producciones CIMA, La Paz.

Ammerman, A. J. (1981). Surveys and archaeological research. *Annual Review of Anthropology* **10**: 63–88.

Arze, J. A. (1941). *Fué socialista o comunista el imperio Incaico*? Revista del Instituto de Sociología Boliviana, #1, Sucre.

Baudin, L. (1928). *L'Empire socialiste des Inka*, Institut d'ethnologie, Paris.

Bauer, B. (1992). *The Development of the Inca State*, University of Texas Press, Austin.

Bauer, B., and Stanish, C. (2001). *Power and Pilgrimage in the Inca State: The Lake Titicaca Basin Sanctuary on the Islands of the Sun and Moon*, University of Texas Press, Austin.

Billman, B. (1999). Settlement pattern research in the Americas. Past, present, and future. In Billman, B., and Feinman, G. (eds.), *Settlement Pattern Studies in the Americas. Fifty Years Since Virú*, Smithsonian Institution Press, Washington, DC, pp. 1–5.

Bray, T. (1990). *The Effects of Inca Imperialism on the Northern Frontier*, Ph.D. Dissertation, Department of Anthropology, State University of New York, Binghamton.

Calderari, M. (1991). Estilos cerámicos incaicos de La Paya. In *Actas del XX congreso nacional de arqueología chilena*, Tomo II, Museo Nacional de Historia Natural, Sociedad Chilena de Arqueología, pp. 151–164.

Cieza de León, P. (1959). *The Incas of Pedro de Cieza de León* (ed., von Hagen, V. W.), University of Oklahoma Press, Norman.

Cieza de León, P. (1967[1533]). *El Señorío de los Incas: segunda parte de la cronica del Perú* (ed., Aranibar, C.), Instituto de estudios Peruanos, Lima.

Cobo, B. (1979[1653]). *History of the Inca Empire* (trans., Hamilton, R.), University of Texas Press, Austin.

Cobo, B. (1990[1653]). *Inca Religion and Customs*, University of Texas Press, Austin.

Conrad, G. W. (1977). Chiquitoy Viejo: An Inca administrative center in the Chicama Valley, Peru. *Journal of Field Archaeology* **4**: 1–18.

Costin, C. L., and Earle, T. (1989). Status distinction and legitimation of power as reflected in changing patterns of consumption in Late Prehispanic Peru. *American Antiquity* **54**(4): 691–714.

Covey, R. A. (2000). Inka administration of the far south coast of Peru. *Latin American Antiquity* **11**(2): 119–138.

D'Altroy, T. (1987). Transitions in power: Centralization of Wanka political organization under Inka rule. *Ethnohistory* **34**(1): 78–102.

D'Altroy, T. (1992). *Provincial Power in the Inka Empire*, Smithsonian Institution Press, Washington, DC.

Diez de San Miguel, G. (1964 [1567]). *Visita hecha a la Provincia de Chucuito*, Ediciones de la Casa de la Cultura de Perú, Lima.

Donnan, C. (1997). A Chimu-Inka ceramic-manufacturing center from the north coast of Peru. *Latin American Antiquity* **8**(1): 30–54.

Earle, T. (1992). Storage and the Inka imperial economy: Archaeological research. In LeVine, T. Y. (ed.), *Inka Storage Systems*, University of Oklahoma Press, Norman, pp. 327–342.

Eisenstadt, S. N. (1963). *The Political Systems of Empires*, Free Press of Glencoe, New York.

Espinoza Soriano, W. (1982). Los Chambillas y mitmas Incas y Chinchaysuyos en territorio Lupaca siglos XV–XX. *Revista del Museo Nacional* **46**: 419–506.

Fish, S., and Kowalewski, S. (1990). Introduction. In Fish, S., and Kowalewski, S. (eds.), *The Archaeology of Regions*, Smithsonian Institution Press, Washington, DC, pp. 1–5.

Foccaci, G. (1981). Descripción de un cementerio Incaico en el Valle de Azapa. *Chungará* **7**: 212–216.

