US AND THEM:
Archaeology and Ethnicity in the Andes

Richard Martin Reycraft, editor

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DEDICATION

This volume is dedicated to my wife, Soledad, and my parents, Elizabeth and Donald, whose unending love and support have always inspired and sustained me.

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CHAPTER 1

Introduction

US AND THEM: ARCHAEOLOGY AND ETHNICITY IN THE ANDES

RICHARD MARTIN REYCRAFT

This volume is a compilation of papers presented in the symposium *Us and Them: Archaeology and Ethnicity in the Andes*, held at the 64th Annual Meeting of the Society for American Archaeology in Chicago in April 1999. All of the original symposium participants have contributed to this volume. One participant, Andrea Heckman, was recruited for the Chicago symposium, but active fieldwork prevented her attendance; she has nevertheless provided a volume chapter.

The symposium assembled a corpus of scholars whose work collectively represents a significant advancement in the study of prehistoric ethnicity in the Andean region. The research presented in the symposium, and subsequently in this volume, was assembled in order to represent a diverse collection of theoretical and methodological approaches. The subsequent chapters will thus impart recent discoveries in several subfields of prehistoric Andean anthropology, including spatial archaeology, textile and ceramic analysis, and, perhaps most notably, biological anthropology. Many of the authors in this volume apply novel research -techniques, while others wield more established approaches in original ways. Hopefully, their results will stimulate others to pursue future innovative work in the prehistoric study of ethnic identification.

Compared with many other parts of the globe, the Andean region provides some significant advantages for the researcher of prehistoric ethnic groups. Perhaps first and foremost of these advantages are its geography and environment. The spectacular Andes Mountains provide a compressed vertical geography that juxtaposes fertile coastal and mountain valleys between inhospitable deserts and mountains. Throughout Andean prehistory, these valleys were rich breeding grounds for a mosaic of distinct ethnic groups, and this diversity provides good comparative data for ethnic study. Many of these valleys, particularly the mountain variety, are still remote and secluded, which has provided some insulation against modern development, allowing traditional cultural practices and dress to persist. While less protected from modern development, the coastal valleys have extremely arid climates, which

have preserved a wide variety of prehistoric remains, including such perishables as wood and bone artifacts, textiles, and human hair and tissue. The importance of such materials to prehistoric ethnic studies is borne out in the subsequent chapters of this volume. Finally, there exists in the Andes a patchy but growing body of ethnohistoric source material that documents a variety of Andean peoples, including their ethnic practices and accoutrements, as encountered by the Spaniards in the early years of their conquest. Perhaps because of these advantages, anthropologists have attempted to examine prehistoric Andean ethnicity for at least a century.

THE ARCHAEOLOGY OF ETHNIC IDENTIFICATION IN THE ANDES: A BRIEF HISTORY

In the Andean region, the archaeology of ethnicity begins with Max Uhle. In 1896, Uhle initiated the first stratigraphic excavation of grave lots in the Andes. His excavations were located in a dense cemetery situated below the northern base of the Temple of Pachacamac, near Lima, Peru (Strong and Corbett 1943; Uhle 1903). For eons, the temple had functioned as a pilgrimage center. Employing stratigraphic relationships, Uhle was able to take advantage of the diverse material culture brought to the temple by pilgrims and conquerors from various regions. By comparing decorated ceramics and textiles, he defined Inka, Chimu, Coastal Tiahuanaco (Huari), and Pachacamac Interlocking (Lima Culture) burials at Pachacamac (Menzel 1977; Strong and Corbett 1943; Uhle 1903).

Uhle was also one of the first archaeologists to examine cranial deformation practices as ethnic identifiers. At the main temple of Pachacamac, he noticed that the great majority of crania were deformed by occipital flattening, a deformation style then known as the "Chincha style," which was practiced by peoples from the central and north coast of Peru during the Late Intermediate period (Strong and Corbett 1943; Uhle 1903). However, in a cemetery located near another temple at Pachacamac—the Temple of the Sun—Uhle found crania deformed in a variety of non-coastal styles. These crania were associated with Cuzco material culture such as decorated Inka ceramics and textiles. By associating cranial deformation styles with distinctive grave goods, Uhle confirmed ethnohistoric accounts of an Inka temple at Pachacamac and placed Inka priests at the temple.

Early attempts at ethnic identification in Andean archaeology were often obfuscated by the contrasting terms of "race" and "culture." After Uhle's (1903) Pachacamac study, Andean archaeologists focused on the definition of cultures, culture areas, and culture histories (Bennett 1934, 1936, 1939; Kidder 1943; Kroeber 1925, 1926a, 1926b, 1927, 1930; Kroeber and Strong 1924a, 1924b; Means 1917, 1931; Strong 1925; Tello 1923), while physical anthropologists examined racial diversity and racial history (Hrdlicka 1911, 1914; Hrdlicka et al. 1912; Imbelloni 1938; Newman 1943, 1947, 1948; Stewart 1943a, 1943b). In a break with earlier evolutionary anthropology, Boas (1887, 1905) had separated culture from race and concentrated on the former. Boas' most brilliant student, Alfred Kroeber, introduced this approach to Andean archaeology. In Kroeber's view, culture was a "superorganic" (Kroeber 1917), a historically particularistic entity that superseded race. Culture was also given a geographic emphasis through the work of Wissler (1914). Race, a concept of genetic relatedness that earlier evolutionary anthropologists (Morgan 1877; Tylor 1871) had explicitly associated with culture, was only sporadically addressed in the Andes. Although the interrelationships between race and culture were never adequately explored, it was generally assumed that large culture areas, sometimes defined as regional co-traditions (Bennet 1948), were based on racial distinctions defined by skull types (Kroeber 1930; Newman 1948).

During the 1920s and 1930s, the American anthropological emphasis on historical particularism and the need for regional chronologies resulted in the definition of several prehistoric Andean civilizations through culture trait lists. These lists were based primarily on burial accoutrements, and despite explicit statements that all aspects of material culture should be emphasized in the definition of archaeological cultures (Childe 1929), their foundations rested on the analysis of mortuary ceramics (Bennett 1939; Kroeber 1926b, 1930, Kroeber and Strong 1924a, 1924b; Larco-Hoyle 1941, 1944, 1945). Nevertheless, some interesting attempts were made to broaden this approach. Once again, Uhle was at the forefront of this endeavor.

In *Fundamentos etnicos y arqueología de Arica y Tacna*, Uhle (1922) attempted to define the territories of several aboriginal ethnic groups from the Tacna-Arica region. In a novel approach, different ethnic groups (which Uhle described as tribes) were first defined by language, based on ethnohistorically recorded grammar and vocabulary characteristics. Uhle's next step was to identify an ethnic geography based on local place names and their relationships to each language. Finally, after defining several ethnic territories by place name, Uhle

compared and contrasted the material culture traits of each territory. For this final analysis he described a wide variety of culture traits, such as divergent tomb shapes, differences in ritual paraphernalia (snuff trays, etc.), monumental art, textiles, and petroglyph styles. Unfortunately, by this time Uhle had abandoned the tedious stratigraphic excavations that defined his earlier work. Innovative though it was, *Fundamentos etnicos y arqueología de Arica y Tacna* was based on poor archaeological information gleaned from limited excavations and archaeological hearsay. Uhle's (1922) assertions of an Atacameña civilization have never been substantiated. Interestingly, the chapters in this volume by M. C. Lozada, Richard Martin Reycraft, and Richard C. Sutter describe different ethnic groups that Uhle grouped together as Atacameña.

Until the mid-1940s, ethnic archaeology, under the guise of culture definition, dominated Andean archaeology. The foremost works of this era, written by archaeologists considered to have been the major players in the field, all defined archaeological cultures. Bennett (1934, 1936) defined the Tiahuanaco and Gallinazo cultures, Kidder (1943) described Pucara, Rowe (1944) depicted the Inka, Tello (1942, 1943) defined the Chavín, Tschopik (1946) the Aymara, and Uhle (1903, 1922, 1924a, 1924b, 1925a, 1925b, 1926) and Kroeber (1926b, 1930) together defined a slew of prehistoric coastal cultures. Perhaps the most prolific was Rafael Larco-Hoyle, who identified the Cupisnique (1941), the Salinar (1944), the Virú (1945), and further defined the Moche (1938, 1939).

Larco-Hoyle's (1938–1939) two-volume set entitled *Los Mochicas* was a holistic attempt to describe the origins, development, and ultimate fate of the prehistoric Moche culture of north coastal Peru. Several lines of evidence were employed in this endeavor. Physical anthropological data were combined with ceramic images of Moche individuals to develop the first profile of the ethnic characteristics of prehistoric Moche people. Variations in the facial characteristics of Moche portrait vessels led Larco-Hoyle to conclude that racial diversity existed within Moche culture. These variations were then compared with the living descendents of the Moche, the Native American inhabitants of the Moche Pueblo. The social attributes of the people of Moche Pueblo, such as their vernacular architecture and household organization, were, in turn, compared with known prehistoric Moche social characteristics. Following Uhle (1922), Larco-Hoyle also utilized ethnohistorically recorded grammar and vocabulary characteristics to identify an ethnic geography based on local place names. Lacking good textile information, he examined repetitive themes of Moche individuals depicted in ceramic decoration and came to the conclusion that Moche dress was ethnically distinctive. Larco-Hoyle noticed that several portrait vessels depicting the same individual were found in different valleys in the Moche realm. Upon further analysis he discovered that the same individual wore different garb in each valley. Based on this he postulated a Moche system composed of different political groups united by a single leader.

Larco-Hoyle's views concerning the relationships between Moche dress variation and political/task groups were particularly advanced for the time. He also had access to the largest collection of Moche burial goods in Peru, the *Museo Rafael Larco Herrera* in Chiclin. However, because he exclusively excavated burials, and the vast majority of his information was based on mortuary assemblages, Larco-Hoyle could not substantiate his propositions concerning Moche social and political organization. The shortcomings of the near-exclusive reliance on mortuary assemblage data for culture definition were manifest by the late 1930s. In other regions of the world, particularly the North American Southwest, where both Kroeber and Kidder had previously worked, refuse mound excavations had provided more accurate culture-historical and social organizational information. Refuse mounds were considered important for the delineation of both culture-historical and ethnic information because, unlike graves, they did not contain consciously selected cultural materials (Ford 1949). The Institute for Andean Research (IAR) recognized this problem and set about correcting it by funding a series of excavations in refuse mounds in the Andean region (Strong, Willey, and Corbett 1943).

Several of these projects are now landmarks. Strong and Corbett (1943) revisited Pachacamac and trenched into a large midden associated with the Temple of the Sun. They encountered an enormous mass of textiles, some of which were elite Inka examples; however, the vast majority were simple striped and plain-weave pieces. Large quantities of both decorated and undecorated ceramics were also encountered. From this information, Strong and Corbett (1943) were able to identify two ethnic groups living near the temple. The first was a group of Inka elite, probably priests. The second group was composed of local people of low status, who most likely served the Inka priests. Uhle (1903) was only able to identify the first group in the grave lots he excavated at the Temple of the Sun.

During the excavation of refuse mounds, archaeologists often encountered the occasional buried house.

Although extensive horizontal excavations of domestic structures did not occur at this time, they were viewed as valuable chronological aids, for the floors of these houses often contained in-situ vessels, which confirmed the ceramic seriation sequences defined in the middens (Bennett 1939; Willey 1943). Eventually, construction technology and house shapes were added to the trait lists of defined cultures.

Rowe (1944) conducted another breakthrough study funded by the IAR. Rowe's goal was the definition of Inka culture, specifically the development of early Inka culture in the Cuzco area. To do this he needed to locate and excavate refuse mounds that contained pre-Inka material culture. He found the required mounds near the Inka fortress of Sacsahuaman. His ceramic sequences were primarily defined by decorated ceramic sherds, but because Rowe was excavating refuse mounds rather than burials, many of the sherds he classified as pre-Inka Chanapata and early Inka Killke wares were undecorated utilitarian ceramics. Rowe was also one of the first Andean archaeologists to utilize domestic architecture as an ethnic identifier. Cuzco contained portions of many standing Inka structures, and the nearby settlement of Ollantaytambo held intact Inka domestic structures. Through these remains, Rowe (1944) was able to formally define Inka construction methods and the *cancha*, or Inka residential compound.

At the same time Rowe was focusing on refuse mounds and domestic architecture, another IAR project archaeologist was examining mortuary remains from a unique perspective. For generations, Andean archaeologists had viewed burial goods as the archaeological foundation of ethnic distinction. During these early years, the vast majority of cultural distinctions were defined by examining differences in burial paraphernalia. Tschopik (1946) was the first archaeologist to look past burial goods and specifically consider tomb style as a culture definition criterion. For her study, she examined several ethnohistoric sources that described the territories of politically independent Aymara-speaking groups in the Lake Titicaca region during, and just prior to, the Inka conquest. She then attempted to link ceramic variation with differently shaped and constructed *chullpa* (Aymara burial towers) and other tomb types. With these data in hand, Tschopik tentatively associated different chullpa styles with the various Aymara subgroups.

By the mid-1940s, mortuary goods, monumental architecture style, ceramic iconography, ethnohistoric information, refuse mound excavations, domestic architecture, and tomb style had all been utilized as criteria for ethnic differentiation. For the first time the opportunity was present for all of this information to be combined in a single comprehensive study aimed at differentiating change in prehistoric Andean social and political organization. Gordon Willey (1946, 1947, 1953) and his colleagues (Bennett 1950; Bird 1948; Collier 1955; Ford 1949; Ford and Willey 1949a, 1949b; Strong 1947, 1948; Strong and Evans 1952) undertook this exceptional study.

The Virú Valley Project was a monumental effort to study the settlement pattern changes throughout the culture-historical sequence of a single valley. The project methodology linked surface survey and site mapping with surface collections of ceramics and limited stratigraphic excavations of refuse mounds and domestic and monumental architecture (Willey 1953). This methodology benefited ethnic identification in two major ways.

First, Ford's (1949) stratigraphic excavations of refuse mounds and domestic architecture emphasized stylistic changes in both utilitarian and decorated ceramics. Ford (1949:32) discovered that, on average, 99% of all sherds found in Virú Valley middens were from "culinary" ceramics. By focusing on changes in the attributes of utilitarian wares over time, Ford could utilize a more robust and refined measure of culture-historical change. He could also correlate temporal changes in utilitarian versus decorated wares. He discovered that these wares changed at different times and at dissimilar rates. In the long term, utilitarian wares tended to be a stable substrate upon which more rapid shifts in decorated ceramics occurred. By contrasting changes in utilitarian ceramics and domestic architecture on the one hand, and decorated ceramics and "cult" architecture (temples, platform mounds, etc.) on the other, Ford (1949:49) was able to document the presence of different ethnic, religious, and political groups in the Virú Valley.

A second and perhaps more profound way in which the Virú Valley Project influenced the archaeology of ethnic identification was its explicit intent to define settlement patterns. The settlement pattern approach, which had never been attempted before the Virú study, identified coeval components of a society. By combining modern survey techniques, such as aerial photography, site mapping, stratigraphic test excavations of refuse middens, and surface artifact identification and collection, the Virú Valley group was able to define contemporaneous domestic, politico/religious, military, mortuary, and public works within a single coastal valley.

In studying the entire settlement system, rather than a specific temple mound or mortuary assemblage,

Willey (1953) was able to define several sociopolitical changes in the Virú Valley culture-historical sequence (1953:381, 396). He employed Ford's (1949) ceramic information and Bennett's (1950) domestic structure data in combination with the details of surveyed religious architecture, fortified complexes, and irrigation networks to identify the emergence of a unified Gallinazo political system, the conquest of the Gallinazo by the Moche, and the dramatic sociopolitical changes that took place during the "Coastal Tiahuanaco" era.

The Virú Valley study provided archaeologists with a potent set of research tools to identify the social and political organizations of different ethnic groups. Within a decade of the Virú publications, however, an ascendant processual school of archaeology would attack the very foundations of the culture-historical perspective with a critique of its concept of culture. The Virú Valley Project archaeologists, to one degree or another, all participated in an academic theoretical perspective whose ancestry extended back to Kroeber's (1917) concept of the superorganic. Ford (1949:38) described this as a view of culture as "a stream of ideas, that passes from individual to individual by means of symbolic action, verbal instruction, or imitation. . . . The present day archaeologist is primarily concerned with the histories of what can be recovered or reconstructed of these streams of ideas."

The identification of past cultures in Andean archaeology was, in one way or another, dependent on this superorganic, normative perspective. Cultures were seen as monolithic entities that represented either past ethnic groups, tribes, or races (Jones 1997:106). In contrast, the Processual School viewed archaeological material culture as representative of a variety of past activities, including but not limited to ideological norms (Jones 1997:107). Culture in the processual sense was not a monolithic entity at all, for it was differentially participated in by individuals and groups performing different tasks, frequently at different locations, with different levels of corporate inclusiveness (Binford 1965:205).

A further problem with the normative approach was the development of trait lists. Most pre-processual practitioners defined archeological cultures with extensive trait lists, which were often developed from excavations at a particular type-site. The methodological reasoning behind the trait list approach was to develop "a complex of styles, artifacts, and constructions sufficiently distinctive and isolated to be called a culture" (Bennett 1950:15). In addition to the amalgamation of cultural variation, this approach had another inherent problem: the confusion of stylistic, functional, and environmental variation (Binford 1965).

Cumbersome culture trait lists often included a wide variety of material culture, such as construction material, dietary preferences, and the presence or absence of monumental art and architecture, which resulted from functional, environmental, and social-developmental rather than ethnic variation. Processual and postprocessual archaeologists have come to realize that ethnic groups cannot simply be defined as an aggregation of all spatially and temporally related cultural traits. Rather, ethnic groups are self-conscious entities that distinguish themselves from others by both conscious and unconscious stylistic choices (Boyd and Richerson 1987; Jones 1997; Sackett 1982; Shennan 1989; Wiessner 1984; Wobst 1977). In distinguishing between cultural groups, the archaeologist must identify those cultural attributes pertinent for ethnic identification.

The normative approach to ethnic identification contained another inherent flaw. Although they seldom expressed their view, most archaeologists working during the culture-historical period saw ethnic groups as reflective of either national, tribal, and/or kin bonds, and thus categorized social identity as an innate characteristic provided through birth into the given society. Within this paradigm, ethnic change was viewed as a gradual historical process, which was driven by diffusion and innovation and interrupted by invasion or migration (Ford 1949: 39). Ethnologists working in the late 1960s and early 1970s, however, encountered situations where ethnic identification was situational and differently expressed in diverse circumstances for the negotiation for resources (Barth 1969a; Cohen 1974). This information initiated an intense and unresolved anthropological debate about the nature of ethnicity (Barth 1969b; Cohen 1974; Geertz 1963; Issacs 1974; Jones 1997). The existence of such "circumstantial" ethnicities suggests that ethnic identity may change rapidly as a result of changing social, economic, and/or environmental conditions.

VOLUME ORGANIZATION

These criticisms of the normative approach have shifted the emphasis of ethnic archaeology away from the generation of extensive culture trait lists toward a more refined focus on stylistic variation indicative of ethnic association (Sackett 1982; Wiessner 1984; Wobst 1977). In the Andes, the link between ethnically sensitive material culture and ethnic identity usually begins

with investigations of ethnohistoric source materials. Recent archaeological studies in the region have made strides in the designation of prehistoric ethnic groups by refining the study of textile design and structure (Clark, Palacios, and Juarez 1993; Oakland Rodman 1992), household archaeology (Bawden 1982; Stanish 1989), and spatial organization (Aldenderfer and Stanish 1993; Bawden 1977).

The authors presented in this volume all employ advanced methodological procedures designed to further the archaeological identification of ethnic groups. In chapter 2, Garth Bawden presents information regarding ethnogenesis in the Late Moche period town of Galindo, Peru. The urban town of Galindo was founded after the environmental and social upheavals at the onset of the Middle Horizon, which extensively reduced the southern Moche realm. Bawden describes ethnicity according to two criteria, shared group membership and group social reproduction. By examining the context of Late Moche period stylistic variation, he is able to identify novel stylistic, ideological, and community organization techniques employed by elites in the construction of a new political ideology in an attempt to mask their prior ideological failure. These new political mandates violated prior kinship land relationships and restricted and alienated the masses, who responded by manipulating their own domestic traditions and mortuary customs in the formation of a new social identity. Bawden's assertion that the manipulation of collective symbolism and the adoption of foreign motifs during periods of acute environmental and social stress may result in ethnogenesis is also the topic of Reycraft's contribution in chapter 4.

In chapter 3, John Wayne Janusek examines patterns of similarity and difference in ceramic styles as they relate to variations in craft production, spatial organization, diet, and mortuary patterns in prehistoric Tiwanaku urban society of the Lake Titicaca basin. He argues that certain classes of Tiwanaku ceramic vessels were employed for the expression and negation of status and social identity. In Janusek's view, ethnicity is a form of social identity, which represents the affiliation of groups of individuals based on common histories, cultural expressions, and social manners. Social identity is a scalar social organizational phenomenon, which begins at the level of the nuclear family and expands into extensive, often imagined, affiliations of multiple communities, regions, or districts within an encompassing political entity. By relating ceramic stylistic variation to related variations in the sociostructural fabric of urban Tiwanaku society, Janusek is able to document the presence of several social identity groups. These range from micro-level kin-based corporate groups that maintained their own traditions and residential compounds within Tiwanaku cities (which indicates that Tiwanaku urban society incorporated ethnic groups from distant geographic regions) to macro-level urban identity groups that varied between these cities. Ethnic data from this chapter are further reinforced by cranial deformation information provided by Deborah E. Blom in chapter 10 of this volume.

Reycraft investigates ethnogenesis among the prehistoric Chiribaya of far south coastal Peru in chapter 4. In the Late Intermediate period, at the apex of their cultural florescence, an extreme El Niño impact destroyed the Chiribaya *señorío* (chiefdom), resulting in political collapse and a population exodus. Life was very different for those who remained after the disaster, and their material culture changed accordingly. For this study, Reycraft examined stylistic change across several categories of material culture. He found that some of the most visible kinds of artifacts, which are those often considered the most diagnostic of ethnic identity, changed rapidly after the El Niño event. Other categories of material culture persisted in the predisaster Chiribaya tradition. Reycraft defines ethnicity as the mechanism by which groups of individuals who share a social identity use culture to symbolize their solidarity. Ethnicity as a mechanism implies an active use of culture as an apparatus of social expression and change. This perspective is similar to the positions employed by Bawden in chapter 2 and Janusek in chapter 3. Like Bawden, Reycraft finds that rapid ethnogenesis followed a period of severe environmental and social stress.

Chapter 5 presents Steve Bourget's investigation of social identity among the Moche of north coastal Peru, specifically in terms of their social, symbolic, and mythical roles. In this impressive display of scholarship, Bourget investigates the social identity and the social/mythical roles of individuals portrayed in Moche ritual iconography. He is able to link the characters depicted in ritual iconography to actual individuals by examining forensic information garnered from sacrificial victims, depictions of ritual paraphernalia portrayed in scenes of combat and sacrifice, and the material culture found in elite Moche burials. In the concluding portion of this innovative chapter, Bourget presents a new interpretation of the so-called "Revolt of the Objects" iconographic theme, in which he proposes that the ceremonial objects depicted vested Moche warriors with their ritual power.

In chapter 6, Kevin J. Vaughn provides us with an analysis of household archaeology in the southern Nasca region of Peru. Stanish (1989) and Bawden (1982) pioneered the household archaeological approaches employed in this chapter. Like Stanish (1989), Vaughn is seeking to identify the archaeological household, which he defines as the minimal coresidential domestic group. The domestic household may be the purest form of social identity, for as humans we especially identify with our kith and kin. In the southern Nasca region, Vaughn distinguishes the archaeological household in the household-patio group. The domestic function of this architectural unit is confirmed by the presence of hearths, grinding stones, and food storage features. Interestingly, the non-elite occupants of these structures utilized large quantities of decorated ceramics. This contradicts some of Stanish's (1989, 1992) earlier findings in the upper Osmore region of southern Peru and suggests that decorated wares were commonly used in the households of some prehistoric Andean societies. Thus decorated wares may well represent social identity in certain circumstances. A similar situation seems to have occurred in the predisaster Chiribaya example provided by Reycraft. Vaughn's data further suggest that domestic architecture is an accurate gauge of ethnicity in the southern Nasca region. Household archaeology is also an important element in Bawden's, Janusek's, and Reycraft's contributions to this volume.

In chapter 7, Andrea M. Heckman provides an ethnographic study of the history and function of textiles as purveyors of ethnic, status, and ideological information in Ausangate, Peru. In Ausangate and many other remote regions in the Andes, traditional textile weaving and function can be traced back to the late pre-Columbian epoch. Although some textile forms have disappeared, many others remain, and weavers and wearers continue to imbue cloth with traditional meanings. This information, however, can only be understood in terms of Andean logic. Heckman provides this with an analysis of the basic textile design elements and the cosmological and ethnic connotations that are employed by traditional weavers in Ausangate. Because ancient cultural traditions persist in many remote areas of the Andes, ethnographers have an opportunity to work with and question weavers about the significance of their designs. Undeniably, postcontact influences have filtered into the Andean cultural repertoire, but these influences can be identified through a careful analysis of form and meaning. Heckman provides this link between present and past in her chapter.

Amy Oakland Rodman and Gioconda Arabel Fernandez Lopez have contributed an excellent textile study in chapter 8. They present data concerning burial lots found at Huaca Cao Viejo burial complex in the lower Chicama Valley, Peru. Almost 500 individual burials were uncovered at the Huaca Cao Viejo complex between 1989 and 1997. The Inka required that natives of a given province wear easily distinguishable items of their native dress, such as hats and tunics, at all times so that anyone found outside their native province could be identified (Cobo 1956 [1653]). This variation in dress was noticed by the Spanish conquerors and was documented in narratives by Cobo (1956 [1653]), Cieza de León (1986 [1553]), and others. Variation in traditional Andean community clothing style has continued into the current era, and, as the authors note in this chapter, there are few technical differences between the traditional textiles worn today and many prehistoric Andean textiles. By studying different structural and design elements of the Huaca Cao Viejo textile assemblage, Oakland Rodman and Fernandez Lopez have defined four distinct textile styles. Three of these styles likely document shifting ethnic expression in the garment costume of local groups following the Moche decline (which is also discussed by Bawden in chapter 2). All of these textile styles combine elements of local and exotic design, which may reflect the shifting political and communal allegiances of each local group.

In chapter 9, Sloan R. Williams provides a biological perspective on ethnic studies by addressing the benefits and problems of two common methods for measuring genetic relatedness in populations: nuclear DNA (nDNA) and mitochondrial DNA (mtDNA). The research presented in this chapter was designed to compare the ability of each method to discriminate among closely related endogamous social groups. The ultimate goal is to find a good method of measuring genetic relatedness among prehistoric groups by using ancient DNA; hence this study was designed to reproduce constraints typically encountered in ancient DNA studies. In order to measure the capabilities of each method, however, the study had to examine genetic relatedness among communities in a living, endogamous, traditionally Amerindian society with a relatively well-known social and medical history. Thus, for this study the author has chosen the Yanomamö. While archaeologists and biological anthropologists who utilize ancient DNA in their studies will be interested in the results section, Williams also provides useful information concerning the often associated concepts of ethnicity and genetic relatedness.

Blom has contributed a bioarchaeological study of social group dynamics in prehistoric Tiwanaku society in chapter 10. Blom suggests that, because people of one culture will always use objects created by another, studies that focus only on items of material culture can provide inaccurate representations of ethnic identification. For this study, she compares material culture, cranial deformation patterns, and skeletal epigenetic traits from the Tiwanaku urban heartland and from the middle Moquegua Valley, Peru. The latter area is considered to have been a part of the Tiwanaku Empire. Epigenetic skeletal traits are variations in the teeth and bones that can be used to calculate biological distance measures between populations. Because permanent kinds of body decoration tend to denote social group membership, and because cranial deformation must be initiated during infancy, cranial deformation patterns are good indicators of social group membership at birth. Studies like Blom's are ideally suited to monitor changes in ethnic identification, such as exogamous marriage residence changes and shifting alliances. Blom does find variations in cranial deformation styles between the two study populations. She discusses these variations in terms of basic Andean concepts of duality.

The bioarchaeological approach continues with a contribution by Sutter in chapter 11. Sutter's goal is to identify variables that are related to ethnogenesis and ethnic variation. In pursuit of this goal, he employs the concept of the biocultural group. Biocultural groups are ethnically affiliated, genetically related social groups that share cultural attributes, behaviors, and economic activities. In an attempt to archaeologically define these groups, Sutter examines cranial deformation patterns, dental pathologies, skeletal and dental epigenetic traits, and material culture from several mortuary sites in the coastal Azapa Valley of Chile. Some of this study's results contradict those achieved by several other contributors to this volume, which, as the author suggests, demonstrates that the cultural traits employed as ethnic markers by a given society are arbitrary and will vary between regions.

In chapter 12, Lozada and Jane E. Buikstra examine some of the implications of Rostworowski's (1970, 1977, 1989, 1993) ethnohistoric descriptions of precontact coastal señorío sociopolitical systems. Specifically, Rostworowski suggests that coastal señoríos consisted of *parcialidades*, semiautonomous political and economic groups that displayed many of the characteristics of ethnic groups, each having their own language, economic specialization, and lords. The lords of these semiautonomous groups were in turn subject to a supreme lord who ruled the señorío. To test these implications, the authors have chosen to sample the material culture, cranial deformation patterns, and skeletal epigenetic traits from three distinct mortuary sites pertaining to the Late Intermediate period/Classic phase Chiribaya señorío of far south coastal Peru. The three sites were chosen because their burial accoutrements indicate precisely the different economic and status occupations that are described by Rostworowski's model. The results of this study reinforce many of Rostworowski's assertions and refine our knowledge of prehistoric coastal señorío sociopolitics.

In Chapters 13 and 14, respectively, Stanish and Buikstra analyze and discuss the contributions in this volume. Both authors are widely recognized for their groundbreaking efforts in the definition of archaeological ethnic groups in the Andean region. Stanish was an early, vocal critic of the "artifact-based" definition of prehistoric ethnic groups. As heretofore mentioned, this methodology required the development of extensive lists of artifact traits, which were often developed entirely from decorated ceramic vessels found in a wide variety of archaeological contexts. In its place, Stanish (1992:34–41) pioneered the use of structure shapes and the spatial distributions of functionally distinct rooms to identify the ethnic affiliations of archaeological settlements. This approach has subsequently been adopted by many of the authors in this volume. Buikstra has worked in multiple regions across the globe, producing innovative research in the field of bioarchaeology. In the Andean region, her emphasis on the meticulous biometric analysis of human remains, which is performed in conjunction with comprehensive examinations of any associated material culture, has helped reinvigorate the field of mortuary archaeology. Some of her primary concerns have been in the areas of mortuary ritual and the ethnic, gender, and power relationships found therein. Many of the volume contributors have been profoundly influenced by her work.

In conclusion, this volume presents new and stimulating research in the archaeology of ethnic identity. While the geographic focus of the volume is the Andean study region, the research techniques presented, with the possible exception of the textile studies, should have applications elsewhere as well. With this compilation of diverse approaches, the editor hopes that *Us and Them: Archaeology and Ethnicity in the Andes* will inspire future research and help refine the field of ethnic archaeology.

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CHAPTER 2

Ethnogenesis at Galindo, Peru

GARTH BAWDEN

ETHNICITY AND ETHNOGENESIS

Ethnicity

Because of the sometimes-negative connotations associated with such traditional labels as "race," "tribe," and "culture," anthropology has over the past few years tended to replace them with the term "ethnicity," but there is at present little consensus as to its precise meaning or applicability to the study of human groups. In fact, the growing body of literature devoted to ethnicity largely underscores the fact that the challenges of an archaeological study of group identity have not decreased with the shift in nomenclature. On one hand ethnicity in archaeology has been associated with biological variation. On the other hand anthropologists and archaeologists often understand social groupings through interpretations ranging from the old culture-historical categories to intragroup social distinctions and persistent economic classes. None of these various approaches is convincing. Thus, it is clear that ethnic groups often incorporate a wide range of physical morphology. Conversely, a group of people apparently sharing a well-defined cluster of physical characteristics may well embrace more than one ethnic identity (i.e., Bálint 1994). In the mortuary context where the physical and cultural manifestations of ethnic identity should be best accessible to the archaeologist, again there is no tidy correlation between skeletal morphology, burial practice, and group membership (Hubert 1989; Ucko 1969).

Just as problematic are cultural and social scenarios. Most definitions of ethnicity are now generally recognized as frustrating the term's direct association with style in the old cultural sense used by Childe and Kossinna in the Old World and by the New World Culture-Historians (see Trigger 1989:148–206 for a good review of this topic and Conkey and Hastorf 1990 for the many social roles of style), although style as symbolic communication certainly plays an important role in asserting group identity and an equally important internal role in strengthening group cohesion. Finally, attempts to ascribe wider social and economic significance to ethnicity run afoul of the unassailable fact that

societies exist in a state of constant change in which circumstance and historic process conspire to modify the interests and statuses of individuals and generate new adaptations and groupings.

In my opinion this diversity of approach illustrates a most important characteristic of ethnicity—its flexibility—for it can include aspects of all of these forms of human grouping but is not confined to any one of them. Thus my usage of ethnicity encompasses only two basic requirements: first, recognition of common membership in a social group in which people consciously share the same values, interests, and goals; second, the capacity of the group to socially reproduce itself. Within this self-referential context, ethnicity not only transcends any single determinant or set of determinants, it is also historically constructed and thus changes through time according to situational circumstance and experiential history.

On the surface this self-ascriptive character of ethnicity, its particularity, and its capacity to change with new circumstances would appear to make its archaeological investigation difficult if not fruitless. After all, given the lack of correlation of ethnicity with decorative or architectural style, or burial custom, there is little justification to ascribe ethnic significance to any individual or group of material signifiers purely on the basis of their formal characteristics—the basis of archaeological analysis. The way past this dilemma is through the study of social context. Ethnicity, in common with other social phenomena, does not exist in a vacuum. Rather it is a manifestation of its location in time and space. Thus if the context of social production can be identified, it follows that the related material artifacts can also be placed within their proper domains of meaning. Such a study requires the reconstruction of the historic trajectory that created the setting for ethnic formation as well as the specific social arena within which it emerged. While by definition this enquiry must focus on the particular time-space experience of discrete societies and thus describe a unique historic circumstance, certain broader developmental forces offer a productive setting for its realization. Foremost among these are the scales of integration, measured by both structural levels and degrees of complexity, within which ethnic formation occurs.

Scales of Social Integration

At the broadest scale are the effectively unconscious deep structures that characterize the *longue durée* of the world's great human traditions (Western, Native American, East Asian, etc.). Although this elemental structural unity provides the most general determinants of social affinity, it transcends the assertive local and regional cultural boundaries within which ethnicity has meaning. At the active level of human social construction with which I am concerned in this study lies a complex and reflexive interaction between distinct but overlapping cognitive structures, one relatively innate and persistent, the other assertive, contingent, yet relatively transitory. At the deepest level of social awareness all individuals share with their cultural group strong yet vaguely defined conceptions of self and group, shaped by their common experience in time and space. This level of structural cognition that approximates to Giddens's (1990 [1979]) well-known "practical consciousness" and Bordieu's (1977) "habitus" constitutes a given mental language that allows all members of a society to communicate on both intellectual and emotional levels while providing the broad limits within which they dynamically interact in the arenas of daily life. This conceptual language represents the unique pool of knowledge and belief accumulated by a group through time. Moreover, it is this shared cognitive stratum that provides the foundation upon which societies build their specific organizational strategies, whether characterized by principles of kinship or class in evolutionary parlance.

However, it is at the level of daily interaction that individuals actively assess their social situation and question its utility for their needs. It is also at this level that the forces that drive ethnogenesis are located. Through political, social, economic, and ideological contestation people confront their ideas and policies and strive to negotiate new outcomes that further their own discrete goals. Yet such arguments can only be formulated within the conceptual and experiential milieu provided by the collective belief structure discussed in the previous section. In this regard it is important to note that repeated negotiation of principles drawn from this shared structure will inevitably lead to its reflexive modification, although at a much more gradual rate than that associated with active social decision making.

While it is true that those corporate alliances within society that control the institutions and economy of authority are at a distinct advantage in this negotiation process, subordinate groups are by no means without recourse. Although frequently separated from the institutional arena of social negotiation, such politically secondary groups have access to informal settings of

community life—household, unofficial or group religion, market—to affirm their interests and needs. In the final analysis dominant and subordinate interests exist in a state of complementary tension in stable societies. By contrast, in extreme circumstances of internal stress, the former exerts its power to protect and, where necessary, to impose the prevailing social order, while the latter actively resists. If resolved, group opposition of this form merely represents a dynamic for social change and need not lead to the creation of new social identities. However, an extended period of unresolved internal conflict may create a profound degree of social disruption that becomes the catalyst for such transformation.

I turn now to the role of social complexity in generating ethnic awareness. There is clear divergence of opinion regarding the level of internal social complexity that must be present for ethnicity to emerge. It has been proposed that self-ascribed identity groupings only arose in the context of evolving social complexity and the pressure that this exerts (Bentley 1987). Indeed, some theorists take this notion so far as to see ethnicity as a by-product of the modern industrial state (Gellner 1983). From this viewpoint ethnic construction is understood as a shift in the conception of personal identity in response to the emergence of new institutions of political, social, and economic domination in the modern age.

I am very uneasy with the inference that people are able to purposefully identify and articulate their particular group affinities only within a context of extreme social complexity. After all, this leads to the conclusion that most members of the world's human population through history were oblivious to the social dynamics that impacted their lives, a stance that few scholars would seriously hold. Consequently, while I accept that the organizational setting of the parent society influences the strategies that are available for ethnic formation, I believe that traditional cultural evolutionary categories like "state" and "prestate" or "industrial" versus "pre-industrial" are of minor relevance in understanding its motivation. Rather than focusing on overly general and, to my mind, questionable determinants to explain ethnic identity, I think it far more meaningful to identify the precise set of forces that impacts social life in each particular situation. These factors may include the rise of urbanism, internal social conflict, changing systems of production and commodity exchange, emergence of intersocietal warfare, political reconstitution, and major climatic disruption. In various configurations such forces can initiate the profound degree of social disturbance that accompanies assertive realignment of social affinity.

Thus, the crucial element in ethnic construction is not whether society is grounded in principles of kinship or class, or within a chiefly or state structure. Rather, it is the effect of changing situations of social life on individual and group stability. It follows that I do not restrict ethnic identity to the recent period. Instead, I assume that it has existed since at least the earliest civilizations and has played a role in defining intergroup relationships in all such subsequent instances.

In this study, I view the effects on social identity of major disruption in a society that most scholars would regard as "prestate" in universal evolutionary parlance, where principles of kinship affinity and links to ancestral land, underpinned by rituals of community and mythic origin, composed the chief strategies of social integration. Specifically, I examine how an abrupt move from traditional rural existence to pre-industrial urban life was the crucial factor that generated ethnic construction within this persisting organizational setting. I will show how this process of change with its accompanying instability caused people to reassess their social circumstances. By deliberately and autonomously manipulating prevailing structural mechanisms, they realigned their social affinities and created new and powerful foundations of personal and group identity.

Ideology and Social Construction

There is one specific mechanism of ethnic formation that is of special importance to this study. As I noted in the previous discussion, all social negotiation occurs in active daily discourse where human agents reflexively utilize their common cultural consciousness to assert individual interests. During periods of stability members of different social networks and values live in a state of complementary tension. Their respective principles are contested within the public sphere as the agendas of political, corporate, or religious movements and do not significantly affect the wider communal identity, which their adherents all share. However, in extended periods of instability and discord these beliefs become the embedded ideological weapons of group conflict.

In internal social conflict the distinct values and principles of each contesting group become the assertive ideologies around which its members consolidate. I here define ideology as the specialized formulation of social statement that promotes the aspirations of its advocates in the wider social arena. As such, ideology

is the possession of all interest groups within a society, whether defined by corporate, status, or class membership. However, dominant ideology (Abercrombie, Hill, and Turner 1980)—the condensed discourse of ruling authority and established social order—has access to the institutions of political power. Through such participatory mechanisms as pervasive symbolic communication and ceremonial ritual, the adherents of dominant ideology seek to co-opt all members of the community into accepting the beneficial social order that it proclaims. Indeed, during periods of widespread advantage it may well be accepted as the unitary belief system of a successful way of life and thereby be social reality for all.

In fact, history makes clear that this situation does not usually persist unchallenged for long. In stable conditions, negotiation and adjustment are contained within the conceptual boundaries set by dominant ideological dogma. However, in times of deprivation the perceived contradiction between political discourse and individual lived reality can lead to fundamental challenge to the ruling order by the subordinated groups who are most vulnerable. If their lived circumstances remain unchanged they will inevitably confront the existing order with their own moral and practical agendas. The ensuing contest may lead to irreparable division between the conflicting social segments, which differentially manipulate their previously shared cultural heritage to generate new, distinct, and ultimately irreconcilable ideological constructs. Over time these originally political concepts consolidate into exclusive conceptual bases of group identity—the process of ethnogenesis.

The Symbolism of Social Action

While symbols have been studied from various viewpoints (for examples see Firth 1973; Leach 1976; Mach 1993; Ricoeur 1974), most scholars would agree that they include a wide range of conceptual, behavioral, and material forms, whose meanings are rooted in the cognitive world models of their related cultures. Given the archaeological nature of my topic, I shall confine my discussion of symbolism to its material aspect. Symbols codify people's experience; assert their particular values, ideologies, and stereotypes; and direct their relations with others. Moreover they carry an emotional force that stimulates involvement and mobilizes people to act on behalf of the communicated message (Turner 1967: 30). These qualities make symbols potent players in the affirmation of power at all levels of the social ladder and in the negotiation and construction of group identity. It is, then, not surprising that they are essential forces in the central arenas of social control, where they assert the prestige of the dominant ideology.

However, control of symbolic discourse is not confined to the dominant political sector. While common cognitive origin ensures that symbols are understood throughout their community, their potential for flexible interpretation allows subordinate groups to manipulate symbolic communication in their own interests. This property becomes important in societies caught in a state of deep political and social turmoil. As contesting subgroups strive to assert their precedence, and new allegiances coalesce in response to social stress, symbolism becomes a powerful vehicle for reinforcing common awareness among their members and asserting their specific character and interests in the face of wider social pressures.

I have to this point emphasized the culture-specific nature of symbols. However, cultures do not develop in isolation, but in varying degrees are influenced by their neighbors, incorporating foreign elements into their symbolic systems. Often, intercultural affinity fosters absorption of such elements so that they are no longer distinguishable as foreign. That said, it is not unusual for elite groups to intentionally embrace foreign symbols in order to enhance their authority and to elevate them above other sectors of the population. These adoptions may carry the prestige of admired exotic images or, more significantly, of religious or political meaning that transcends local belief. By their very nature such symbols resist incorporation into the broader symbolic structure of society. This tends to introduce intrasocietal division, which, at a time of broad disruption, heightens the potential for internal conflict and rejection of the foreign symbols together with their discredited proponents.

Places carry powerful symbolic meaning, for places and the people who use them are part of the complex of physical, behavioral, and conceptual networks that together constitute the community. The varied experiences that individuals draw from their particular historic and social locations converge in the places where social action occurs. There they are actualized to effect stability or change. The urban built environment, the setting for this study, comprises various architectural locations, each shaped so as to promote the activities of its principal patrons and to symbolically communicate their social values. Elite architecture asserts symbolic force on behalf of dominant interests and includes forms associated with administrative,

economic, and religious institutions together with the residences and burial places of the rulers. By contrast architecture that falls largely under the control of commoners is almost entirely confined to their homes and, to a lesser degree, their burials. At the broadest level residential space actualizes socially appropriate domestic modes of behavior (Bordieu 1977; Rapoport 1982, 1990:12ff.). However, within these limits household members, through daily practice, may reflexively manipulate ideas embedded in residential structure to effect change. By adjusting the symbolic content of their houses, people manipulate basic residential principles to strengthen their collective identity and assert social solidarity—the essence of ethnicity.