Franco Jordan, R. G. (1996). *El templo de sol de Pachacamac*, DPI, Lima.
Frye, K. (1997). Political centralization in the Altiplano period in the southwestern Titicaca Basin. In Stanish, C., de la Vega, E., Steadman, L., Chávez, J. C., Frye, K., Onofre, L., Seddon, M., and Chuquimia, P. C. (eds.), *Archaeological Survey in the Juli-Desaguadero Region of Lake Titicaca Basin, Southern Peru*, Field Museum of Natural History, Chicago, pp. 129–141. Fieldiana Anthropology, New Series.
Garcilaso de la Vega. (1966). *The Royal Commentaries of the Inca*, Discus Books, New York.
Gasparini, G., and Margolies, L. (1980). *Inca Architecture* (trans., Lyon, P. J.), Indiana University Press, Bloomington.
Guaman Poma de Ayala, F. (1980[1614]). *El primer nueva corónica y buen gobierno* (eds., Murra, J., and Adorno, R. (3 vols.), Siglo Veintiuno, Mexico City.
Hassig, R. (1985). *Trade, Tribute, and Transportation: The Sixteenth-Century Political Economy of the Valley of Mexico*, University of Oklahoma Press, Norman.
Hastorf, C. (1990). The effect on the Inka state on Sausa agricultural production and crop consumption. *American Antiquity* **55**(2): 282–290.
Hayashida, F. (1999). Style, technology and state production: Inka pottery manufacture in the Leche Valley. *Latin American Antiquity* **10**(4): 337–352.
Hocquenghem, A.-M. (1990). Cambios en el sistema de produccion de la sierra Piurana siglos XV y XVI. *Bulletin de Institut Francais d'Etudes Andines* **19**(1): 87–101.
Hyslop, J. (1976). *An Archaeological Investigation of the Lupaqa Kingdom and its Origins*, Ph.D. Dissertation, Department of Anthropology, Columbia University, New York.
Hyslop, J. (1984). *The Inka Road System*, Academic Press, New York.
Hyslop, J., Jr. (1985). *Inkawasi*: *The New Cusco, Cañete, Lunahuaná, Peru*, British Archaeological Reports, Oxford. BAR International Series No. 234.
Hyslop, J. (1990). *Inca Settlement Planning*, University of Texas Press, Austin.
Julien, C. (1983). *Hatunqolla*: *A View of Inca Rule from the Lake Titicaca Region*, University of California Press, Berkeley. Series Publications in Anthropology vol. 15.
Julien, C. (1993). Finding a fit: Archaeology and ethnohistory of the Incas. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 177–233.
Julien, C. (1995). Review of Inka storage systems. *Latin American Antiquity* **6**(4): 370.
Luttwak, E. (1976). *The Grand Strategy of the Roman Empire*, Johns Hopkins University Press, Baltimore.
Lynch, T. F. (1993). The identification of posts and roads from Catarpe to Río Frío, Chile. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 117–142.
Malpass, M. A. (ed.) (1993). *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, University of Iowa Press, Iowa City.
Marcus, J. (1987a). Prehistoric fishermen in the kingdom of Huarco. *American Scientist* **75**: 393–401.
Marcus, J. (1987b). Late intermediate occupation at Cerro Azul, Perú, Technical Report 20, Museum of Anthropology, University of Michigan, Ann Arbor.
Marcus, J., Matos, M. R., and Rostworowski de Diez Canseco, M. (1983–1985). Arquitectura Inca de Cerro Azul, Valle de Cañete. *Revista del Museo Nacional* **47**: 125–138.
Mathews, J. E. (1992). *Prehispanic Settlement and Agriculture in the Middle Tiwanaku Valley, Bolivia*, Ph.D. Dissertation, Department of Anthropology, University of Chicago, Chicago.
Matos, M. R. (1994). *Pumpu: centro administrativo Inka de la puna de Junín*, Editorial Horizonte-Fondo editorial del Banco Central de Reserva del Perú, Lima.
Matos, M. R. (1997). Incas y etnías regionales en Junín. Una visión arqueológica. In Varón Gabai, R., and Flores Espinoza, J. (eds.), *Arqueología, antropología e historia en los Andes, homenaje a María Rostworowski*, Instituto de estudios Peruanos, Lima, pp. 397–413.
Menzel, D. (1959). The Inca occupation of the south coast of Peru. *Southwestern Journal of Anthropology* **15**(2): 125–142.
Morris, C. (1972). State settlements in Tawantinsuyu: A strategy of compulsory urbanism. In Leone, M. (ed.), *Contemporary Archeology: A Guide to Theory and Contributions*, Southern Illinois University Press, Carbondale, pp. 393–401.

Morris, C. (1982). The infrastructure of Inka control in Peruvian central highlands. In Collier, G. A., Rosaldo, R. I., and Wirth, J. (eds.), *The Inca and Aztec States, 1400–1800*, Academic Press, New York, pp. 153–171.
Morris, C. (1988). Progress and prospect in the archaeology of the Inca. In Keatinge, R. (ed.), *Peruvian Prehistory*, Cambridge University Press, Cambridge, pp. 233–256.
Morris, C. (1992). Huánuco Pampa and Tunsukancha. Major and minor nodes in the Inka storage network. In LeVine, T. (ed.), *Inka Storage Systems*, University of Oklahoma Press, Norman, pp. 151–175.
Morris, C. (1995). Symbols to power: Styles and media in the Inka state. In Carr, C., and Neitzel, J. (eds.), *Style, Society, and Person*, Plenum, New York, pp. 419–433.
Morris, C. (1998). Inka strategies of incorporation and governance. In Feinman, G., and Marcus, J. (eds.), *Archaic States*, School of American Research Press, Santa Fe, pp. 293–309.
Moseley, M. (1992). *The Inca and Their Ancestors*, Thames and Hudson, London.
Murra, J. V. (1968). An Aymara kingdom in 1567. *Ethnohistory* **15**(2): 115–151.
Murra, J. V. (1975). El 'control vertical' de un máximo de pisos ecológicos en la economía de las sociedades andinas. In Murra, J. V. (ed.), *Formaciones económicas y políticas del mundo andino*, Instituto de Estudios Peruanos, Lima, pp. 59–115.
Murra, J. V. (1980 [1955]). *The Economic Organization of the Inka State*, JAI Press, Greenwich, Connecticut.
Niles, S. (1987). *Callachaca. Style and Status in an Inca Community*, University of Iowa Press, Iowa City.
Niles, S. (1993). The provinces in the heartland: Stylistic variation and architectural innovation near Inca Cuzco. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 145–176.
Owen, B. (1993). *A Model of Multiethnicity: State Collapse, Competition, and Social Complexity from Tiwanaku to Chiribaya in the Osmore Valley, Perú*, Ph.D. Dissertation, Department of Anthropology, University of California, Los Angeles.
Parsons, J. R. (1972). Archaeological settlement patterns. *Annual Review of Anthropology* **1**: 127–150.
Patterson, T. C. (1991). *The Inca Empire, the Formation and Disintegration of a Pre-Capitalist State*, Berg, Oxford.
Pease G. Y. F. (1982). Relaciónes entre los grupos etnicos de la sierra sur y la costa: Continuidades y cambios. In Millones, L., and Tomoeda, H. (eds.), *El hombre y su ambiente en los Andes centrales* (Senri Ethnological Series 10), Osaka, pp. 107–122.
Pease, G. Y. F. (1991). *Los incas*, Pontificia Universidad Católica del Perú, Lima.
Piazza K. F. (1981). Análisis descriptivo de una aldea incaica en el sector de Pampa Alto Ramirez. *Chungará* **7**: 122–210.
Plog, S., Plog, F., and Wait, W. (1978). Decision making in modern surveys. *Advances in Archaeological Method and Theory* **1**: 383–421.
Redman, C. L. (1982). Archaeological survey and the study of Mesopotamian urban systems. *Journal of Field Archaeology* **9**: 375–382.
Rivero y Ustariz, M. E. de, and von Tschudi, J. J. (1855). *Peruvian Antiquities*, Putnam, New York.
Romero, E. (1928). *Monografía del Departamento de Puno*, Imprenta Torres Aguirre, Lima.
Rostworowski de Diez Canseco, M. (1970). Mercaderes del valle de Chincha en la época prehispánica: un documento y unos comentarios. *Revista Española de Antropología Americana* **5**: 135–177.
Rostworowski de Diez Canseco, M. (1977). *Etnia y sociedad. Costa peruana prehispánica*, Instituto de estudios Peruanos, Lima.
Rostworowski de Diez Canseco, M. (1988). *Historia del Tahuantinsuyu*, Instituto de estudios Peruanos, Lima.
Rostworowski de Diez Canseco, M. (1989). *Ordenanzas para el servicio de los tambos de repartimiento de Huamachuco hecho por el licenciado González de Cuenca*, Revista Historica 36, Lima. Biblioteca Nacional, Madrid Ms. 3035. Ordenanzas de la Hacienda Real en Indias, ff. 340–343.
Rowe, J. H. (1944). An introduction to the archaeology of Cuzco, Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 27, No. 2, Harvard University, Cambridge.
Rowe, J. H. (1946). Inca culture at the time of the Spanish conquest. In Stewart, J. H. (ed.), *Handbook of South American Indians, Vol. 2: The Andean Civilizations*, Smithsonian Institution Press, Washington DC, pp. 183–330. Bureau of American Ethnology, Bulletin 143.