The Archaeological Search for Ethnicity

Where then does this discussion leave us in the search for ethnicity in archaeology? I believe that we can circumvent the obvious problems associated with trying to correlate ethnic identity with material style and form by exploring the dynamics through which it comes into existence. Examination of the material remains of human groups in their spatial and temporal contexts can offer us insight into the social contexts that encourage the construction of collective identity and the strategies employed to consolidate it. From this starting point the physical (and archaeological) symbols of ethnogenesis find their logical place as players in the mechanisms of social production. This archeological strategy has three important requirements:

1. It must identify the full archaeological context of change within which ethnic formation occurred in a society. This requires knowledge of the particular history of the subject society, including both its internal development and external connections. It also requires knowledge of the circumstances that may have stimulated a section of society to reassess its relationship with the wider community at the time of ethnic formation.

2. It is necessary to determine that social change visible in the archaeological record was indeed caused by ethnogenesis. The archaeological record includes two components that are frequently confused by the researcher. These include the well-defined symbolism of dominant political ideology and the wider set of material expressions of communal identity. While these usually share a common cultural heritage, and usually overlap in their symbolic content and perceived meaning within the wider community, they represent ultimately distinct forms of social integration.

3. In order to be sure that the archaeological changes do in fact represent a bounded social group, the wider extracultural archaeological record must be known.

For the remainder of this chapter I apply this approach to a specific case study—the Late Moche (ca. AD 600–750) town of Galindo in the Moche Valley of northern Peru. Here rulers and commoners alike manipulated communal identity, together with its related visual symbolism and places of social interaction, to consolidate their threatened social positions at a time of disruption and transformation. In a context of abrupt urban formation, economic deprivation, social tension, and political change, the ultimately conflicting interests of these two different segments of the population caused each to seek new principles of social cohesion within the wider community, a process that eroded the existing structure of Moche group identity.

ETHNOGENESIS IN THE LATE MOCHE PERIOD

Foundations of Traditional Moche Social Cohesion

Archaeologically, the structure of traditional Moche social cohesion is most apparent in its great centers of political control. The tall platform mounds that still dominate the coastal Peruvian valleys attest to the ability of rulers to both control the labor of local communities and affirm the dominant ideology of power through awesome architectural symbols (Moore 1996; Moseley 1975). Leaders used these artificial re-creations of the rain-giving sacred mountains to fashion an ideological discourse, by officiating at familiar mythic rituals that identified the rulers with these sacred places and with their embodied meaning (Alva and Donnan 1993; Bawden 1996; Topic and Topic 1997). Those in power thereby assumed the responsibility to mediate with the supernatural to ensure communal health. At the same time they acquired potent spiritual force to support and enhance their political status.

In addition to being expressed in architectural forms, Moche traditional dominant ideology was proclaimed through portable symbolism. Fine painted ceramic, metal, and textile objects all carried depictions of the rituals of power. Themes were usually drawn from historic local antecedents (Cordy-Collins 1990) but occasionally they incorporated potent foreign images into the Moche symbolic system (Menzel 1977:62–63). Striking portrait vessels proclaimed the power of individual members of the ruling elite. While the most elaborate items were reserved for contexts of central authority, simpler examples of this symbolism circulated

in all arenas of daily life, including the residential. Thus these symbols endowed the Moche ideological message with the powerful legitimacy of familiar traditional cultural meaning shared by all strata of society.

Burial practice is especially susceptible to manipulation by intracommunal groups and is an important vehicle for ideological discourse, as we shall see in this study. Practices that surround death are in a real sense conditioned by the social and political needs of the living, who may manipulate funerary ritual to embellish or actually to construct their social positions and relationships. The Moche used burial practice to sanction the dominant social order, to maintain communal traditions and origins, and to reinforce group integrity by reference to ancestral lands and the sacred places associated with them. The traditional Moche mortuary style was a brick-lined chamber tomb capped by wood and cane roofing, often located in a formal cemetery (see Donnan 1995; Donnan and Mackey 1978 for summaries of Moche funerary practices). However, even when located in a residential area, burials were placed outside houses (Chapdelaine 1997; Donnan and Mackey 1978; Topic 1982). People were usually laid on their backs with small pieces of copper placed at feet, hands, and mouth, a practice that links Moche ritual to earlier practice (Fogel 1993:281). Burial offerings often bore the distinctive symbolism of dominant ideology. Exceptionally, the tombs of rulers were incorporated into special burial platforms accompanied by huge quantities of fine objects. Important aspects of these traditional practices changed dramatically in Late Moche times at Galindo.

The character and pervasive social context of traditional Moche symbolism conformed to a situation where a related belief system enjoys broad community support. To a large degree the success of this inclusive ideology appears to have stemmed from its grounding in long-term cultural belief in a rural society organized by principles of communal solidarity. This structural conception, actualized through ritual and symbolism, linked people to the essence of their social beings. Here dominant ideology represented the social reality of the entire population during a time of political and economic florescence.

What can we say about Moche ethnic identity in this earlier period? It is true that a ruling group produced the ideological symbolism that archaeology terms "Moche culture." But there is no indication that rulers regarded themselves as ethnically separate from the wider population with whom they shared the cultural heritage that inspired this imagery. Indeed, the accessibility of all members of society to the symbols of north coast cultural heritage during this period archaeologically supports the presence of an undifferentiated social awareness in which kinship relations provided the milieu for unitary social identification.

Crisis on the North Coast

Late in the sixth century AD, north coast Moche polities experienced profound disruptions that have variously been ascribed to climatic disaster, external invasion, and internal tension (see Bawden 1996 for summary). The impact on the Moche Valley was particularly severe, with reduction in territorial hegemony (figure 1), economic decline, and major dune inundation of prime agricultural land. In response, the focus of settlement and subsistence shifted inland to the still-irrigable valley neck where the new town of Galindo was established, replacing the previous rural pattern of settlement (figure 2; Billman 1996:292). Inevitably, this change threatened the integrity of all social groups, discrediting the long-successful political order of the rulers while separating commoners from their ancestral locations, placing them in an alien urban setting, and disrupting their existing kin-based community organization. With traditional strategies of social integration rejected, both rulers and ruled strove to re-create social stability in the new setting. Ironically, while both groups manipulated ideological structure in their endeavors, they did this in very different ways that led to social division, ethnic formation, and ultimate collapse of the Late Moche system.

Two vital practical requirements for successful dominant ideology are the perception by the populace of its benefits and, in times of stress, the rulers' ability to successfully explain and contain threats posed by historic circumstance. There can be little doubt that the long-lasting earlier Moche system met these needs. However, it is equally clear that in the conceptual domain, the seventh-century failure caused rejection of the traditional dominant political ideology together with its ideological base and the rituals and symbols that were the active agents of its authority. Rulers reaffirmed their shaken position by introducing a coercive system of control at Galindo and adopting new pan-Andean ideological concepts in an attempt to free themselves from identification with the failures of their predecessors. Unavoidably this foreign ideology was oriented to the restrictive use of the elite and excluded the wider population from participation in the new social order and its rituals.

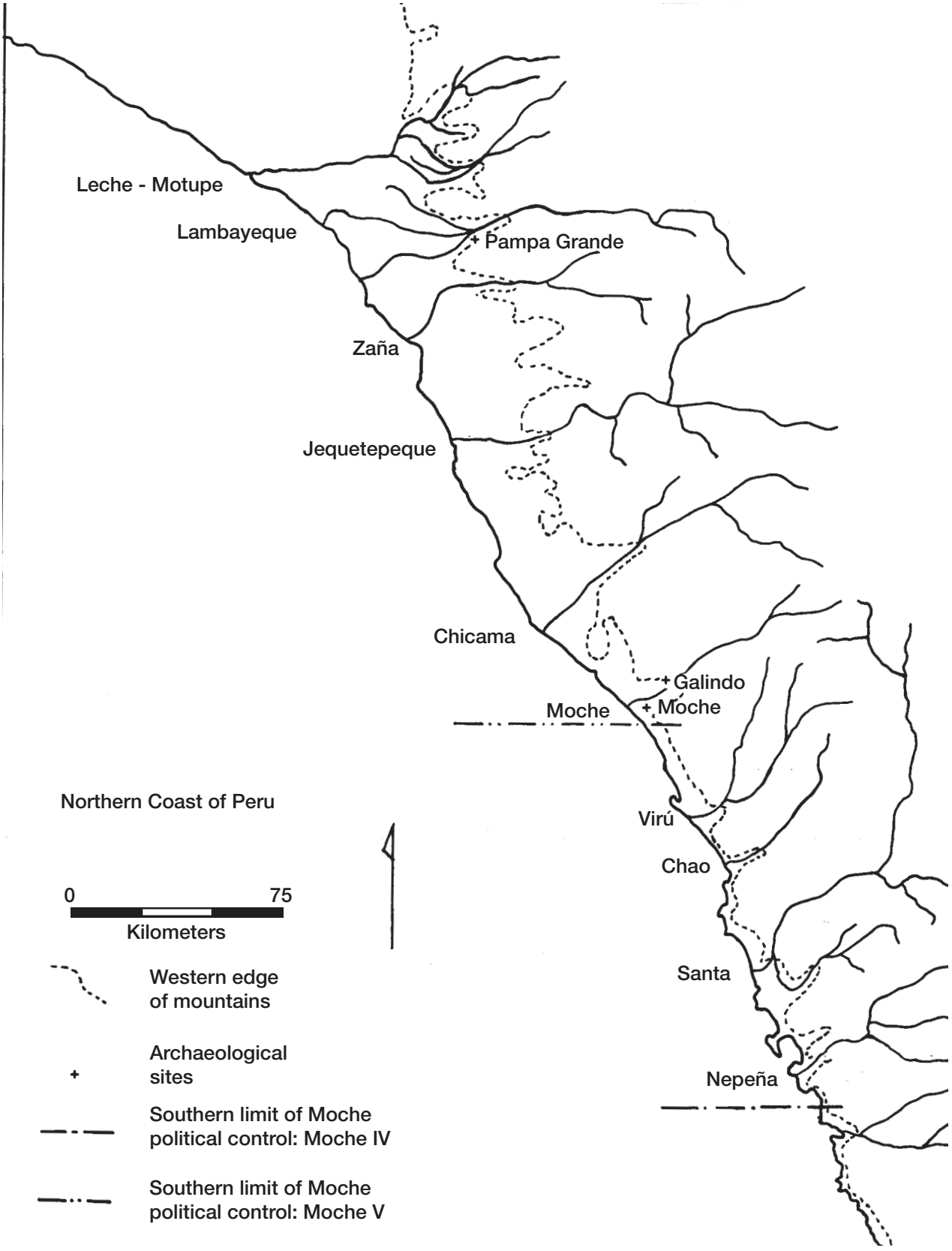

Figure 1. Map of the north coast of Peru showing the reduction in the area under Moche influence at the end of the Middle Moche (Moche IV) phase.

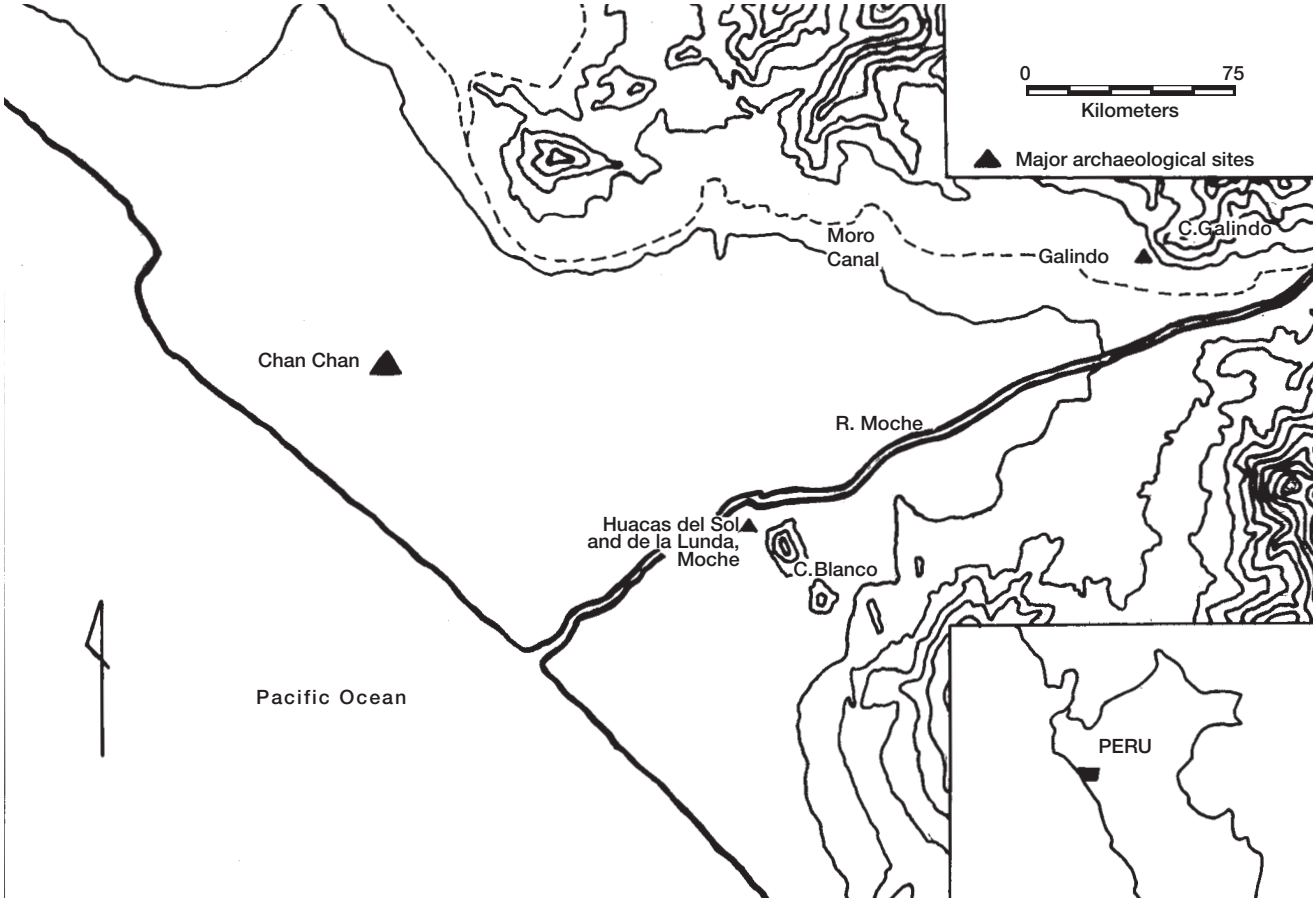

Figure 2. Map of Moche Valley with sites mentioned in the text.

Commoners confronted this structural crisis by manipulating residential ideology to reconstruct a secure social reality, in so doing largely redefining their group identity. To this end they drew support from their persisting structural beliefs—the principles that had been the foundations of the rejected traditional Moche ideological system, which constituted the core of their social experience. The distinctive ideational systems of ruler and ruled—one universal and looking to maintain political authority, the other internally focused and promoting basic group identity—represented incompatible constructions of power and ultimately exacerbated the social stress that characterizes the Late Moche period in the south.

DIVERGING SOCIAL IDENTITIES AND THEIR SYMBOLS IN THE MOCHE VALLEY

The Galindo Urban Transformation

Replacement of the previous rural settlement pattern by the town of Galindo (Billman 1996:292) drastically altered the social environment of the affected population and the relationships that structured their lives. Transition to urbanism demands major modification of pre-existing community structure, involving new management institutions and strategies of social organization (Gailey 1987:36–38). Formal rules of social membership, public order, economic status, and political authority, together with their accompanying institutions, replace implicit conventions of local kinship as the predominant mechanisms of social organization. At Galindo, these changes emerged in response to widespread political and economic disruption, marking a major degree of discontinuity in Moche customs of social integration that is archaeologically manifested in the physical remains of the town. Just as centuries earlier their ancestors had adopted features of the powerful Chavín religious complex to confront decline (Burger 1992:183ff.), Galindo rulers looked beyond their borders for new ideological foundations of authority. They found them in the expansive highland Wari state, from which they derived symbolic

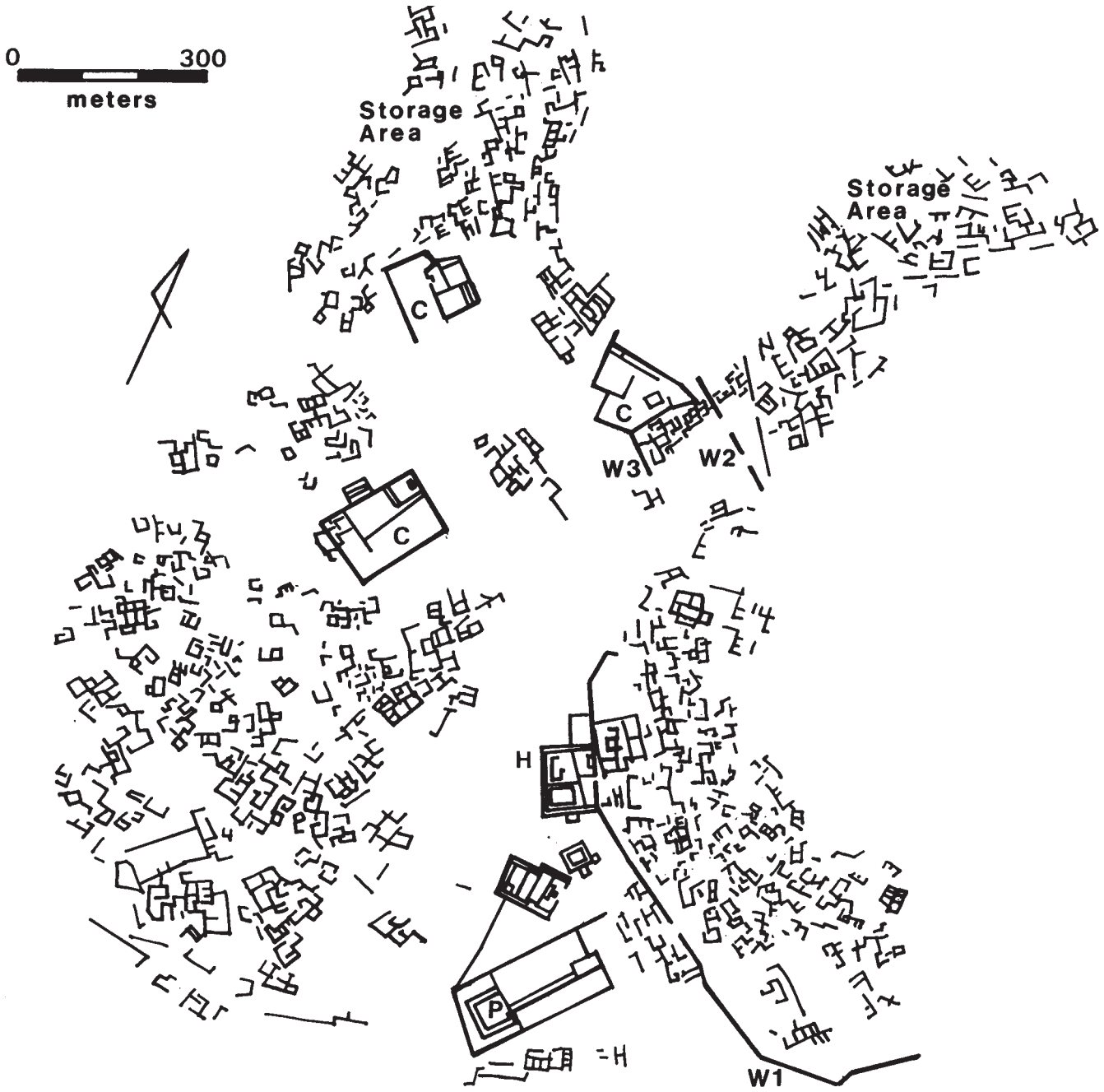

Figure 3. Plan of Galindo.

elements and possibly a more coercive form of government. The town is a massive symbol of the changed social circumstances (figures 3 and 4), with strict differentiation of population groups and urban functions apparent in residential, storage, and governmental architecture.

Residential occupation was segregated according to size, content, and distance from water source, with low-status hillside housing being separated from the rest of the settlement by a massive wall (W1, figure 3) while the small elite residential area, adjacent to the site's most elaborate public architecture, is also shielded by tall stone walls (Walls W2 and W3, figure 3). This remarkable emphasis on population segregation suggests an unprecedented degree of social tension. Similarly, corporate storage terraces with restricted access (figures 3 and 4) reflect the resolve of rulers

Figure 4. Galindo from the air. Note the elite burial mound "palace" enclosure in bottom right corner of photo, small platform of traditional form directly above it, and large *cercadura* enclosures in center and left-center of the photograph. The image (No. 334935) is reproduced by courtesy of the Department of Library Services, American Museum of Natural History.

to control the reduced food resources still available to them. Indeed, Galindo's very location at the valley neck underscores these pressures. Here its government could best utilize the surviving agricultural lands north of the river and regulate the labor of agricultural workers relocated to the town. The architecture of power displays the same qualities of segregation and control. Three walled complexes—*cercaduras*—stand in the center of the town (designated C in figure 3; also see figure 4). Although differing in detail from Wari counterparts, they reflect the same emphasis on physical enclosure, functional separation, and exclusivity (Isbell and McEwan 1991), thereby contrasting with the more accessible administrative architecture of earlier times, with its ideological foundations grounded in the common conceptual history of the entire society.

The same qualities pervade the most exclusive form of Galindo elite architecture and contrast with its antecedents. Sometimes characterized as ancestral to the Chimú *ciudadelas* at Chanchan (Complex P, figure 3; also see figure 4, Conrad 1974:226), this unique complex comprises a large burial platform with central chamber, which does not in itself significantly differ from the well-known Sipán "Royal Tombs" of an earlier time. However, its association with residential occupation in a walled compound evokes the Wari-like compartmentalization noted above. Absent from Galindo as dominant symbols of power are the majestic platform mounds that for centuries had dominated Moche life. In fact the one edifice of this type is little more than a modification of the ground surface located away from the central cercaduras and overshadowed by the new forms (Structure H, figure 3; also see figure 4). I suggest that it was built primarily to denote a measure of continuity with the past, but that real power was now located in the new cercaduras.

Symbols of Ideological Change

The new ideological orientation was also proclaimed through changes in the portable symbols of authority at Galindo and was primarily visible in decorated ceramic vessels. Ceramic change took two very different directions. First, ceramics of traditional form and color lose the narrative imagery that had depicted the rituals within which earlier Moche leaders played their power-enhancing central roles as arbiters with the supernatural (figure 6). Most drastic was total abandonment of the portrait vessel (figure 5), which had emphasized the important political roles of individual leaders (Donnan 2001). With the rejection of this rich tradition of narrative symbolism, Late Moche elite ceramic decoration at Galindo came to rely largely on abstract geometrical imagery (figures 7 and 8). Such major modification cannot simply be ascribed to stylistic development. Rather, it reflects rejection and abandonment of a discredited ideology and the elimination of its material symbols of communication.

The second form of ceramic change involved large-scale innovation. I have described additions to the Late Moche inventory in full detail elsewhere (Bawden 1994, 2001). Innovations comprise a number of dark brown and blackware forms, mostly new to the Moche tradition, produced by oxygen-reduced firing. Most are embellished with impressed registers of a very restricted group of abstract geometric designs drawn from earlier north coast art (figures 9–13), or are undecorated and polished. These new forms together with their emphasis on reduced firing are generally similar to contemporary Wari-influenced pottery of the central Peruvian coast (Menzel 1977), while incorporating elements of regional continuity through their traditional decorative embellishment (for example see Bankes 1971: figures 7, 8a, 35, 37; Donnan 1978: figure 189; Kroeber 1925: plates 54h, 55e, 58b; Kutscher 1955: plate 76; Strong and Evans 1952: plates IX, M, XVI, E; Willey 1953: plate 59, 1971: figure 3-64).

Figure 5. Portrait Vessel, Middle Moche period (after Fiedel 1987: figure 107c.)

Thus, it appears that Moche Valley leaders transformed the nature of symbolic communication in order to assert a new exclusive ideology of power. They eliminated the narrative iconographic scheme that had

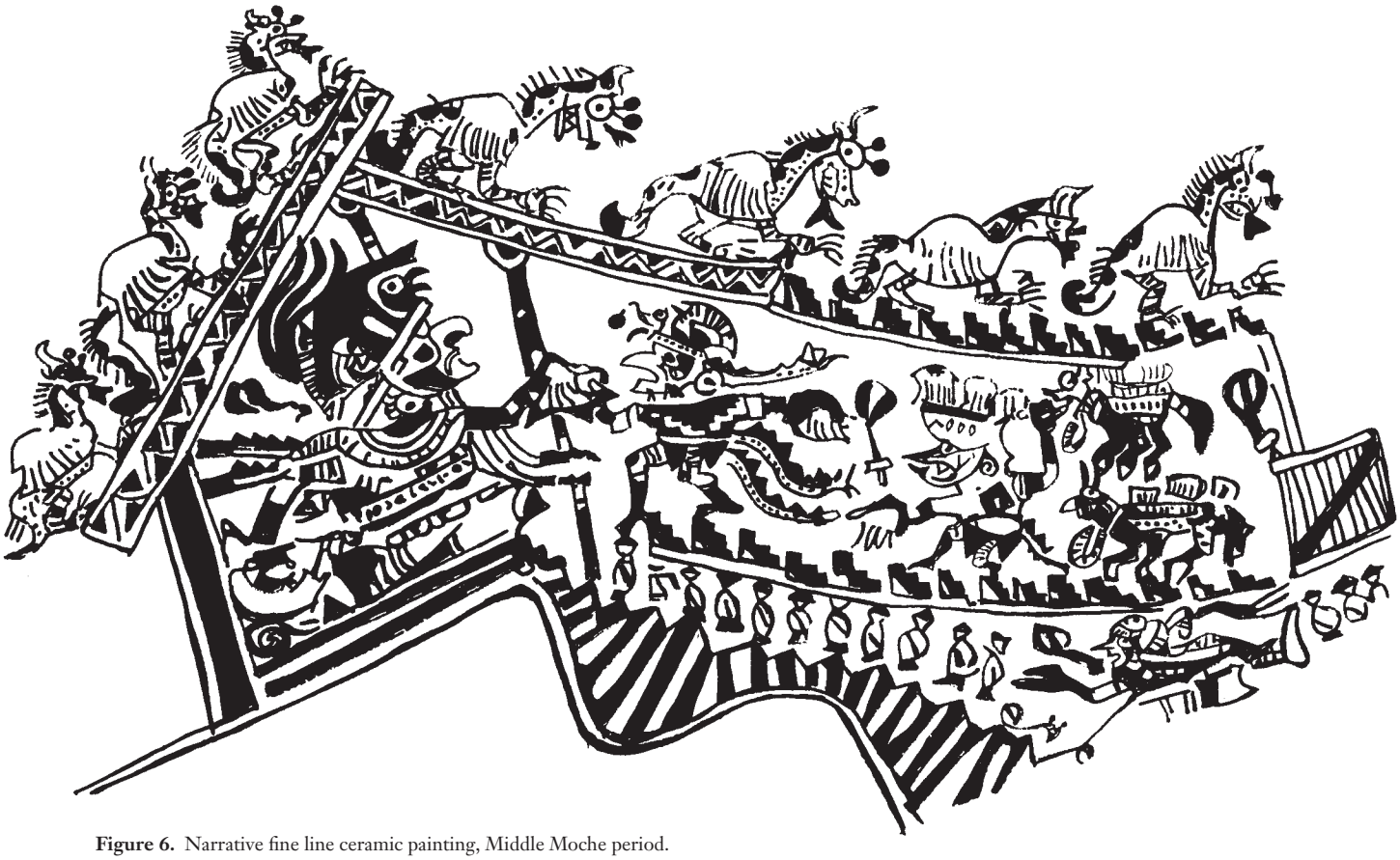

Figure 6. Narrative fine line ceramic painting, Middle Moche period.

played a central role in the visual discourse of earlier ideology, they retained purely decorative traditional elements of ceramic art as passive symbols of cultural continuity, and they selectively adopted elements that evoked the transcendental prestige of a powerful pan-Andean religious belief system. This symbolic system and its associated tenets attempted to visually mediate transformation with continuity. However, given the cultural and historic situation of its proponents, these basically incompatible forces posed a daunting challenge to the new ideology.

Late Moche leaders sought to free themselves from the localizing strictures of the discredited political past by separating their authority from wider community sanction and linking it with a foreign ideational system. It is possible that the residual links with the past expressed in the limited use of older iconographic motifs indicate attempts to pacify commoners by reference to a shared cultural past. However, such tokens could not mask the reality that large segments of the population were effectively removed from any significant participation in the institutions and rituals that defined their social existence, a drastic change from earlier Moche periods. The alienating effects of this disruption were naturally augmented by the relocation of people from their ancestral lands to urban Galindo, with its enforced social stratification, economic deprivation, and threats to traditional communal life. Commoners were faced with the unprecedented challenge of maintaining their social beings in an adverse setting. Moreover, they found themselves in a situation of great political asymmetry, with all effective power in the hands of their rulers. The associated tensions collectively created a profound degree of structural contradiction within the newly urban society that generated a process of differentiation between the social identities of rulers and ruled.

THE MECHANISMS OF ETHNIC FORMATION

The Archaeological Setting

At Galindo, people manipulated the limited social arena at their disposal—the residential household—to construct new forms of ethnic identity on the threatened residue of the old. The residential house contained three internal walled spaces: a food preparation area (*cocina*, figure 14), a living area (*sala*, figure 14), and a

Figure 7. Traditional ceramic "florero" of nonrepresentational design. From high-status residential context.

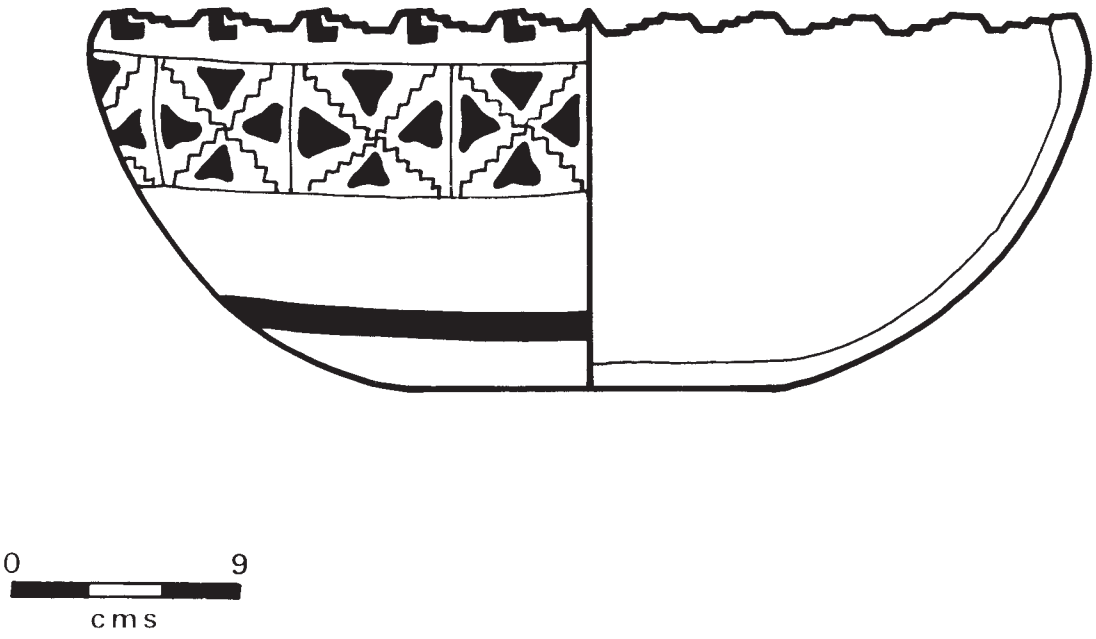

Figure 8. Traditional ceramic bowl of nonrepresentational design. From high-status residential context.

small domestic storage area (*deposito*, figure 14). The rectangular living space, characterized by stone-faced benches lining the walls and enclosing a small patio, was the center of domestic social activity. However, this space served another important purpose. Galindo commoners were buried here within the benches in an unprecedented form of in-house funerary ritual, which signals their endeavor to create their own distinctive social practice. Burials were generally modest in form and content. They usually comprised simple pits located in the bench cores, but sometimes included a roughly lined adobe or stone-walled chamber (figures 15, 16), a design that reveals their identity as formal interments rather than casual disposals. In all cases the related bench surface contained evidence of general domestic activities, indicating that burial occurred during the active life of the house. The deceased were wrapped in simple textiles and either rested on their backs, or in contrast with earlier times, lay partially flexed on their sides. Small pieces of copper placed at head and feet marked a rare feature of continuity with the north coast funerary tradition (Fogel 1993:281). Unlike elite funerary practice at Galindo itself, and in a dramatic departure from earlier Moche practice, no ceramic items of any kind were incorporated into the residential burials.

Elite burial practice offers a vivid contrast to this residential pattern. The dead were interred in rectangular stone-lined chamber tombs accompanied by abundant fine ceramics and textiles that embodied the foreign-derived ideological symbolism described above. Burials were placed in small "cemetery" clusters, located near the new architectural centers of authority, the cercaduras. On the surface this practice appears to follow Moche cultural convention while the adoption of residential interment by the Galindo commoners breaks with all existing regional traditions. Closer scrutiny, however, suggests that the reverse is true. I have already stressed that the rulers of Galindo adopted new iconographic and architectural components in order to break with and transcend the discredited symbols and practices of the past. The incorporation of the material signs of this transformation into the highly charged symbolic setting of burial was part of this attempt to transform the social order through dominant ideological modification. In contrast the residential customs reveal the attempt of a newly urbanized subject population to reconstruct group identity from traditional social principles.

Burial as Social Identity

The treatment of the dead carries great potential for furthering the aspirations of the living through the manipulation of historically constituted cultural and religious belief (for various recent archaeological studies see Hodder 1990; Kristiansen 1991; Parker Pearson 1993; Thomas 1993; Tilley 1996). Funerary custom represents a powerful component of social practice. It directs relationships between members of a society, living and dead, and it mediates the status of individuals or groups within a community (Turner 1967; van Gannep 1960 [1909]). Understanding this potent capacity for social action helps us to explore the paradoxical juxtaposition of major material change and conceptual continuity embodied in Galindo residential burial practices.

We must first understand the historically constituted social context within which the Galindo changes occurred. Earlier north coast social organization, in accord with broader Andean practice, was grounded in a pattern of local kinship groups strongly attached to their ancestral lands through a combination of mythic association and sacred geography. It is probable that prior to the seventh-century disruptions the Moche Valley population was loosely integrated within a segmentary system in which groups retained social autonomy and communal land privileges and owed labor obligations to their local and wider political leaders (Moseley 1975; see Netherly 1984, 1990 for somewhat later Chimú organization). At the core of this system was, and is, the implicit acceptance that human groups existed at the conjuncture of their spatial and temporal experience. Thus the sacred space of communal lands represented the map on which social life was distributed. On the temporal plane, life existed as a projection of the past, continually reinterpreted through myth and its ritual actualization. In this worldview time, space, and social reality were inextricably enmeshed, and occupation of ancestral lands was just one unquestioned denominator of human social being.

Taking this discussion a step further, we see that ancestral spirits were active players in the daily affairs of the living. Today this tenacious principle is regularly manifested through ritual in which traditional healers enter sacred time and space to mediate with ancestral and natural forces to attain the cosmological balance necessary for social order (Joralemon and Sharon 1993). Moreover, such ritual inevitably involves places charged with spiritual force, which define the geographical experience of the living and connect them,

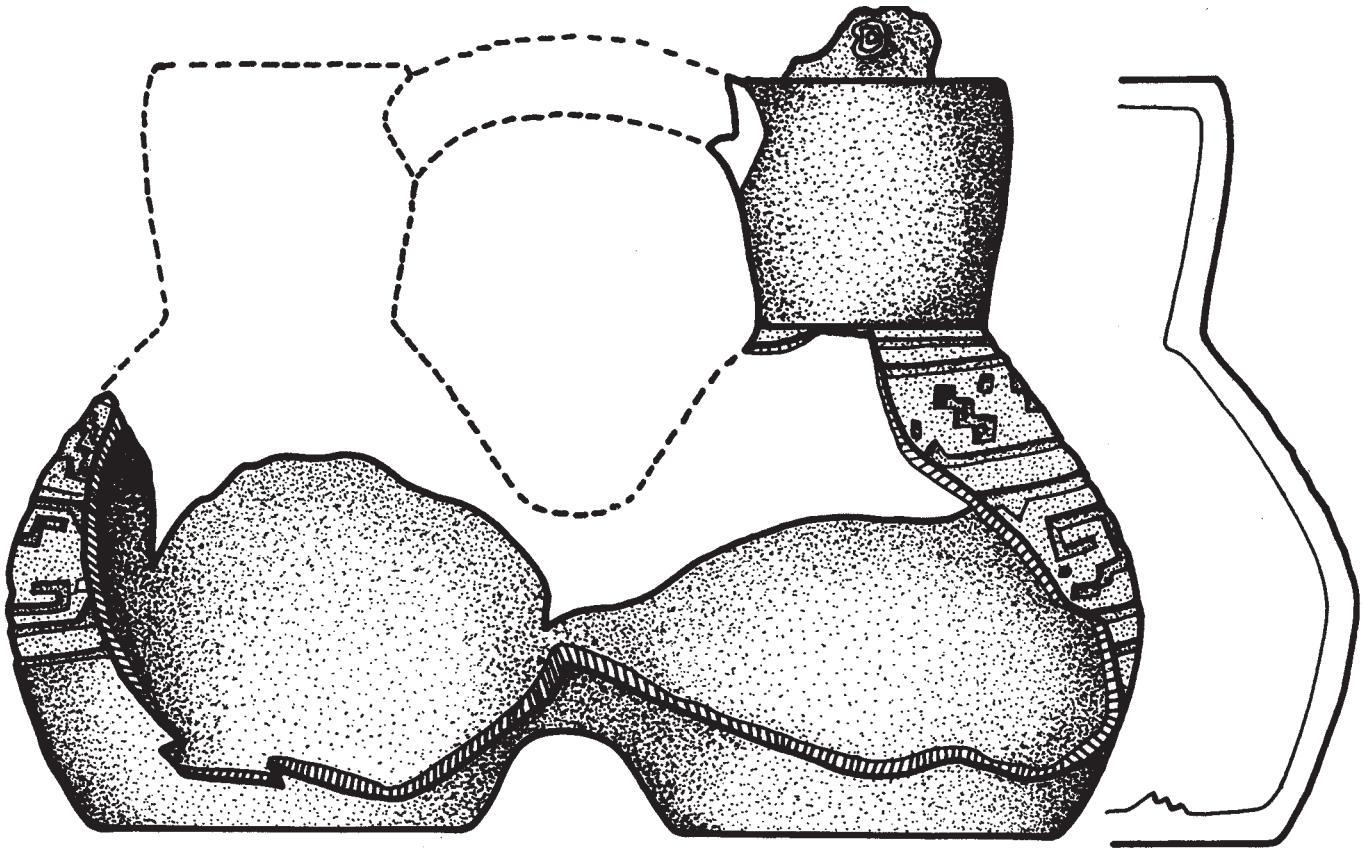

Figure 9. Innovative reduced ware double-chambered vessel from high-status burial.

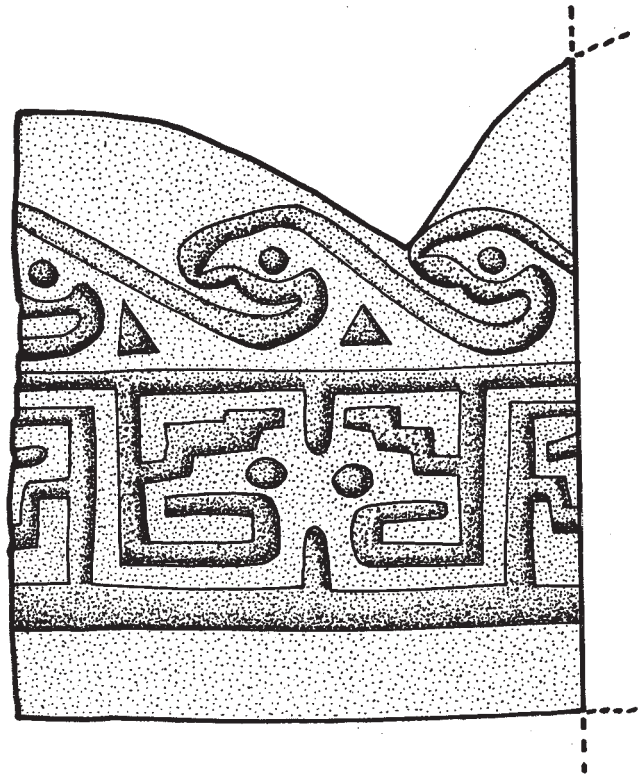

Figure 10. Fragment of innovative reduced ware square bowl from high-status residential context.

Figure 11. Innovative reduced ware vessel with elliptical-shaped body. From high-status residential context.

Figure 12. Innovative reduced ware angle-rimmed bowl. From high-status residential context.

Figure 13. Innovative reduced ware round bowl. From low-status residential context.

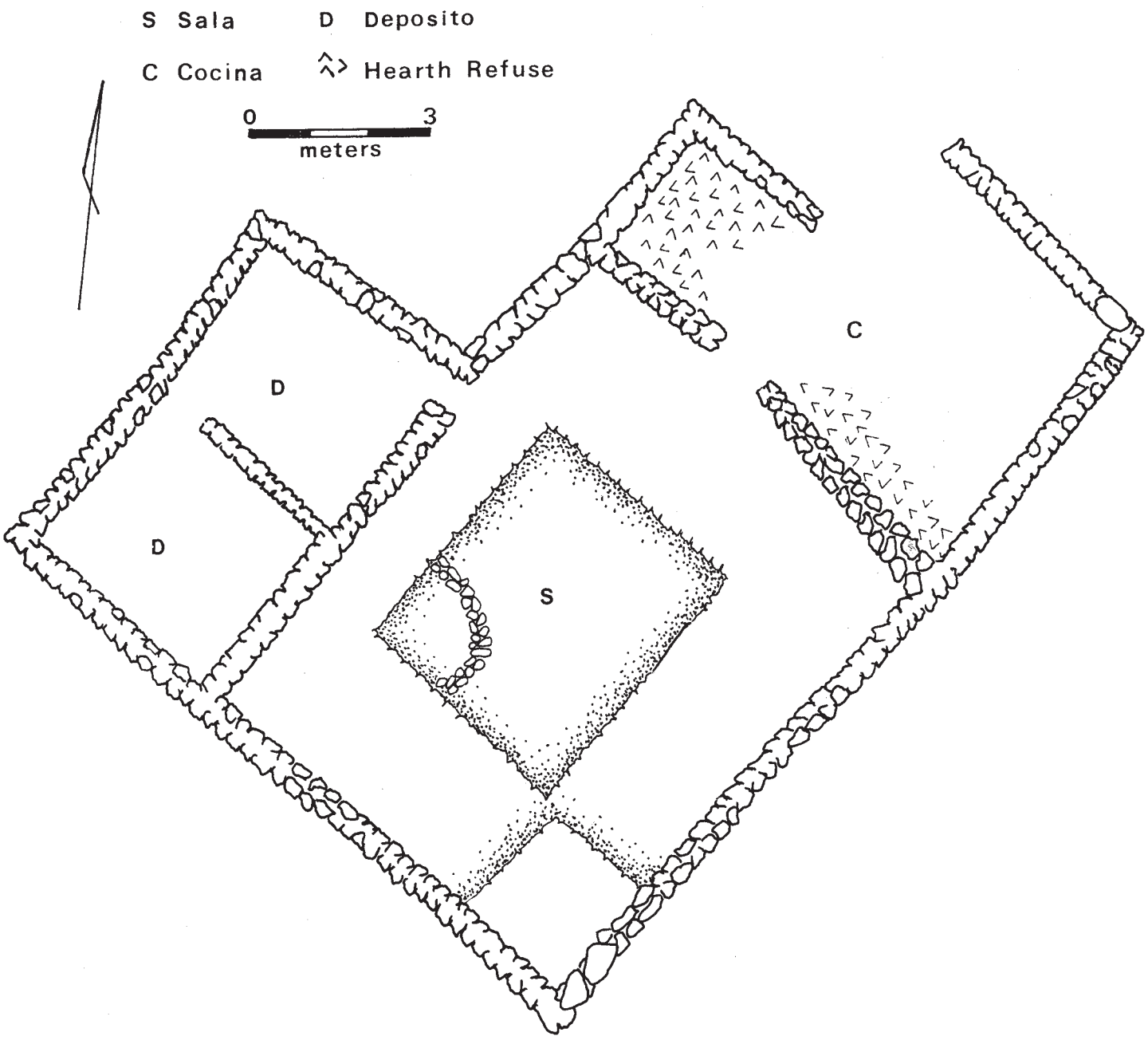

Figure 14. Plan of low-status residential structure located at base of Cerro Galindo.