Sanders, W. (1999). Twenty-five years of settlement archaeology in Mesoamerica. In Billman, B., and Feinman, G. (eds.), *Settlement Pattern Studies in the Americas: Fifty Years Since Virú*, Smithsonian Institution Press, Washington, DC, pp. 12–21.
Sandweiss, D. H. (1992). *The Archaeology of Chincha Fishermen: Specialization and Status in Inka Peru*, Carnegie Institute, Pittsburgh, Bulletin of the Carnegie Museum of Natural History, No. 29.
Santillana, J. I. (1984). La Centinela: Un asentamiento Inka-Chincha. Rasgos arquitectónicos estatales y locales. *Arqueología y Sociedad* **10**: 13–32.
Santoro, C., Hidalgo, J., and Osorio, A. (1987). El Estado inca y los grupos étnicos en el sistema de riego de Socorama. *Chungara* **19**: 73–92.
Santoro, V. C., and Muñoz Ovalle, I. (1981). Patrón habitacional incaico en el área de Pampa Alto Ramírez (Arica, Chile). *Chungará* **7**: 144–171.
Schreiber, K. (1987). Conquest and consolidation: A comparison of the Wari and Inka occupations of a highland Peruvian valley. *American Antiquity* **52**(2): 266–284.
Schreiber, K. (1992). *Wari Imperialism in Middle Horizon Peru*, University of Michigan, Ann Arbor, Anthropological Papers of the Museum of Anthropology, No. 87.
Schreiber, K. (1993). The Inca occupation of the province of Andamarca Lucanas, Peru. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 77–116.
Seddon, M. T. (1998). *Ritual, Power, and the Development of a Complex Society: The Island of the Sun and the Tiwanaku State*. Ph.D. Dissertation, Department of Anthropology, University of Chicago, Chicago.
Silva Sifuentes, J. E. (1992). Patrones de asentamiento en el Valle del Chillon. In Bonavia, D. (ed.), *Estudios de arqueología peruana*, *Fomciencias*, Lima, pp. 393–416.
Snead, J. (1992). Imperial infrastructure and the Inka state storage system. In LeVine, T. (ed.), *Inka Storage Systems*, University of Oklahoma Press, Norman, pp. 151–175.
Squier, E. (1877). *Peru. Incidents of Travel and Exploration in the Land of the Incas*, Harper and Brothers, New York.
Stanish, C. (1992). *Ancient Andean Political Economy*, University of Texas Press, Austin.
Stanish, C. (1994). The hydraulic hypothesis revisited: A theoretical perspective on Lake Titicaca Basin raised field agriculture. *Latin American Antiquity* **5**(4): 312–332.
Stanish, C. (1997). Nonmarket imperialism in the prehispanic Americas: The Inca occupation of the Titicaca Basin. *Latin American Antiquity* **8**(3): 195–216.
Stanish, C., and Bauer, B. (n.d.). Pilgrimage and the geography of power in the Inca state. In Morris, C., Burger, R., and Matos, R. (eds.), *Variability in the Expressions of Inka Power*, Dumbarton Oaks, Washington, DC (in press).
Stanish, C., de la Vega, E., Steadman, L. H., Chávez, J. C., Frye, K. L., Onofre, L., Seddon, M., and Chuquimia, P. C. (1997). *Archaeological Survey in the Juli-Pomata Area, Lake Titicaca Basin, Peru*, Field Museum of Natural History, Chicago. Fieldiana Anthropology, New Series.
Topic, J. R., and Chiswell, C. E. (1992). Inka storage in Huamachuco. In Le Vine, T. (ed.), *Inka Storage Systems*, University of Oklahoma Press, Norman, pp. 206–233.
Topic, J. R., and Topic, T. L. (1993). A summary of the Inca occupation of Huamachuco. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 17–43.
Tschopik, M. (1946). Some notes of the archaeology of the Department of Puno, Harvard University, Cambridge. Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 27, No. 3.
Urton, G. D. (1990). *The History of a Myth: Pacariqtambo and the Origin of the Inkas*, The University of Texas Press, Austin.
Vaca de Castro, C. (1908[1543]). Ordenanzas de tambos. *Revista Histórica* **3**: 427–492.
Valcárcel Vizguerra, L. E. (1946). Cuzco archaeology. In Steward, J. (ed.), *Handbook of South American Indians, Vol. 2: The Andean Civilizations*, Smithsonian Institution Press, Washington, DC, pp. 179–182. Bureau of American Ethnology, Bulletin 143.
van Buren, M. (1996). Rethinking the vertical archipelago, ethnicity, exchange, and history in the south central Andes. *American Anthropologist* **98**(2): 338–351.
Vásquez, E. (1937). Sillustani: Una metrópoli pre-Incaika. *Revista del Museo Nacional* **6**(2): 278–290.
Vásquez, E. (1940). Itinerario arqueológico del Kollao. *Revista del Museo Nacional* **9**(1): 143–150.