Figure 15. Adult male burial within room bench of low-status residential structure.

Figure 16. Child burial within room bench of low-status residential structure.

their ancestors, and their descendants with their wider natural and spiritual world. It is not surprising, then, that in the pre-Christian epoch the physical remains of the ancestral dead were awarded special treatment and were themselves regarded as sacred beings, or *huacas*.

The disruptions of the Late Moche period threatened these basic structural foundations of daily life. By congregating numerous distinct communities in a common location, urbanism, with its new institutional regulations and social compartmentalization, destroyed the collective boundaries and threatened the very social identities of many of Galindo's inhabitants. In the new restrictive environment they were alienated from the sacred places that brought social cohesion to their daily lives through their innate physical and spiritual significance. The narrowly focused political ideology of their rulers, intended as it was to consolidate an exclusive position of authority, could not begin to replace the lost foundations of group cohesion. This rupture with their traditional way of life left commoners with a profound need to redefine and integrate sacred landscape and temporality in a radically different physical context. People responded to this threat by reconstructing the familiar substance of their social identity in the new setting through innovative funerary practice and symbolism.

At Galindo the only location that could be largely controlled by the non-elite population was the domestic residence. Given their deep connection to the most tenacious structural manifestations of community life, residential spaces and their architectural styles always play fundamental roles in shaping the collective experience of their builders. At Galindo the low-status residents transformed this confined domestic social setting into the reduced counterpart of the wider sacred landscape from which they had been displaced. Here they created a system of ritual practice and belief whose physical expressions ignored reference to dominant discourses of Moche power, past or present. In the relative autonomy of their homes, they eliminated from their material culture the narrative symbolism that had previously carried the tenets of dominant ideological discourse into all social arenas of the Moche domain. Indeed the only note of continuity was struck by the persistence of traditional forms intentionally devoid of such ideological communication. Even here, in the domestic arena, new blackware bowls hastened replacement of this tenuous symbolic link to the past. In this they shared with their rulers rejection of the symbolism of a failed ideology.

However, unlike their rulers, the commoner population of Galindo also virtually banished the symbolism of the new dominant ideology from their domestic space and burial ritual. Ceramics embellished with the visual symbols of the transcendental Late Moche ideology of power are largely absent from low-status domestic space. More dramatically, commoner burials diverged in every way from traditional custom—in form, location, position of the dead, and grave goods. Moreover, the wide variety of positions displayed by the interred

dead suggests that the physical setting of the burials played a more important role in affirming the meaning of residential funerary practice than did formal organization or content. This attribute better reflects a newly established practice created at the informal household level than one dictated by long-term historic custom.

With the pervasive elimination of the material manifestations of all dominant Moche ideologies from their domestic lives, lower-status inhabitants of Galindo signaled their alienation from both past and present social order. In response people drew on the deep historic foundations of their cultural existence to create a unique form of social identity. They inserted the bodies of their dead ancestors into the pivotal social space of the household as huacas and spiritual presences. Thereby they reconstituted the elemental relationships that had historically formed the core of their social beings, through a process that involved cultural invention and reflexive interaction between themselves and the exclusive ideological meaning embedded in their new household symbolic and ritual practices. Although associated household funerary activities are not accessible to the archaeological record, we can assume that they added the social domain within which households redefined their identities in daily action. Here in liminal time they gathered together the various threads that provided cohesion and continuity to their social lives. It is true that the experience underpinning these innovations was embedded in traditional cultural conception. However, such radical change, which affected an entire subgroup, signals the presence of fragmentation within the wider social body that cannot be explained as temporary adjustment related to the evolutionary emergence of urbanism. Rather it represents the rise of an entirely new social group, with its own set of values and practices as the result of a process of ethnogenesis.

CONCLUSION

My interpretation of the Galindo archaeological record—as the record of ethnogenesis conducted in the face of severe social transformation at the end of the Moche period—makes understandable some otherwise puzzling contradictions. Ironically, the very different forms of material symbolism used by rulers and commoners can be attributed to a common determination to maintain identity through change. However, deeper examination of this shared motivation shows that it took two very different directions according to the divergent pressures placed on its proponents by the threatening events that took place at the end of the seventh century AD. Political leadership is always defined and asserted through its use of ideology communicated through symbolic communication. It follows that at a time of broad-based breakdown, rulers strove to sustain their positions as arbiters of power by distancing themselves from their predecessors' failure and imposing a new ideology, bereft of the negative connotations of the past. To do this they drew on conceptual and symbolic signifiers that transcended local cultural experience to reconstitute prestige, social distance, and authority on new untarnished foundations. Here their concern was maintenance of their political status, not underlying social identity, and the means of accomplishing this was effective ideological change in the context of urban formation.

In contrast, commoners were faced with a very different, though more fundamental, challenge. The process of relocation from their communal lands to Galindo brought disruption to their earlier, kinship-based way of life, thus to the traditional foundations of their social cohesion. Consequently, in the hostile urban setting of Galindo they were motivated by the need to re-establish social identity rather than to strive for status or political authority like the ruling elite. Unlike their rulers they eschewed assertive ideology for ethnogenesis as the means to ensure group cohesion. The paradoxical blend of material innovation and conceptual continuity apparent in their residential practices denotes this process of ethnic construction. Within the familiar and secure setting of the household, commoners used familiar cultural principles to reconstitute the essential tenets of historic north coast social consciousness in the urban context. At the same time they narrowed and redefined the effective scope of these powerful cultural concepts from their previous role as the core principles of an entire inclusive society to one in which they served as anchors of a particular threatened group. The long-familiar beliefs and practices that had been the basis for broad social identity and dominant ideology alike were thereby co-opted by a threatened group to actively create a new sense of identity in the restricted household context. While the rough household tombs can easily be regarded as benign alternatives to the burials of the elite, in fact they embodied active separation, resistance, group autonomy, and excusive social cohesion.

Inevitably as part of this process traditional Moche symbolic imagery, with its identification with a discarded past, was rejected by all segments of society as a means of maintaining group identity, albeit for different reasons. On one hand, rulers replaced the rejected traditional

forms with the symbols of a more effective ideology, introducing new material agents of communication for this purpose. On the other hand, as part of a necessary process of social renewal, commoners strove to eliminate all traces of dominant Moche symbolism from the household setting. Both moves furthered the construction of competing social identities whose material symbols are already at Galindo difficult to characterize as "Moche." In the diverse symbolism that weakly evoked a rapidly receding past and more powerfully reached toward an uncertain future, we see the irrevocable beginnings of the ethnic transformation that would ultimately produce Chimú cultural identity. In conclusion, Galindo provides us with an unusually advantageous case study of ethnic formation. By recovering the full social context of the human group that experienced these developments as the convergence of unique and threatening spatial and temporal forces, we are able to distinguish the signifiers of ethnic assertion from those of ideological authority and other ambiguous social referents. By so doing we are able to view the mechanisms of social production in their true character as the actions of individuals addressing the adverse circumstances in which they found themselves at a pivotal moment in time by creating new foundations of group cohesion.

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CHAPTER 3

Of Pots and People:

CERAMIC STYLE AND SOCIAL IDENTITY IN THE TIWANAKU STATE

JOHN WAYNE JANUSEK

INTRODUCTION

Understanding the emergence and consolidation of past states requires that we address social identity. Most archaeologists skirt the problem because of the difficulties involved in relating identity to material culture, or of observing identity in the dirt. Ceramics, in many societies some of the most expressive material remains, are also the most anathematized of artifacts used to approach past identity, in part a response to early idealistic attempts to relate ceramic style with residential and kinship patterns (Hill 1970; Longacre 1964). The abundant critiques are well founded and we are armed with a wealth of cautionary tales (e.g., Dietler and Herbich 1998; Hodder 1982), but we now face an aversion to addressing material culture as an expression of social identity at all. The conceptual bath water needs reconsidering, but we have prematurely discarded some of the most important potential expressions of human activity.

I examine material expressions of group identity and their role in the prehispanic state of Tiwanaku (AD 500–1150), a polity centered in the southern Lake Titicaca basin of contemporary Bolivia (Albarracin-Jordán 1992, 1996; Alconini Mújica 1995; Bermann 1990, 1994; Janusek 1994; Kolata 1991, 1993; Manzanilla 1992; Mathews 1992; Rivera Casanovas 1994; Stanish 1994). I argue that certain classes of ceramic vessels in the ancient Lake Titicaca basin, through both their crafting and use, became involved in the expression and negotiation of status and social identity. What we require in order to "see" identity in the past is a cautious, multidimensional approach to the relation between human action and material culture. I compare excavated residential compounds in the urban centers of Tiwanaku and Lukurmata. I examine patterns of conformity and differentiation in ceramic style in relation to other aspects of residential life, including spatial organization, craft production, diet, and burial patterns. A conjunction of material patterns, representing multiple dimensions of practical consciousness and social activity, point to the central place of identity in the organization and day-to-day formulation and reproduction of Tiwanaku society. Ceramic vessels were significant vehicles not only for the production,

storage, and serving of food and drink, but also in the negotiation of various forms and scales of identity, from coresidential groups to state identity.

COMPLEXITY, IDENTITY, AND STYLE IN ARCHAIC STATES

States in all their variety are particularly developed forms of complex societies. Archaic states are typically defined as societies rooted in urbanism and incorporating a stable, institutionalized political structure (Cohen 1978; Wright and Johnson 1975). Complexity as a concept, if often left vague, usually invokes societies characterized simultaneously by a high degree of both integration and heterogeneity. Social scientists, drawing on early theorists such as Durkheim (1902) and Weber (1958), have located the essence of heterogeneity, or social differentiation, in their expressions as hierarchy and role. Hierarchy, whether characterized as an expression of integration (Service 1975; Wright and Johnson 1975) or inequality (Fried 1967; McGuire 1983), is grounded in differences of wealth, status, or power (Brumfiel and Earle 1987; Weber 1947). Role, manifested in specialized livelihoods, is grounded in differences that are fundamentally complementary and that ultimately foster integration. Hierarchy itself is considered to foster integration to the extent that leadership and bureaucracies provide specialized services for society (Service 1975; Weber 1947; Wright and Johnson 1975). Following these ideas, states are highly ordered yet internally diversified organic systems. Expressions of heterogeneity not necessarily tethered to hierarchy or role, such as ethnicity, faction, lineage, or gender, either are ignored or treated as primitive, in Weber's words "totemistic," survivals.

These assumptions accompany a scope of analysis that focuses on past states as overarching systems or structures. The people and relations that form states, the society that surrenders its will to the Leviathan, are significant only to the extent that they have a place in the hierarchy or a role in the system. Others of the infinite characteristics of the people who compose such a system, and the shifting webs of relations that connect or disconnect them, remain insignificant in the analysis of state organization and dynamics. Research that seeks to fully elucidate past states such as Tiwanaku must address more fully the inseparability of structure and human activity (Bourdieu 1977; Giddens 1979; Sahlins 1985), activity which, although it may very well promote state power and influence, always goes well beyond state interests and ends. As Giddens (1979:7) notes, "social systems have no purpose, reasons or needs whatsoever; only human individuals do so." Hegemonic systems exist only insofar as they are created, reproduced, reformulated, or torn down through the actions of individuals and groups. Thus individuals and groups, whether nobles or commoners and leaders or farmers, must be examined to fully understand the emergence, transformation, and collapse of past states.

In the Andes a key element of social relations and political activity is social identity. Social identity I consider broadly as subjective affiliation with certain people in relation to others based on perceived kinship, shared memory, manner of actions, place, gender, or cultural expressions. It is all of the characterizations of "us" that a person will use to define oneself in various contexts and to navigate social worlds. Although social identity is sometimes glossed as ethnicity (De Vos 1995; Jones 1997), in fact it may index multiple nested scales and overlapping groups. At the local end of the continuum are corporate groups, lineages, inhabitants of a local landscape, or descendants of a common ancestor. Implicit in the activities of such groups are economic production and social reproduction. At the "macro" end of the continuum are more inclusive and encompassing affiliations that form less intimate, more "imagined communities" (Anderson 1983). Including ethnic and "national" affiliations (Comaroff and Comaroff 1992; Schwartz 1995), such forms of identity, though often more tenuous, are almost always tethered to concrete events, places, and phenomena. Such a group may congregate periodically in major ceremonies or commemorations, its identity tied to a common ritual landscape and characteristic productive regimes. A sense of cultural coherence may be linked to distinctive styles of clothing, language, and spatial or architectural order. Such material expressions form the symbolic capital of any identity, for they give concrete, often public expression to a group or community that lives "in the heart and mind" as much as, or more than, in face-to-face interaction.

In the Andes the concept of *ayllu* is critical to understanding the relation between identity and complexity in the historic south-central Andes (e.g., Abercrombie 1986:24–101, 1998; Izko 1992:75–80; Martinez 1989; Platt 1982:50, 1987; Rasnake 1988:49–64; Rivera Cusicanqui 1992:102–22). *Ayllu* was a fundamental principle of social order, a community that in its most specific sense referred to an intimate group of kin sharing common resources, ancestors, and identity. Many ayllus practiced a common trade. Simultaneously it was a slippery term that could refer to multiple nested

or overlapping groups (Izko 1992:75–80; Platt 1987; Saignes 1985). For any individual, the meaning of the term shifted with context, day to day and region to region (Abercrombie 1986:74; Saignes 1985). At one moment it could invoke micro-ayllus, kin groups that effectively acted as corporate groups, at another encompassing macro-ayllus, which, like ethnic groups, became coherent largely during external conflicts (Izko 1992: 47–58) and major rituals (Abercrombie 1986). Ayllu even referred to an inclusive polity, or "hierarchy of encompassment," that incorporated diverse communities settled discontinuously over a vast region. At this level, unequal relations among ayllus were described as intimate relations within the family, with political leaders as metaphorical "elder-brothers" or "fathers" (Abercrombie 1986:86; Platt 1987). From one perspective, then, ayllu invoked an intricate and malleable sense of place and identity for any individual. From another, ayllu defined complex relations in a hierarchical sociopolitical landscape, attributing to it the intimacy characteristic of domestic life. Ayllu defined social identity but it also was political ideology.

Archaeologists typically shrug the challenge of identity by quoting the old axiom that "pots are not people." I believe we can address identity, but approaching its expressions through material patterns requires a cautious and critical concept of ceramic style. First, style and technology are not distinct elements of a pot (e.g., decoration vs. paste), but interwoven aspects of the production and use of vessels. Style and technique are interrelated in that style is both the specific and guiding "way of doing" something (Hodder 1990; Wiessner 1990) and the objectified result (Dietler and Herbich 1998) of an entire process of production, from the gathering of clays through postfire cleaning and polishing. Second, as a crafted material image and objectified process, material style embeds ideas and symbols, some subliminal and others conscious, and in certain contexts those symbols may serve to enunciate explicit or "hidden" agendas of social action. Thus, in certain contexts ceramic vessels may cue information about their producers or owners, most effectively so in vessels created in part for social display, such as serving and ceremonial wares (e.g., DeBoer and Moore 1982; Smith 1987). In social gatherings, feasts, and ceremonies, the stylistic properties of a vessel may be "turned on." Some stylistic elements may be consciously acknowledged while others go unnoticed. A vessel shape tacitly accepted as "normal" to most may be considered "weird" to others, or a "beautiful" motif "ugly." There's no accounting for taste, for taste in part is enculturated by specific groups and individuals, each with unique histories, identities, and stylistic preferences. Because serving and ceremonial wares tend to embed the most dense and effective stylistic communication, and because they are most visible in dynamic social contexts, they are often sensitive and effective markers of social affiliation.

Nevertheless, ceramic style and social identity are rarely directly related. First, there is no reason to presume that in a given society ceramic vessels, or any particular class of materials, necessarily mark identity (see Dietler and Herbich 1998). Each society or even a specific group therein, given specific cultural predispositions and historical circumstances, produces and employs a unique repertoire of material and nonmaterial (e.g., dialect, myth) elements to mark identity, and the elements so charged by a group may change through time. Second, unlike certain traditions employed to mark identity, such as cranial modification (Blom 1999, this volume), serving vessels like most material goods are acquired, exchanged, and given away, so assemblages may change dramatically during an individual's lifetime or during the life-history of a social group. Thus, the relation between vessel style and social identity is usually indirect and always in flux. Although groups may consciously employ specific objects or designs to identify themselves in relation to others, giving them emblemic or assertive qualities (Wiessner 1990:48), in vessels style often will be expressed less consciously and more ambiguously. Although the serving wares a family owns and uses may offer clues to its various social affiliations or social standing, the linkages between vessel style and social identity may be subliminal and ambiguous, exhibited in assemblages more than in individual vessels. To effectively examine the relation between ceramic style and identity, archaeologists must examine and compare entire assemblages.

I focus on ceramic style to examine relations between complexity and identity, and between identity and material culture, in Tiwanaku society. Approached as entire assemblages of significant objects, and in relation to many other patterns of social life, ceramic vessels can effectively help us "see" identity in the past. These materials can help us forge more grounded characterizations of archaic states such as Tiwanaku, characterizations that elucidate how states are created and reproduced through daily human activity, and how such states and their ideologies become part of the common sense or "practical consciousness" that guides everyday thought and action.

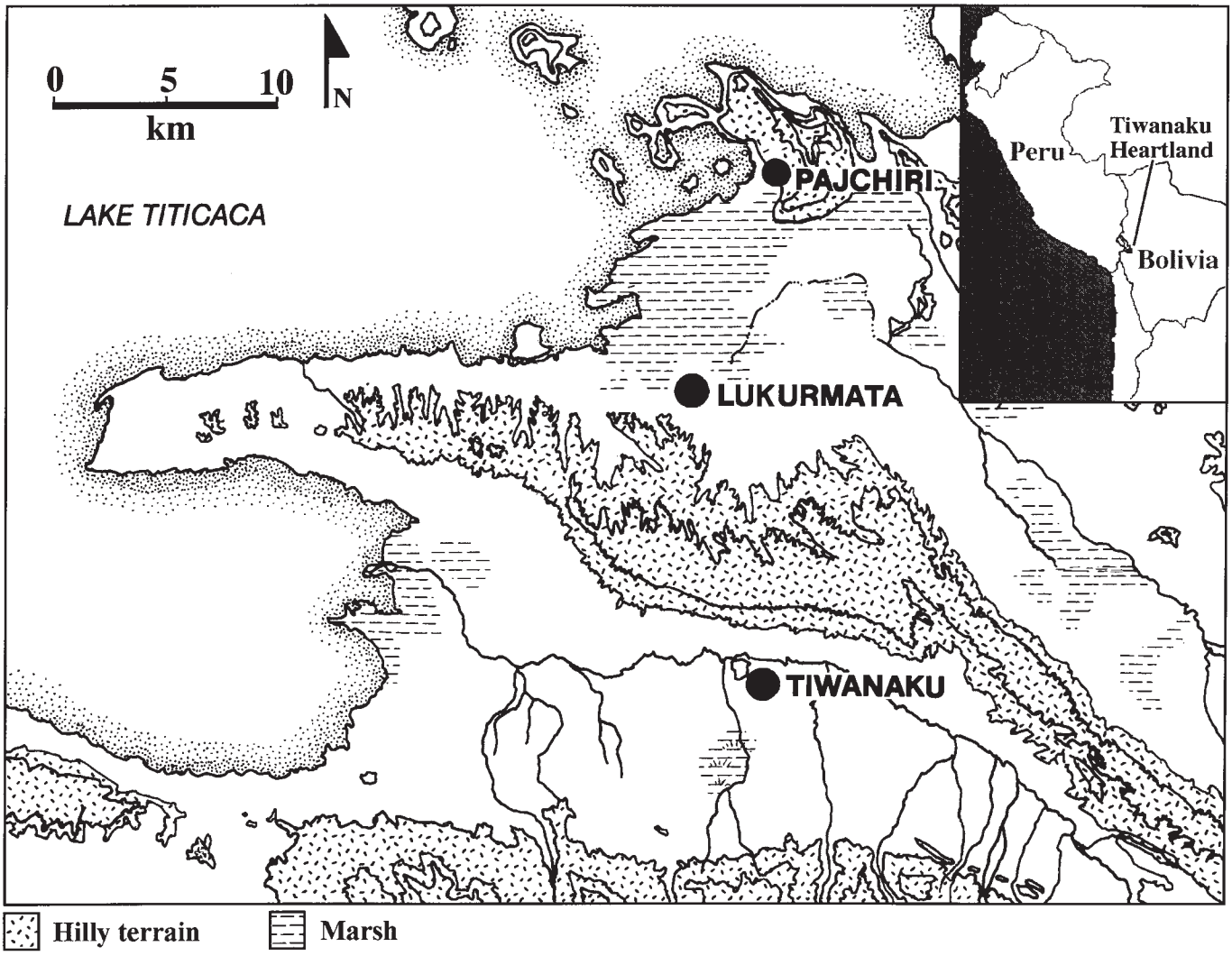

Figure 1. Map of the Tiwanaku heartland.

CERAMICS AND SOCIAL IDENTITY IN TIWANAKU RESIDENTIAL LIFE

Tiwanaku remained one of the most influential centers in the south-central Andes for some 650 years, throughout the so-called IV (AD 500–800) and V (AD 800–1150) phases of the Tiwanaku period (figure 1). The ruins cover about 6.5 km^2 in the Tiwanaku Valley and are located 15 km in from the lake shore. Thirteen kilometers to the north, in the adjacent Katari Valley, is Lukurmata, an ancient lakeside settlement that by AD 500 was incorporated into the expanding polity (Bermann 1994). By the end of Tiwanaku IV (AD 800) Lukurmata was an urban center of 1.2 km^2, surrounded by a cluster of settlements that together formed a metropolitan community of nearly 2 km^2 (Janusek and Kolata 2003; Stanish 1989).

In this paper I focus on Tiwanaku IV, some three hundred years or ten to twelve generations. First defined by Carlos Ponce Sanginés in the 1970s (1981) as a phase of "mature" urban development and initial state expansion, subsequent research and chronologies have vindicated its validity and temporal span (Albarracin-Jordán 1996; Bermann 1994; Janusek 2002, 2003a; Mathews 1992). Preceding Tiwanaku IV was the Late Formative period (200 BC–AD 500), during the first part of which (Late Formative 1) Tiwanaku and Lukurmata were independent centers at the heads of interacting local polities, and during the second part of which (Late Formative 2) Tiwanaku incorporated Lukurmata and many other local centers, by AD 500 forming the most extensive settlement in the Lake Titicaca basin. The first part of the V phase

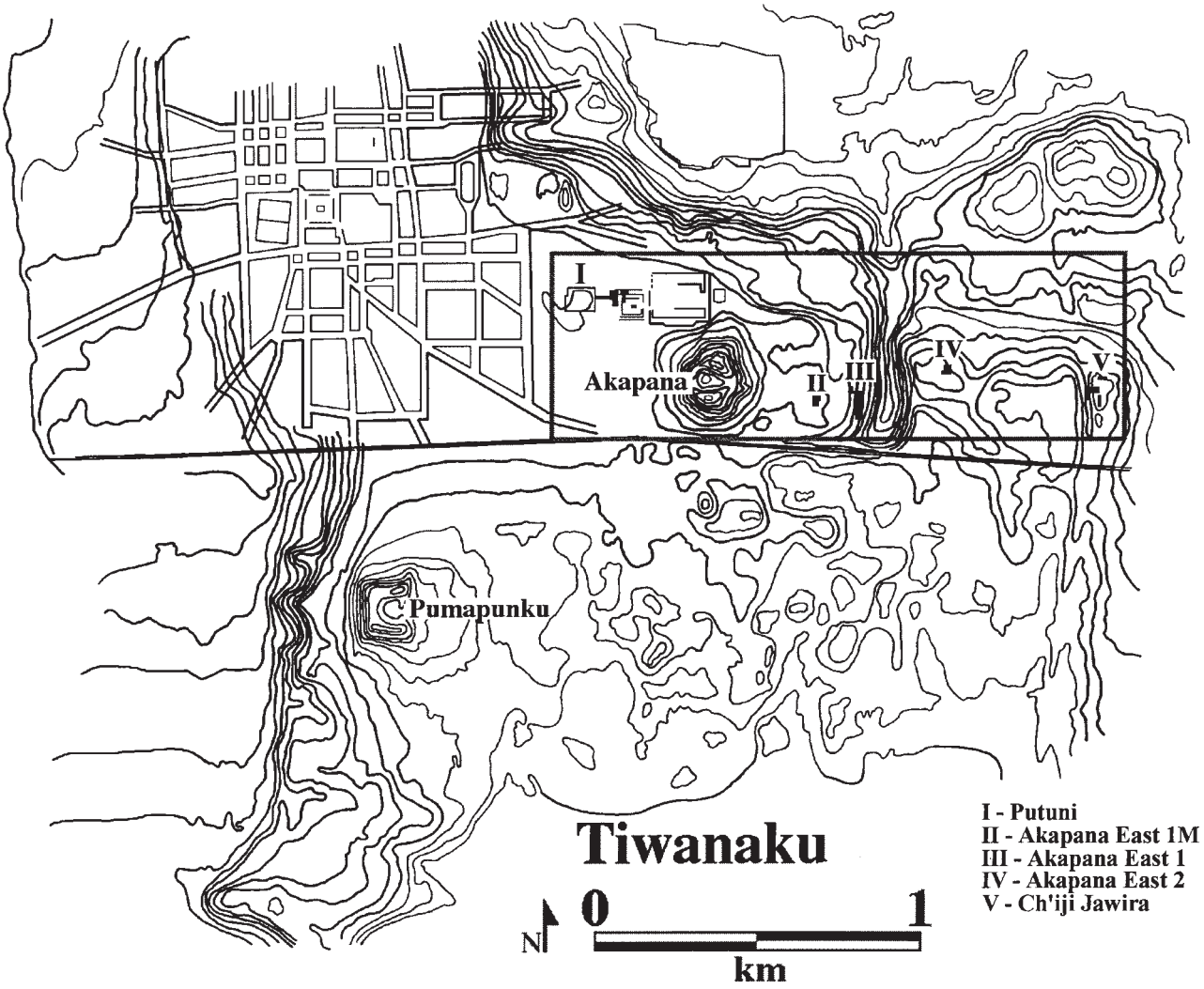

Figure 2. Plan of Tiwanaku showing the relative location of some excavated residential areas. Putuni (I), Akapana East 1M (II), Akapana East 1 (III), Akapana East 2 (IV), and Ch'iji Jawira (V) (Contour map courtesy of Alan Kolata).

(Early V) was characterized by state consolidation and interregional imperialism, and the second part (Late V) by a long and gradual process of state disintegration. Tiwanaku IV is critical as a time of urban expansion, state development, and the formation and definition of Tiwanaku "state culture" and ideology.

Excavations in Tiwanaku and Lukurmata demonstrated that in Tiwanaku IV, urban society in the Tiwanaku heartland consisted of at least two levels of social difference and identity (Janusek 1994, 1999, 2002, 2003b). One level, found in the urban centers, appears to represent groups similar to later kin-based ayllus, while the second, found between the centers, appears to represent regional macro-ayllus. Excavations in ten areas of Tiwanaku (figure 2) revealed Tiwanaku IV occupations, ranging from ceremonial areas (e.g., Akapana, Putuni courtyard) to craft production barrios (e.g., Ch'iji Jawira), and eight of these revealed primary or secondary evidence of residential occupation. Excavations in six areas of Lukurmata revealed IV period occupations, and four of these included residential occupations. Within each urban center, residential areas consisted of spatially bounded compounds and barrios. On the ground, each compound consisted of a large perimeter wall enclosing one or more domestic structures and various activity areas, as exemplified in the Akapana East 1M sector of Tiwanaku (figure 3). Such compound or barrio units, it appears, incorporated several minimal households—each a fundamental activity unit represented by a dwelling and its associated ancillary structures, activity areas, and middens. Compounds differed greatly in size, spatial organization, and

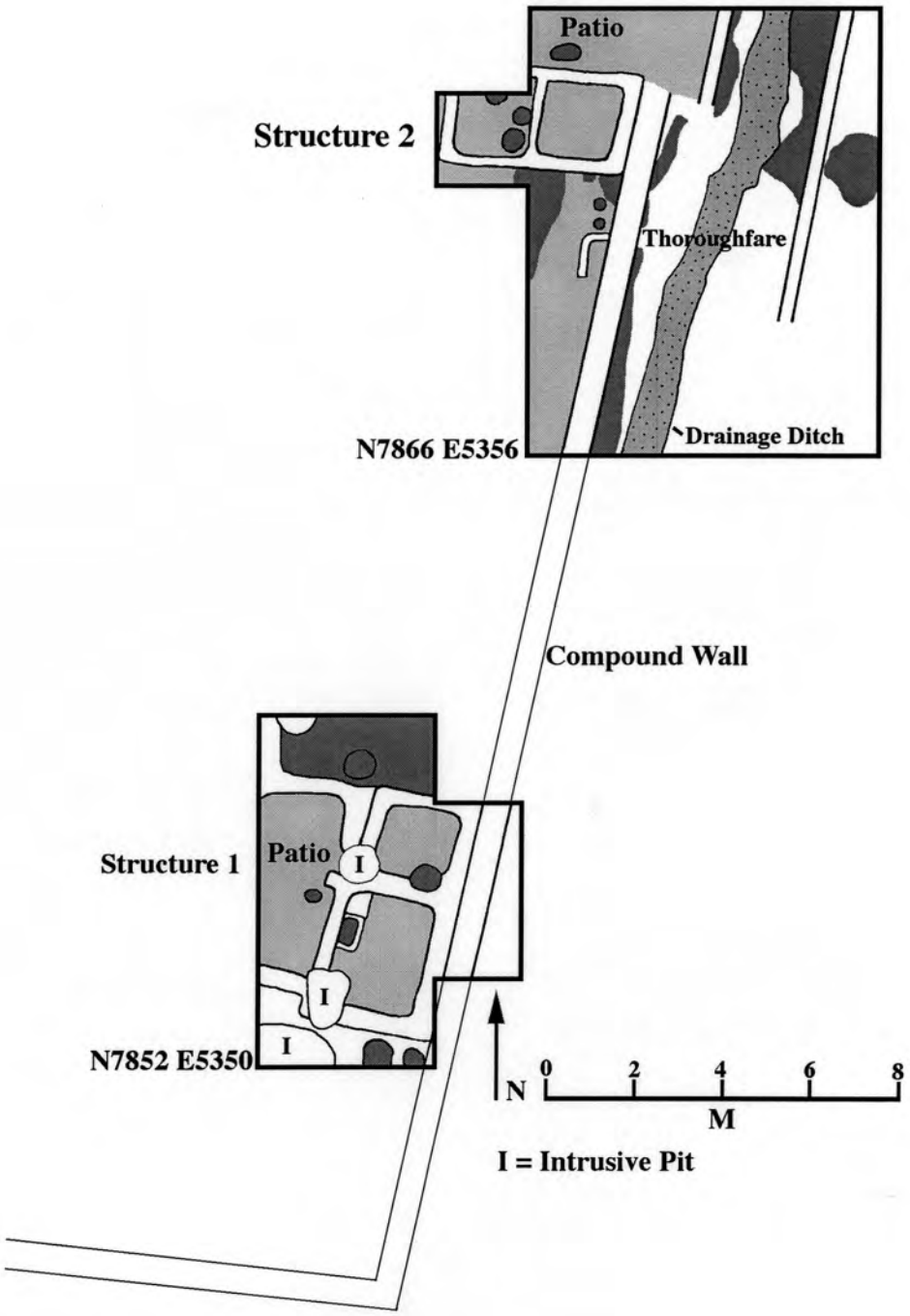

Figure 3. Plan of occupation in Akapana East 1M, Tiwanaku.

activities, suggesting that the nature of resident social groups varied accordingly.

In all residential compounds at both sites, most material patterns emphasized conformity with the overarching state culture, the suite of ideologies, styles, and technologies promoted by ruling elites at any given time. First, all architecture replicated a common directional orientation approximately 8–12 degrees east of north. All, in addition, yielded relatively high proportions of elaborate serving and ceremonial vessels (figure 4). The most common forms were bowls (*tazones*), chalices (*keros*), and small pitchers (*vasijas*), but less common

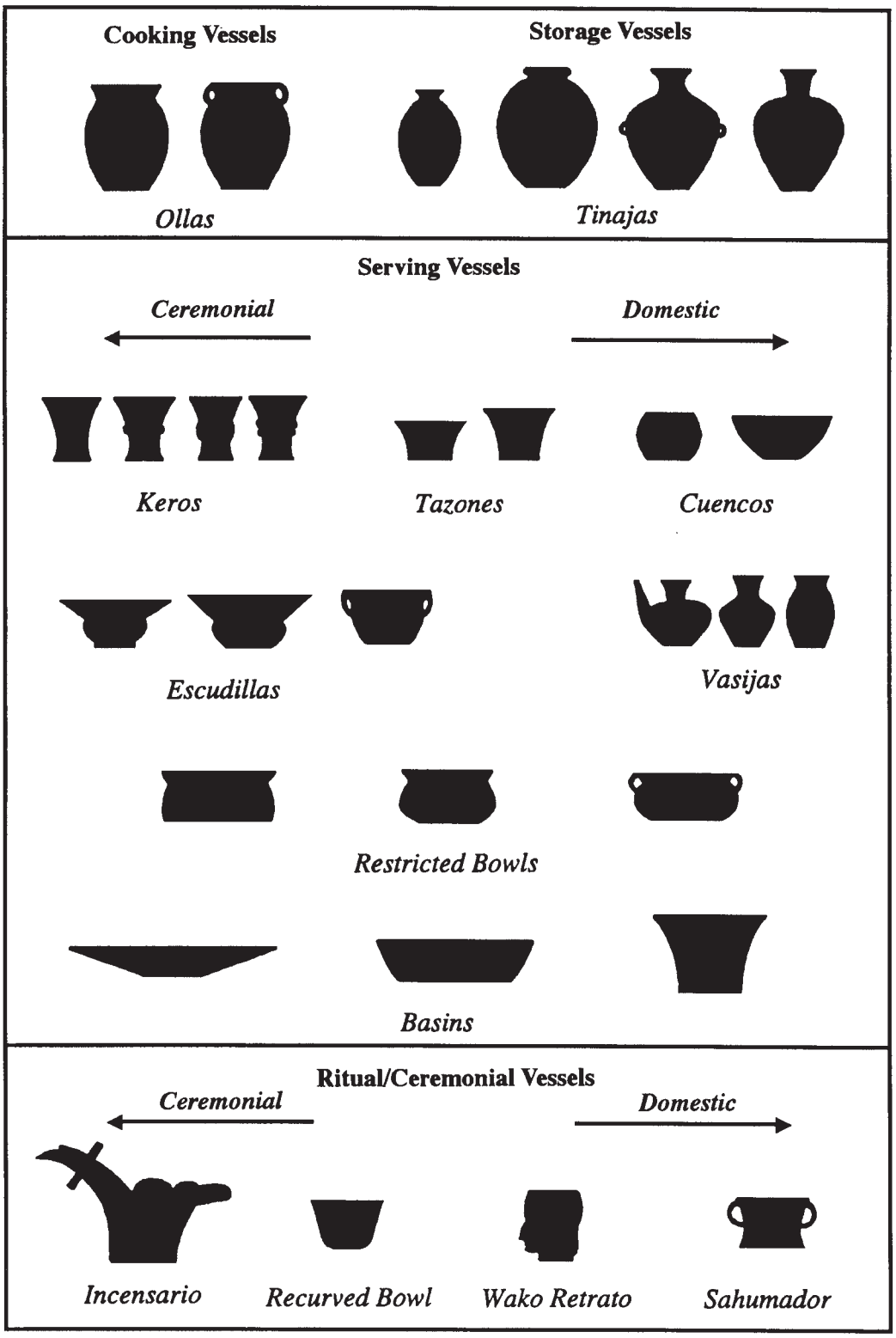

Figure 4. Chart showing major classes, types, and variants of Tiwanaku-style ceramic vessels.

Table 1. Comparative counts and percentages of ceramic vessel classes from selected excavated areas in Tiwanaku and Lukurmata.

Class		Putuni		AkE 1M		AkE 2		C. Jawira		Misiton 1
	#	%	#	%	#	%	#	%	#	%
Cooking	1496	*45.0*	2391	*48.7*	1644	*53.3*	1992	*9.9*	3865	*49.5*
Storage	948	*28.5*	1508	*30.7*	722	*23.4*	13094	*65.2*	2144	*27.4*
Serving	814	*24.5*	814	*16.6*	578	*18.8*	4962	*24.7*	1419	*18.2*
Ceremonial	68	*2.0*	193	*3.9*	133	*4.3*	23	*0.1*	375	*4.8*
Total	**3326**	***100%***	**4906**	***100%***	**3077**	***100%***	**20071**	***100%***	**7803**	***100%***

special serving vessels included flaring bowls (*escudillas*) and large basins (*fuentes*). In Tiwanaku and Lukurmata, serving vessels constituted 17 to 25% of assemblages (table 1). Their ubiquity, and especially their high proportions on patios and in middens, indicates that feasts, social gatherings, and life-cycle rituals were important events for each compound group. As in the Andes today (Abercrombie 1998), in such contexts the stylistic properties of these vessels, intended or not, would have become effective vehicles of communication.

Compared with simultaneous cultural developments in the eastern valleys (Janusek et al. 1995), ceramic style in Tiwanaku presented great uniformity. Most vessels displayed elements of Tiwanaku corporate style: red or black slip, everted form, and elaborate polychrome iconography. In any residential sector, most ceramic serving vessels, including keros and tazons, displayed elements of this corporate style. The broad use of Tiwanaku ceramic style is striking and, I argue, significant. It points to an operating system of redistribution, in which goods may have been obtained as reciprocal compensation for participation in state projects and the emerging political economy. It also points to a thorough overall acceptance among local groups of many aspects of Tiwanaku state ideology. Local urban residents clearly desired vessels with high public value that, like elaborately decorated clothing, would have been employed in contexts of high visibility, including lively rituals of consumption.

Nevertheless, significant if more subtle patterns of differentiation crosscut material patterns of conformity. In each center the walled compounds and barrios represented the most salient units of social differentiation. In some cases these groups clearly differed in status (Couture and Sampeck 2003; Janusek 2003b; Kolata 1993:149–164). A Tiwanaku IV residential complex in the monumental core, under the Tiwanaku V Putuni complex, yielded multiroom buildings with foundations consisting in part of carved andesite blocks, elegant architectural elements that were rare in other residential contexts. In addition, the entire complex was served by an elaborate stone-lined drainage network. Associated with the buildings was a mortuary complex with elaborate interments containing fine sumptuary offerings, including turquoise beads, adornments of gold lamina, and elaborate ceremonial vessels. The range of ceramic serving variants found in residential and mortuary contexts was highly diverse. Serving wares included high proportions of elegantly wrought escudillas (35% of serving ware sherds), a special form that appeared much less frequently in other areas (figure 5, table 2). Other special forms included fuentes (13%), recurved tazons (1%), and elaborate modeled figurines. Keros and tazons, serving forms much more common elsewhere, composed less than 15% of serving assemblages.

Some compound groups in Tiwanaku and Lukurmata engaged in specialized craft production. Residents of Ch'iji Jawira produced certain types of vessels throughout the IV–V phases, including large storage vessels (65% of vessels) and serving tazons (12.5% of vessels) (Rivera Casanovas 1994, 2003). Excavations here suggest that vessels were fired in open enclosures and small pit kilns (Franke 1995; Rivera Casanovas 1994), and they consistently revealed implements and by-products of manufacture, such as wasters and slumped vessels. One small neighborhood at the south edge of Lukurmata, Misiton 1, produced llama bone panpipes in Tiwanaku IV–Early V (Janusek 1994, 1999). Excavations at this location revealed sections of two compounds with dwellings, open patios, long buildings, and middens that contained clusters of bone flutes, tools for making them (e.g., polishers, knives, cutting surfaces), and production by-products (e.g., severed ends of long bones). Craft production at both sites was a part of residential life, and it was the domain of compounds and barrios rather than entire urban settlements.

Table 2. Compared percentages of serving vessel types from selected residential sectors of Tiwanaku.

Form		Putuni		AkE 1M		AkE 2		Ch'iji Jawira
	#	%	#	%	#	%	#	%
Kero	36	*4%*	203	*17%*	108	*19%*	1628	*33%*
Tazon	88	*11%*	556	*47%*	305	*53%*	2505	*51%*
Vasija	275	*34%*	210	*18%*	86	*15%*	566	*11%*
Escudilla	284	*35%*	159	*13%*	22	*4%*	0	*0*
Fuente	102	*13%*	9	*1%*	10	*2%*	115	*2%*
Cuenco	18	*2%*	15	*1%*	26	*4%*	148	*3%*
Other	11	*1%*	35	*4%*	21	*4%*	0	*0*
Total	**814**	***100%***	**1187**	***100%***	**578**	***100%***	**4962**	***100%***

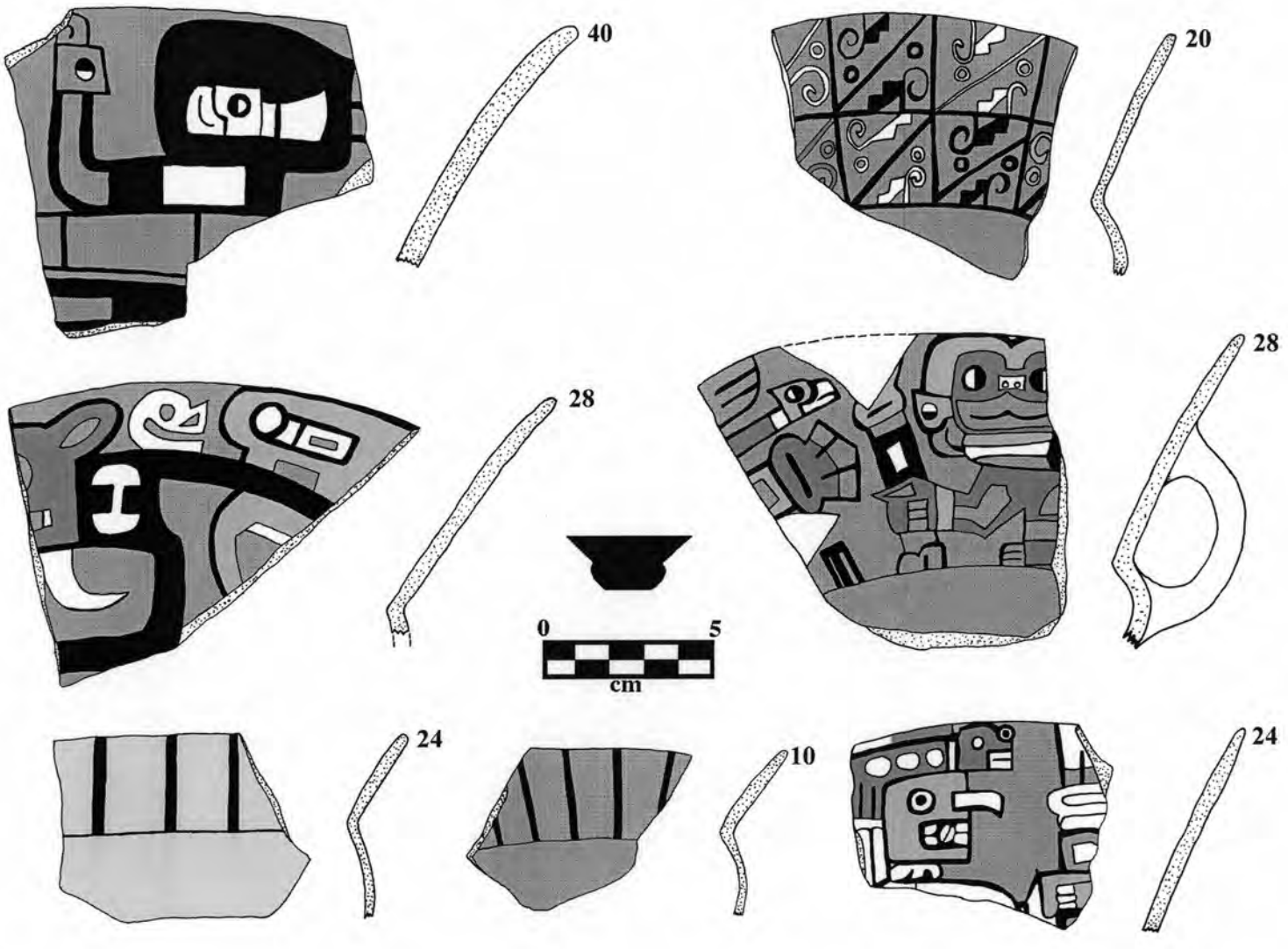

Figure 5. Fragments of elaborate escudillas from the Putuni area, Tiwanaku.

Mortuary ritual was an important part of life for compound groups. In Tiwanaku, humans were interred under a patio in Akapana East 2 (AkE 2), in outdoor areas in Ch'iji Jawira, and in nearby mortuary clusters in both the Putuni area and Akapana East 1. The presence of human burials inside of residential compounds indicates that mortuary ritual was not entirely relegated to discrete cemeteries, but rather was a part of domestic life. The desire to inter certain individuals near living spaces shared by intimate kindred points to the importance of residential ancestor cults, perhaps similar to mortuary rituals documented at the time of European contact (Cobo 1956 [1653]:73, 163–165; Rowe 1946:286, 298). In Akapana East 2, a stone marker had been set into the patio above a cyst burial with three individuals. Household or compound members apparently periodically remembered and made offerings to deceased relatives at auspicious times, reaffirming in ritually charged contexts local group coherence, social memory, and identity.

Such patterns corresponded with significant patterns of stylistic diversity in ceramic serving wares. Within any compound, serving assemblages maintained surprising spatial and even historical continuity, while between compounds, assemblages varied significantly. For example, in Akapana East 1M (AkE1-M), which revealed twelve superimposed occupations dating though Tiwanaku IV–V, serving vessels adhered relatively strictly to Tiwanaku canons of form and iconography. Unlike other residential compounds, the inhabitants apparently used only vessels with stylistic affinity to orthodox Tiwanaku style (figure 6). Nearly all keros and tazons displayed red, orange, or black slip, while iconography included a limited range of geometric, anthropomorphic, and mythical zoomorphic motifs. The last type included felines, predatory birds, serpents, and their combinations. Assemblages included significant proportions of elaborate escudillas and consistent quantities of *sahumadores*, which were most likely used as lamps and ritual incense burners (Janusek 2003a).

Ceramic assemblages in AkE 2 differed in subtle ways (figure 7). Most contexts yielded Tiwanaku serving vessels (keros, tazons, escudillas, vasijas) decorated with mythical, anthropomorphic, or geometric figures, collectively similar to those from later surfaces in AkE1-M. Nevertheless, special serving wares like escudillas were far less common than they were in Putuni and Akapana East 1. Nonlocal vessels representing the eastern valley styles of Omereque and Yampara composed 5% of serving wares (and 10% of combined tazons, vasijas, and *cuencos*, or small bowls). A high proportion of nonlocal storage vessel (9%) sherds also was significant relative to their frequencies in Putuni and Akapana East 1 (less than 1% in each). Another highly notable stylistic pattern was the frequency of tazons decorated with continuous volute motifs (10%), a variant absent in Akapana East 1M. Together, about 20% of serving ware variants in Akapana East 2 were not encountered in Akapana East 1M.

Assemblages in Ch'iji Jawira, the ceramic production barrio at the far east edge of Tiwanaku, were most unique (figure 8) (Alconini Mújica 1995; Janusek 1999; Rivera Casanovas 1994). Red slip, the hallmark of Tiwanaku style, was present on only 20–25% of serving wares. Escudillas were rare, and sahumadors all but absent. On the other hand, llama motifs, rare in Akapana East and other areas, were common on tazons and on ceremonial vessels in local offerings. Also frequently represented were vessels associated with eastern Andean valleys, especially those in the so-called Tiwanaku "derived," or "expansive," style (~19% of serving wares) (Bennett 1936:402–403; Ibarra Grasso and Lewis 1986; Rydén 1957). These objects' place of manufacture remains unclear; in form and design they are Tiwanaku-related, but they are best represented in the Cochabamba region, some 200 km southeast of Tiwanaku. Forms of what I call the Cochabamba Tiwanaku style included kero-like *challadores*, large vasijas with wide necks, and small cuencos; decorations emphasized the colors orange and gray and displayed unique configurations of crosses, diamonds, stars, J motifs, S-shaped volutes, and standing or dancing anthropomorphic figures. The unusually high percentages of this hybrid style in Ch'iji Jawira suggest an affiliation with Cochabamba. It is possible, though speculative, that the inhabitants settled in Tiwanaku as an urban colony, a distinct ethnic barrio analogous to the Oaxaca and Merchants' barrios in Teotihuacan, central Mexico (Paddock 1983; Rattray 1987).

In addition to having varying ceramic assemblages, compound groups maintained distinct diets. Wright, Hastorf, and Lennstrom (2003) have determined that the proportions of tubers, chenopodium, and maize varied significantly between residential sectors of Tiwanaku (table 3). Chenopodium, or quinoa seeds, were most frequent (greatest frequency) and best distributed (greatest ubiquity) throughout the site, followed by tubers and maize. We expected maize, which does not grow well in the altiplano, to have greater frequency and ubiquity measures among high-status groups. It is known to have been greatly valued in the Andean highlands (Murra 1980:8–14), but could be obtained in quantity

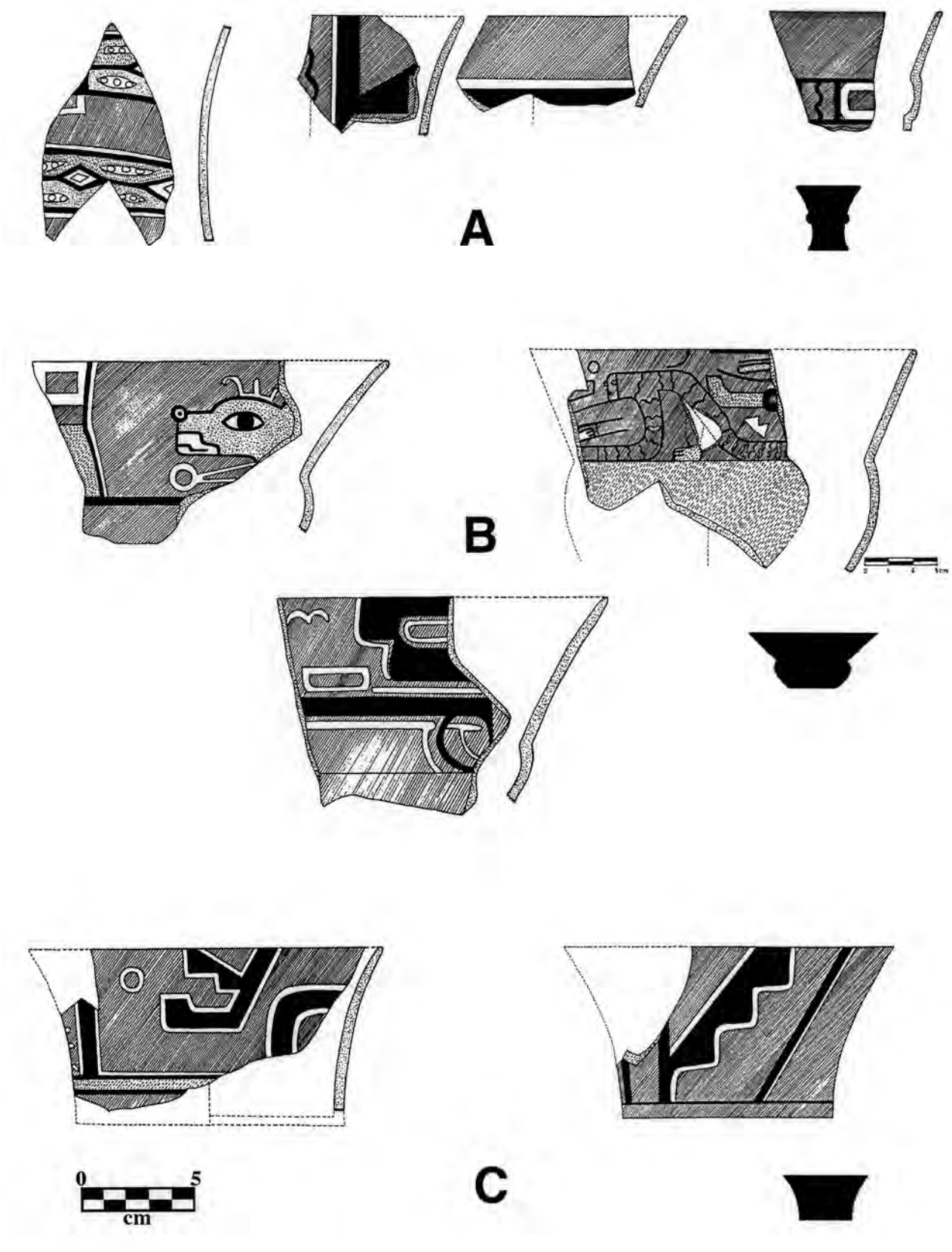

Figure 6. Fragments of typical serving wares from Akapana East 1M, Tiwanaku. Shown are sherds of keros (A), escudillas (B), and tazons (C).

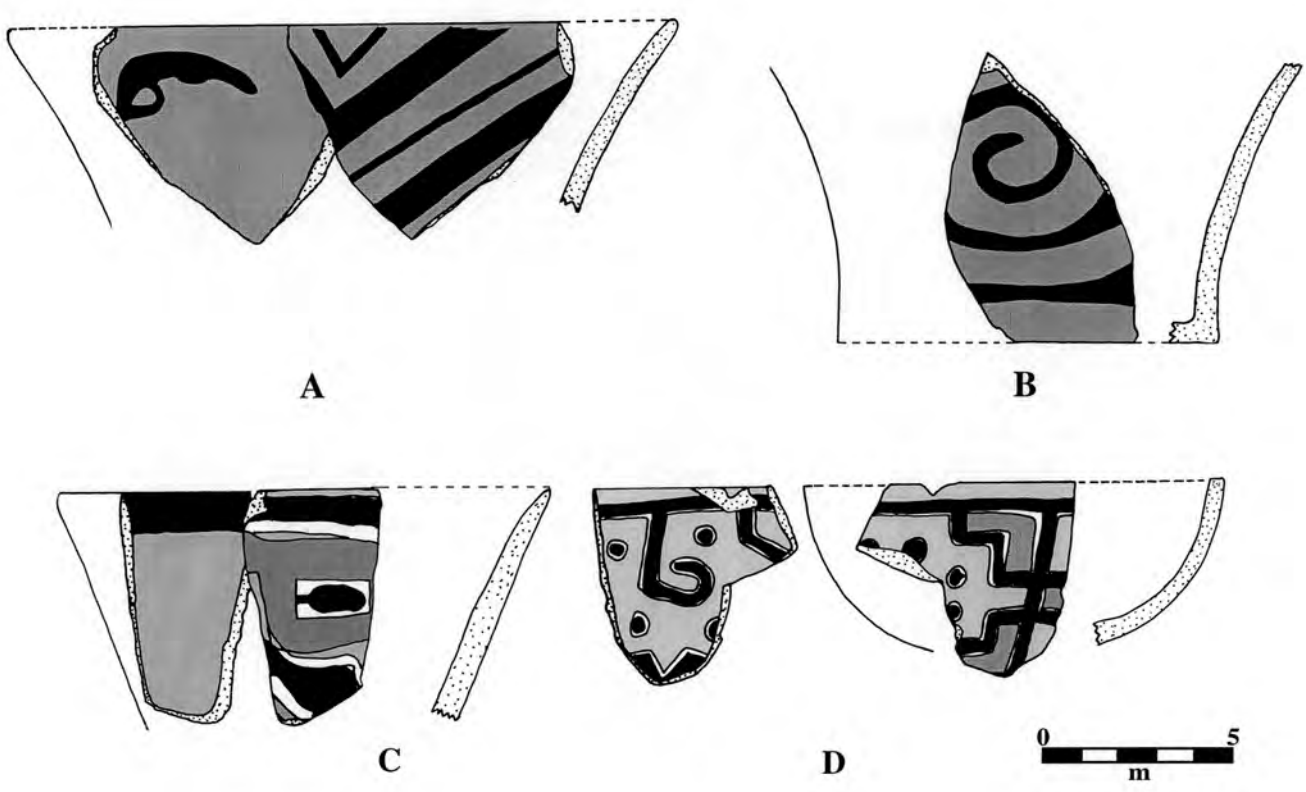

Figure 7. Fragments of serving wares from Akapana East 2, Tiwanaku. Shown are partial tazons (A and B) and nonlocal bowls (C and D).

only through long-distance relations (Goldstein 1989; Kolata 1992). In Tiwanaku, maize density and ubiquity measures were highest in Akapana East 2, and its ubiquity measure was high in Ch'iji Jawira (table 3). Rather than being strictly associated with status, it was most abundant among groups in the urban periphery who also used relatively high quantities of vessels associated with the lower valleys in which maize grows.

Other patterns of ceramic style differentiated Tiwanaku and Lukurmata as entire urban communities and major centers in their respective hinterlands. As in Tiwanaku, serving assemblages in Lukurmata varied significantly from one residential sector to the next (Janusek 1999:123). Nevertheless, all assemblages included a unique range of elaborate serving wares that were extremely rare in Tiwanaku (figure 9). In most cases, these wares presented subtle twists on Tiwanaku style. They included modeled feline *incensarios*, common in Lukurmata burials and offerings (Bermann 1994). They also included tanwares, serving wares (typically keros, tazons, and escudillas) that instead of red or orange displayed a highly polished, unique beige paste. These vessels, like local redwares, usually displayed delicate volute motifs. The beige paste was unique to Lukurmata and other Katari Valley sites, indicating that the region was served in part by local centers of ceramic production. Stylistic variation involved a long chain in the production process, from the acquisition of clays to final vessel treatment.

Relative frequencies of so-called Lukurmata-style wares varied from one residential compound to the next (table 4), but their consistent presence indicates that Lukurmata maintained some community identity within the scope of Tiwanaku hegemony. Further, great frequencies of Lukurmata-style vessels at nearby towns and villages suggest that this identity was simultaneously regional in scope (Janusek and Kolata 2003), a point corroborated by Deborah Blom's bioarchaeological research (1999; this volume). Blom notes that, while burials at Tiwanaku revealed a relatively even distribution of distinct styles of cranial modification, burials at Lukurmata and throughout the Katari Valley yielded a vast majority of individuals (70%) with skulls showing one specific style of modification. Apparently, patterns of cranial modification cued identity alongside vessels used in feasts and social gatherings.

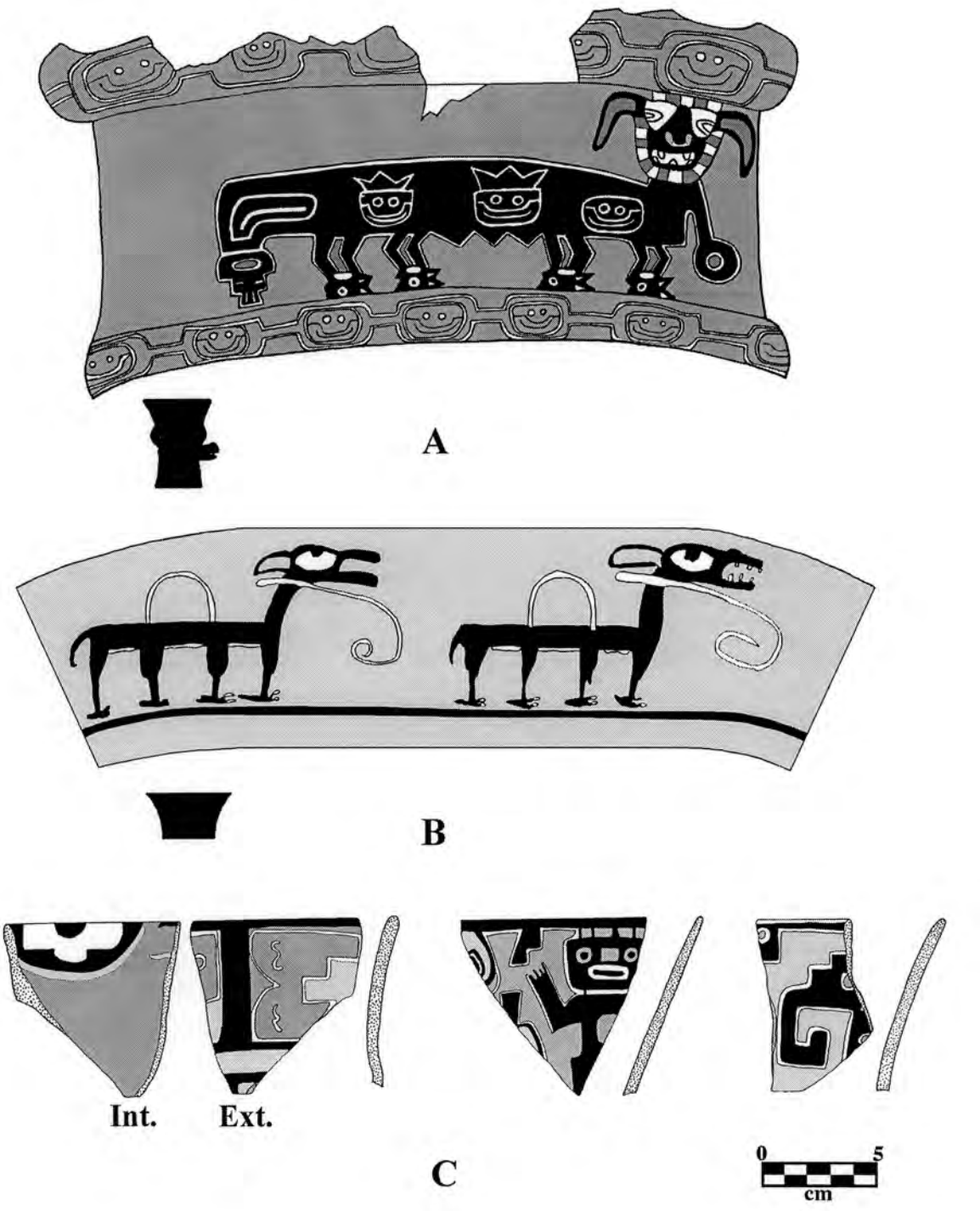

Figure 8. Serving ware variants from Ch'iji Jawira: ceremonial vessel with a mythical camelid (a), tazon with collared camelid (b), and derived-style tazons (c) (adapted from Alconini Mújica 1995: figure 74; Rivera Casanovas 1994: figures 12.1 and 12.2).

Table 3. Comparative archaeobotanical measures of food crop abundance in Tiwanaku residential compounds.

Measure		Akapana	Putuni	AkE1	AkE 2	C. Jawira
Density:						
	Maize	0.07	0.42	0.31	0.68	0.25
	Tuber	0.44	0	0.05	0.01	0
	Quinoa	2.51	28.09	15.89	22.89	59.39
	Legume	0	0.01	0.01	0.02	0
Ubiquity:						
	Maize	15.79	25	30.82	43.48	55
	Tuber	36.84	0	6.6	4.35	10
	Quinoa	84.21	98.61	95.91	97.83	100
	Legume	0	3.33	1.89	6.52	0

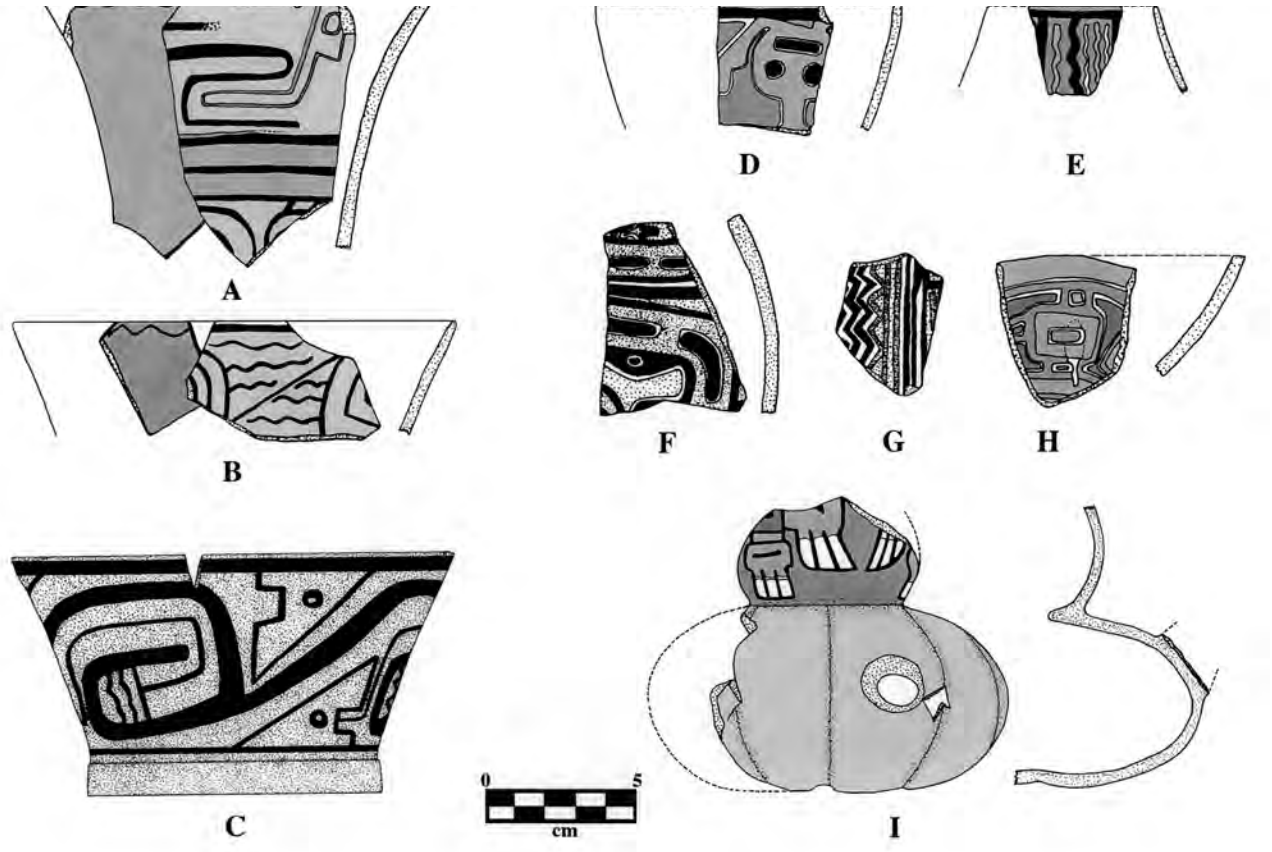

Figure 9. Serving ware variants from Lukurmata: tanware kero (a), tanware tazon with continuous volute (b), redware tazon with continuous volute (c), decorated cuencos showing nonlocal influence (d and e), nonlocal wares (f, g, and h), and a "hybrid" jar with classic Tiwanaku-style neck and Yampara-style effigy body (i).

Table 4. Frequencies of Lukurmata-style ceramic variants in Misiton 1, Lukurmata, compared with their frequencies in Akapana East 1M, Tiwanaku.

Ceramic Types	**Misiton 1, Luk.**		**AkE1M, Tiw.**	
	count	% of total	count	% of total
Tanware serving vessels	127	11.33%	0	0%
Serving vessels with volutes	200	13.89%	0	0%
Undecorated tazons	53	3.68%	11	0.92%
Cuencos	63	4.37%	15	1.26%
Basins	35	2.43%	7	0.59%
Incensarios	20	1.39%	3	0.25%
Total	***498***	***34.60%***	***36***	***3.03%***
Nonlocal serving wares	63	4.38%	4	0.33%
Cumulative Total	*561*	*39%*	*40*	*3.37%*
Total serving wares	**1439**	**100%**	**1186**	**100%**

DISCUSSION

Several mutually reinforcing patterns of material culture at Tiwanaku and Lukurmata point to the existence of vibrant social identities within Tiwanaku's overarching hegemony. Excavations at Tiwanaku and Lukurmata revealed two major scales of spatial and artifactual differentiation, one within the centers, as manifested among residential compounds and barrios, and one between them. Within Tiwanaku, there is significant differentiation in material patterns from one compound group to the next. These include craft production and status differences, establishing that Tiwanaku urban society was characterized by complexity in the classic sense of the concept. Compounds also varied in diet, and most maintained burials or mortuary clusters, pointing to the importance of local mortuary rituals and, potentially, local veneration of group ancestors.

The same compound groups who differed in status and practiced specialized trades also obtained and employed distinct assemblages of ceramic vessels. In particular, serving vessel assemblages, artifacts with high display value (DeBoer and Moore 1982; Smith 1987), varied from one residential compound to the next. Differences were manifested in proportions of specific forms of Tiwanaku-style serving wares, and in the treatment and iconography they displayed. They were even more clearly manifested in the different types and proportions of nonlocal vessels and vessels with nonlocal influence. Each group apparently maintained unique social affiliations and economic networks, and during feasts, ceremonies, and other social gatherings, serving vessels overtly or inadvertently carried messages—perhaps more often subliminal than not—about the social ties, status, and identities of the participating groups. I argue that the occupants of residential compounds were kin-based corporate groups, who differed not only in craft and status but also in social identity. Some, like the occupants of Ch'iji Jawira, may have originally immigrated from lower valley regions like Cochabamba, maintaining social ties and affiliations with their homeland much like some compound groups in Teotihuacan. To some extent, Tiwanaku appears to have been a cosmopolitan city.

Ceramic style also differed between Tiwanaku and Lukurmata, two communities that enjoyed long independent histories for at least 700 years preceding Tiwanaku IV (Bermann 1994; Janusek 2002). That the Lukurmata stylistic complex played on broader elements of Tiwanaku style indicates that inhabitants shared an overarching identification with the larger hegemonic system. Nevertheless, residents of Lukurmata obtained and employed local assemblages of serving and ceremonial wares that presented unique twists on the style prevalent at the primary center. Most such stylistic twists appeared also at other sites in the Katari Valley, and most people interred at sites in the Katari Valley also practiced a specific style of cranial modification.

Collective evidence indicates that inhabitants of Lukurmata formed a coherent community tied to a broader regional affiliation marked in both permanent (head shape) and more impermanent (vessel assemblages) material expressions. Social identity at this scale, undoubtedly expressed in periodic events more than in everyday activites, was more akin to the ethnic-like affiliation of later macro-ayllus. Given that Lukurmata was an

important center long before it was incorporated into the Tiwanaku state, identity at this scale most likely thrived on a local consciousness and periodic celebration of its "pre-Tiwanaku" history. Lukurmata was also located near abundant lake resources and at the edge of a low-lying floodplain that was highly amenable to intensive farming. Based in a common landscape, local history, and abundant resources, inhabitants of Lukurmata and the Katari Valley formed a coherent and wealthy ethnic-like group that potentially had tremendous political power and culture influence in the Tiwanaku polity.

The production and use of distinct assemblages of Tiwanaku-related vessels is particularly significant in regard to the various ethnic-like groups that were incorporated into the polity. The Cochabamba style so predominant in Ch'iji Jawira, for example, presents a unique hybrid of Tiwanaku and eastern valley elements. Common among societies in the temperate eastern valleys some 200 km southeast of the Titicaca basin, it represents a regional interpretation of Tiwanaku style. Similarly, in the Katari Valley ceramic assemblages manifested a distinct interpretation of Tiwanaku style according to local tastes. Such local styles were intentionally produced as unique twists on Tiwanaku style, serving for producers and consumers alike as creative stylistic expressions. The employment of these vessels in rituals of consumption would have offered messages about their owners and users, perhaps at times subliminal but at other times more active and assertive. In part, these distinct styles are material expressions of the local appropriation of Tiwanaku's dominant state culture to local uses and interests.

Ceramic serving wares, in light of their prevalence and their stylistic density, were significant in the negotiation of status and identity during periodic social gatherings and festivals. On the one hand, in those festivals the emerging Tiwanaku order of things, promoted by ruling elites and expressed in a relatively homogeneous corporate style, would have been affirmed. The influx of groups to Tiwanaku, and their participation in the emerging political economy, helped provide the state its legitimacy and demographic strength. On the other hand, many of these same groups maintained or created distinct social identities and means of production, fortified by their use of Tiwanaku-style goods and their participation in Tiwanaku's prestigious religious, economic, and social spheres.

Among ethnic-like groups incorporated into Tiwanaku's vast hegemony, and among subcultural communities created in the context of its increasingly intensive interaction networks, stylistic diversity served cultural expressions of group coherence and perhaps resistance through the appropriation of its popular state material styles (Hebdige 1979).

Still, the predominance of stylistic conformity and of a well-defined Tiwanaku style alludes to the significance attached to identification with the state. Like later polities in the south-central Andes, which Abercrombie (1986) calls nested "hierarchies of encompassment," Tiwanaku also was an encompassing imagined community with which constituent groups identified. Ruling elite and commoners alike may have promoted the idea that Tiwanaku was a community or macro-ayllu, and perhaps even referred to it in intimate domestic terms. At this scale a sense of community was imbued with a dominant political ideology that was promoted not just by rulers but to varying extents by all affiliated with the state or participating in state projects. Fundamentally, and somewhat paradoxically, local groups intentionally appropriated state icons and practices for their own ends just as state power resided in the local internalization of state culture and ideology as a prestigious and reasonable worldview.

Ceramic style, in relation to a wide range of other material patterns, offers convincing evidence that the Tiwanaku state emerged out of a segmentary order comprising various scales of social grouping and identity. This order, I argue, was the underlying social matrix out of which state religious, political, and economic institutions were forged, and it remained throughout Tiwanaku IV a fundamental principle of state development and organization. As the state system coalesced, it consisted of social groups who differed in status and who practiced different occupations. Social hierarchy and craft specialization were elements of everyday practice and group identity for such local groups, but such social differences fail to fully tap the depths of social differentiation that characterized Tiwanaku's cultural and political core. Stylistic expressions refer to deeper elements of group practice and identity that went well beyond the limited domain of serving state interests. Among residential compounds, identity was grounded in kin-based ties and distinct congeries of social networks; among urban communities and regions, it was like ethnic identity grounded in shared landscape and memory; and at the level of the polity, it involved a wide range of prestigious religious attitudes, political affiliations, and economic opportunities. Tiwanaku coalesced as a convergence of societies, and wittingly or not the waxing of its panregional power and prestige simultaneously fostered the invigoration of old local

identities and the creation of new ones. Through it all, state development involved the creation of an entirely new type of sociopolitical network and social identity, one that expressed affiliation with the emerging state order in relation to other societies and polities, such as Wari.

Current archaeological models often ignore social identity or relegate it to the sidelines in explaining the emergence and consolidation of past states. This is in part because the relation of identity and material culture is highly complex, and in part because archaic states are still largely approached as organic systems. When treated, identity is often glossed as "ethnicity," which I have argued is problematic, a point made particularly clear in the different scales of identity represented in ceramic assemblages at Tiwanaku and Lukurmata. V. Childe (1950:16) argued that in ancient cities, the emergent communities of past civilizations, there was simply no room for "skeptics and sectaries," or as Weber (1958: 65–120) put it, for the kin-based "totemistic" ties characteristic of "primitive" societies. In Tiwanaku, ceramic style makes a convincing case that the "sectarian" and "totemistic" ties expressed in past identity often formed the very matrices out of which state institutions were forged. It also demonstrates that the concept of identity is more complex than commonly considered, and that a phenomenon such as Tiwanaku comprised multiple nested and overlapping forms of social identity, ethnic and otherwise.

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CHAPTER 4

Style Change and Ethnogenesis among the Chiribaya of Far South Coastal Peru

RICHARD MARTIN REYCRAFT

INTRODUCTION

In this chapter I will discuss some changes in ethnic identification as manifested in the material culture of the Chiribaya, an archaeological culture situated in the far south coast of Peru. Before this discussion can commence, however, I should define the concept of ethnicity. This is not a simple undertaking, as ethnicity has a variety of definitions in the anthropological and sociological literature (see Jones 1997). Nevertheless, several recent anthropological discussions of ethnic identity have adopted either an "innate" or "circumstantial" theoretical position (Jones 1997). The "innate" perspective suggests that ethnic affiliation reflects national, tribal, and/or kin bonds, and categorizes social identity as an innate characteristic provided through birth into the given society (Geertz 1963; Issacs 1974). The "circumstantial" position suggests that ethnic identity is situational in nature and is differently expressed in diverse circumstances for the negotiation for resources (Barth 1969a; Cohen 1974).

The innate viewpoint has some common sense appeal; after all, we were all born into a social group and most of us have adopted much of our social identity from that group. However, the significant number of case studies documenting the situational nature of ethnic identity (Barth 1969a; Cohen 1974; Eidheim 1969; Glazer and Moynihan 1975; Haaland 1969) suggests that there is no one-to-one relationship between birth and ethnic affiliation. The circumstantial perspective has, in turn, been criticized because the presence of some situational aspects does not suggest that the formation and ultimate function of ethnic categories is situational. That is, because some individuals in a social group manipulate their ethnic identity for gain does not automatically imply that ethnicity has evolved to serve such profit. If ethnicity functioned in such a manner, how can we explain the strong ethnic identification by Jews during the Holocaust, or Native Americans during periods of intense discrimination in the United States (Jones 1997)?

A further complication occurs when one considers endogenous versus exogenous ethnic ascription. While ethnic affiliation may be adopted from within one's own ethnic group, exogenous ethnic ascription

also occurs between groups, and by its very nature, exogenous ascription implies the existence of power relationships between ethnic groups. Depending upon their needs, dominant imperial polities may create ethnic distinctions that did not previously exist, or they may overlook endogenous ethnic differences and lump several different groups into a single ethnic category. Historically, both circumstances were forced upon the Seminole Indians of Florida. During the eighteenth century, members of several different tribes were administratively lumped together by the British colonial government in America, creating a Seminole tribe where none previously existed. Approximately one hundred years later the United States government effectively created two separate Seminole entities, a western Seminole Nation and an eastern Seminole Tribe, through forced relocation.

In such circumstances endogenous concepts of group affiliation may differ from exogenous ethnic ascriptions: they also may not. Either way, such situations do not provide exclusive evidence for either the innate or the circumstantial perspective on ethnicity. This is because ethnic identification with exogenous categories may occur in a situational context as it occurs, or in an innate context as succeeding generations are born into the newly created social category.

I acknowledge that problems with both the innate and the circumstantial positions exist, and recommend that the long-term view provided by archaeology may assist in furthering our understanding of this problem. Both perspectives have flaws and perhaps a new theoretical perspective is called for. For the following discussion, I simply define ethnicity as "the *mechanism* by which groups of individuals sharing a common identity use culture to symbolize within-group solidarity in contrast to, and in competition with, other social-identity groups" (*sensu* Cohen 1974; Hodder 1979). The social-identity groups discussed in this paper, the Chiribaya and the Estuquiña, have been defined through the contemporaneous association of several material culture assemblages (Childe 1929, 1933, 1935), which archaeological (Kroeber 1930; Stanish 1992) and ethnohistorical (Cieza de León 1986 [1553]; Cobo 1956 [1653]) studies suggest were important ethnic markers.

ETHNICITY AND STYLE

Recent investigations linking variation in material culture style to ethnic identification suggest the presence- of at least three kinds of stylistic variation in cultural groups (Boyd and Richerson 1987; Sackett 1982; Shennan 1989; Wiessner 1984; Wobst 1977). Stylistic variation that actively signals ethnic distinctions has been termed *emblemic* style (Wiessner 1983). Emblemic artifacts, which are consciously manufactured as ethnic or social markers, must be capable of transmitting simple encoded messages from a distance (or, like projectile points deposited at kill locations, are capable of being found and read by individuals over a large territory) (Wiessner 1983; Wobst 1977). *Assertive style* reflects the individual flare each artist consciously or unconsciously incorporates into his or her work (Wiessner 1983). Although assertive style may help us to identify a master craftsman in the archaeological record, the idiosyncratic variations in stylistic content employed by different artisans somewhat obfuscates ethnic identification. *Isochrestic variation* represents generally unconscious stylistic variation that is set by enculturation and historical tradition (Boyd and Richerson 1987; Sackett 1982). This type of stylistic variation may carry considerable ethnic symbolism; however, because it reflects tradition and is used unconsciously, it may change more slowly and lag behind emblemic markers when ethnic changes occur in a society.

ANDEAN MATERIAL CULTURE AS ETHNIC MARKERS

On the eve of the Spanish conquest, the social geography of the Andean region was composed of a vast mosaic of distinct ethnic groups under the rule of the Inka Empire. To better police their multiethnic empire, the Inka codified and strictly enforced local variation in the customs and dress of the different ethnic groups incorporated under their rule (Julien 1983). This variation was subsequently noted by their Spanish conquerors (Cieza de León 1986 [1553]; Cobo 1956 [1653]). Social cohesion and ritual were strong among these groups, and many of these ethnic distinctions persisted through the onslaught of the Spanish oppression and survived until the early part of the twentieth century. Some still survive today in the more isolated areas of the Andes.

Andean ethnohistory, then, documents the presence of multiple ethnic groups maintaining distinct material culture traditions during the late prehistoric period. If some of this variation in material culture was emblematic, it must have been visible enough to pass along its encoded information from a distance (Wiessner 1983; Wobst 1977). The visibility criterion eliminates

several material culture categories from use as active ethnic symbols. For example, strictly domestic utensils seldom leave the confines of interior private space and thus should not encode messages intended for wide audiences. Likewise, interior clothing items, such as undergarments, are also seldom seen and are not apt to be employed as ethnic markers (Wobst 1977).

With these considerations in mind, I suggest that the following items of material culture had the potential to convey emblemic information during the late prehistoric period in the south Andes.

i. *Textiles* were considered the primary indicator of ethnicity in the ancient Andean world. This is especially true of hats and shirts, which would have been the most visible clothing items when seen from a distance. Spanish accounts attest that the Inka could identify the ethnic affiliation of individuals by observing their cap and shirt style (Cobo 1956 [1653]). For this study, textile information was taken from mortuary and domestic contexts.

ii. *Ritually used ceramics*, particularly bowls, jars, and *cantaros* (large pitchers), were most likely used for *chicha* (maize beer) preparation and food serving during ritual feasts. Ritual feasts were large public ceremonies in the prehistoric Andean region, and the ceramic vessels used in these ceremonies would have been highly visible. These social events were orchestrated by elites to cement social cohesion and allegiance. Emblemic style should thus be evident in these ceramic vessels. Ceramic analysis for this study emphasized the presence/absence of decorative elaboration as well as vessel paste and form attributes. Ceramic data have been included from mortuary and domestic contexts.

Hats, shirts, and ritually used ceramics are portable, highly visible items of material culture that may easily be employed to convey encoded symbolic messages (Rice 1987:251; Wobst 1977). Other, nonportable material culture items may also convey emblemic information.

iii. *Vernacular domestic architecture*, which is highly visible and geographically distinctive in the southern Andes, has previously been proposed as an ethnic marker (Aldenderfer and Stanish 1993; Stanish 1992).

iv. *Tomb design*—although usually not observable from a distance, mortuary ritual can act as a potent visual symbol of social cohesion, and as a component of mortuary ritual, tomb design may have been used emblematically in the society to enhance within-group solidarity, particularly in times of stress. Tomb design also appears to be geographically specific in the south-central Andean region (Hyslop 1976; Reycraft 1998; Stanish 1992).

I will discuss continuity and change in the formal and stylistic attributes of these material culture items with reference to the Chiribaya and the Estuquiña, in order to identify changing ethnic identification in the archaeological record of the far south coast of Peru. However, I will first present the environmental setting in which these changes took place.

ENVIRONMENTAL SETTING

The Osmore Drainage

Located at 17° latitude, the Osmore Drainage (figure 1) is one of the southernmost Peruvian drainages. It stretches from the peak of Nevada Arundane, which is situated at more than 5000 meters above sea level (masl), to the port of Ilo on the Pacific Coast (Stanish 1992).

The Upper Osmore: The Moquegua Valley

Several microdrainages—the Capillane, Coscori, Torata, Chujulay, and Otera—converge at approximately 2000 masl to form the Osmore River in the Moquegua Valley. Although the valley is highly arid, elevations between 2000 and 1000 masl combine good hydrological potential with a topography ideal for irrigation systems. The most extensive of irrigated lands are found in this mid-valley zone (Stanish 1992). During the period in question, the Estuquiña occupied most of the Moquegua Valley. The Estuquiña lived in defensible hilltop settlements situated around the valley perimeter. The lower valley, however, appears to have been occupied by the Chiribaya, who were colonists from the lower Osmore region. At an elevation of 1000 masl, the Osmore Drainage becomes deeply entrenched, and the river shifts below ground level until it emerges in the upper Ilo Valley.