Wiener, C. (1880). *Pérou et bolivie, récit de voyage*, Librairie Hachette, Paris.
Willey, G. R. (1956). Introduction. In Willey, G. (ed.), *Prehistoric Settlement Patterns in the New World*, Wenner Gren Foundation for Anthropological Research, New York, pp. 1, 2. Viking Fund Publications in Anthropology, No. 23.
Willey, G. R. (1999). The Virú Valley project and settlement archaeology. Some reminiscences and contemporary comments. In Billman, B., and Feinman, G. (eds.), *Settlement Pattern Studies in the Americas: Fifty Years Since Virú*, Smithsonian Institution Press, Washington, DC, pp. 9–11.
Wilson, D. (1988). *Prehispanic Settlement Patterns in the Lower Santa Valley, Peru: A Regional Perspective on the Origins and Development of Complex North Coast Society*, Smithsonian Institution Press, Washington, DC.

BIBLIOGRAPHY OF RECENT LITERATURE

Ardiles Nieves, P. E. (1986). Sistema de drenaje subterráneo prehispánico. *Allpanchis* **18**(27): 75–97.
Barreda, M. L. (1991). Historia y arqueología del Qosqo pre-Inka. *Revista Municipal del Qosqo* **1**(2): 20–36.
Bauer, B. (1991). Pacariqtambo and the mythical origins of the Inca. *Latin American Antiquity* **2**(1): 7–26.
Bauer, B. S., and Dearborn, D. S. P. (1995). *Astronomy and Empire in the Ancient Andes*, The University of Texas Press, Austin.
Beorchia Nigris, A. (1987). *El enigma de los santuarios indígenas de alta montañas, Vol. 5*, Centro de Investigaciones Argueológicas de Alta Montaña, Argentina.
Bertholet, J. (1986). The extraction of precious metals at the time of the Inka. In Murra, J., Wachtel, N., and Revel, J. (eds.), *Anthropological History of Andean Polities*, Cambridge University Press, Cambridge, pp. 69–88.
Bouysse-Cassagne, T. (1986). Urco and uma: Aymara concepts of space. In Murra, J., Wachtel, N., and Revel, J. (eds.), *Anthropological History of Andean Polities*, Cambridge University Press, Cambridge, pp. 201–227.
Bürgi, P. (1993). *The Inka Empire's Expansion into the Coastal Sierra Region West of Lake Titicaca*, Ph.D. Dissertation, Department of Anthropology, University of Chicago, Chicago.
Calderari, M., and Williams, V. (1991). Re-evaluación de los estilos cerámicos incaicos en el noroeste Argentino. *Revista Comechingonia* **9**: 73–95.
Carrasco, P. (1982). The political economy of the Aztec and Inca states. In Collier, G., Rosaldo, R., and Wirth, J. (eds.), *The Inca and Aztec States: 1400–1800*, Academic Press, New York, pp. 23–40.
Conrad, G. W. (1992). Inca imperialism: The great simplification and the accident of empire. In Demarest, A. A., and Conrad, G. W. (eds.), *Ideology and Precolombian Civilizations*, School of American Research Press, Santa Fe, pp. 159–174.
Cornejo, M. (1995). Arqueología de santuarios Inkas en la Guaranga de Sisicaya, Valle de Lurin. *Tawantinsuyu* **1**: 18–28.
D'Altroy, T., and Bishop, R. L. (1990). The provincial organization of Inka ceramic production. *American Antiquity* **55**(1): 120–138.
D'Altroy, T., and Earle, T. K. (1992). Staple finance, wealth finance, and storage in the Inka political economy. In LeVine, T. (ed.), *Inka Storage Systems*, University of Oklahoma Press, Norman, pp. 31–61.
D'Altroy, T. N., and Hastorf, C. A. (1984). The distribution and contents of Inca state storehouses in the Xauxa region of Peru. *American Antiquity* **49**(2): 334–349.
Dearborn, D. S. P., and Schreiber, K. J. (1989). Houses of the rising sun. In Ziólkowski, M., and Sadowski, R. M. (eds.), *Time and Calendars in the Inca Empire*, British Archaeological Reports, Oxford, pp. 49–74. BAR International Series 479.
Dearborn, D. S. P., Schreiber, K. J., and White, R. E. (1987). Intimachay, a December solstice observatory. *American Antiquity* **52**: 346–352.