The Lower Osmore: The Ilo Valley

Local topographic distinction separates the lower Osmore region into a narrow coastal plain and an entrenched inland valley, the Ilo. At around 300 masl the Osmore River reemerges into the valley, which is narrow and V-shaped as a result of millennia of tectonic uplift and river down cutting. The high, sheer walls of

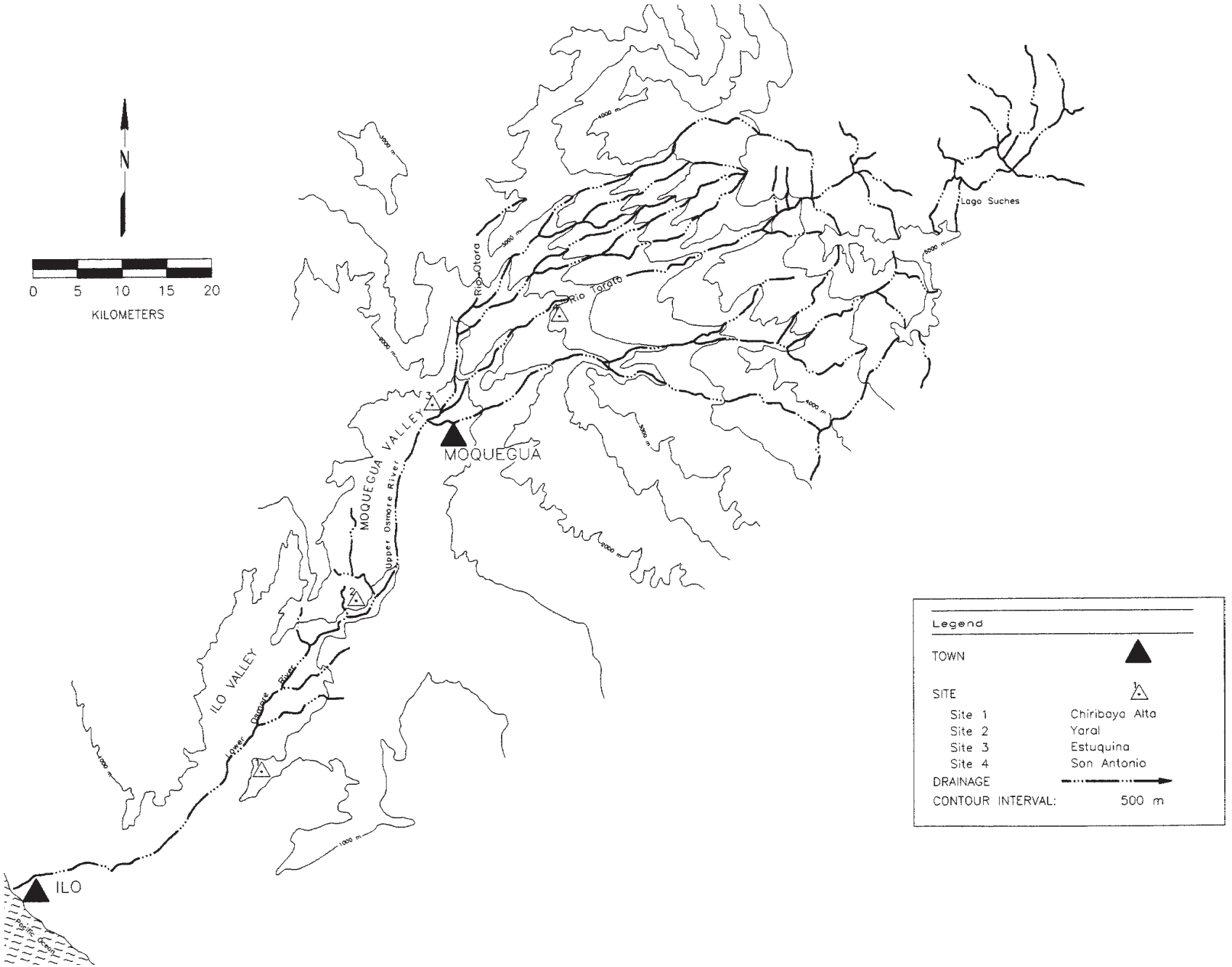


Figure 1. Map of study area: the Osmore Drainage.

this valley have traditionally isolated local populations, restricted the use of large quantities of marine products, and fostered agricultural specialization. During the Classic phase, Chiribaya populations lived in several large villages located along the base of the valley perimeter. A long irrigation canal, which was carved into the rock face of the valley and spanned multiple *quebradas* (arroyos), fed this agricultural system and linked many of these sites.

The Lower Osmore: The Pacific Coastal Plain

The coastal plain is a narrow belt of desert between the base of the Andean foothills and the Pacific Ocean that contains a series of freshwater springs. Chiribaya settlements at these springs were able to exploit three contiguous ecological microzones. The foothills, located directly above the springs, supported a dense growth of *lomas*[1] vegetation. Abundant projectile points and several ancient camelid pens indicate the prehistoric importance of this microzone for small game hunting and llama herding. Below this zone a series of spring-fed drainages supported short irrigation systems. Situated at the base of the irrigated fields, the marine littoral provided abundant seafood including high-density pelagic fish, near-shore solitary species, and both sandy-beach and rocky-littoral shellfish (Bawden 1989; Reycraft 1998).

LATE PREHISTORIC PERIOD OSMORE CULTURE HISTORY

Estuquiña Period Settlement

The Estuquiña phase in the upper Osmore dates to AD 1200–1500 (Conrad 1993). Two categories of Estuquiña settlements have been defined (see discussion on p. 66 for further description of Estuquiña architecture), each having a distinctive domestic architecture, which to some suggests a multiethnic society (Conrad 1993). The presence of *chulpa*[2] tombs and larger domestic structures at several Estuquiña sites indicates an emergent elite (Conrad 1993; Stanish 1992); however, the relatively homogeneous settlement size within each site category has made it difficult to identify a prime site, which argues against the presence of a well-developed political hierarchy.

Late Classic Phase Chiribaya Settlement

The Chiribaya occupied the lower Osmore Drainage from around AD 700 until the Spanish settlement of the region in the late sixteenth century. The interval between AD 1000 and 1360 has been defined as the Chiribaya Classic phase because it represents an era of cultural florescence, population growth, and enhanced agricultural development (Reycraft 1998). During the Classic phase, Chiribaya settlement expanded to occupy the coastal valley, the coastal plain, and lower sierra ecozones (Jessup 1990; Moseley 1992; Owen 1993; Rice 1993). By the Late Classic phase (AD 1200–1360), the presence of a two-tier settlement system, somewhat standardized textiles and ceramics, and elite burial paraphernalia suggests the development of a differentiated sociopolitical system involving both elites and economic specialists (Boytner 1992; Jessup 1990; Owen 1993).

Late Classic phase Chiribaya burials contain large quantities of decorated ceramics, basketry, textiles, wood, metal items, and—at times—human attendants (Lozada-Cerna 1998). The prime site, Chiribaya Alta, contains a disproportionate quantity of elite burials, has several large residential structures, and was strategically located to control access over three important resource areas: the valley, the pampa, and the coast (Buikstra 1995; Moseley 1992). Large-scale corporate labor activity during the Classic phase is indicated by the presence of a long embankment wall at Chiribaya Alta, sunken stone ceremonial plazas at two coastal sites, and a nine-kilometer-long irrigation canal that is carved into the rock face of the coastal valley wall.

The Terminal (Postdisaster) Chiribaya Phase

At approximately AD 1360, the lower Osmore region experienced a massive depopulation, and almost 77% of the Classic phase Chiribaya sites in the Ilo Valley, including Chiribaya Alta, were abandoned. The entire valley irrigation system also fell out of use at this time (Reycraft 1997, 1998; Satterlee 1993). Research of this phenomenon indicates that El Niño–generated debris flows breached the valley irrigation canal and buried many settlements and their associated agricultural fields (Reycraft 1998; Satterlee 1993).

During the subsequent Terminal Chiribaya phase (AD 1360–1600), the Ilo Valley was sparsely populated by scattered homesteads constructed atop fossilized debris flows and former agricultural terraces. A new valley irrigation system was not constructed until the arrival of the Spanish during the Colonial period. The Chiribaya continued to occupy their settlements along the coastal plain, but these settlements were substantially smaller than their Classic phase antecedents (Reycraft 1998).

After the disaster, a few classes of Chiribaya material culture changed rapidly, while other items retained their traditional appearance. The stability and change in postdisaster material culture are best understood when considered in reference not only to their historical context, but also to their geographical context, the Estuquiña occupation of the neighboring upper Osmore region.

THE MATERIAL CULTURE ASSEMBLAGES

Ceramic Assemblages

Late Classic Phase Chiribaya Ceramics

Late Classic Chiribaya ceramics have relatively standardized pastes of medium sandy clay with fine, medium, and coarse temper variations. The pastes are colored orange-red, brown, and/or gray (Munsell 5YR1/6 and 5YR2.5/1), depending upon the firing conditions. All ceramics were red slipped (Munsell 10YR4/8 or 10YR3/6) over 70% of the exterior of vase vessels and 100% of the interior of bowls. Up to 40% of all ceramics found in Classic Chiribaya domestic midden are decorated (Bawden, personal communication, 1997, based on unpublished excavation and survey data). Decorated wares were painted with combinations of black, white, orange, and brown; the white and orange paint are fugitive.

Bowls are semi-ovoid in shape and can have up to two handles. Bowl mouth shape varies and may be everted, straight, or inverted. Handleless bowls have one or two vertical protuberances on their rim. Bowl rims are decorated with white dots on a black base, and the majority of bowls are decorated on the interior. Bowl decorative motifs include pendant three-point stars, semicircles, bands filled with alternating semicircles, or cross-ribbon bands (figure 2a; Jessup 1991: figure 9). Jar shape varies between inferior ovoid, ellipsoid, and globular. Jars also display a great variety in neck shapes and design motifs (figure 2b). Cantaros have a globular shape and have two handles positioned at the maximum diameter point on the body (figure 2c; Jessup 1991: figure 10). Cantaro decoration consists of horizontal bands, vertical bands, semicircle bands, black triangle bands, or pendant semicircles on vase shoulders and rare examples of convergent diagonal step panel.

Estuquiña Ceramics

The Estuquiña vessel type most pertinent to this analysis is the bowl (for further information see Lozada-Cerna 1987). Estuquiña ceramic pastes were not well fired, which resulted in a brown to gray color (Munsell 2.5YR5/6, 5YR5/4, or 5YR3/1), nor well sorted, for they contain medium to coarse inclusions. A singular characteristic of Estuquiña paste is the presence of large amounts of mica, which presumably came from the clay source and was not intentionally mixed as temper. Ceramic shapes are crude and often irregular. Decoration is rare (below 1% of the entire assemblage), and a red slip is often sloppily applied over the upper sections of the vessel. Estuquiña bowls have been divided into three major classes. Class I bowls have convergent and curved walls, inverted rims, and horizontal or vertical protuberances located on the rim or lateral wall rim area (figure 3a). Class II bowls have spherical bodies, round walls, inverted rims, and lack protuberances (figure 3b). Class III bowls have straight walls, a maximum vessel diameter at the mouth, everted or straight rims, and sometimes, protuberances located on the rim (Lozada-Cerna 1987: figures, p. 95).

Terminal Phase Chiribaya Ceramics

Terminal Chiribaya ceramics are generally similar to their Classic phase ceramic predecessors. Ceramics employed similar pastes and slip during both phases. Classic and Terminal phase jar and cantaro forms are largely identical (figures 4a, b). The most dramatic difference between these pre- and postdisaster ceramics is their decoration. While approximately 40% of all Classic phase Chiribaya pottery was elaborately decorated, the Terminal phase ceramic assemblage contains only about 1% decorated wares. When decorated, these postdisaster ceramics employ vestiges of their earlier design complexity; for example, bowls, the most commonly decorated form, are often embellished with simple crossed-ribbon designs on the vessel interior (figures 5a, 6a). Jars and cantaros are almost never decorated. The percentage of decorated/undecorated wares in the postdisaster Chiribaya ceramic assemblage is very similar to the ratio of decorated wares found in the Estuquiña ceramic assemblage (Reycraft 1998).

Some vessel forms also changed during the Terminal phase. These changes are most evident in the following types of bowls:

A) *Chiribaya-style bowls*, which, like their Late Classic phase counterparts, are semi-ovoid and have mouths that vary between everted, straight, or inverted forms (figures 5a, b). Chiribaya-style bowl rims are either unslipped or covered with a red slip. The vessel body is usually unslipped;

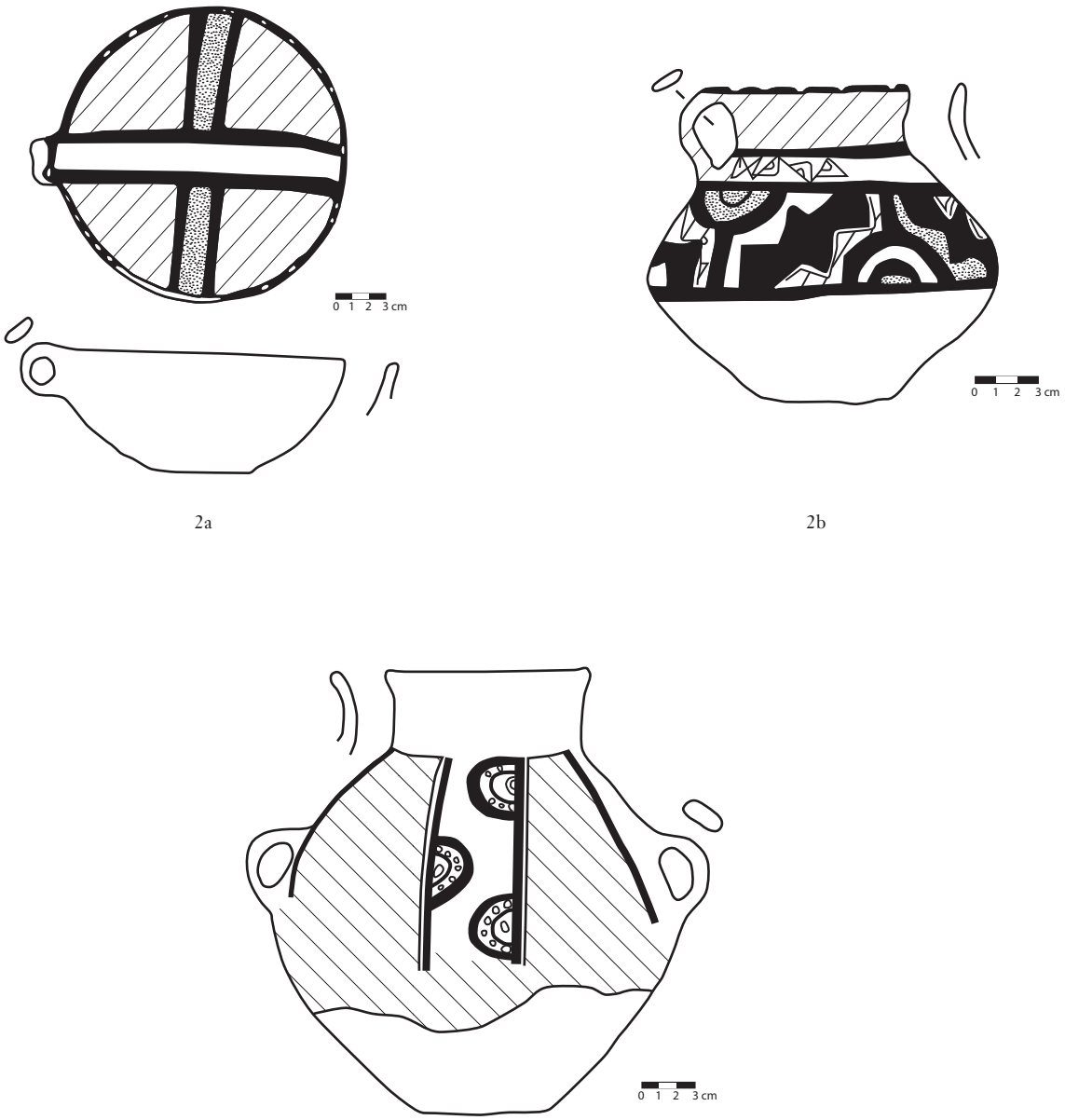
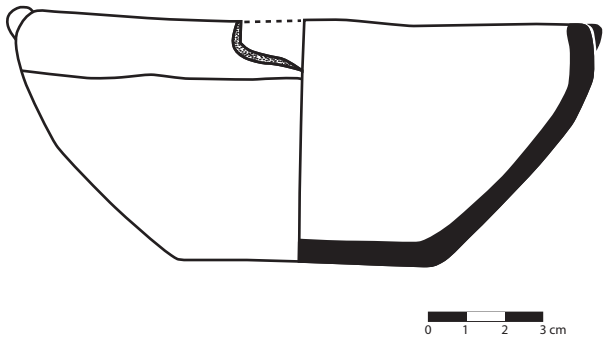


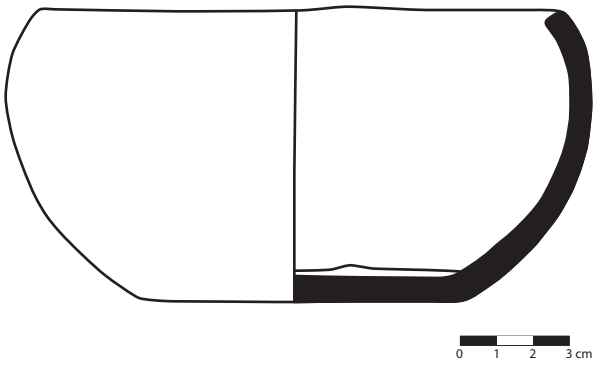
Figure 2. Classic phase Chiribaya decorated vessels (redrawn from Jessup 1991).

however, some bowls have interior and/or exterior red slip. White dots, the signature rim diagnostic for Classic phase Chiribaya decorated vessels, are extremely rare on Terminal phase bowls.

B) *Chiriquiña-style bowls*. The term "Chiriquiña" was coined to emphasize the expression of Estuquiña stylistic influence on some Terminal phase Chiribaya bowls (Reycraft 1998). During the Terminal phase, Chiriquiña became an important ceramic subtradition in which Estuquiña formal characteristics, such as vessel shape, rim angle, and protuberance type, were merged with Chiribaya decorative attributes and pastes. Stylistic attributes were adopted from two types of Estuquiña bowls. Like their Estuquiña counterparts, Class I Chiriquiña bowls (Lozada-Cerna 1987) have horizontal protuberances, in-curved walls, and more ellipsoid body attributes (figure 6a). Class



3a



3b

Figure 3. Estuquiña bowl types I (a) and II (b) (redrawn from Lozada-Cerna 1987).

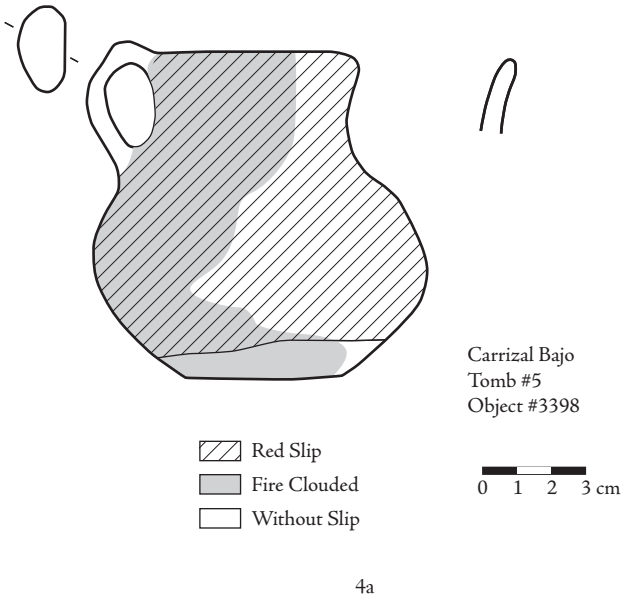
II Chiriquiña bowls lack protuberances and have more globular bodies with in-curved rims (figure 6b: first, third, and fourth specimens from top). These attributes were borrowed from Class II Estuquiña bowls. Terminal phase Chiribaya potters apparently did not adopt vessel attributes from Class III Estuquiña bowls.

Chiribaya vs. Chiriquiña bowls were encountered at a 50/50 ratio in mortuary contexts; however, the Chiribaya form was much more common in domestic midden contexts.

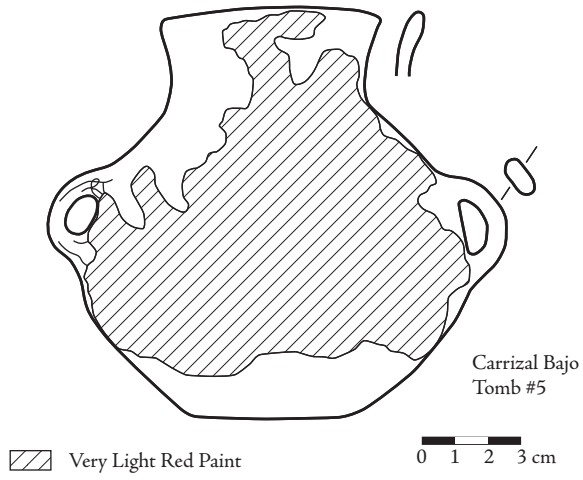
The Textile Assemblages

Camisas (Shirts)

Chiribaya and Estuquiña *camisas* are all warp faced and utilize predominantly Z-spun, S-plied, wool threads. All display substantial variability in form and quality (as measured by indices of labor input). These shirts were woven as a single piece (the neck opening was inserted into the middle of the web), which was then folded in two and stitched together along the lateral selvages. Embroidery was primarily employed to decorate and reinforce the lateral selvage and collar areas.

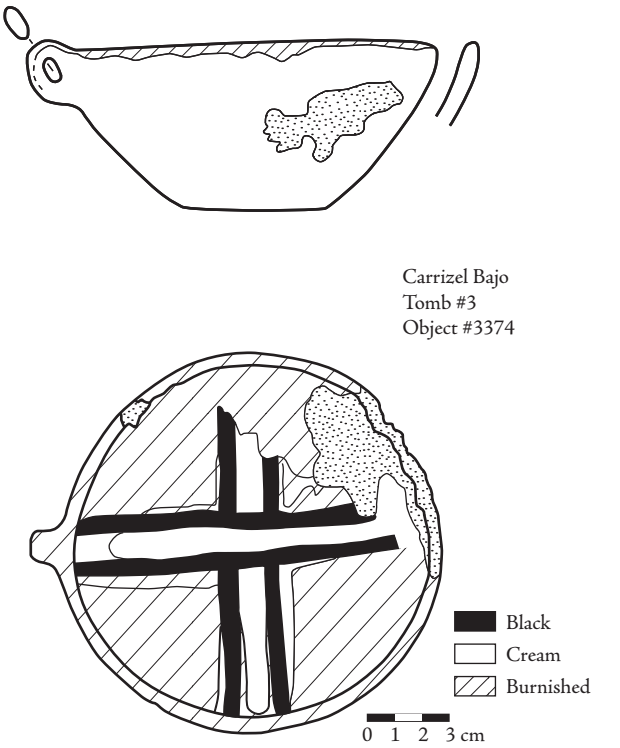


4a

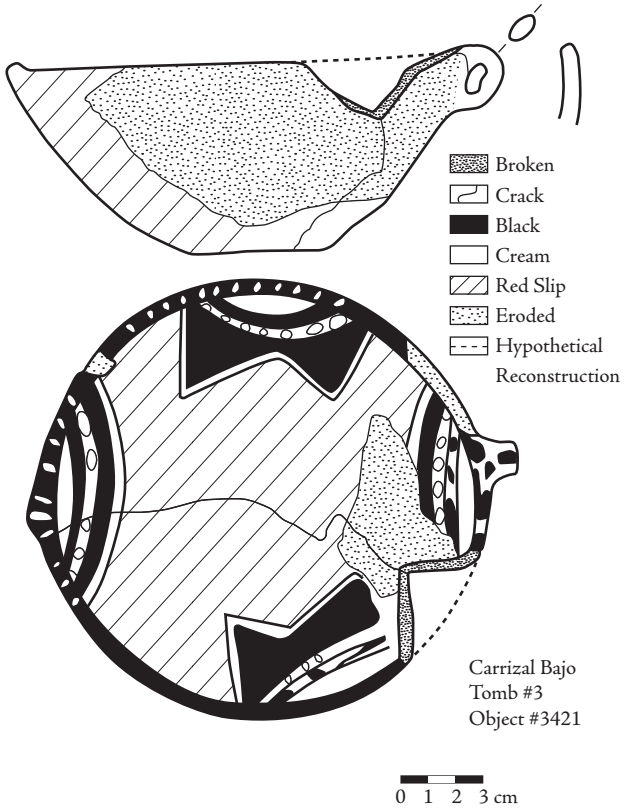


4b

Figure 4. Terminal phase Chiribaya jar (a) and cantaro (b).

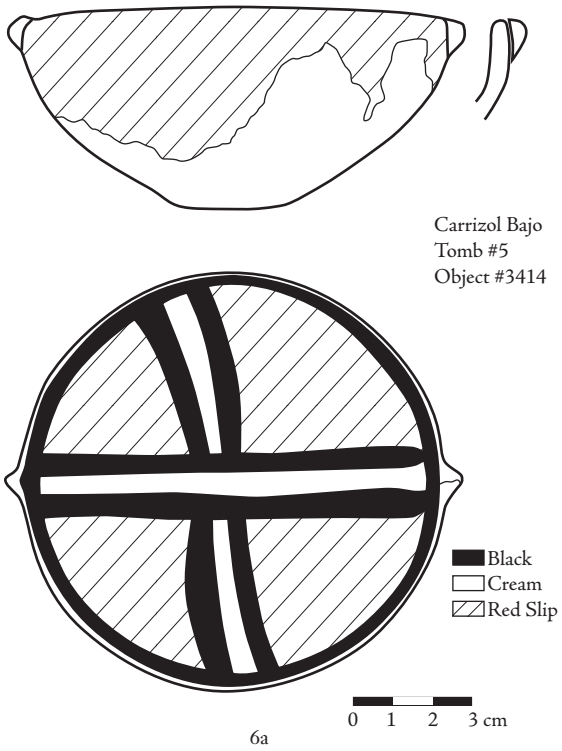


5a

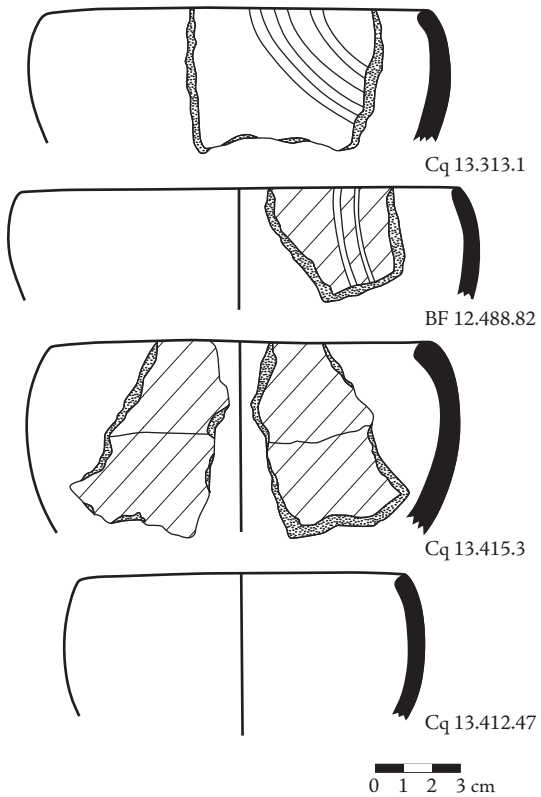


5b

Figure 5. Terminal phase Chiribaya-style bowls.



6a



6b

Figure 6. Terminal phase Chiriquiña-style bowls (for 6b: first, third, and fourth examples from top).

In Terminal phase Chiribaya shirts, embroidery was also sometimes utilized as decorative reinforcement along warp stripe patterns. All shirts varied from rectangular (Clark, Palacios, and Juarez 1993: figure 23c) to extremely trapezoidal in shape (Clark, Palacios, and Juarez 1993: figure 19a). The major differences between Chiribaya and Estuquiña shirts relate to the color palettes employed and the amount of labor invested in shirt production (monitored by dense weaves, dyed cloths, and complex design motifs).

Classic Chiribaya phase shirt decoration varied from undecorated, natural coffee-colored examples to elaborate specimens with purple, blue, red, and gold warp lateral stripes over a coffee- or maroon-colored base cloth (see Clark, Palacios, and Juarez 1993). Variability in Classic phase Chiribaya shirt quality and form can be assigned to both gender-sex and status-rank distinctions. Textiles from the prime site, Chiribaya Alta, were generally finer, denser, and had more elaborate dye coloring and finish techniques than those studied from other Classic Chiribaya sites (Boytner 1992). Clark and her colleagues (1993) were also able to identify several status and sex groups in their textile data. One of these groups utilized large standardized trapezoidal-shaped shirts with repetitive lateral warp stripes in combinations of red and purple, red and blue, and red and greenish blue.

Estuquiña camisas were encountered with four main types of decoration: all-over brindling, faint warp color striping, combinations of solid and patterned warp stripes, and "textural" striping derived from plain-weave warp floats. Design patterning was either lateral (Clark 1993: figure 539b) or all-around symmetrical (Clark 1993: figures 539c, e). In contrast to Classic Chiribaya forms, decorated Estuquiña camisas utilized predominantly natural colors (coffee, brown, black, and gold). Only 9% of all Estuquiña camisas employed dyed yarns (blue, green, and red). Alternating-color lateral stripes and neck reinforcement decoration is absent. Shirt design is not standardized, and no status distinctions could be discerned; however, some sex-gender distinctions were discovered (Clark 1993).

Terminal phase Chiribaya camisas were decorated with colored warp striping, supplemental colored warp pin striping, or supplemental discontinuous colored warp pin striping. Colored decoration occurred in natural hue combinations of black, gold, and tan or over a coffee or brown base (figure 7). The overall pattern of decoration tended to differ according to the design method employed. Shirts utilizing naturally colored warp stripes

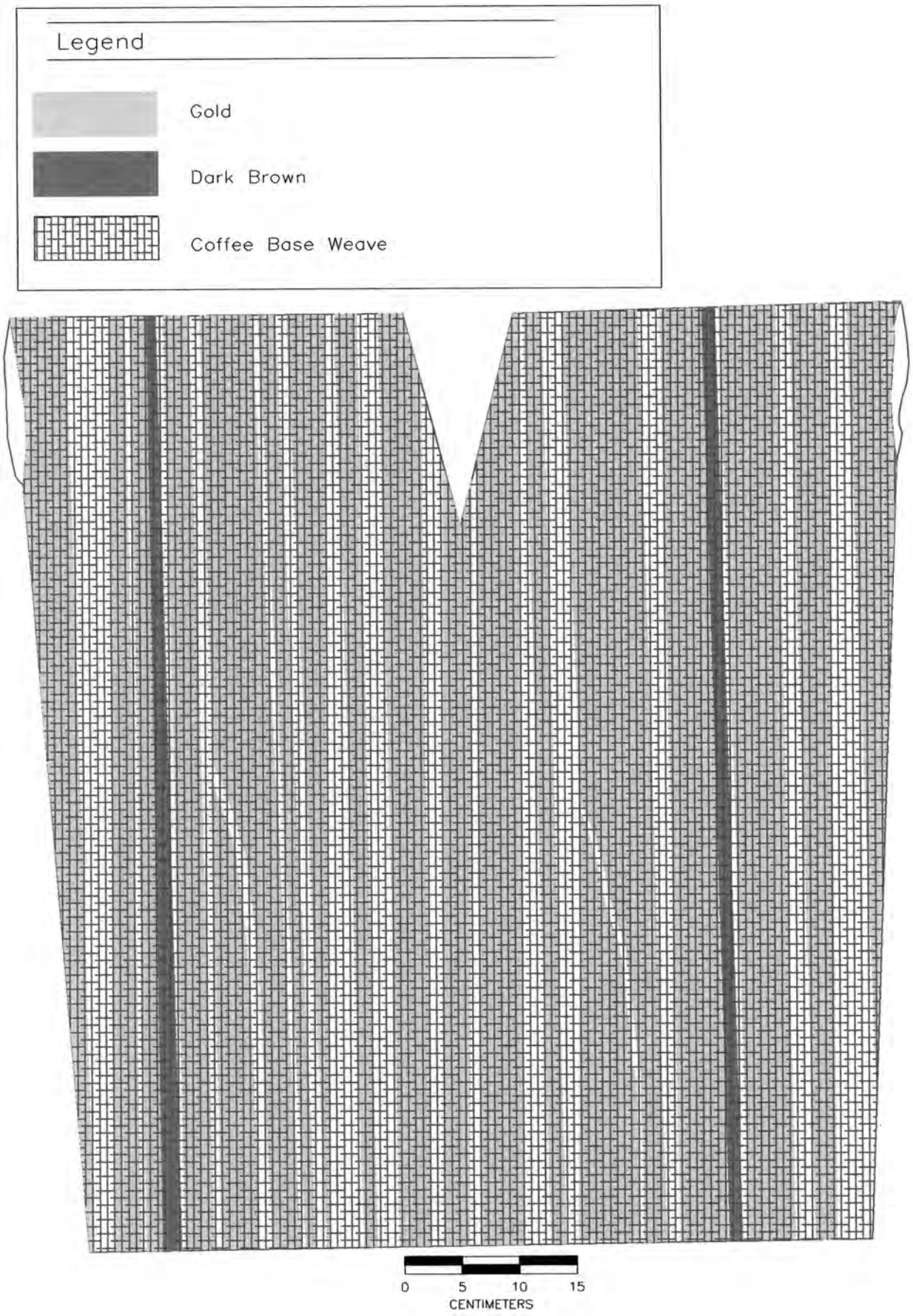


Figure 7. Terminal phase Chiribaya shirt (*camisa*).

or pin stripes employed all-around-symmetrical or lateral-symmetrical design patterns, while camisas with supplemental discontinuous warp pin striping arranged the design along the shoulder/sleeve and central torso areas. We did not find any dyed yarns or evidence suggesting standardization of shirt color or structure on Terminal Chiribaya phase camisas.

Gorros (Hats)

Classic Chiribaya phase gorros are tall, either cylindrical or square-shaped, and were constructed by the knotted looping of wool fibers. These hats are decorated in monochrome relief with zigzag, diamond, and vertical line motifs. Most Classic phase Chiribaya hats are colored red and black, and a few are solid dark brown.

Estuquiña gorros were constructed of wool fibers by knotted looping, looping over foundation, or a composite of these two techniques. All known Estuquiña hats are short and pillbox shaped. Estuquiña weavers decorated their hats texturally in the knotted-looping form or through color combinations in the other forms. Design motifs include horizontal lines and rows of triangles in contrasting brown and gold patterns (Clark 1993: figures 3.21a, b).

Terminal phase Chiribaya weavers manufactured gorros in camelid wool with the looping-over-foundation technique. The decorative patterns were constructed by yarn color changes within the weave structure. All of these hats are short and pillbox shaped. The most common hat designs accentuate contrasting patterns in brown, black, and gold. For example, excavation revealed a plain brown gorro, a gold-and-black zigzag gorro, and a brown gorro with symmetrically arranged golden triangles (which appears identical to known Estuquiña types—see Clark 1993: figures 3.21a, b) (figure 8). Another hat, found in a child's burial, had diagonal green scroll patterns placed symmetrically across a red background, which suggests some residual use of dyed yarns in the Terminal Chiribaya textile assemblage.

Figure 8. Terminal phase Chiribaya hat (gorro).

Tomb Design

Classic and Terminal phase Chiribaya tombs are structurally identical. During both phases, the Chiribaya were buried in subterranean rectangular tombs with earthen end walls and masonry side walls (figure 9) (Jessup 1990, 1991; Reycraft 1998).

The Estuquiña utilized subterranean, circular, cyst-like tombs that were sometimes embellished with a circular stone "collar" at the surface. Fully defined chulpas (Tschopik 1946) were also built during the Estuquiña-Inka period (Stanish 1985, 1992).

Vernacular Architecture

Classic phase Chiribaya domestic structures are rectangular or rectilinear, depending upon the number of occupants. Such structures were constructed of cane and contained internal divisions of space oriented

Figure 9. Terminal phase Chiribaya tomb.

around the subdivision of a large room with at least two smaller "cell-like" rooms. Many of these houses also had an exterior roofed work area and a narrow corridor that provided interior access (figure 10) (Rice 1993).

Estuquiña domestic architecture occurs in two distinct patterns that are manifested at different settlements. Domestic structure type 1, which occurs at the Estuquiña site and several other settlements in the upper Osmore, is a rectangular, stone-walled building with a length-to-width ratio of 3:4, and a mean floor area of around 146 square meters. This type of structure contains six or more rooms, the exact sizes and arrangements of which are variable (figure 11a). Domestic structure type 2 is found at the San Antonio site and several related settlements. Type 2 structures have rectangular stone walls and a length-to-width ratio of 2:1. These structures have approximately 60 square meters of floor area, which have been subdivided into a large general-purpose room in the front and a small kitchen in the back (figure 11b) (Conrad 1993).

Terminal phase Chiribaya domestic structures were almost identical to Classic phase Chiribaya houses (figure 12). The single exception, a circular domestic structure, was likely constructed by colonists from the altiplano (Reycraft 1998).

DISCUSSION

A tangible Estuquiña influence is evident in postdisaster Chiribaya ceramics. Terminal phase Chiribaya potters adopted several stylistic attributes from Estuquiña Class I and Class II bowls, and they also produced an almost design-free ceramic assemblage, which resembled Estuquiña ceramics. The ratio of Chiriquiña to Chiribaya bowls found in mortuary contexts suggests that this Chiriquiña substyle became an important ritual ware. Nevertheless, most Terminal phase cantaros and jars retained vessel forms that were similar to their Classic phase antecedents. The overall ceramic data indicate a substantial but not pervasive Estuquiña influence on postdisaster Chiribaya ritual wares.

Classic phase Chiribaya weavers commonly employed dyed red, maroon, purple, and green yarns, while Estuquiña weavers predominantly utilized undyed coffee, black, dark brown, and gold yarns. Ethnohistoric data suggest that these different combinations of color and motif functioned as ethnic identifiers for their respective peoples (Cobo 1956 [1653]). Differences in the most visible types of apparel, such as gorros and camisas, indicate that individuals dressed in the garb of one ethnic group would be highly distinguishable from those dressed in the attire of the other.

Terminal phase Chiribaya weavers used few dyed yarns. Like the Estuquiña, they adopted a color palette that emphasized undyed coffee, brown, black, and gold thread. Shared motifs and hat styles also indicate a strong Estuquiña influence in postdisaster Chiribaya textiles. These changes suggest that postdisaster Chiribaya peoples expressed their ethnicity in different terms than those of their Classic phase ancestors. During the Terminal phase, Chiribaya ethnic expression through the textile medium closely resembled Estuquiña textile manifestations. When viewed from a distance, Terminal Chiribaya dress would not be highly distinguishable from Estuquiña garb.

Although the ceramic and textile evidence suggests Estuquiña stylistic influence, the forms of the postdisaster domestic structures strongly indicate cultural continuity from the Classic Chiribaya phase. No Estuquiña domestic structures were found in the lower Osmore region. Terminal Chiribaya peoples lived in the same type of structures as their Classic phase Chiribaya ancestors. Classic and Terminal phase Chiribaya tombs were also identical in design.

The preponderance of evidence (ceramic paste, domestic structure form, and tomb design) indicates that the postdisaster occupants of the lower Osmore region were the ethnic descendants of the Classic phase Chiribaya. The stylistic change that did occur was implemented over a predominately Chiribaya base and in no way suggests an invasion by highland Estuquiña peoples. The evidence does, however, indicate that the Estuquiña influenced the stylistic choices made by postdisaster Chiribaya people. This influence was most strongly felt in the two kinds of material culture, visible textiles and ritual ceramics, that most likely reflected ethnic identification.

Vernacular architecture and tomb design are conservative cultural practices that, perhaps, were not employed by the Chiribaya as emblemic ethnic markers. Archaeological evidence, however, strongly indicates that these items of material culture are ethnically diagnostic in the central and south Andes (Aldenderfer and Stanish 1993; Bawden 1993; Conrad 1993; Gasparini and Margolies 1980; Hyslop 1989; Kendal 1985; Morris and Thompson 1985; Stanish 1985, 1992). In the Chiribaya example, vernacular architecture and tomb form may reflect more latent, isochrestic indicators of ethnicity. Because isochrestic style is not actively employed in ethnic identification, it may also change at a different pace than emblematic indicators of social identification. That is, the two kinds of stylistic information may not change in harmony.

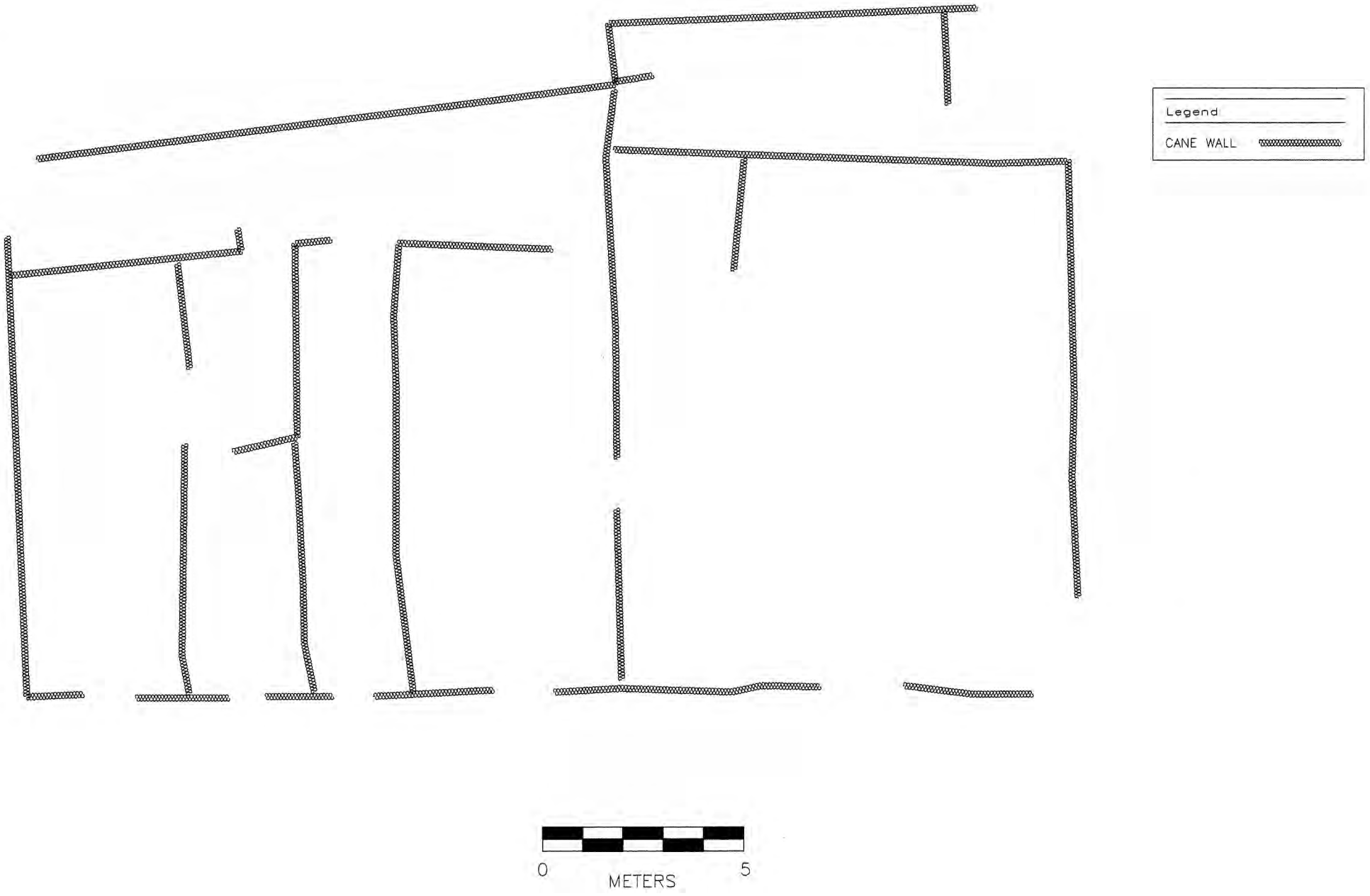


Figure 10. Classic phase Chiribaya domestic structure (redrawn from Rice, D. S., 1993).

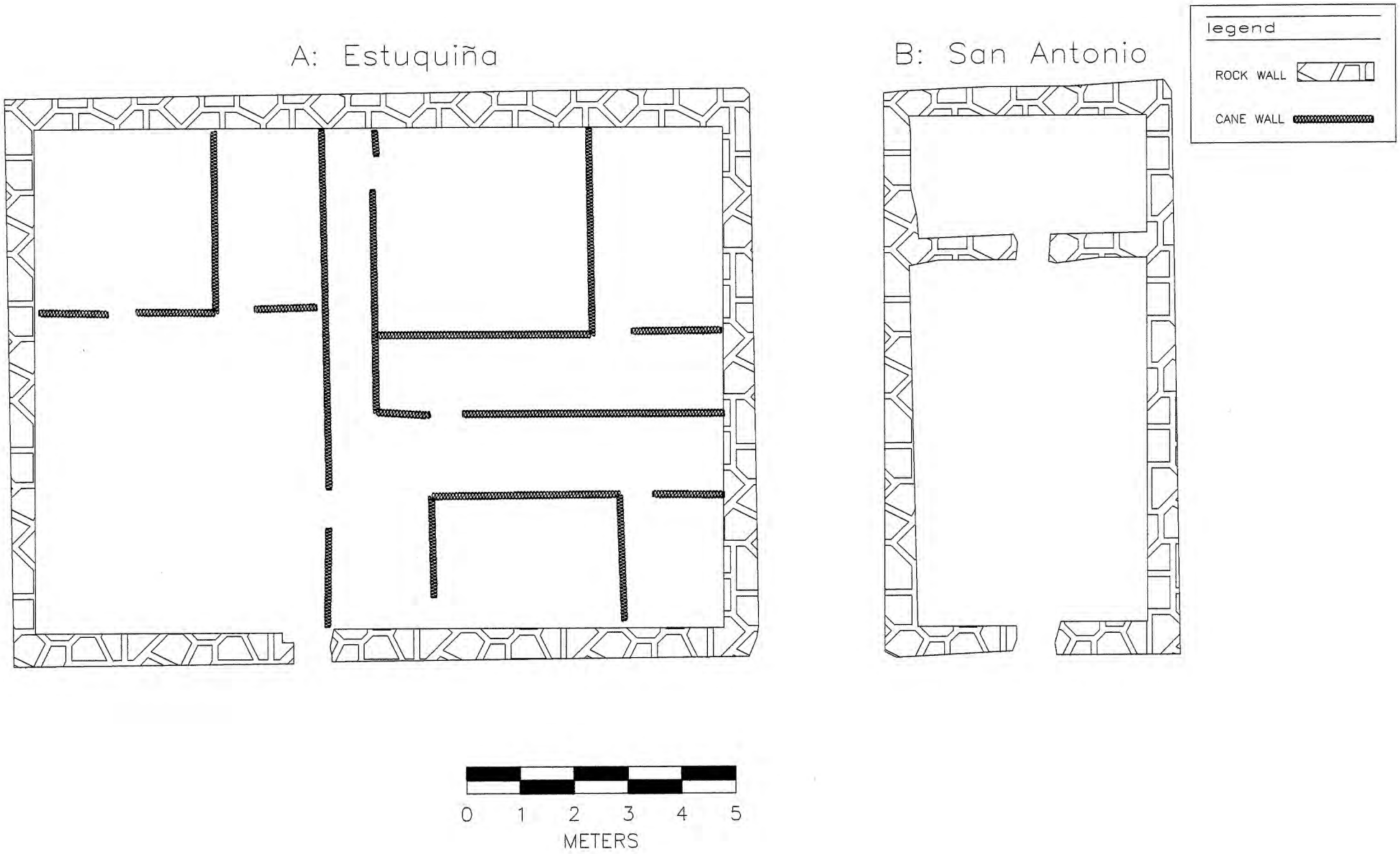


Figure 11. The two types of Estuquiña domestic structures (redrawn from Conrad 1993).

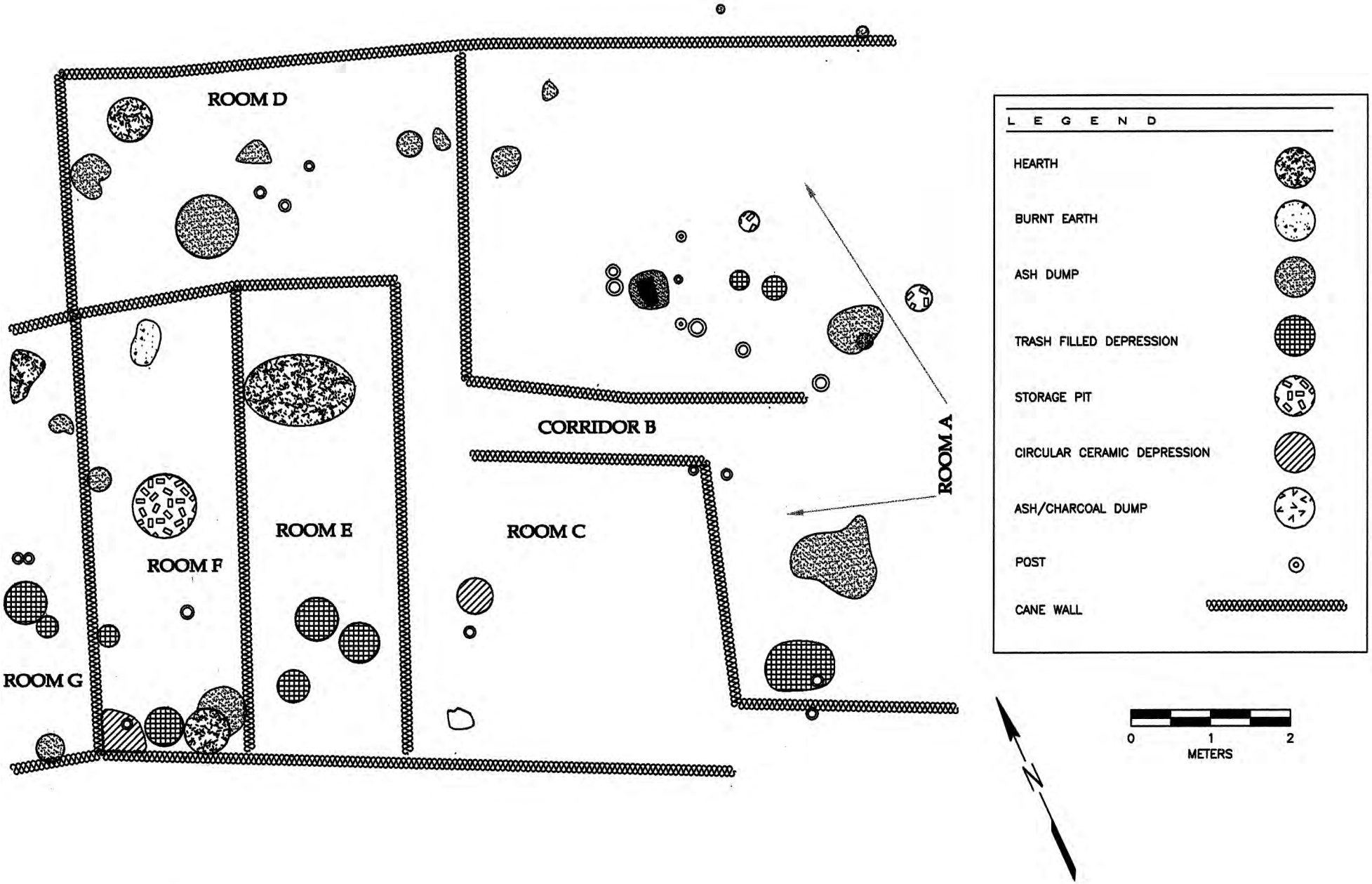


Figure 12. Terminal phase Chiribaya domestic structure.

I suggest that the Terminal phase Chiribaya people had begun the process of changing their ethnic identification. Exterior clothing and ritual ceramic wares, the items of material culture that have the most emblematic potential, had borrowed significant Estuquiña stylistic attributes. Vernacular architecture and tomb form, more latent indicators of ethnic identification, had not. The Inka, who added the Osmore region to their empire in the early fourteenth century, may have fueled this ethnic genesis. In the lower Osmore, the Inka archaeological footprint consists of a scant few imperial ceramics and some indigenous Chiribaya/Chiriquiña ceramic wares with Inka stylistic attributes, such as beveled bowl rims (Reycraft 1998). No Inka administrative centers, settlements, or *tambos*[3] have been found in the lower Osmore. In contrast, an Inka administrative center and tambo have been found in the upper Osmore area (Burgi 1993), and Late Horizon Estuquiña ceramic wares display so many Inka attributes that they are classified as Estuquiña-Inka wares. The Inka clearly administered the Osmore from the upper valley, and for administrative purposes they may have encouraged the Chiribaya to ethnically affiliate with the Estuquiña by classifying both groups into a single administrative category. Alternatively, the Inka may have recognized the Terminal Chiribaya as a separate people who lived in an impoverished, depopulated region that required little administration. The presence of a ruling elite in the upper valley, and the prestige relationships that it engendered, could have also fueled the Chiribaya adoption of Estuquiña ethnic paraphernalia. Unfortunately, we can never know the end result of this reidentification process, for it was cut short by the Spanish colonization.

The Spanish conquest of the Andes had a profound effect on the ethnic groups of the region. War, disease, and excessive tribute demands made by the Spanish resulted in catastrophic mortality and migration patterns throughout vast areas of the Andes. Dramatic population shifts disrupted many of the traditional *ayllu* reciprocal relationships upon which crafts people were dependent for procurement of raw materials for the production of their material culture. Finally, during the 1780s the Spanish authorities established dress laws for indigenous peoples, whereby much traditional ethnic dress was outlawed and European-style pants, vest, and a jacket deemed mandatory.

Given the opportunity to continue their trends, the postdisaster Chiribaya people may have been assimilated into a broader Estuquiña ethnic group. Alternatively, they may have only borrowed specific elements of the latter culture and reidentified themselves as a separate ethnic entity, one whom we would possibly term Chiriquiña. All that we can reasonably assume, however, is that the postdisaster Chiribaya people did not view their ethnicity in the same manner as their Classic phase ancestors.

NOTES

1. A fog-fed vegetation, indigenous to the coastal Andean region.

2. *Chulpas* are circular tower tombs that were constructed for the elite in regions of Aymara cultural influence.

3. A *tambo* was a way station along an Inka road. Tambos served communications and supply purposes.

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CHAPTER 5

Who Were the Priests, the Warriors, and the Prisoners?

A PECULIAR PROBLEM OF IDENTITY IN MOCHE CULTURE AND ICONOGRAPHY, NORTH COAST OF PERU

STEVE BOURGET

INTRODUCTION

The identification of specific groups or individuals in ancient societies is often, at best, an imperfect task, fraught with difficulties. The principal objective of this paper is more about presenting problems than proposing definitive solutions about discovering identity or identities in the archaeological record. This contribution also represents a departure from the general concept of identity used in archaeology. It usually refers to the determination of social identity, or the definition of social and physical boundaries between different groups on the basis of their material culture. Our goal is to explore a somewhat more metaphysical concept of identity as we wish to evaluate the degree(s) of relationship between Moche iconography and the physical world of this society. The main concern is how can we discern and validate the "degree of identity" of certain individuals or groups in terms of their social, symbolic, or even mythical persona? In order to explore this complex question, we present two test cases drawn from recent research carried out on the Moche.

Although much work remains to be done on this subject, it is generally accepted that the Moche was a state-level society occupying the Peruvian north coast between the first and the eighth century. They constructed sizeable ceremonial centers, surrounded in some cases by well-developed cities with streets and artisanal sectors. Their funerary practices were complex and elaborate, and attracted the interest of treasure hunters and collectors for centuries. The numerous offerings placed to accompany their dead included among other things metallic objects, textiles, and finely painted and sculpted ceramics. Tens of thousands of these beautiful vessels and ceramic objects have found their way into public and private collections around the world. The various and complex representations on these artifacts have been studied by numerous scholars, and have led to the identification of a number of individuals involved in various ritual contexts (see for example: Alva and Donnan 1993; Benson 1972; Donnan 1978; Hocquenghem 1987).

The present investigation will progress along two different, albeit associated sets of information: the

Figure 1. Human remains in Plaza-3A, Huaca de la Luna.

archaeological record and the iconography found on the ritual ceramics and murals. In the first test case, I will attempt to evaluate the identity of the sacrificial victims found at the recently discovered Huaca de la Luna sacrificial site in the Moche Valley (figure 1). Were these men slain enemies captured during battles? Or were they part of an elite, shock troops of some sort, sent in sacred battlefields for the greater good of the community?

To a certain extent, the second test case regards an even more difficult problem, that is, the very nature of the Moche rulers, such as those represented in one of the most complex scenes within Moche painted iconography, the Sacrifice Ceremony Theme (figure 2). In the literature, these seemingly important individuals have been irrespectively and often interchangeably termed priests and priestesses (Alva and Donnan 1993: 132; Hocquenghem and Lyon 1980), gods (Benson 1972:42), or mythical ancestors (Hocquenghem 1987: 125). But how can we assess the nature of their identity both physical and ideological? How were they conceptualized in Moche terms? Were these people perceived as human beings with vested interests in mundane affairs? Were they perceived as being connected to higher planes of reality, such as a world of the ancestors and/or the afterlife? It will be argued that a linear lecture of the evidence within our grasp does not suffice to define these actors solely in terms of their political or social roles, and that more complex models need to be developed.

HUACA DE LA LUNA SACRIFICIAL SITE

During recent years numerous evidences of human sacrifices have been found in Moche sites such as Sipán, Dos Cabezas, and Huaca Cao Viejo (Alva 1994; Cordy-Collins 2001; Franco, Gálvez, and Vásquez 1996). Nonetheless, it is at Huaca de la Luna that the most elaborate sacrificial site was discovered in 1995. It consisted of more than seventy male individuals sacrificed in a special plaza of the temple during numerous rituals (Bourget 1998, 2001) (figure 3). An open plaza (Plaza-3A) and a rectangular structure (Platform-II) bisecting a rocky outcrop form this part of the temple. Both structures are connected to the north and to the south by high walls still some eight meters tall in places. This bipartite construction constitutes a prolongation of the Huaca de la Luna main platform toward Cerro Blanco during one of its latest phases of reorganization (figure 4). On the basis of the new terminology developed for the construction sequence of the temple, it would have been associated with the renovation "B" of the main platform, "A" being the very last building to be erected (Uceda and Canziani 1998). Building A has been almost completely destroyed by looting activities. This late extension, Platform-II / Plaza-3A, represents a single architectural project constructed between the sixth and the seventh century, during the stylistic phase Moche-IV.

In Plaza-3A, at least six stratigraphically distinct sacrificial rituals took place in its northwest corner. This space covering less than 60 m^2 is situated just in front of the rocky outcrop. Victims embedded in thick layers of clay indicate that two of these rituals were performed during spells of torrential rain brought to this desertic coast by the effects of an El Niño phenomenon. These deposits of clay were most certainly washed from the high adobe walls surrounding the plaza. The sacrificial sequence and the positioning of the human remains during each of the rituals, or even between subsequent rituals, bespeak a high degree of ritual organization. For example, each sacrificial ritual

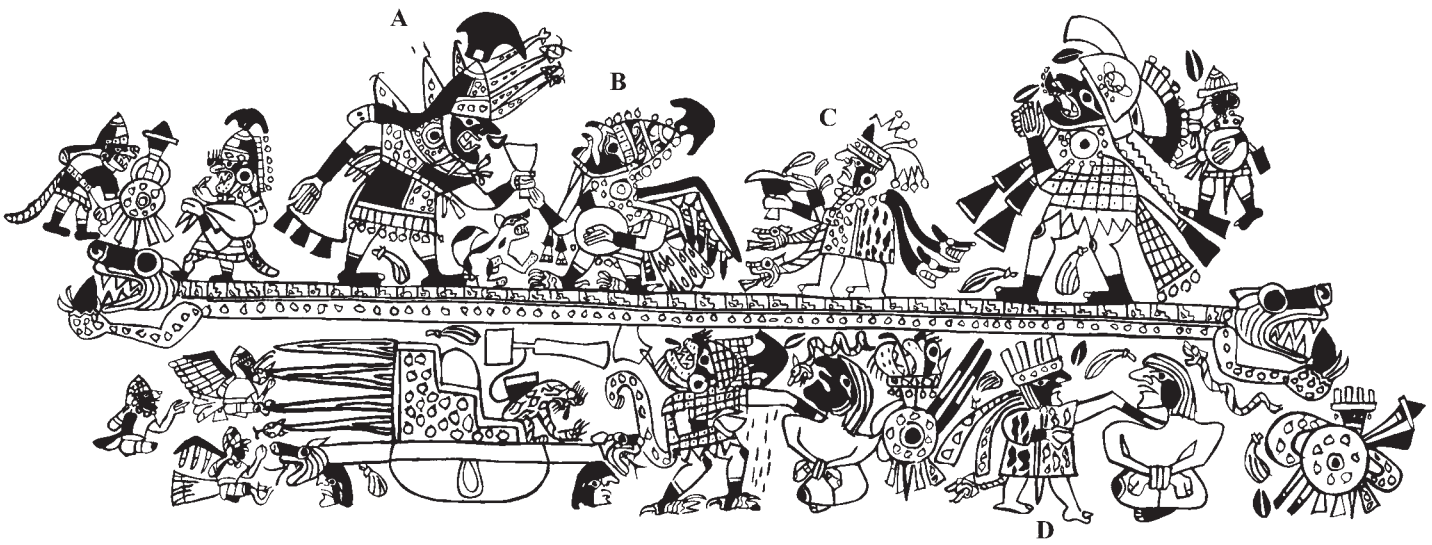

Figure 2. Sacrifice Ceremony scene, redrawn from Donnan and McClelland 1999.

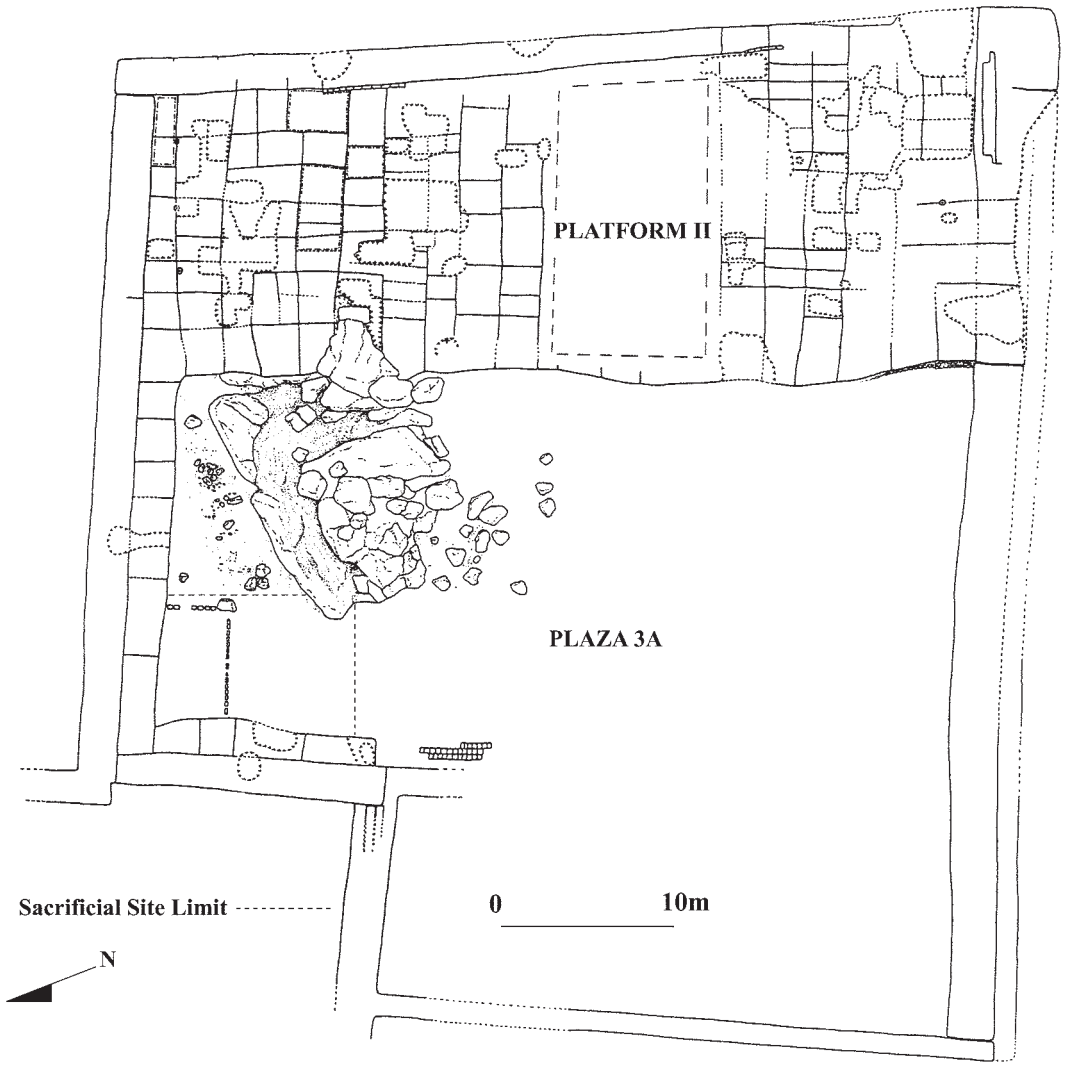

Figure 3. Plan of Plaza-3A and Platform-II, Huaca de la Luna.

Figure 4. Plan of Huaca de la Luna, Moche Valley.

performed in a layer of clay was followed by a second one taking place some time after on the dry mud surface. Furthermore, the corpses found embedded in the clay are usually resting on their backs, whereas the individuals sacrificed during the dry conditions have been placed facing down right on top of the previous ones. After each performance the mutilated remains of the victims were left exposed to the natural elements and denied a proper burial. Considering these new archaeological contexts it became obvious that the numerous scenes of sacrifices represented on ceramics, metallic objects, and the walls of the temples may actually have taken place. The evidence of sacrifices found in each of the Moche sites presently under investigation also indicates that these practices formed an integral part of Moche religion and ideology.

All the victims of the sacrificial site of Huaca de la Luna were male, and their age was between 15 and 39 years with an average of 23. On the basis of their age and sex it thus appears to be a selected group of individuals. Their skeletal morphology indicates that these were healthy, strong individuals who were physically very active. Numerous well-healed fractures on many of them, and fresh injuries on at least eleven, indicate that these persons were probably warriors captured during violent encounters (Verano 1998, 2001). Although numerous representations realistically depict scenes of battle between warriors equipped with protective helmets, backflaps, shields, and war clubs, this excavation is the first time that what appear to be authentic warriors, in flesh and blood so to speak, were found slain in such vast numbers in a Moche site.

WAR IN PEACE

Alva and Donnan (1993) have already suggested that the main objective of these fights was not to kill the opponent but to incapacitate him by a blow to the face or to the legs. By matching together a number of scenes, they reconstructed a narrative sequence from the moment of the warriors' capture to their arrival at the temples:

> Once an enemy was defeated, some or all of his clothing was removed, a rope was placed around his neck, and his hands were sometimes tied behind his back. The prisoner's clothing and weapons were made into a weapon bundle, which was tied to the victor's warclub and slung over his shoulder. The victor held the rope tied to the prisoner's neck and forced the prisoner to walk in front of him. . . . The prisoners were ultimately taken to a place where they were formally arraigned before a high status individual. (Alva and Donnan 1993:131)

Figure 5. Interior view of a flaring bowl. Museum für Völkerkunde, Berlin, VA-48171.

A number of scenes suggest that these combats were performed under the guidance or supervision of high-ranking individuals as well. Such a person is often portrayed as standing alongside or in the midst of the battle. On one fineline painting (figure 5), the leader is standing alone with a bird on each side. On the basis of the attire worn by the warriors, it would appear that both sides of the warring party belong to Moche society. Apart from very few examples, the opposing groups wear similar clothes and carry the same type of equipment, usually consisting of a conical helmet or a more elaborate headdress, a backflap, a round or a square shield, and a long club. However, differences can be found among the designs of the tunics and the forms of the shields. For example, on the flaring bowl depicted in figure 5, each of the four warriors wears a stylistically different outfit and carries a distinctive shield. Furthermore, this variation in warfare regalia on the same representation is not rare but the norm. It would seem that the objective is indeed to show in a single scene as many different styles of warriors' outfits as possible, and to establish a certain symbolic duality in the alternation of round and square shields.

Discoveries recently made at two Moche sites suggest that the representations of the warriors' small shields and very long clubs portray the actual objects, whose depicted sizes compared to human beings are accurate. At Dos Cabezas, in the Jequetepeque valley, three small shields made of wood covered with metal sheet have been found by Christopher Donnan in an early Moche burial (Donnan 2001). These protective devices are about 30 cm in diameter. In addition, two wooden maces were found deposited at the base of a wall at Huaca Cao Viejo in the Chicama Valley (Franco, Gálvez, and Vásquez 1999). These broken maces, which have been carved from a single piece of wood, were, like the shields, originally covered with metal sheet and measured at least 120 cm.

I would suggest that the small size of the shields—which would have barely protected the forearm and were probably tied to the left wrist—and the long, slender, relatively fragile shafts of the maces would indicate that indeed these implements must have been used against opponents similarly equipped in a context of ritualized warfare. In my point of view, it would have been suicidal for Moche warriors to engage in regular warfare against other groups armed only with these war clubs and shields offering so little protection.

Another problem relating to the use of Moche iconography to portray scenes of warfare is directly associated with the very nature of this system of representation. Numerous scenes represent not only human beings engaged in battles, but what appear to be subjects with supernatural attributes as well, such as animated objects and anthropozoomorphic beings (figure 6). Moreover, these actors are often engaged in other contexts involving sacrifices, funerary rituals, marine settings, and so forth. These additional activities

Figure 6. Revolt of the Objects, redrawn from Donnan and McClelland 1999.

suggest that battle scenes were part of a greater conceptual whole that must also be explained.

This does not mean that the Moche did not practice any form of warfare other than ritual. They possibly did, but it is likely not represented in the iconography because of its very nature and function. Other contexts or elements of the material culture will need to be located in order to demonstrate this important aspect. Nevertheless, various authors discussing the problem of secular warfare during the Moche period have often used these scenes as examples of battles or corroborating evidence. For example, Wilson (1988) published the scene on the flaring bowl just presented in order to discuss the practice of Moche warfare in the Santa Valley (figure 5):

> The scene . . . depicts what can probably be considered as the next stage following the successful conclusion of a campaign carried out against another region. Nude prisoners with ropes around their necks are shown being led across the intervalley desert—with Andean foothills, coastal birds, Opuntia cactus, and Tillandsia plants depicted in the background. (1988:338).

The use of this representation to document the existence of an expansionist state is in fact based on a very selective use of the iconography. It is not supported by most of the scenes related to this theme. This highly selective process is made even more apparent when, in order to discuss the practice of tribute in the Moche state, the same author extracts from a complex scene pertaining to the Burial Theme, a portion showing the presentation of strombus seashells to a high-ranking individual seated under the gabled roof of a platform structure: "The bottom scene shows a llama caravan approaching a ruler with what may be a tribute from a conquered coastal valley" (1988:341). In this case, this approach shows a complete disregard for the Burial Theme as a whole, since only a fraction of the depiction is used to discuss a topic not even remotely connected to it (see the complete scene in: Donnan and McClelland 1979:16, figure 2). Moreover, strombus seashells can only be found in the warm coastal waters of Ecuador. I would suggest that there is no connection between this scene and tribute exaction. Indeed, Izumi Shimada (1994) mentions the same problem concerning Moche warfare in general and warns against the use of these scenes for this type of reconstitution:

> Indeed, purely on the basis of internal analysis of Mochica fineline drawings of combat, any clear secular motive is not readily forthcoming. . . . The consistent depictions of captives, including their sacrifice in association with supernatural beings, provide yet another line of supportive evidence for the religious view. Overall, combat scenes are neither convincing nor conclusive indicators of real-life secular battles for Mochica territorial expansion. (1994:110)

On the basis of the arguments just presented and the artifacts recently discovered at Dos Cabezas and Huaca Cao Viejo, two propositions can be made. First, the equipment used for secular warfare would not necessarily have been the type that is usually represented in the iconography. It is likely that more effective weapons such as spearthrowers and slingshots, which are sometimes represented in other contexts, would have been used. And second, even if secular warfare existed in Moche society, which is entirely possible but still difficult to document archaeologically, Moche iconography is very ritualistic in nature and thus would probably not have represented this type of activity (Alva and Donnan 1993; Donnan 1988; Donnan and Castillo 1994; Hocquenghem 1987).

Taking into account Moche representations of battles and the objects found in Moche sites, I would thus propose that the victims sacrificed at Huaca de la Luna most probably came from the Moche population itself. The research carried out on the osteological collection of the plaza by Verano (2001) appears to support the hypothesis that the sacrificial victims represent a very select group:

> Overall, the demographic composition indicates a highly selective sample of individuals. . . . Moreover, many of these injuries, especially skull fractures and broken ribs, are more typical of wounds incurred through interpersonal violence than from accidents. Overall, the fracture data suggest that this was a group with a history of violent encounters. (2001:118)

Their apparent good health, their strength—based on the indices of muscular attachments—and the numerous ancient injuries suggest that they could have been part of a group of individuals specifically trained and prepared for these ritual activities. But what about those who send them to these sacred battlefields?

HUMANS OR ANCESTORS?

Recent archaeological discoveries have made it increasingly apparent that participants in some of the most important rituals portrayed in the iconography could have been not only mythological figures, but living

human beings as well. At Sipán, in the Lambayeque Valley, Alva (Alva and Donnan 1993) unearthed the tombs of two high-ranking individuals buried with a retinue of people and numerous ceremonial artifacts. On the basis of these objects, such as headdresses, bells, golden backflaps, and scepters, these two males were eventually identified as the main protagonists, "A" and "B," of the Sacrifice Ceremony (figure 2).

Shortly after, at San José de Moro in the Jequetepeque Valley, Donnan and Luis Jaime Castillo (1992, 1994) discovered the elaborate burials of two women linked to the same theme and identified as the priestess "C" (figure 2). They had been buried with ceremonial goblets identical to the one exchanged between "A" and "B," and their coffins had been decorated with metallic plumes, made of a silver-copper alloy, in many respects similar to the one depicted in the headdress of individual "C" in the Sacrifice Ceremony scene. Moreover, in the tomb of the first priestess, excavated in 1991, there was a ceramic goblet adorned with a representation associated with war and sacrifice. A fineline painting on the side of the vessel depicts a procession of animated war bundles carrying goblets apparently filled with blood (Alva and Donnan 1993:224, figure 248).

These two burials, dating to the early eighth century, were considerably more recent than those of Sipán, dating to around the fourth century. The ceremony apparently was not confined within the limits of the northern part of the Moche kingdom, for a mural depicting the same ritual was found in 1958 at Pañamarca in the Nepeña Valley, nearly 300 km to the south (Bonavia 1985:60, figure 39). These findings confirm that the Sacrifice Ceremony was enacted all over the Moche region by high-ranking individuals wearing similar regalia and using the same paraphernalia during a period of at least three to four hundred years. Alva and Donnan (1993) mention that:

> The fact that the Sacrifice Ceremony was so widespread in both time and space strongly implies that it was part of a state religion, with a priesthood in each part of the kingdom composed of nobles who dressed in prescribed ritual attire. When members of the priesthood died, they were buried at the temple where the Sacrifice Ceremony took place, wearing the same objects they had used to perform the ritual. Subsequently, other men and women were chosen to replace them, to dress like them, and to perform the same ceremonial role. (1993:226)

The reanalysis of a previously excavated tomb situated more or less halfway between San José de Moro and Pañamarca has led to the identification of another actor of the same ceremony. This tomb, discovered in 1946 at the site of Huaca de la Cruz in the Virú Valley, contained the remains of a woman buried with a wooden staff. This artifact has permitted Daniel Arsenault (1994) to identify her as the participant "D" who performs a human sacrifice on the lower register of the Sacrifice Ceremony scene. She is portrayed as an anthropomorphized staff drawing blood from a man with his hands tied behind his back (figure 2). Interestingly, a second female burial nearby contained a ceramic goblet along with a jar decorated with two anthropomorphized shields and clubs holding similar goblets (Strong and Evans 1952:141–145). These two burials would date from the Moche-IV stylistic period.

But what are the perceived social identities of these four actors, given that one of them is portrayed as an anthropomorphized staff, the principal one has rays terminated by catfish heads emanating from its body (A), and the third possesses the head of a nocturnal bird (B)? For the moment, this is a difficult question to answer. More research will need to be done on these supernatural attributes and their associations with specific individuals. The anthropomorphization of objects and animals or the corresponding zoomorphization of human beings is one of the major representational systems of Moche iconography, alongside ritualized warfare. Furthermore, ritual battles and humanized objects and animals are intimately related to one another not only in the Sacrifice Ceremony scene, but also in the so-called Revolt of the Objects Theme and elsewhere (figure 6).

THE REVOLT OF THE OBJECTS

Fineline paintings of anthropomorphized objects capturing human beings were among the first Moche representations to be analyzed and published. In 1928, these scenes were compared by Krickeberg to a Quiché Mayan myth on the rebellion of domestic objects and to a vaguely similar story collected in the seventeenth century in the Peruvian region of Huarochiri (Krickeberg 1928 in Quilter 1990). More recently, this proposition has been reinvestigated by Jeffrey Quilter (1990, 1996, 1997) in order to demonstrate that effectively these scenes were part of an ancient myth that spread all over the Americas. But there exists a fundamental difference between the revolt of objects as described in the Popol Vuh, in the Huarochiri manuscript, and depicted in the Moche representations. It is in the very nature of

the revolters. The first two cases relate broadly speaking to culinary implements and domestic animals such as cooking vessels, grinding stones, dogs, turkeys, and llamas (Salomon and Urioste 1991:53; Tedlock 1985: 84–85). The Moche case consists almost entirely of warriors' implements and ritual objects such as headresses, tunics, backflaps, lances, spearthrowers, shields, and nose ornaments. Quilter (1990) has also noted this major difference and he associated it with a local variation of a pan-American myth:

> That items associated with military costume and activities are shown in revolt instead of metates and llamas suggests that the Moche took an ancient story and created their own particular variant which was reinterpreted by later peoples, such as in the ethnohistoric tales. (Quilter 1990:50)

I consider that the use of war and ritual implements instead of culinary implements or domesticated animals is an extremely important "variant," and that it must be taken into account in order to explain some of the meaning of these peculiar scenes. In fact, I would argue that those animated weapons and military ornaments capturing human beings, often denuded, fits well within the logic of Moche ritual warfare as reiterated in numerous occasions in the iconography. In some, *l'habit fait le moine*, and a man vested with these attributes becomes a fantastic warrior, while another individual deprived of them by force becomes a captive and eventually a victim of sacrifice. The iconography abounds with scenes representing warriors fighting each other, usually in some form of duel, and more rarely in a group. The defeated are then denuded, completely or partially, and their outfit and weapons are secured to the war maces of the victorious. The attributes of the defeated are always clearly represented and seem to be as important as the rest of the depiction (figure 5).

The Munich vase, which is from the Moche-IV period and portrays the most complex rendition of the Revolt of the Objects, features the four actors encountered in the Sacrifice Ceremony scene and recognized in the burials at Sipán, San José de Moro, and Huaca de la Cruz (figures 7, 8). I would suggest that this scene might represent the event that will eventually lead to the Sacrifice Ceremony. In accord with Quilter (1990), who published the most extensive analysis of this scene, I also think that it portrays a narrative involving two distinct groupings of actors. But I would like to suggest an alternative proposition to his idea that it represents a revolt by the actors of the lower register, brought under control by the rayed deity of the upper register (figure 7, "A"): "The defeat of the revolting objects must be assumed to represent generally the establishment of order as opposed to the chaos of the dark forces that caused the uprising" (Quilter 1990:53). I will attempt to demonstrate that it is a narrative of ritual warfare and capture that fits well with the general ideology expressed in the iconography.

On the upper register are actors "A" and "C" supervising a group of anthropomorphized animals (figure 7). These assistants are well-known entities and are often depicted as warriors, as in this case; messengers; and in some cases, sacrificers. To the left and to the right, the terrestrial animals are dragging a musical instrument, a conical helmet, and two nose ornaments toward actors "A" and "C" (figure 6). In the center, just below the couple, three avian beings are respectively fighting a warrior's tunic, a shield, and a serpent-fox belt. I would propose that these scenes represent the first part of the narrative, with "A" and "C" sending their anthropozoomorphic helpers to bring, by force or by will, ritual implements to take part in a sacred battle.

On the lower register of this fineline painting (figure 8), humanized implements are now defeating and capturing human warriors and an anthropomorphic deer. This battle takes place under the supervision and guidance of the bird impersonator "B" and woman "C," who also participates in the upper register. Her participation in both sections reinforces the hypothesis that this series represents a narrative. In this complex battle scene, human warriors are captured, stripped of their clothing, and taken prisoner under the watchful eyes of "A," "B," and "C" of the Sacrifice Ceremony scene. Furthermore, the characteristic humanized staff with four prongs, identified as sacrificer "D" in the Sacrifice Ceremony scene, is also involved in the taking of prisoners. To the right of the Revolt of the Objects scene, the staff is depicted dragging a warrior by the hair (figure 8).

I think that Quilter is right to propose that this scene will culminate with the eventual sacrifice of the captives during the Sacrifice Ceremony (Quilter 1990: 55). In this scene, all the categories of actors are also represented: human beings, zoomorphic beings, and animated objects (figure 2). I consider that this scene could also be a two-step narrative. In the first instance, on the lower register, an anthropomorphized feline and the humanized staff with four prongs, individual "D," are now carrying out the sacrifices. Both are represented with their corresponding weapon bundles. In the following phase of this ritual, on the upper register,

Figure 7. Revolt of the Objects, detail redrawn from Donnan and McClelland 1999.

Figure 8. Revolt of the Objects, detail redrawn from Donnan and McClelland 1999.

"A" and "B" are partaking human blood brought by woman "C" in a special container.

Animated warrior attributes capturing prisoners could well reinforce the concept of ritualized warfare within the same population. For individuals originating from the same social group but fighting each other, these objects could have symbolized the ritual activity itself. In the Revolt of the Objects scene, the paramount warlord "A" forces the objects to obey his orders, while "B" and "C," standing on the summit of a temple, receive the captives. Thus an individual clothed and armed with these almost magical attributes becomes a fantastic warrior acting under the strict guidance of "A," "B," and "C," and likewise, someone deprived of these objects becomes a prisoner and eventually a sacrificial victim.

POLITICS AND IDEOLOGY

The theme of the Revolt of the Objects does not appear suddenly during the late Moche-V period, but exists during the Moche-IV period as well. As mentioned, the representations of anthropomorphized war implements and objects during Moche-IV are numerous. The main difference is that during the later Moche-V, the theme is expressed in its most complex form. This increase in pictorial complexity is found in the Burial Theme and other themes as well during this period (Donnan and McClelland 1999).

Anthropomorphized implements would have signified the will of Moche's highest order and, for the population or the people involved in these battles, it could have reduced the tensions generated by this activity. Indeed, many scenes give equal importance to the warriors, the prisoners, or the war implements. The frequent representations of war bundles, and in some cases of people literally worshipping these objects, demonstrate their paramount importance. Like the animals represented in the iconography, these are not simple objects, but subjects in their own right, who take an active role in the construction of the ideology transmitted by this system of representation.

I would suggest that this scene does not depict a revolt against a pre-established order but the very reiteration of this sacred order. The objects involved are war or ritual implements fulfilling their very function. The victims are not simple individuals but full-fledged warriors. It might even be more appropriate to rename this complex scene the *Battle of the Objects* instead. With this representation of animated objects, we are not confronted with a semantic shift but with the demonstration of the importance of ritualized warfare in Moche symbolism, religion, and ideology.

In the case of the Huaca de la Luna sacrificial site, these ritual battles would have been performed, among other things, for restoring proper ecological conditions (Bourget 1998, 2001). The ancestors or entities controlling El Niño phenomenon chose the victims on the sacred battlefield itself. Their will and their choices are made apparent by the defeat of some of the champions. The victorious warriors then strip naked the defeated and bring them in a procession to the temple. They are paraded inside the building in front of murals portraying fantastic beings such as catfishes and octopuses, creatures intimately linked with the world of the sea and possibly El Niño events. Eventually the chosen ones, though the ordeal of ritual battles, are prepared and sacrificed within the most private part of the temple.

On the basis of the burials found so far at a number of Moche sites and the variety of actors represented in the iconography, it appears that the Moche priesthood and/or ruling elite was complex and composed of many different types of officiates. If the principal actors of the Sacrifice Ceremony scene could also have been portrayed by living individuals, such as those buried at Sipán, San José de Moro, and Huaca de la Cruz, it is plausible that their identity was closely associated with a certain world of the ancestors.

The very nature of the Moche political and religious system is an important issue, and more research will need to be done. The symbolically charged content of Moche iconography, in regard to ritual warfare or the representations of high-ranking individuals, signals a complex system of relations between political rulers, ceremonial practices, and religious beliefs. The rulers of the Sacrifice Ceremony scene seem to be part of an elite that transgresses the boundaries between life and death, between the world of the living and the world of the ancestors. Did the Moche population perceive some of their rulers as living ancestors? It is possible this would have justified, in an almost natural—or in this case supernatural—way, their right to rule.

This phenomenon is more than a mere manipulation of the masses. The dialectics between the population and these possible living ancestors, or other entities closely associated with the onset of cataclysmic events, must have been extremely elaborated. This important aspect is still under investigation. By recognizing some possible links between Moche rulership and a more metaphysical political system, we are only scratching the surface of a very complex and exciting problem indeed.

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CHAPTER 6

Household Approaches to Ethnicity on the South Coast of Peru:

THE DOMESTIC ARCHITECTURE OF EARLY NASCA SOCIETY

KEVIN J. VAUGHN

INTRODUCTION

Household approaches to the study of prehispanic Andean societies have received increasing attention in the last two decades of archaeological research, as projects in the central Andes guided by the theoretical and methodological underpinnings of household archaeology have been conducted in recent years (Aldenderfer 1993; Bawden 1982; Bermann 1994, 1997; Bermann and Castillo 1995; Goldstein 1993; Rice 1993; Stanish 1992; Stanish, de la Vega, and Frye 1993; van Gijseghem 2001). These research programs have demonstrated the utility of a household-based approach to the study of Andean prehistory. Moreover, these studies have shown that an integrated methodology that evaluates both domestic architecture and associated domestic artifact assemblages is necessary not only for a successful household archaeology (Stanish, de la Vega, and Frye 1993:83), but for a successful archaeological measure of ethnicity in the domestic context (Aldenderfer and Stanish 1993; Stanish 1989, 1992; Stanish, de la Vega, and Frye 1993).

Archaeological treatises of ethnicity define the concept loosely as "all those social and psychological phenomena associated with a culturally constructed group identity" (Jones 1997:xii). That an ethnic group "has a membership which identifies itself" (Barth 1969:11) is usually recognized as the defining element of ethnicity as opposed to other aspects of social identity, a point recently reiterated in several case studies and reviews of ethnicity in the archaeological record (Aldenderfer and Stanish 1993; Emberling 1997:302; Wells 1998).

In this paper, I follow Aldenderfer and Stanish (1993) and Stanish (1989, 1992) by suggesting that domestic architecture can be used by archaeologists as a measure of ethnic identity. By employing a household archaeology approach, I present the domestic architecture of Early Nasca society from the southern Nasca region and demonstrate that this component of residential sites in the region is (1) an independent measure of ethnicity, and when compared spatially and temporally to other sites in the region (2) reveals specific socioeconomic patterns that are characteristic of Early Nasca society.