Farrington, I. S. (1992). Ritual geography, settlement patterns and the characterization of the provinces of the Inka heartland. *World Archaeology* **23**(3): 368–385.
Gonzales Corrales, J. A. (1984). Arquitectura y cerámica Killke del Cusco. *Revista de Museo e Instituto Arqueológico* **23**: 37–46.
Gonzalez, A. R. (1983). Inca settlement patterns in a marginal province of the empire: Sociocultural implications. In Vogt, E. Z., and Leventhal, R. M. (eds.), *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*, University of New Mexico Press and Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, pp. 337–360.
González Carré, E. (1992). *Los señoríos chankas*, Instituto Nacional de Estudios Andinos, Lima.
Grossbell, S. (1993). . . . and he said in the time of the Ynga, they paid tribute and served the Ynga. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Asessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 44–76.
Hastorf, C., and Johannessen, S. (1993). Pre-hispanic political change and the role of maize in the central Andes of Peru. *American Anthropologist* **95**(1): 115–138.
Heffernan, K. J. (1989). *Limatambo in Late Prehistory: Landscape Archaeology and Documentary Images of Inca Presence in the Periphery of Cusco*, Ph.D. Dissertation, Department of Prehistory and Anthropology, Australian National University, Canberra.
Heyerdahl, T., Sandweiss, D. H., and Narváez, A. (1995). *Pyramids of Tucume: The Quest for Peru's Forgotten City*, Thames and Hudson, New York.
La Lone, D. E. (1982). The Inca as a nonmarket economy: Supply on command versus supply and demand. In Ericson, J., and Earle, T. K. (eds.), *Contexts for Prehistoric Exchange*, Academic Press, New York, pp. 291–316.
LeVine, T. Y. (1987). Inka labor service at the regional level: The functional reality. *Ethnohistory* **34**(1): 14–46.
Lumbreras, L. G. (1981). *Arqueología de la América andina*, Editorial Milla Batres, Lima.
Malpass, M. A. (1993). Variability in the Inca state: Embracing a wider perspective. In Malpass, M. (ed.), *Provincial Inca: Archaeological and Ethnohistorical Asessment of the Impact of the Inca State*, University of Iowa Press, Iowa City, pp. 234–244.
Marcus, J., Sommer, J. D., and Glew, C. P. (1999). Fish and mammals in the economy of an ancient Peruvian kingdom. *Proceedings of the National Academy of Sciences* **96**: 6564–6570.
Masuda, S. (ed.) (1986). *Etnografía e historia del mundo andino, continuidad y cambio*, Universidad de Tokyo, Tokyo.
Mathews, J. E. (1989). Dual systems of Inka agricultural production: Evidence from the Osmore drainage, southern Peru. In Rice, D., Stanish, C., and Scarr, P. (eds.), *Ecology, Settlement and History in the Osmore Drainage*, British Archaeological Reports, Oxford, pp. 415–434. BAR International Series 545.