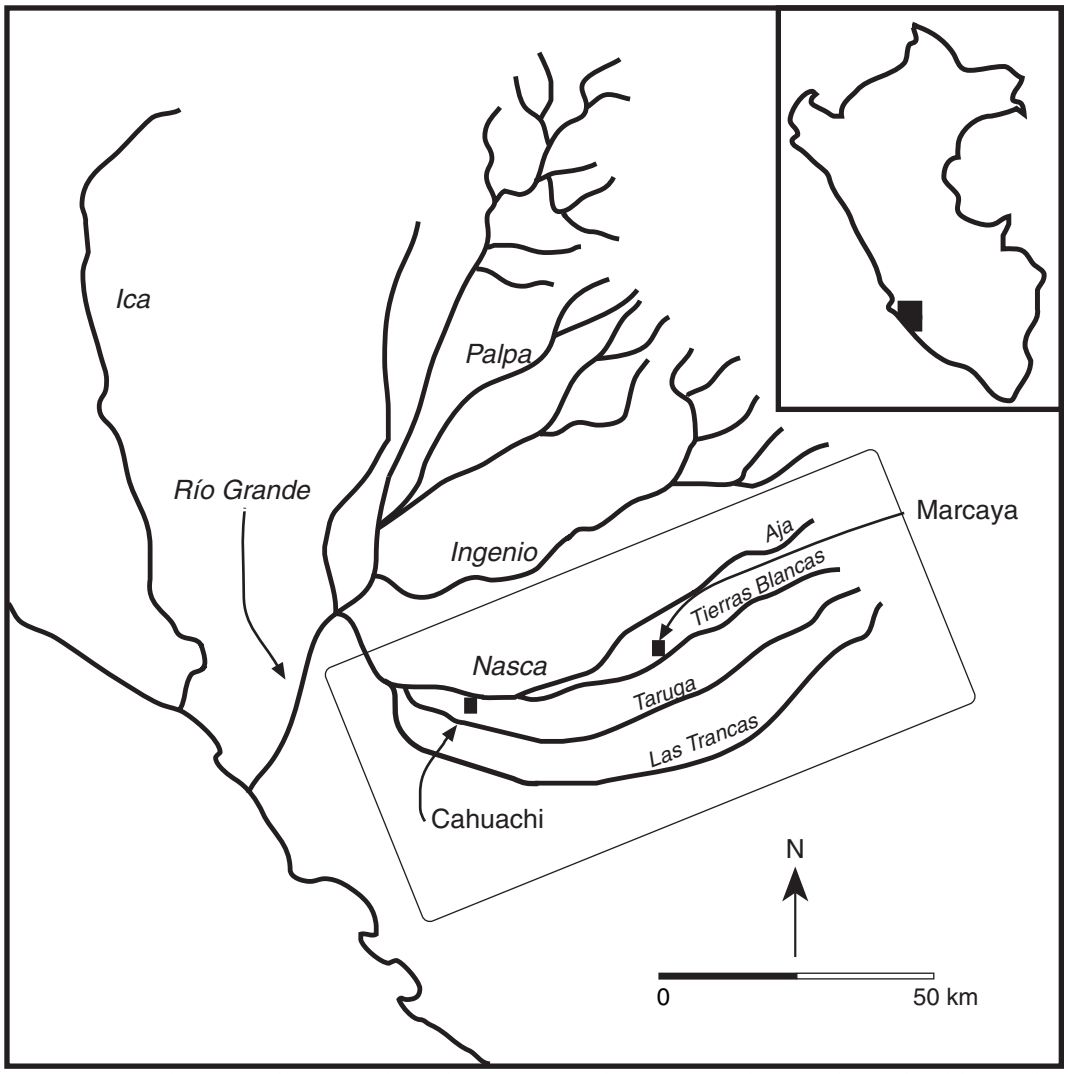

Figure 1. Map of the Ica-Grande region of the south coast of Peru with sites mentioned in text. The gray box delineates the southern Nasca region (SNR).

To that end, the domestic architecture and the associated artifact assemblages of the Early Nasca site Marcaya are presented. The architecture of Marcaya is then compared to the architecture of contemporaneous domestic sites in the region that exhibit similar architectural patterns. It is argued that, at least in the southern Nasca region, Early Nasca domestic architecture is diagnostic of the ethnicity of the local group. This conclusion is then used to evaluate changing socioeconomic and ceremonial patterns in the Nasca region over time.

ARCHAEOLOGICAL CONTEXT

The prehispanic Nasca culture—famous for exquisite polychrome fineware, geoglyphs (the "Nasca Lines"), and the ceremonial/pilgrimage center Cahuachi—developed in the Ica-Grande region, comprising the Ica Valley and the Rio Grande de Nasca drainage systems (Carmichael 1998:214; Schreiber 1999; Silverman 1996; Vaughn 2000; figure 1). The entire region is very dry with infrequent rainfall (ONERN 1971). The rivers that run through the valleys in the region are only intermittently filled with water (ONERN 1971) and are thus classified as influent streams (Schreiber and Lancho Rojas 1995). While the Nasca culture developed in the Ica Valley (DeLeonardis 2000; Massey 1986), the northern Nasca region including Palpa (Browne 1992; Browne and Baraybar 1988; Reindel and Isla 1998), and the Ingenio Valley (Silverman 1993a), the primary focus of this paper is what I refer to as the southern Nasca region (hereafter SNR) including the four southern tributaries of the Rio Grande (Schreiber 1998, 1999; Schreiber and Lancho Rojas 1995; figure 1).

Table 1. Peruvian and south coast chronology. For simplification, detail is only given for the Nasca culture (after Carmichael 1998; Conlee 2000; Schreiber 1998: table A-1; Schreiber and Lancho Rojas 1995: table 2; Vaughn 2000: table 1.1).

Horizons and Intermediate Periods	Culture names	Nasca phases	Approximate dates
Late Horizon	Inka		AD 1476–1532
Late Intermediate Period	Tiza		AD 1000–1476
Middle Horizon	Wari Loro	8	AD 750–1000
Early Intermediate Period	Late Nasca	6, 7	AD 550–750
	Middle Nasca	5	AD 450–550
	Early Nasca	2, 3, 4	AD 1–450
	Proto Nasca	1	100 BC–AD 1
Early Horizon	Paracas		800–100 BC
Initial Period			1800–800 BC
Archaic			9000–1800 BC
Paleoindian			12000?–9000 BC

The development of Nasca society has been thoroughly summarized elsewhere (Carmichael 1988, 1998; Clarkson 1990; DeLeonardis 2000; Schreiber 1998, 1999; Schreiber and Lancho Rojas 1995; Silverman 1993b, 1995; Vaughn 2000). In short, during the span of the Early Intermediate period (circa AD 1–750) Nasca culture developed, reached a florescence, and was eventually conquered by the Wari Empire in the beginning of the Middle Horizon (AD 750; Carmichael 1988, 1998; Conlee 2000; Schreiber 1998, 1999; Schreiber and Lancho Rojas 1995). The emphasis in this paper is on Early Nasca society (Carmichael 1998: 4; Schreiber 1998: table A-1; Schreiber and Lancho Rojas 1995: table 2).

Most scholars agree that during its height Nasca was a "confederacy of chiefdoms" (Silverman 1993b) with little sociopolitical stratification (Carmichael 1988, 1995; Silverman 1993b; though see Reindel and Isla 1998), integrated by the ceremonial center Cahuachi (Orefici 1993; Silverman 1993b, 1994a). Helaine Silverman has maintained that instead of serving as a sociopolitical center of the Nasca polity during Early Nasca times, Cahuachi was a ceremonial center where people from around the south coast of Peru made periodic pilgrimages and built monumental constructions.

The majority of people in the SNR lived in the foothills of the Andes in small, relatively undifferentiated habitations. Indeed, in the SNR dominated by Cahuachi, Schreiber (1990, 1994, 1998, 1999; Schreiber and Isla Cuadrado 1996; Schreiber and Lancho Rojas 1995) has located over five hundred habitation sites through full-coverage settlement survey, approximately fifty of which date to the Early Nasca period/culture. Early Nasca habitation sites are located in the foothills just above the dry coastal plain. The sites are located on the hillsides flanking the valley floor, as prehispanic occupants of the area utilized the valley bottoms for agriculture. The sites are small, generally less than three hectares in size, and do not have evidence of monumental or ceremonial architecture on the surface (Schreiber 1999; Schreiber and Isla Cuadrado 1996). The fieldwork at Marcaya was used to evaluate questions of Early Nasca village economy and to record the nature of Early Nasca domestic architecture (Vaughn 2000). The research program was guided by assumptions of a household archaeology approach (e.g., Stanish 1989, 1992). Insofar as this was the primary research directive, that methodological approach is summarized briefly here.

HOUSEHOLD ARCHAEOLOGY

Though households were employed as a primary analytical unit in Andean research a few decades ago (see Bawden 1982 for an excellent example), it was not until the late 1980s that household archaeology became a commonly used research methodology in Andean archaeology. The increase in interest was created in part by several publications by Stanish (1989, 1992), who imparted a dissatisfaction with previous attempts to test models of zonal complementarity in the Andes (e.g., Murra 1972, 1985). Previous efforts to evaluate ethnic enclaves in the south-central Andes had centered on "artifact-based" methodologies that relied upon stylistic comparisons of (predominantly) ceramic finewares from tombs (Stanish 1989:8). Mortuary contexts, however, were argued to be a misleading indicator of ethnicity because "by their very nature, (they) represent areas in which everyday activities are not performed" (Stanish 1989:12). As an alternative, it was argued that archaeologists should look to domestic architecture and associated domestic artifact assemblages to evaluate the ethnicity of a residential group. The argument was that these assemblages are much more characteristic of the residential group because domestic areas tend to be more conservative in the quantity and variety of exotics present when compared to mortuary contexts (Stanish 1992:33). This model was found to be an effective one in identifying prehispanic ethnic groups, particularly in the south-central Andes (see the contributions in Aldenderfer 1993).

The archaeological household was argued to be not only the most appropriate analytical method for defining ethnically distinct populations, it was also a useful tool for evaluating economic and political relationships within archaeological settlements (Stanish 1989:7). The term "archaeological household" was used to distinguish between the ethnological concept of household and a modified concept suitable for archaeological analysis. Citing Bender (1967), Stanish lists three components that are essential to the concept of the ethnological household: coresidence, domestic functions, and familial relations (Stanish 1989:8). Of these three, familial relations will not be accessible to the archaeologist, so the focus for distinguishing the archaeological household is on coresidentiality and domestic functions. Thus, the archaeological household is defined as the minimal coresidential domestic group (Stanish 1989:11).

Minimum coresidential domestic groups should have the following: 1) there should be spatial segregation of individual structures or structure groups at a particular archaeological settlement; 2) these structures or structure groups should contain material correlates of domestic activities such as storage and food preparation; and 3) these basic structure groups and material correlates should be repeated within a community. It is through the combination of these three features, evaluated through surface analysis (when applicable) and excavations, that archaeological households can be detected.

Households at Marcaya

This methodological approach has wide applicability and can be employed in other regions of the Andes to evaluate the ethnicity of a local population. Previous research in the SNR has suggested that Early Nasca sites are composed of structures with distinct architecture that is characterized by agglutinated and dispersed round structure groups situated on the hillsides of the upper valleys (Schreiber 1988, 1990; Schreiber and Isla Cuadrado 1996). Marcaya, located on the northern hillside of the Tierras Blancas River Valley at 1,000 meters above sea level, is one such residential site (figure 1).

A research strategy directed by the tenets of household archaeology should be able to identify and evaluate archaeological households within the remains of the prehispanic community of Marcaya. Furthermore, once archaeological households are identified, the domestic architecture and the associated domestic artifact assemblages can be considered diagnostic of the ethnic group in residence there. Once presented, these attributes of the ethnic group are useful for comparison with other Early Nasca residential communities in the region.

Marcaya is composed of over seventy isolated and agglutinated structures (figure 2). Since there is little deposition in this environment, architectural foundations are exposed on the surface, making it easy to document the spatial layout of the site. Initial surface inspection at Marcaya suggested that there were two basic structure types on the surface, houses and patios, which can be distinguished on the basis of their material remains, archaeological features, and spatial organization.

Houses are round and relatively small, with an average diameter between three and five meters. The large quantities of wall fall surrounding the original foundations indicate that walls were originally one and a half to two meters in height. Houses were constructed with unmodified to slightly modified fieldstone set in mud mortar, with well-defined interior wall faces. Partially dressed fieldstone was placed with their modified surfaces on the inside of structures, creating a clearly

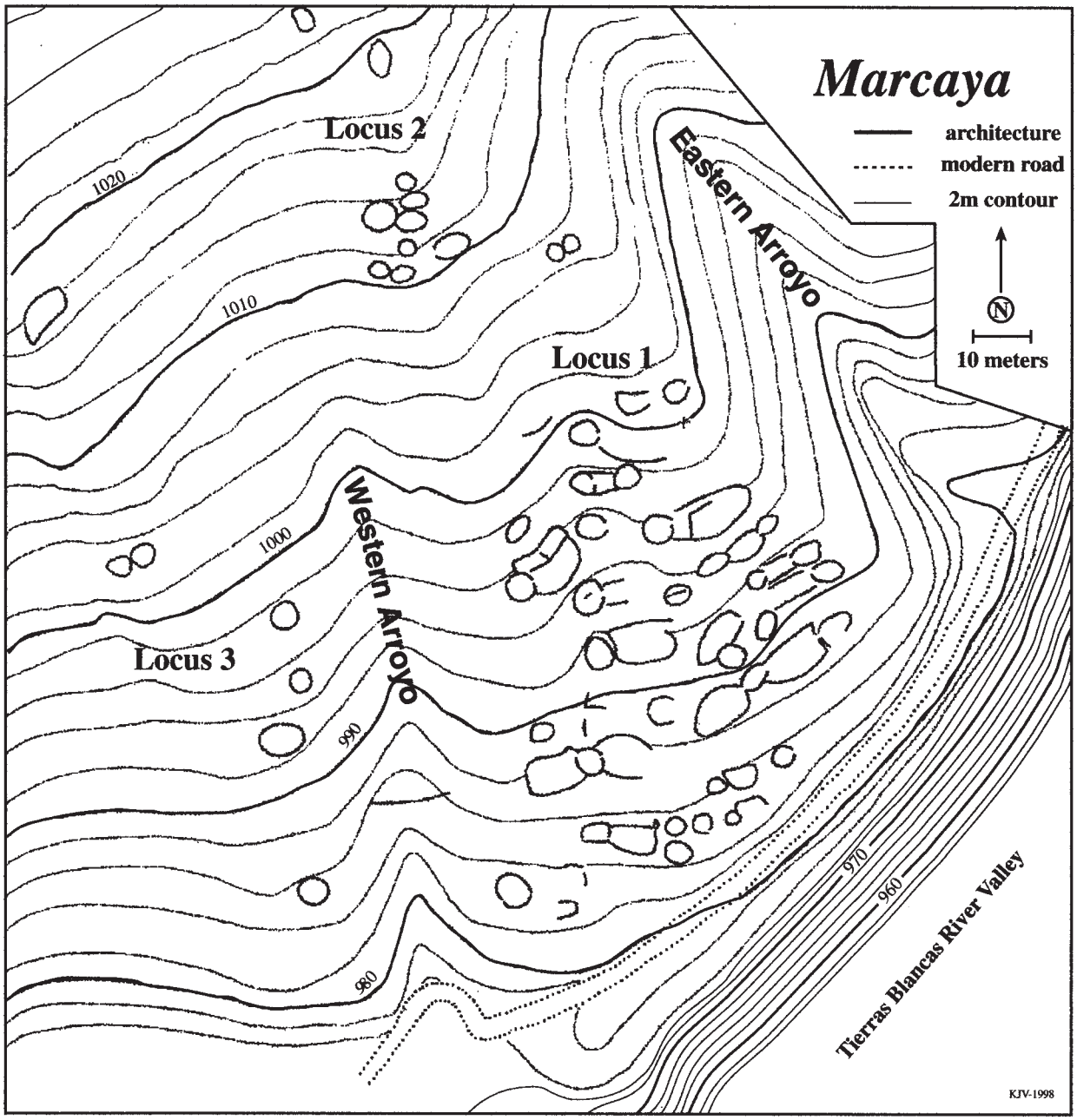

Figure 2. Topographic map of Marcaya with architectural features.

delineated interior space (figure 3). One or two doors in houses were placed in the walls that lead either to the exterior of the house or to associated patios (described below). Doors are discernible in the architecture, as they are formed by a seventy-centimeter to one-meter gap in wall construction and emphasized with two modified vertical stones placed within the gap (figure 4).

Fallen pilasters measuring up to one meter were recorded in the interiors of some of the houses. Simple roofs of brush and branches in the houses were either lain over the pilasters, or, when pilasters were not present, roofs could have been supported over wall foundations to provide rudimentary protection from the wind, cold, sun, and perhaps more rarely, rain. Roofs of a similar nature exist on modern dwellings located in the river valley downstream (figure 5).

Most houses were adjoined by a patio on one or more sides. Patios are larger and ovoid to rectangular with a length along the longest axis between six and fourteen meters. Analysis of abutments demonstrates that patios

Figure 3. Typical patio group at Marcaya (Patio Group V). The house (Structure 12, in the center) is flanked by two patios on either side (Structures 11, to the right/west, and 13, to the left/east).

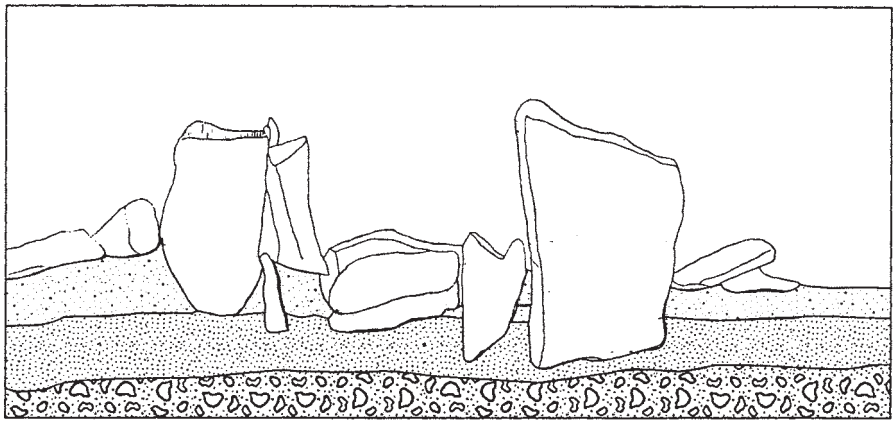

Figure 4. Typical house door at Marcaya. This door leads from Structure 12 to Structure 13 of Patio Group V. Illustration by Dawn Vaughn.

Figure 5. Modern residential structure located in the Tierras Blancas River Valley approximately one kilometer downstream (west) from Marcaya.

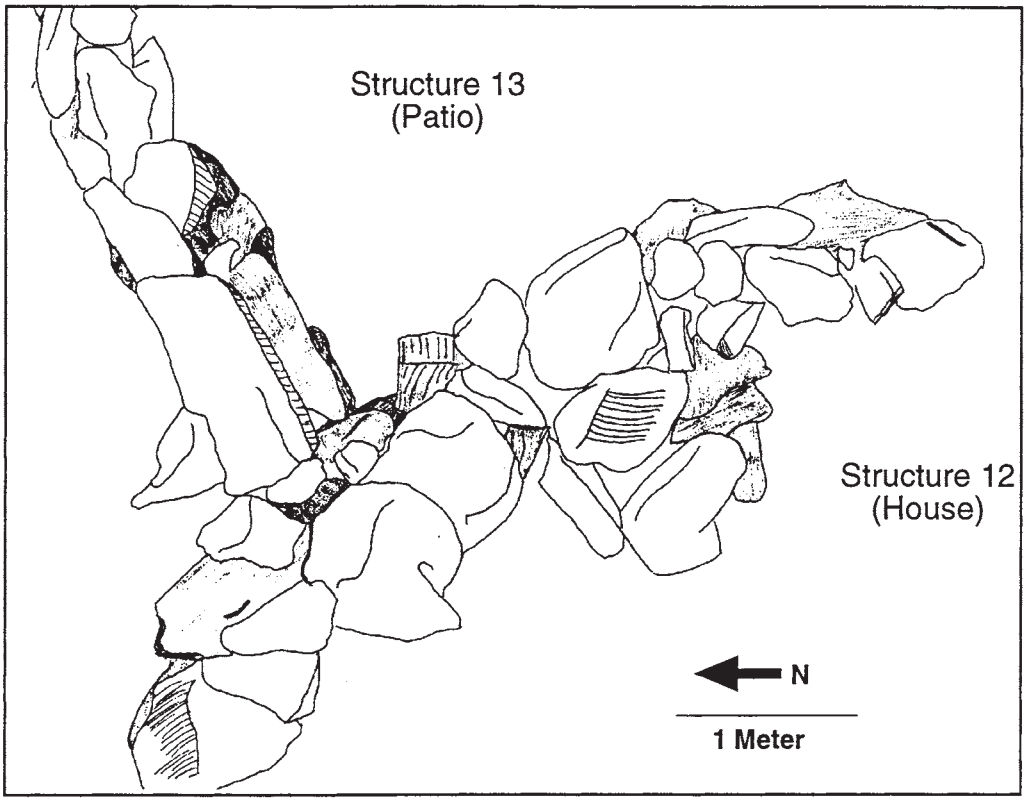

Figure 6. Planview of the construction sequence in Patio Group V showing the abutment of a patio (Structure 13) to a house (Structure 12). Illustration by Dawn Vaughn.

were constructed after houses (figure 6). The walls of patios were apparently much less substantial, as there is little wall fall surrounding the foundations. Patios were constructed by clearing the area adjacent to a house of debris and rock and lining the perimeter of the cleared area with unmodified fieldstone to define an ovoid to rectangular space. Retaining walls were usually built on the southern perimeter of the structure, the side of the structure that faced downslope. Internal walls were rare in patios.

Patio Groups

The predominant architectural pattern at Marcaya is the cluster of houses and patios. There are at least twenty-three such clusters that can be distinguished on the surface of the site (figure 7). In addition to these clusters, there are thirteen structures not associated with obvious patios. Excavations in these structures revealed that some were dwellings without adjoining patios, while the functions of others remain undetermined. Some of the larger ones, especially in Locus 2, may have been camelid corrals; however, this remains to be verified.

Based on the methods of defining archaeological households outlined above, these structure groups appeared to follow the first and third requirements set out for an archaeological household; they are spatially segregated (i.e., the clusters are distinct) and the groups are repeated within the community. Thus, the clusters of structures were referred to as "patio groups" because they invariably consist of at least a single house associated with one or more patios.

In addition to patio groups appearing spatially to be archaeological households, excavations revealed artifacts and features that support this proposition. Excavations were concentrated in five patio groups, while others were tested with trenches (Vaughn 2000; figure 7). No midden contexts were found in excavations, as the depositions in certain contexts have been deflated. It is also possible that inhabitants of the community were disposing of garbage over the side of the hill into the river valley below, where these remains would have since been subjected to aeolian processes, which can be severe in the narrow valley. Nevertheless, the remains within the structures themselves confirm that they were domestic and functioned as residential loci. Evidence of domestic activities found within the

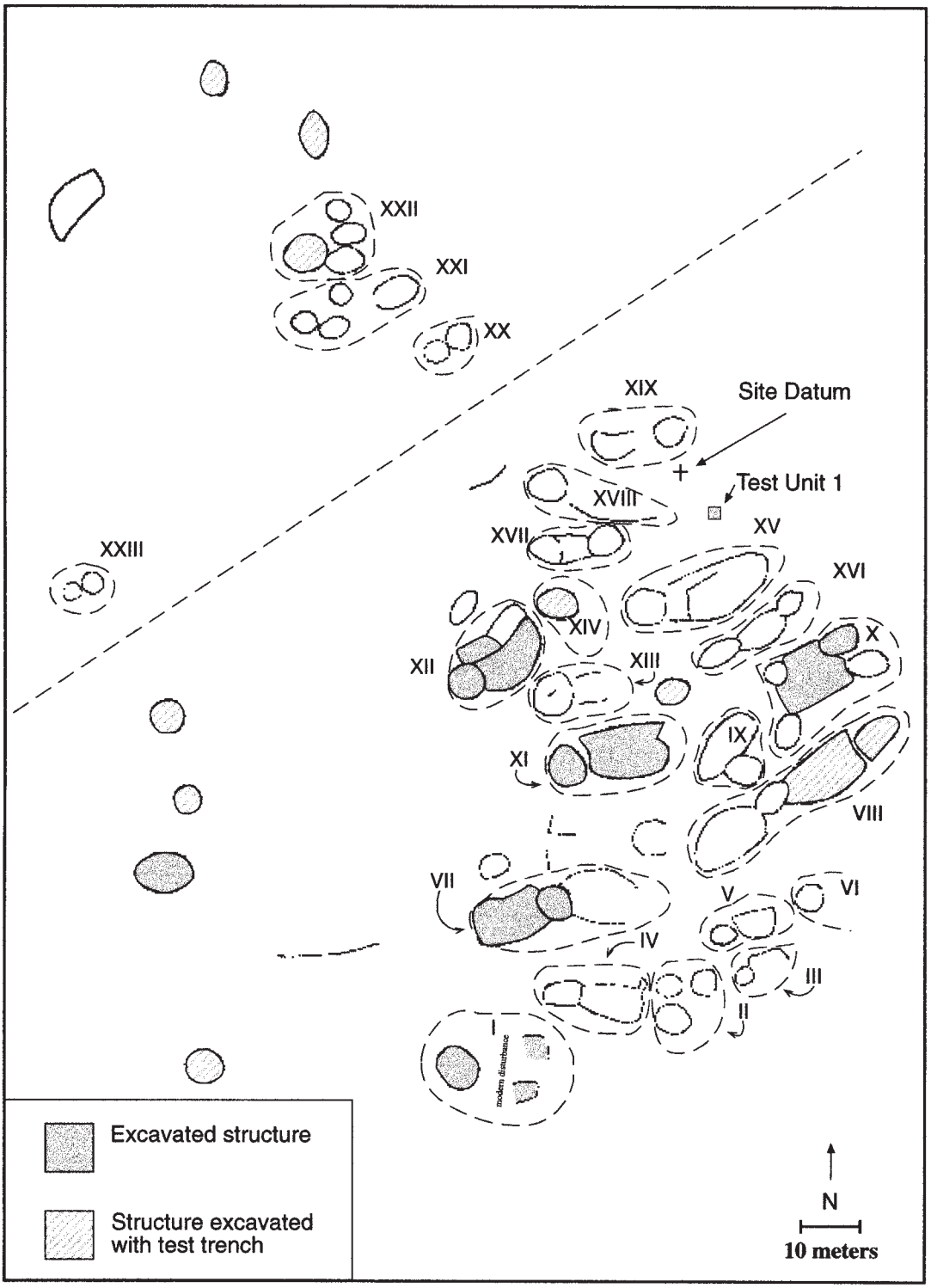

Figure 7. Schematic of patio groups at Marcaya. For ease of presentation, patio groups above the dotted line are not drawn to scale. "Excavated" structures include any structure with more than half of its units excavated (see Vaughn 2000).

Figure 8. Two adjacent collomas found in Structure 27.

patio groups included artifacts and features relating to the processing, preparation, and storing of comestibles, and small-scale lithic and textile production.

Artifacts and Features

Evidence of food processing includes a variety of ground stone tools such as large grinding stones (*batanes*) and fragments of mortars and pestles. Subsistence goods were stored in subsurface, rock-lined pits measuring about fifty centimeters to one meter in diameter and one to one-and-a-half meters deep (figure 8). These are similar to features called collomas, used for storage of foodstuffs and found in modern highland communities such as Chuquimaran, located approximately forty kilometers from Marcaya. Such features are also reported in the Chincha Valley at Huaca Santa Rosa; Kroeber (1944:137) originally recorded them as tombs, but subsequent researchers (Massey 1986:315; Wallace 1971) suggested that they were storage pits.

Based on their similarity in appearance to modern-day features, the prehistoric pits were given the name colloma. At Marcaya, some collomas were found empty, some filled with sterile sand, and others containing domestic garbage consisting of potsherds, faunal material, broken spindle whorls, and food remains. Based on comparison with the modern features and their contents, it is suggested that the collomas found at Marcaya were most likely used for domestic food storage. Probably due to a combination of a lack of soil formation and extensive wind erosion in this location, some collomas are visible on the surface today, while others were encountered during excavations. It was found that there is at least one and sometimes more than one in each defined patio group.

Evidence of the preparation of food was found in patios, as hearths were present either as formal architectural features or as ash stains found in excavations (figure 9). Moreover, fragments of cookpots (*ollas*) as well as entire vessels were recovered in excavations. Due to poor preservation conditions and the lack of stratified middens, food remains were relatively rare. Remains that were recovered, however, consisted of small maize cobs, faunal material from at least four terrestrial genera, and shellfish remains from six genera (Vaughn 2000).

Evidence for activities other than those relating to food production and consumption was also present in excavated patio groups. Signs of lithic production—in the form of debitage and associated formal tools of obsidian and chalcedony, and chert and basalt debitage—were found in all patio groups, though a high concentration of these materials was found in Structure 11 (Vaughn 2000; Vaughn and Glascock i.p.). Spindle whorls were present in all patio groups as well, indicating household textile production (Conlee and Vaughn 1999; Vaughn 2000).

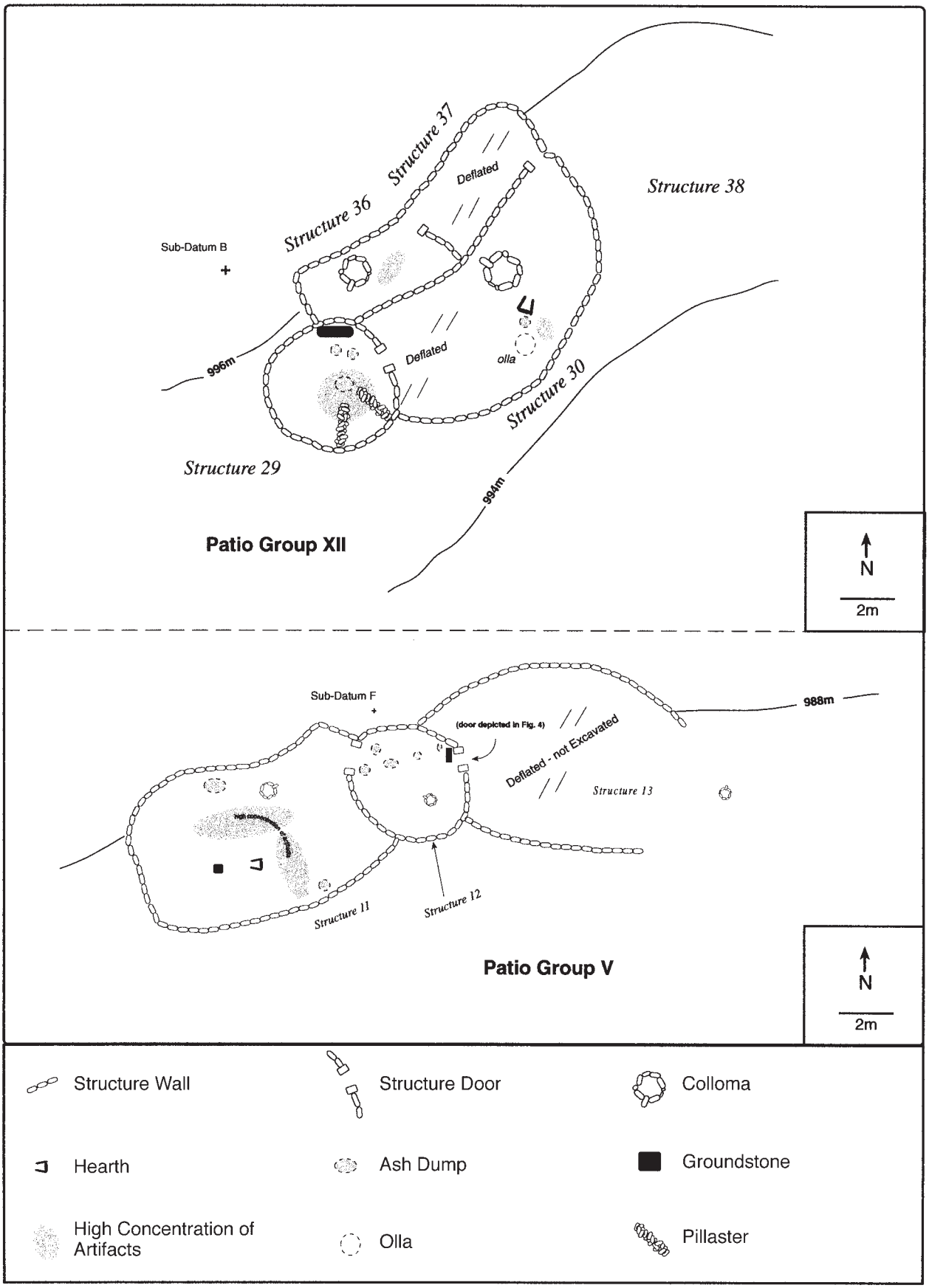

Figure 9. Schematics of two typical patio groups (V and XII) with artifact concentrations and features found in excavations. A full range of domestic remains was found in excavations at Marcaya.

Table 2. Comparison of the vessel assemblage at Marcaya and Cahuachi.

	Marcaya		Cahuachi (Silverman 1993a:228)	
	#	%	#	%
Plainware Sherds	9253	88	3532	78
Fineware Sherds	1269	12	999	22
Plainware Rims	170	44	140	29
Fineware Rims	217	56	339	71

The vessel assemblage at Marcaya, although composed of a substantial amount of domestic wares such as ollas and storage jars, also consisted of a high percentage of Nasca polychrome fineware. Nasca fineware is often regarded as the hallmark of Nasca society (Proulx 1983), and these finely made ceramics were at least in part responsible for Nasca's reputation in Western academia as an ancient Andean "civilization." In previous research it has been noted that the ceramics, which are pre-fire slip-painted with up to fifteen distinct colors (Carmichael 1998; Proulx 1968), were ubiquitous in Nasca society, as they were present in mortuary, ceremonial, and presumably domestic contexts (Carmichael 1988, 1995:231, 1998:216; Silverman 1993b:339). The proposition that domestic contexts contained a great deal of fineware was based on the observation that polychrome ceramics covered the surfaces of domestic sites recorded in surface survey, even though excavations had yet to be conducted in these contexts (Carmichael 1998: 222; Silverman 1993b).

Following Silverman (1993b:228), the number of fineware vessels (defined as a painted, polychrome vessel) in the overall vessel assemblage was compared to the number of plainware (non-painted) vessels. Fineware vessels included bowls, vases, dishes, head jars, and painted storage jars (Proulx 1968). Plainware vessels consisted entirely of large utilitarian collared vessels that can conveniently be classified as ollas and jars. The frequencies of vessel types were evaluated with a Minimum Number of Individual (MNI) calculation using non-conjoining rim sherds as a proxy measure of entire vessels. The results of the analysis demonstrate that there was a high proportion of fineware in service at Marcaya (table 2).

The fineware vessels probably served a variety of functional purposes, as they are the only vessel type (bowls and vases) in the assemblage adequate for serving food and drink (Vaughn 2000). As the primary "purveyor of ideology" (Carmichael 1998) in Nasca society, however, they also served a ritual purpose that involved fertility and water rites (Carmichael 1992a, 1994). Although the fineware vessels present at Marcaya were apparently not manufactured within the community (Vaughn 2000; Vaughn and Neff 2000), as an integral part of the residential vessel assemblage they are, however, indicators of the ethnicity of the local group. This is somewhat surprising in comparison to examples from the south-central Andes, where "exotics" and artifacts of high symbolic and economic value that were not manufactured by the local community are generally poor reflections of that ethnic group (Stanish 1992:30; though see Reycraft 1998). On the contrary, even though the presence of fineware would initially appear to misrepresent the identity of the local group, its frequent use in domestic contexts at Marcaya demonstrates that the presence of Nasca polychrome fineware is, in fact, a defining characteristic of Nasca ethnicity.

All excavated patio groups had the composite of these material correlates to domestic activities. Cooking areas were found in each patio group, as were features for storing and processing food, and the assemblage in each group consisted of a full suite of domestic artifacts. Thus, excavations confirmed that those patio groups defined in surface analysis were indeed archaeological households.

Beyond identifying the characteristics of the local group, the household archaeology approach facilitates analysis of the economic and political relationships within settlements. The principal finding at Marcaya in this regard is that households were economically independent of one another. That is, if features and artifact assemblages are taken as an indication, households processed, cooked, and stored their own food and water and were independently producing both textiles and lithics. Evidence of community organization of these activities is absent in the analysis of Marcaya. Furthermore, while fineware ceramics were used in relatively mundane contexts involving serving and consuming food and drink, they are also heavily laden with symbolic iconography, and thus, were undoubtedly used

in the context of small-scale household rituals. Again, in contrast to earlier and later periods in the region (see below), there is no community-wide organization of ceremonial activities. There are no public or ceremonial spaces at Marcaya, and it appears that some form of ritual may have transpired at the household scale.

In summary, the community at Marcaya is characterized by domestic architecture consisting of round houses and associated patios. Each patio group is the locus of a single archaeological household and contains 1) material correlates of food processing, preparation, and storage; 2) artifacts relating to lithic and textile production; and 3) a large percentage of Nasca polychrome finewares in the ceramic assemblage. Moreover, each household was economically independent, as each patio group examined featured redundant archaeological assemblages and features.

REGIONAL COMPARISON

The utility of these findings is clearly limited if analysis is restricted to a single site in the region. Comparison with other Early Nasca sites is required in order to evaluate if these composite features are diagnostic of the SNR. Although excavations to date have only been conducted at a single domestic site, intensive regional survey of the SNR has revealed that the domestic architecture of contemporaneous sites follows a pattern similar to Marcaya.

Of the fifty or so Early Nasca habitation sites that have been recorded by Schreiber in the SNR, all have the same characteristic architecture described above (Schreiber 1988; Schreiber and Isla Cuadrado 1996). Specifically, all are composed of agglutinated and dispersed structure clusters consisting of round houses with associated patios forming patio groups. For example, figure 10 is an oblique aerial photo taken of an Early Nasca site located in the upper Tierras Blancas River Valley. Again, lack of deposition facilitates inspection of domestic architecture, and the architectural patterns revealed resemble those at Marcaya. There are structure clusters that are composed of small round structures attached to large ovoid structures. A large circular structure in the southeastern corner of the site is a notable deviation from this architectural pattern. Though excavations are needed to verify its function, I suspect that this structure may have been a corral.

Structures at these domestic sites are made from unmodified to slightly modified fieldstone, and, at least from what is visible on the surface, adobe was not used

Figure 10. Aerial photo of Early Nasca site located in the upper Tierras Blancas River Valley. Architectural foundations visible in the photo and the valley margin have been traced. Note the large corral-like structure in the southeastern corner of the site. Photo is courtesy of Katharina Schreiber.

in their construction (Schreiber 1988; figure 11). The sizes of the patio groups appear to be comparable to those at Marcaya, and the sites themselves range in size from one half hectare to three hectares (Schreiber and Isla Cuadrado 1996). The condition of sites throughout the region varies considerably, as some have poorly preserved walls and appear to be severely deflated, while the structures of others are in excellent condition (figure 11). Collomas are visible on the surface of various Early Nasca sites in the region as well (figure 12).

Excavations at Marcaya have demonstrated that the high quantity of fineware on the surface of sites in the region is indicative of subsurface deposits. It is expected that excavations in contemporaneous sites will verify these findings with similar artifact assemblages.

The remarkably consistent architectural forms of this time period are completely distinct from the preceding Early Horizon (ca. 800 BC–AD 1) residential sites in the region, which were composed of house terraces

Figure 11. Architecture of a typical house at an Early Nasca site located in the Tierras Blancas River Valley.

(Schreiber and Isla Cuadrado 1996). Moreover, the changing of architectural forms between the Early Horizon and the Early Intermediate period is coupled with an abrupt change in settlement pattern (Schreiber 1998; Schreiber and Lancho Rojas 1995).

One notable change between settlements of these phases of the Early Horizon and Early Intermediate period is in the public space apparently reserved for ceremonial activities. In the Early Horizon, settlements not only are composed of domestic terracing, but often have large, open spaces situated within or adjacent to the community. Currently it is unknown what form of activity took place in these spaces, but it is reasonable to speculate that they were reserved for group-oriented ceremony. Public spaces are not found at any Early Nasca residential site in the region, and instead the domestic architecture described above and the correlates of socioeconomic behavior at these sites suggest that economic and ceremonial activities were focused at the household scale.

The shifting pattern of group-oriented to household-oriented ceremony at domestic sites does not indicate that group-oriented activities relating to ritual fell out of favor in Early Nasca. Indeed, it has been repeatedly argued that the ceremonial site Cahuachi was the locus of group-oriented ritual activity for the entire Nasca region during Early Nasca times (Silverman 1993b, 1994a). The data presented here support this argument insofar as group-oriented ritual behavior is not evident at residential sites contemporaneous with Cahuachi's apogee.

Following Early Nasca, Middle Nasca settlement changed again as people began to inhabit the middle valley for the first time in prehistory (Schreiber and Lancho Rojas 1995). Architecturally, Middle Nasca is transitional between Early and Late Nasca in that structures become slightly more rectilinear, but houses with patios are still the predominant architectural form (Schreiber and Isla Cuadrado 1996). Late Nasca architectural forms consist of completely rectilinear compounds agglutinated into large towns (Schreiber 1994; Schreiber and Isla Cuadrado 1996). These changing architectural forms may have been a result of cultural disruption after the fall of the influence of Cahuachi and a concomitant increase in conflict (Schreiber 1998; Schreiber and Lancho Rojas 1995).

To briefly sum up the major conclusions thus far, while house forms and community organization change drastically between the Early Horizon and Early Intermediate period, they change more from Early to Middle to Late Nasca in the southern Nasca region. It appears that for the Early Nasca time period at least, the architectural forms described previously are diagnostic of the local group of the region. The pattern of round houses

Figure 12. Collomas on the surface of an Early Nasca site located in the Tierras Blancas River Valley.

adjoined to ovoid patios is clearly present in other Early Nasca sites in the area. A household archaeology approach has enabled the analysis of the archaeological community, and it has provided a means by which community and household organization can be compared across time periods.

DISCUSSION

An attempt has been made to demonstrate that by employing a household archaeology approach, the domestic architecture of Early Nasca sites in the southern Nasca region can be used as an independent measure of the archaeological manifestation of ethnicity. The Early Intermediate period on the south coast of Peru has often and erroneously been treated synonymously with the developments of Nasca society. This is primarily the result of the presence of Nasca fineware ceramics at sites from the Pisco Valley in the north to the Acarí Valley in the south. Research has suggested, however, that distinct local traditions existed outside the Ica-Grande drainages (Carmichael 1992b; Massey 1986; Peters 1987–88; Silverman 1995:16, 1997; Valdez 1998; Wallace 1986).

While the presence of polychrome finewares in the SNR, augmented by a distinct domestic architecture, appears to identify local groups, it is unclear how prevalent this pattern is throughout the Ica-Grande region (Carmichael 1992b; Schreiber 1998; Silverman 1994a, 1997). As stated previously, it has been noted that there is a high degree of fineware present in the residential sites of the Ica-Grande region (Browne and Baraybar 1988; Massey 1986; Reindel and Isla 1998; Schreiber and Isla Cuadrado 1996; Silverman 1993a). It is unknown, however, whether surface ceramics correlate with domestic occupations, as excavations have been limited. Outside the Ica-Grande heartland, Nasca ceramics are present at sites, though these appear to be trade pieces and elite goods (Carmichael 1992b; Valdez 1998).

Silverman has recorded a number of sites in the Ingenio Valley, many of which date to the Early Intermediate period (phases 1–5) (Silverman 1993a). The descriptions of architecture and maps of Nasca 3 sites in Ingenio bear some resemblance to the architectural canons described here for Early Nasca sites in the southern Nasca region, though there is some variation. Silverman describes Early Nasca habitation sites recorded in Ingenio as "more or less large, with almost rectangular structures." Furthermore, "these structures are found on terraces made of fieldstone that follow the topography of the hills upon which they are situated" (1993a:112, my translation). However, planviews of the sites show that there are some structure clusters that look similar to the patio groups in the southern Nasca region, and some of the architectural walls present in a few structures are slightly curvilinear.