Matos Mendieta, R. (1992). El camino real Inca y la carretera moderna en Chinchaycocha, Junin. In Bonavia, D. (ed.), *Estudios de arqueología Peruana*, Fomciencias, Lima, pp. 375–392.
Morris, C. (1985). From principles of ecological complementarity to the organization and administration of Tawantinsuyu. In Masuda, S., Shimada, I., and Morris, C. (eds.), *Andean Ecology and Civilization*, University of Tokyo Press, Tokyo, pp. 477–490.
Morris, C. (1988). Más allá de las fronteras de Chincha. In Dillehay, T., and Netherly, P. (eds.), *La frontera del estado Inca*, British Archaeological Reports, Oxford, pp. 131–140. BAR International Series 442.
Morris, C., and Thompson, D. (1985). *Huánuco Pampa: An Inca City and Its Hinterland*, Thames and Hudson, London.
Morris, C., and von Hagan, A. (1993). *The Inka Empire and Its Andean Origins*, Abbeville Press, New York.
Muñóz Ovalle, I. (1983). La fase Alto Ramírez en los valles del extremo norte de Chile. In *Asentamientos aldeanos en los valles costeros de Arica*, Documento de Trabajo No. 3, Universidad de Tarapaca, Arica, Chile, pp. 3–42.
Murra, J. V., Wachtel, N., and Revel, J. (eds.) (1986). *Anthropological History of Andean Polities*, Cambridge University Press, Cambridge.
Netherly, P. J. (1988). From event to process: The recovery of late Andean organizational structure by means of Spanish colonial written records. In Keatinge, R. W. (ed.), *Peruvian Prehistory*, Cambridge University Press, Cambridge, pp. 257–275.

Netherly, P. J. (1988). El reino de Chimor y el Tawantinsuyu. In Dillehay, T. D., and Netherly, P. J. (eds.), *La frontera del estado Inca*, British Archaeological Reports, Oxford, pp. 105–129. BAR International Series 442.

Pärssinen, M., and Süriäinen, A. (1997). Inka-style ceramics and their chronological relationship to the Inka expansion in the southern Lake Titicaca area (Bolivia). *Latin American Antiquity* **8**(3): 255–271.

Patterson, T. C. (1985). Pachacamac—An Andean oracle under Inca rule. In Kvietok, D. T., and Sandweiss, D. H. (eds.), *Recent Studies in Andean Studies in Prehistory and Protohistory*, Cornell Latin American Studies Program, Ithaca, pp. 159–175.

Pease, G. Y. F. (1985). Cases and variations of verticality in the southern Andes. In Masuda, S., Shimada, I., and Morris, C. (eds.), *Andean Ecology and Civilization*, University of Tokyo Press, Tokyo, pp. 141–160.

Ramírez, S. E. (1990). The Inca conquest of the north coast: A historian's view. In Moseley, M., and Cordy-Collins, A. (eds.), *The Northern Dynasties: Kingship and Statecraft in Chimor*, Dumbarton Oaks, Washington, DC, pp. 507–537.

Ravines, R. (1985). *Cajararca prehispanica. Inventario de monumentos arqueológicos*, Instituto Nacional de Cultural de Cajamarca, Cajamarca.

Reinhard, J. (1983). High altitude archaeology and Andean mountain gods. *American Alpine Journal* **25**: 54–67.

Reinhard, J. (1985). Sacred mountains: An ethno-archaeological study of high Andean ruins. *Mountain Research and Development* **5**(4): 299–317.

Reinhard, J. (1992). Investigaciones arqueológicas subacuáticas en el lago Titikaka. In Sanginés, P., Reinhard, J., Portugal, M., Pareja, E., and Ticlla, L. (eds.), *Exploraciones arqueológicas subacuáticas en el Lago Titikaka*, Editorial La Palabra Producciones, La Paz, pp. 421–530.

Rivera, S. O. (1984). La horca del Inka. *Arqueología boliviana* **1**: 91–101.

Rostworowski, M. (1988). *Conflicts over Coca Fields in XVIth-Century Perú*, University of Michigan, Museum of Anthropology, Ann Arbor. Memoirs of the Museum of Anthropology, University of Michigan, No. 21.

Rostworowski de Diez Canseco, M. (1981). *Recursos renovables naturales y pesca: siglos XVI y XVII*, Instituto de estudios Peruanos, Lima.

Russell, G. (1988). *The Impact of Inka Policy on the Domestic Economy of the Wanka, Peru: Stone Tool Production and Use*, Ph.D. Dissertation, Department of Anthropology, University of California, Los Angeles.

Schobinger, J. (1991). Sacrifices of the high Andes. *Natural History* **100**(4): 62–68.

Silverblatt, I. (1987). *Moon, Sun, and Witches: Gender Ideologies and Class in Inca and Colonial Peru*, Princeton University Press, Princeton.

Silverblatt, I. (1988). Imperial dilemmas, the politics of kinship and Inca reconstructions of history. *Comparative Studies in Society and History* **30**: 83–102.

Spalding, K. (1984). *Huarochirí. An Andean Society Under Inca and Spanish Rule*, Stanford University Press, Stanford.

Spurling, G. E. (1992). *The Organization of Craft Production in the Inka State: The Potters and Weavers of Milliraya*, Ph.D. Dissertation, Department of Anthropology, Cornell University, Ithaca.

Stanish, C. (1989). An archaeological evaluation of an ethnohistorical model in Moquegua. In Rice, D., Stanish, C., and Scarr, P. (eds.), *Ecology, Settlement, and History in the Osmore Drainage*, British Archaeological Reports, Oxford, pp. 303–320. BAR International Series 545.

Stanish, C. (2000). Negotiating rank in an imperial state: Lake Titicaca Basin elite under Inca and Spanish control. In Diehl, M. (ed.), *Hierarchies in Action: Cui Bono*? Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 317–339. Occasional Paper No. 27.

Valencia Zegarra, A. (1984). Arqueología de Qolqampata. *Revista del Museo e Instituto de Arqueología* **23**: 47–62.

Van de Guchte, M. (1984). El ciclo mítico andino del la piedra cansada. *Revista Andina* **2**(2): 539–556.

Wallace, D. T. (1991). The Chincha roads: Economics and symbolism. In Trombold, C. D. (ed.), *Ancient Road Networks and Settlement Hierarchies in the New World*, Cambridge University Press, Cambridge, pp. 253–263.

Williams, V. I., and D'Altroy, T. N. (1998). El sur del Tawantinsuyu: Un dominio selectivamente intensivo. *Tawantinsuyu* **5**: 170–178.
Ziólkowski, M. S., and Sadowski, R. M. (eds.) (1989). *Time and Calendars in the Inca Empire*, British Archaeological Reports, Oxford. BAR International Series 479.
Zuidema, R. T. (1989). El origen del imperio Inca. In Burga, M. (ed.), *Reyes y guerreros: Ensayos de cultura andina*, Fomciencias, Lima, pp. 273–305.