S. A. Massey, in her study of the upper Ica Valley, has noted the presence of large amounts of fineware in domestic sites dating to Nasca 3 and 4 (Early Nasca in this paper; 1986:203), but she maintains that the fineware is "elite pottery" (1986:201). Massey reports that the architecture of domestic sites in the upper Ica Valley is characterized by irregular structures made of fieldstone and sometimes painted adobe. Planviews of several of these sites bear some resemblance to the architectural patterns at Early Nasca sites (Massey 1986: appendix 2, figure 4.19, site 12J08). Most sites dating to EIP 3 and 4, however, appear to have rectilinear architecture incorporated into terrace rows, although it is difficult to decipher the exact architectural formations in Massey's idealized planviews (for example, Massey 1986: appendix 2, figure 4.18, site 14I01, and figure 4.20, site 11J07).

Though the architectural canon of round houses and patios organized into patio groups appears to be present throughout the Ica-Grande region, the above studies show that its prevalence varies. Moreover, there are considerable differences in settlement patterns from valley to valley (Browne 1992; Browne and Baraybar 1988; Massey 1986; Reindel and Isla 1998; Schreiber and Lancho Rojas 1995; Silverman 1993a), as well as a possible variability in pottery styles (Proulx 1968; Silverman 1995:16). Associated artifact assemblages are not known from these regions at present, as excavation data are lacking. However, following the lead of Silverman (1995:16), regional variation should be considered when making valley to valley comparisons, and until careful analysis of both domestic architecture and excavated artifact assemblages are made, the assessment of an Ica-Grande regional group will necessarily be preliminary.

Outside of the Ica-Grande region, Valdez (1998) has analyzed the relationships between Acarí and the Nasca culture during the EIP. He finds that although there was probably significant interaction between the regions, the Acarí region developed as a distinct local tradition called "Huarato" (Valdez 1998:149). Furthermore, the presence of Early Nasca fineware at sites such as Tambo Viejo, which previously was thought to be an Early Nasca urban settlement (Rowe 1963), is explained by elite interaction and trade pieces, since the dominant style of artifact at the site is the Huarato style, which is composed of relatively plain pottery (Valdez 1998: 98). Although the site spans the Early Horizon through the Colonial period, and the Early Intermediate period occupation is difficult to isolate, the architecture of this large agglutinated settlement is completely distinct from the architecture characteristic of Early Nasca domestic sites described above. Indeed, the architecture of the Huarato tradition, which is contemporaneous with Early Nasca, consists mainly of rectilinear structures usually surrounded by large walls (Valdez 1998: 150). Thus, it appears that in the Acarí region a distinct ethnic group, evident by both domestic architecture and associated artifact assemblages, is distinguishable from the ethnic group that is defined in the SNR.

CONCLUSIONS

Beyond providing a simple measure of identifying the local group, a household archaeology approach facilitates the evaluation of economic and political relationships within archaeological settlements. What can be said about the economic and political relations manifest in Early Nasca settlements, and how do these compare to settlements of earlier and later time periods and from other regions? The salient economic pattern at Early Nasca sites in the southern Nasca region is that households are economically independent. Every patio group excavated at Marcaya contained the requisite components to sustain domestic units. Each had evidence for food processing (grinding stones, ollas), subsistence-goods storage (collomas, jars), and lithic and textile production. All households were involved in some form of ritual activity, as a large quantity of Nasca fineware is present in each patio group. In contrast, there is no evidence for socioeconomic or ritual activities that are organized at the community level.

Community activities in both Early Horizon and later Early Intermediate period domestic sites in the region, however, are present in the form of special architectural features and large public spaces. This development may be the result of spatially and temporally distinct socioeconomic and ritual activities. Until further excavations are conducted at these sites, it would be premature to speculate on the nature of these community activities; employing similar methodological approaches as outlined in this paper would facilitate an evaluation of these sites.

To conclude, although the domestic architecture and associated artifact assemblages indicate that there is a definable ethnic group in the southern Nasca region during the Early Nasca period, at this stage of research it is unclear how representative of the entire Ica-Grande region this pattern is. Previous research has shown unmistakably that outside the Ica-Grande region, distinct local traditions thrived with only occasional contact

with Nasca. The primary goal of the settlement survey projects conducted within the region was to explicate more fully the nature of Nasca society (see Silverman 1995 for a summary). While there are notable intravalley differences in settlement patterns and pottery styles, it is urged that additional excavations in other regions are conducted employing the approach taken here so that these differences can be further elucidated.

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CHAPTER 7

Cultural Communication of Ethnicity through Clothing:

THE QOCHA-LAKE SYMBOL IN CONTEMPORARY TEXTILES FROM AUSANGATE, PERU

ANDREA M. HECKMAN

> Without a doubt, the art and manufacture of textiles constitute one of the most significant achievements of the ancient peoples of Peru.
>
> (Lumbreras 1974: 17).

While it is well known that contemporary Peruvian weavers are descendants of a long and extensive textile heritage, the problem arises as to whether contemporary textiles continue to communicate ethnicity for their makers and wearers. In Paracas, as in other pre-conquest Peruvian cultures, complex ideas were transmitted in the cloth of woven garments (Paul 1990: 16). Paul concludes that "dress is a form of communication, functioning as an overt expression of identity: anyone who is literate in the styles of weaving, in the codes of dress, and in the designs woven into cloth in these communities is able to read instantaneously about the wearer. Embedded in terms of apparel are visible indicators of such things as ethnic group, ayllu affiliation, cosmology, economic status, gender, age, family ties, marital status, and offices held within the community" (1990:17). This paper will investigate the continued use and making of hand-woven contemporary textiles as expressions of identity and ethnicity for the Quechua-speaking people who live in the rural landscape surrounding the sacred peak referred to as Apu Ausangate (6,392 meters), in the Cordillera Vilcanota range of mountains southeast of Cuzco, Peru.

Farming potatoes, tending large herds of alpacas and llamas, and back-strap loom weaving are the main activities sustaining local inhabitants. Their language is Quechua with rudimentary Spanish as a second language spoken mostly by children who have attended schools and men who travel for work or commerce. With the introduction of rural schools that aspire to integrate *campesinos* into the national economy and market sales agents who sell synthetic materials and clothing, along with aniline dyes, a paradoxical question arises. Do weavers still possess the technical skills and ancestral knowledge necessary to execute the intricate design vocabulary to express ethnicity commonly identified as being from the region of Ausangate and recognizable as a distinctive style of clothing assembled from a variety of locally made

textiles? Girls and women are the weavers who craft the textiles with an understood status system based on their expertise and knowledge of local symbols.

This project's primary goal was to document the motifs and visual metaphors used to express complex cultural beliefs through symbols, and the structures of cloth related to their contextual daily use and ritual purposes. In rural areas near Cuzco, Peru, some communities, like that in the Ausangate region, have distinctive clothing identifying them generally as Quechuas. While many ethnographers and linguists reserve the word Quechua only for the spoken language, people like Eloy Turpo in the Ausangate area say, "we are Quechuas" (1996:personal conversations). Many academics generally use the term *campesino* (Spanish for country person) for rural inhabitants; however here it is not the appropriate term. The preferred term in Ausangate is "Quechua," which includes the linguistic distinction of speaking the same native language but also communicates a sense of identity and pride associated with a shared ancestry. Quechuas here also refer to themselves as *runakuna* (Q. for mankind) who speak *runasimi* (Q. for the Quechua language). As ethnographers we have a disciplinary obligation to use the internal categories of identity revealed through the methodology we employ: the art of fieldwork. Lively discussions about ancestral designs and their Quechua names were encouraged during informal gatherings and interviews by the presentation of a sample set of locally woven moneybags. Shoulder cloths (*kaypinas*), belts (*chumbi*), bags (*chuspas*), ponchos, and other variations of textiles display a range of similar motifs, as they are used for daily wear, rituals, pilgrimages, and festivals. Their active use communicates a sense of pride and ethnicity associated with the retention of cultural traits identified as Quechua. While culture is dynamic, changes are incorporated into a bedrock of traditional ideas related to Andean worldview. Today, roads introduce manufactured market goods from Cuzco, and electricity is followed by televisions, but the "often reiterated view that the intrusion of the modern western world with its commercial values and commodities signals the end of traditional Andean culture is simplistic and largely inaccurate" (Bawden 2003).

WRITTEN LANGUAGE AND VISUAL REPRESENTATION

> Within the quipu, we can show by the groupings of these categories what the priorities were in the thinking of Andean peoples. First come the people, second the camelids, then the cloth, fourth the ceramics and so on. For a people who have made a natural refrigerator, survive at freezing temperatures, build bridges as a community task and still weave and maintain a status system based on the fineness of cloth, to investigate this world, we must follow Andean thought and language patterns. You have a logic, not our categories nor a historical one but Andean logic.
>
> (Murra:1980)

While we can argue a continuance of communication of worldview and ethnicity through the consistent use of textiles, both in design and structural textile information, this is not to claim that the design vocabulary of today is consistent with symbolic meaning from the past. While Ausangate weavers may say "it is the *pallay* (designs) of our ancestors," it is difficult to make definite correlations of meaning to similar motifs evident in Inka cloth because of the lack of a written history with detailed notations about textiles. Rather than ask why a written language was never invented, the more provocative question, in light of the many accomplishments of early Peruvian civilizations, is what did they use instead of writing to communicate worldview and reinforce ethnicity?

The arid coastal desert stretching the length of Peru between the Pacific Ocean and the mountains has preserved a rich cache of material evidence. Coastal bundles found in the Paracas peninsula display advanced textile techniques such as sprang, embroidery, and feather work, which evidenced a highly sophisticated knowledge of textile and fabric expertise (Bird and Bird 1949). Wari-Tiwanaku symbols placed in cloth demonstrate intentional repetitions of units with slight variations that displayed interesting contractions and expansions of related units appearing to represent elaborate metaphors (Bird and Bird 1949; Sawyer 1963). Given the extensive labor, detail, and skill of the craftsmanship, could these precise contractions, expansions, and juxtaposition of individual units have metaphorically communicated changes in historical or political events or epochs such as the rise and fall of administrative power structures (Heckman 2003; Stone-Miller 1992)? The exact meanings placed in ancient cloth by these skillful artisans remain an enigma.

The high mountainous Andean regions, with annual rainy seasons, did not afford the same natural preservation for cloth; thus the range of textile remains there is limited. Andean logic and local knowledge inform us that cloth performs many important roles besides bodily warmth and protection in rugged mountain

environments and cold climates. During the Inka Empire, cloth symbolized community and state wealth, personal prestige or status, and was often used as ritual offerings for ceremonies. Inka textile specialists such as the *chumbicamayoqs* wove fine cloth designated as honorable royal gifts given by the Inka (Murra 1962). Textiles celebrated and accompanied major life transitions—birth, first hair cutting, puberty rites, marriage, yearly agricultural offerings, and death—as they still do today in remote Quechua communities. The Inka administration systematically organized people into work units and maintained the careful storage of all excess goods in state warehouses, accounting for their tallies on quipus. While quipus demonstrate a tactile information storage system, interestingly Inka textiles used geometric symbolic units in relationships of duality and inversions, often woven in black-and-white checkerboard patterns or what appear to be significant color arrangements. Inka architecture, road building, and palace and temple structures display a sense of Inka aesthetics related to line, form, and intentional placement of units. Could they have been re-creating a sense of the order of the universe in their artistic textile motifs, the finest of which accompanied every important event? Spanish chroniclers did record the importance of Inka textiles, but their European sense of written history did not allow them to understand or bother to notate the meanings of Inka visual representation.

The quipu used a tactile arrangement of knots and cords using a mathematical base-10 system (Asher & Asher 1981). Using a sample of quipus from various museums in the 1920s, Leland Locke discovered a consistent code based on the *kind* of knot used that helped him discover that knots could represent numbers in the hundreds of thousands. A highly trained group of Inka specialists, the *quipucamayocs*, were responsible for creating color-coded cords with carefully constructed, strategically placed knots for decoding information and for retelling oral narratives using quipus as mnemonic devices (Cummings 1994: 194). The detailed analysis of quipus illustrates how Inka specialists used a tactile device to enhance oral tradition and numerical codification.

Tocapu refers to abstract geometric designs with standardized square or rectangular units found on certain finely woven men's tunics (*unku*) and women's dresses (*anaku*) and cloaks worn at important Inka ceremonial occasions. Variations of tocapu existed, including several rows of pattern on a solid background, an upside-down stepped pattern on top, and totally patterned garments, sometimes even including alternating units of black-and-white checkerboard squares or the distinctive Inka key motif. Tocapu can be as simple as repetitious motifs with only alternating colors or as complex as detailed patterns totally covering the surface of a man's tunic, back and front. Cummings (1994) stated that tocapu *probably* demarcated ethnic, political, and religious status but the Spanish chroniclers did not relate to this abstract visual form of images as recording Inka histories. Sarmiento and Molina suggested that certain Inka painted boards recorded tocapu design elements and were used by Inka judges. Cummings (1994:198) said the abstractness of the tocapus did not correspond to the perceived ideas of the Spanish chroniclers of how an image *should look*. They were not able to understand the design information and they did not record its details. Possibly Inka nobility did not share an explanation of tocapu designs with the Spanish invaders. Tocapu was defined as a royal privilege, and grants of it were highly prized for rulers and the military (Murra 1962:64).

Figure 1. Inka men's tunic-style clothing with woven tocapu patterns as depicted by Guaman Poma.
Figure 2. A quipu being used by the chief treasurer and accountant (Guaman Poma de Ayala).

Eighty years after the arrival of the Spaniards, Felipe Guaman Poma de Ayala wrote a 1,179-page letter to the king of Spain, including 397 drawings in the letter. His drawings are the best visual record of these textile designs outside the actual tocapu weavings themselves. He recorded that the tocapu consisted of rows of rectangular or square geometric designs using a pattern of repetition. Inka tocapu demonstrates concepts of repetition, inversions, and reversals, with the juxtaposing of many of the units—expressions of duality between black and white, colors in balanced opposition—with accents of red, the color generally associated with the Sapa Inka. Rowe (1979) detected regular, precise, apparent standardization in the patterns given to intentional irregularities and an asymmetrical balance in colors,

numbers, and forms in the arrangement of the tocapu. Textile specialists continue their quest for a Rosetta stone leading to the decoding of Inka information in woven tocapu, but few cloth examples of tocapu survive today. Currently, MacArthur fellow and anthropologist Gary Urton investigates Andean logic and quipus from a mathematical approach, but we do not yet understand the code of the tocapu. Tocapu was also painted on the wooden drinking cups called *keros*, and researchers at the University of San Antonio de Abad in Cuzco continue to work with their museum's collection of over 200 wooden keros with tocapu.

Andean record keeping has taken many diverse forms over time, from images burned and etched on gourds depicting courtship, marriage, medicinal practices, weaving and the arts, herding and cultivation, death, and other rites of passage, to Moche designs painted on ceramics showing virtually every aspect of daily and ritual life (Donnan 1978). Material evidence lends support to the idea that past and present weavers encode their cultural beliefs and identity into complex systems of visual metaphors capable of communicating their perception of the world.

THE CONTEXT OF LIFE IN AUSANGATE, PERU

> Studies of indigenous textiles must necessarily be conducted as cultural investigations that are set in a deep contextual framework of the weaver's community, language, social organization, rituals, myths and cosmology.
>
> (Ortiz 1994)

Today in the Ausangate region contemporary Quechuas rely more on visual means of communication than on written history books or textbooks to educate their youth about how to exist at elevations of 3,500 meters; in fact few such books written from the Quechua viewpoint exist. Limited supplies of textbooks are primarily written in Spanish, the second language of the region. Transference of knowledge and cosmology through verbal and visual means other than writing is a logical and efficient system for teaching children and the community at large. In such an isolated area, Quechuas have managed to make active choices and incorporate what is efficient and discard what is not. Globalized economy, foreign researchers, rural schoolteachers, and engineers do not necessarily have the best solutions for the problems facing rural Quechuas in an environment in which they have survived for centuries.

Ausangate is about 130 kilometers southeast of Cuzco. Human beings live at elevations between four and five thousand meters by farming, herding, and weaving. Their sod, stone, and mud houses are primarily for food storage and nighttime shelter, while the majority of days are spent in activities outside in the natural environment. They share a symbiotic relationship with their animals, which are the equivalent of their bank account. The area is sparsely inhabited, and those that live there are bonded by a cosmology based on ancestral myths, rituals, and a respect for Apu Ausangate, a great mountain spirit considered sacred to the Inka, as chronicled by Spanish scribes (Gow 1976). The name Ausangate refers officially only to the highest peak in the Cordillera Vilcanota but is generally used to refer to the entire region surrounding the mountain. The west side of Ausangate was a large hacienda, known as Lauramarka, owned for several hundred years by absentee landlords living in Lima and Cuzco, until the nineteen-seventies, when the agrarian reform redistributed large land holdings. General reference has often been made to the north side of Ausangate as Lauramarka or Ocongate rather than the proper community names such as Pacchanta, Upis, and Tinki. Ocongate is the municipal center for the northwest side of Ausangate, with a Sunday food and consumer market, national police road checkpoints, judicial offices, notaries for legal documents, and a central Catholic church. Pitumarka (Canchis) is the provincial township on the southwest side of Ausangate, which provides legal services and official documents. It is the trailhead for access to the south side of Ausangate via Chilca.

Figure 3. Map of Ausangate region (Heckman 2003, prepared by Deborah Reade).

ETHNOAESTHETICS AND THE MEANINGS OF AUSANGATE TEXTILE DESIGNS

In 1996 while doing fieldwork and living in the village of Pacchanta, on the north side of Ausangate (a four-hour, seven-hundred-meter uphill hike from Ocongate), I had the opportunity to participate in daily weaving activities. After initially learning textile pallay from my primary teacher, Maria Merma Gonzalo, and her extended family in addition to other weavers in Pacchanta, I began to circulate with the sample set of twenty moneybags known as *pachaqchaki*. The moneybags averaged three to five inches in width and nine to fifteen inches in length. These types of textiles were important when the currency of Peru consisted primarily of large coins, because Quechua clothing did not have pockets, and so the bags were used to guard money. The Pacchanta moneybags are distinctive, and this type of bag is now rare in other communities surrounding Ausangate.

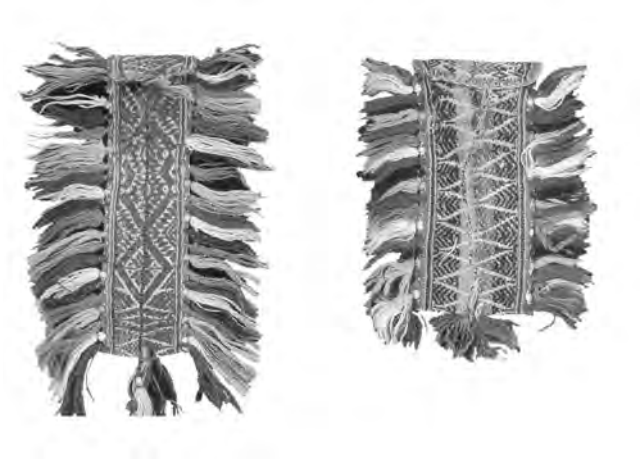

Figure 4. Two of the twenty moneybags composing a sample set of local weaving designs.

The use of the sample bags served several methodological purposes: 1. they were easily transportable; 2. they were capsules of design information that could be shown all at one time and arranged in an order of merit according to local aesthetics; 3. they stimulated the naming of specific design elements, which led to discussions of meaning of symbols; 4. they represented a wide variety of Pacchantan designs; and 5. they supplied comparative data that could be quantified. The sample was collected from 1990 to 1996; thus it contained old examples and some unusual pieces such as the bag made from a Cotobambas belt from the Apurimac area finished properly like a Pacchantan moneybag. Another moneybag was begun as a hat, then the male knitter haphazardly turned it sideways and finished it as a moneybag. Aesthetically this was totally unacceptable. Maria called it "trash," other weavers were disgusted by it, and it rated lowest on the aesthetic scale. During the discussions of the moneybags, my presence was minimalized. This approach lessened the reliance on interviewing for collecting data and the associated problems of answers as reaction to how a question is posed during the interview.

The primary motif in almost all Pacchanta weavings was a diamond-shaped pattern called a *qocha*, representing one or more lakes. It became critically apparent that geography and worldview influenced what the weavers chose from their design repertoire. They were judged by their knowledge of aesthetics and skill. They knew the mythology relating to symbols such as the lake pattern, which represented various lakes fed directly from the sacred peak or underground springs. The variety of colors related to mineral content, shapes, series, and types of lakes were being created in the textiles. A specific terminology was used not only to describe

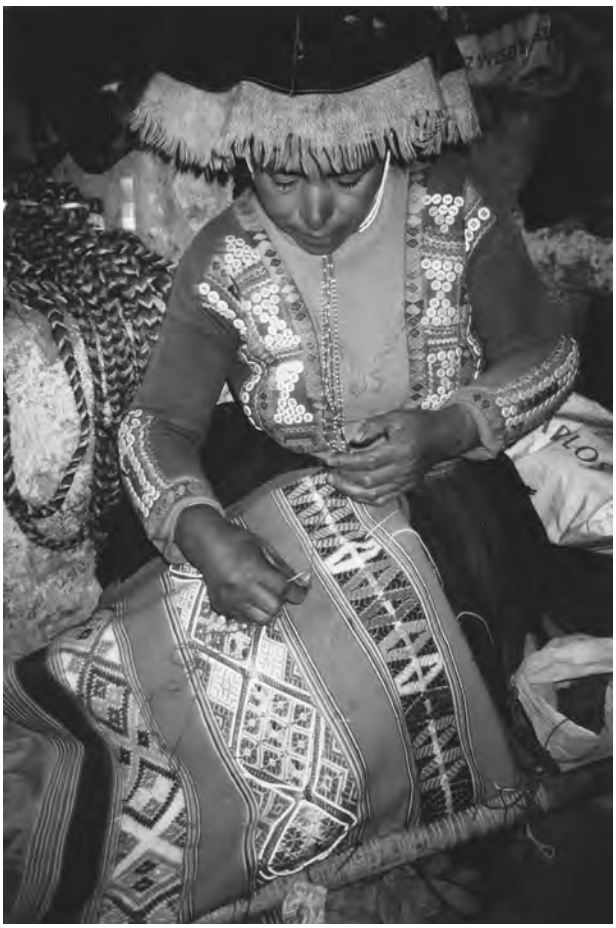

Figure 5. Maria Merma Gonzalo, from Pacchanta, Ausangate, embroiders various colored yarns on top of the huasca qocha pallay to embellish her son's poncho that she wove for him. She wears culturally identifiable clothing from her village and the NW side of Ausangate.

the variations in highland lakes but also to embed an understanding of the importance of water and the lakes as repositories of Ausangate's sacred waters. Weavers embellished the lakes with sequins to signify sunlight shimmering on the lake's surfaces. They expressed composite ideas by placing one design element inside another, representing ideas such as a potato plant nurtured by the water from the lake. Potatoes and tubers are the only crops grown in Pacchanta. The weavers composed complex symbols and multilayered ideas related to worldview and mythology.

Technically speaking, weavers are constructing warp-faced weaves, "that is the warps are much more closely spaced than the wefts so that the weft does not show on either surface of the fabric at all but passes between the two layers of warps which interchange to form the woven structure" (Rowe 1977:14). This process includes picking particular supplemental warps to create images made by floating surface yarns, or by hiding them underneath. Women are the fine weavers and bearers of intricate design knowledge for expression of ethnicity. Men are knitters and they weave simple weft-faced saddle blankets or coarse fabrics for skirts and pants, men's plain carrying cloths and formerly men's shirts along with ropes and slings. Men could articulate design names, but if disagreements occurred, they were quickly resolved by consulting the older women.

Young girls begin weaving by the ages of eight to ten years old. They first learn plain warp-face weave, graduating from learning one design to another in a specified order from their aunts, mothers, and grandmothers. They gain social status from the increased number of pallay designs they learn and by how finely made they are. All family members engage in spinning on a wooden distaff about one foot in length known as a drop spindle or *puska* or *phuska* (from the Quechua verb *puskay* or *phuskay*), a time-consuming activity that can be efficiently performed while tending animals or walking up to work in the fields. Weavers have no sketches, relying on their memories to conceptualize designs; and they are capable of conversing while silently counting the mathematical relationships of picks for the difficult designs.

During these conversations, weavers confirmed that lakes called qochas were places where water was stored or contained, enclosed and protected. Specific vocabulary for lake patterns was identified as follows,

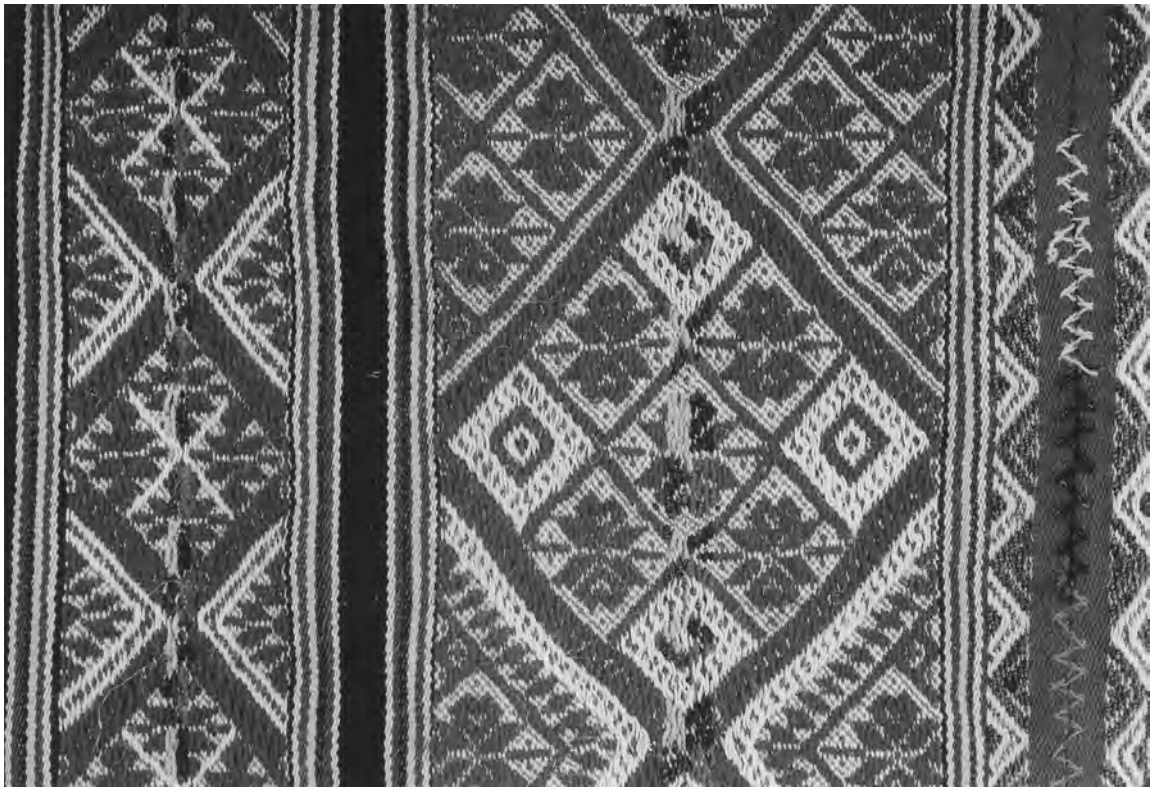

Figure 6. Detail of a woman's carrying cloth from Pacchanta near Hacienda Lauramarka and Ocongate, NW side of Ausangate. This textile displays multiple lake (qocha) diamond designs with flowers, possibly potato flowers positioned inside the lakes, which form enclosures for them.

with variations for number, colors, and sizes. Variations in spellings occurred due to the spoken language being converted into writing and the general disagreements over spellings amongst linguists.

- Huasca qocha: singular wide lakes
- Rumpu qocha: singular long vertical lakes
- Sarta qocha: a series of repetitive lakes
- Rurun qocha: a variation somewhat like huasca qocha
- Sinku qocha: more shimmering lake
- Weisto qocha: half lakes in a series of vertical complementary patterns
- Huacra qocha: large half diamonds in a series
- Hatun qocha: extremely large lake

Weavers identified other simple design motifs like *t'ika* (flowers), roses, and *inti* (sun) inside the lake design. When combined with other elements, the vocabulary conveyed cosmological information beyond simple icons related to worldview. The potato flower inside the lake waters conveyed the *hope for good crops* (CCarita 1996:personal conversations). The borders of textiles were often described as having *chaki* (feet) and *nawi* (eyes). *Q'enko* (zigzag) was mentioned as protection for the person wearing or using the textiles, according to local lore (for more details, see Heckman 1997). Men knitted designs into chullo earflap hats that included *alqo yupi*, dog's paws; llamas' footprints; *bandas*, diagonal half diamonds; *listas*, lines of solid colors; *viscachas*, an Andean rodent; *trigo*, wheat; *pampa*, large open solid colored areas; and of course many lake patterns. The qocha design was important in areas as distant as Carabaya and Marcusani. In Paucartambo, Q'ero, Lares, and CCachin, as in Ausangate, the primary motif on the front of men's chullos (a type of knitted hat) is a *hatun*, or large qocha pallay.

An unusual body metaphor was represented in Pacchantan weavings. In textiles woven in two pieces, such as carrying cloths (*kaypina*) and ritual cloth (*unkuna*) for offerings to Apu Ausangate for health and well being, the seam where the two sides are joined is called a *sonqo*, or heart. Several weavers elaborated that when the two parts are stitched together, they form a complete physical body. The nawi on the sides of the textiles are believed to protect the wearer through sight. The chaki were placed on the four corners of the cloth for it to be properly finished. Oddly, body parts are arranged unusually, in some metaphoric relation to the human body, but weavers insinuated that this was appropriate. These and other stories were intriguing, but the most valuable information in talking with Pacchantan families was how the pallay is worn actively in daily use and rituals to help reinforce local myth and worldview as confirmation of one's identity and ancestral knowledge.

THE MYTH OF THE WATER CYCLE REINFORCED IN CLOTH

The natural world is interrelated, and it is known that water is fundamental to the continuation of life. Myth explains the cycle of water to the ocean and the annual return as rainfall on the mountains that nourishes the crops in the rainy season. Lakes are natural storage facilities that catch and store this water, either from rain or snow melt-off, or natural springs that provide water for animals and humans during the annual dry season. Lake patterns in textiles are indicators of this fundamental concept of the cyclical nature of water in Andean worldview.

The word qocha is multivocal, also referring to unusual bowl-shaped ceramics used in Inka and colonial Peru for ritual drinking of *chicha*, the local corn beer, an important reciprocal act. Flores-Ochoa explains that the *qonopa* or *illa*, usually in the shape of a llama or alpaca, has a round opening on the back for offerings of animal fat; in the illa this hole is called a qocha (1968:279). Moseley discusses the qocha as a man-made reservoir for agricultural water storage as follows:

> Around the margins of Lake Titicaca soil was mounded up to create ridged fields. Long planting ridges were separated by deep furrows that held standing water. Further from the lake, people dug great pond-like structures called cochas. After filling with wet season runoff, their sides and bottoms were farmed as their water levels lowered during the dry season (1992:30). In Pukara . . . substantial investment in agriculture included ridged fields and cochas. Rainfall was seasonal and uncertain and had to be assisted by the construction of enormous, shallow ponds called cochas (1992:150).

Qochas are absolutely essential to agricultural success when farmers, such as in Pacchanta, have only one growing cycle per year. When Quechuas in Ausangate weave qocha pallay, they are wearing their cultural knowledge by identifying with past beliefs about the important role of lakes and the cyclical nature of water. The word qocha preceded by *mama-* forms the composite word *mamaqocha*, meaning the sea (the mother ocean) and Lake Titicaca, the source of the Inka origin myth. Water is believed to originate with the Mother

Lake, the ocean. It then cycles up into the mountains and is brought to the people by the rivers or underground streams and then returns to the source, the ocean, once again (Randall 1990; Sherbondy 1992).

Symbolic of the sea, the seashell has been an essential part of rituals for centuries. Pedro Pizarro observed that "sea shells were a major ceremonial commodity offered during rainmaking and spring-encouraging rituals in the highlands because of the mollusks' close association with the mother water, the sea" (Cobo 1990 [1653]). Spondylus, or spiny oyster shell, highly prized for offerings, was used in jewelry by pre-Inka and Inka ritualists. The conch shell is still used in such highland communities as Hatun Q'ero, where it is blown to begin ceremonies, as it produces a deep haunting call. Shells provide a symbolic association with the ocean, the mother of all qochas, and show an abiding respect for the concept of qocha.

Wira- (*vira*) means fat or foam of the sea (Holguin 1952 [1608]:65, in Randall 1987), and when added to qocha becomes Wiraqocha, or the source of all life. T'icsi Wiraqocha (also spelled T'eqsi Wiraqocha) is then defined as the origin, or foundation. "Wiraqocha was the greatest god, the creator, a being without beginning or end, who created all the other supernatural beings, animals, men" (Rowe 1946:293). Q'on T'eqsi Wiraqocha traveled to Lake Titicaca from the ocean and metaphorically gave life to the rocks, caves, and lakes along the route. Randall (1987:70) believed this term represented water, and that the word Wiraqocha signified both the sun and water, but also the vital forces that impregnated them. He further suggested that the concept of Wiraqocha is the most difficult to understand because the Spanish tried to make it into an Andean equivalent of the Christian God, which was susceptible to distortion. "Wiraqocha was an invisible god, a vital life force" (1987:71). "He was intimately associated with the sea, which was also seen as the substance from which all things were created. The sea was the source of water for all the lakes in the highlands, and so the largest lake in the Andes, Titicaca, was revered like the sea" (Sherbondy 1992:56). The Inka origin myth begins at Lake Titicaca, where Wiraqocha created the sun, moon, stars, and all the ancestors. According to popular mythology, the Inka and his sister-wife emerged from the waters near the north end of the Island of the Sun. This myth linked the Inkas to lakes and caves generally and to Tiwanaku and Lake Titicaca specifically, in addition to supporting stories of subterranean water passageways.

In Ausangate the Inka myth about the recirculation of waters and the Black Llama constellation is still told. The Waruchiri (Huaruchiri) myth stated that the "black llama must drink the ocean waters to prevent the world from flooding." Guaman Poma de Ayala (1980 [1615]: 254–256) said that during the month of October (the Inka month dedicated to rituals of water), the Inkas tied black llamas in the main plaza of Hawkaypata and gave them no drinking water in order to make them plead to Wiraqocha for the return of the waters. "These black llamas most certainly represented the celestial Black Llama, assuring that it would become thirsty enough to drink the ocean waters" (Randall 1990:19). In April, when the Black Llama dark cloud constellation has its upper culmination, it could not drink anything because it was too high in the sky. But on October 30, just at the beginning of the rainy season, it has its lowest culmination and actually appears to be at the horizon line (Randall 1990:19; Urton 1988). Stars setting in the west were thought to descend into the ocean (Garcilaso de la Vega 1961 [1609]:105). Randall believed that they thought the waters would recycle through the Black Llama in the sky and return back to earth in the form of rains. Urton (1988) supported this idea that the waters of the Vilcanota River are considered to empty into the cosmic sea and return via the Milky Way as rains. Bastien (1978:46,72) stated: "Qoyllahuayas [inhabitants of the region southeast of Lake Titicaca known as Charasani] understand the body as a hydraulic system circulating and distilling fluids and semifluids (water, air, blood, and food). Illness is the disruption of this cycle, causing a gradual 'drying up of the body.' Death is the premature separation of the wet and dry elements."

Water symbols, in particular the qocha lake symbol, are not merely decorative expressions according to Quechua aesthetics. Their meaning reaffirms Quechua worldview or reality, and the interrelatedness of all aspects of life, with water as the main focal point. In conclusion, the sacredness of water, the concern for water storage, and the mythological roots of this conceptual understanding are reinforced by the persistent weaving of qocha lake pallay in the clothing of the Quechua people in the Ausangate region. They reaffirm their cosmology through active use of clothing worn during rituals, including the annual pilgrimage in the Ausangate region to El Señor de Qoyllur Rit'i as they celebrate a renewal of life. The event involves a symbolic gathering of blocks of glacial ice, accumulated through extreme sacrifice. The ice is melted, followed by the drinking of these sacred glacial waters. Water is celebrated in this act of renewal.

Figure 7. Local dress depicting qocha designs in the CCatca market near Ausangate.

Figure 8. The ice pilgrimage and dances of Qoyllur Rit'i, Colqepunku, Ausangate region.

SHAPES OF CLOTHING AND CONTINUITY OF EXPRESSION OF ETHNICITY

Forms of textiles and clothing shapes may divulge more continuity through time than do designs. Clothing is made from hand-woven cloth without cutting any of the weaving so that no part of the labor, materials, or artistry is wasted. The cloth is then sewn together or separated by slits with complete finished selvages on all four sides. It is then embellished with embroidery or other adornment. Some clothing structures linked to past garments have retained the same names consistently since the Inka Empire for exactly the same shape of garment. The influence of Spanish and global clothing has changed some shapes, but others are persistently still worn and have been for over five hundred years. Several Spanish chronicles documented the exact names of Inka garments (Cobo 1990 [1653]), and again Guaman Poma proved to be a valuable source. Contextual uses were noted for certain textiles such as the *unkuna*, a small carrying rectangular cloth with selvages on four sides, clearly used in the Inka period and still used today in a ritual role for carrying the sacred coca leaf. Another example of continuity is the Inka woman's *lliclla*, used open across the back with the pattern worn horizontally, secured by a *tupu* (*topo*) pin in front. Contemporary women's llicllas from Ausangate—including Pacchanta, Kilita, and Q'ero (NE) and most of the Pitumarka Valley—are smaller than the Inka cloth, but they are still worn as shoulder cloth open across the back, most often worn with the pattern displayed horizontally.

The only men's clothing items that have been retained are the woven belt, ajota sandals, and *chuspa*, the coca bag. Paradoxically the form and name of the ajota sandals survive, but both men and women wear ones made from recycled tire rubber today. Quechua women have retained more textile forms from the Inka period (for more details, see Heckman 1997, 2003). Despite national legislation in 1780 banning the use of Inka clothing, some remnants seem to have persisted in the Ausangate region even though they are made today with commercial beads and sequins.

Pacchanta and Ausangate weavers have not compromised their forms, the meanings of their designs, or the aesthetics of fine weave they associate with their ancestors. Faced with Spanish colonial, modern, and postmodern influences and commercial market clothing, weavers in these regions continue to value making cloth with expressive qualities of identity. They continue to make choices to express their ethnicity and sense of belonging through the clothing they make and wear. Investigations of persistent textile techniques, designs, and forms provide challenging insights into past cosmology and ethnicity of ancient weavers, given that many of the technical processes, looms, and materials are still used today. Even when contemporary weavers choose to incorporate synthetic yarns or materials into their creations, the intent of message, fineness of spun yarn, and high quality of the weaving remain part of a highly valued Andean aesthetic. Weaving continues to be a primary expression of Andean worldview, identity, and ethnic pride.

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CHAPTER 8

North Coast Style after Moche:

CLOTHING AND IDENTITY AT EL BRUJO, CHICAMA VALLEY, PERU

AMY OAKLAND RODMAN
AND
GIOCONDA ARABEL FERNANDEZ LOPEZ

There are multiple ways one might examine clothing styles as a reflection of possible ethnic identity in Andean contexts. Within contemporary communities, the work of Meisch (1986, 1996) in Tarabuco and Saraguro, Zorn (1995) in Sacaca and Taquile, Medlin (1996) in Calcha, Seibold (1992, 1995) in Choquecancha, and others is valuable in discussing the ways that clothing style reflects indigenous identity, albeit, in constant change. Anyone who has lived for some time in the highlands of Bolivia or Peru becomes accustomed to the immediate identification of community-specific garments, and the variations as well. Tarabucano men and women are clearly identified from the region near Sucre, Bolivia, through their red-and-yellow-striped hand-woven mantles, ponchos, and skirts (figure 1). They wear an abbreviated costume for work and create elaborate additions for festivals, all within a specific ethnic style recognizing identity in connected, but distinct layers. Outsiders understand the basic costume as a garment style while insiders understand deep meaning expressed in clothing. With persistence and skill, anthropologists are able to mine this deeper meaning. Consider Seibold's (1995:324–325) observation of blue stripes in a group of newly woven women's textiles. She had lived and worked among the people of Choquecancha in the highlands of Peru for a decade and knew that, worn by women of child-bearing age, these normally green stripes represented the fertile earth. In this community, girls before the age of menstruation wear only the brown of the unplowed and unproductive while married women weave bright stripes into their textiles, especially brilliant, verdant, green. Seibold had never seen blue stripes woven and worn by women of marriageable age and she didn't receive any convincing answers after much questioning. Finally a few young informants admitted that women now wearing intrauterine devices had changed their costume to reflect their new status: "women are wearing their fertility, or lack thereof, like badges on their sleeves" (Seibold 1995:325). Could textile patterning have provided such intimate information in archaeological contexts?

Figure 1. Tarabucanos from different regions meeting during market day in the town of Tarabuco near Sucre, Bolivia.

Technically, there are few differences between at least a portion of the dress of many indigenous populations and that visible in the archaeological record. The basic forms of the shirt or tunic and the mantle still woven in the highlands of southern Peru and Bolivia are similar to tunics and mantles woven centuries before. But, the investigation of clothing styles and ethnicity within archaeological contexts is another matter entirely. Most textile studies involve museum collections and the tracing of stylistically similar material within disparate locations with the idea that those similar characteristics reflect an original, coherent style. Few museum collections contain entire tomb lots, and investigators must attempt an "artifact-based" methodology critiqued by Stanish (1992:29). Many artifacts enter collections with no provenance at all and must be analyzed according to internal characteristics. While this methodology focuses on the object alone, careful descriptive analysis is capable of discerning significant qualities that might compare to others of known archaeological context. The methodology is limited, certainly, but in many cases where context is entirely lacking, stylistic analysis is the only method possible.

With few exceptions, most Andean archaeological textiles ultimately derive from burials. And even where complete mortuary contexts might have been remarkably preserved and recorded, how does burial style relate to that commonly used by a people? In burials one is confronted with a decision of identity not formed by the wearer him or herself, but instead one created by family members or the larger community. Clearly, a broader view of past culture that would illustrate both the ritual and associated artifacts related to burial practice as well as objects and processes surrounding the living environment would be the ideal. There are few regions outside of the desert environment of southern Peru and northern Chile where a "household archaeology" (Stanish 1989, 1992) coupled with mortuary analysis could be possible. In this area, preservation of usually perishable artifacts is remarkably complete. Discarded clothing and refuse can be compared to materials present in tombs. But even where organic material is almost universally preserved, the cultural elements surrounding life and death are entirely distinct, and it is this variation that the two sets of archaeological referents would address. For example, one notes cotton cloth covering a large portion of the site of Omo in the Moquequa Valley (AD 500–900), but no significant proportion of Omo burials includes woven cotton cloth (Goldstein 1989). Similarly, further south at Caserones in north Chile (AD 200–600), cotton seeds, fiber, spun thread, and woven cotton cloth litter households, but again, not burials (Rodman and Cassman 2000; Southon, Rodman, and True 1995). Cotton was not meaningful, necessary, nor accepted in highland-related Omo and Caserones tombs, where garments were woven of camelid fiber, but cotton was used at each site. The reverse is common in northern Peru. Camelid bones litter Moche period refuse at El Brujo (AD 300–600) and are even included as food offering in tombs, but the amount of spun and dyed camelid fiber is so limited in burials that a similar, if opposite, cultural barrier must have existed on the Peruvian north coast, where clothes were made of cotton.

Within textiles and clothing, cultural identity is linked to more than fiber. The spin of threads, warping those threads on a specific loom type, weaving the warp into chosen structures within determined garment types, wearing the clothing in gender- and community-specific ways, and being buried in this

costume suggest processes learned through generations. It is just these kinds of cultural prerogatives that are specifically expressed in burials, and the value is immense toward an understanding of the ways cultural groups present selected information about themselves. Tombs are excellent archaeological units with which to analyze identity. Where a large enough sample exists and analysis is complete enough to understand the basic costume style, "exotic items of high value interred with the deceased" (Stanish 1992:30) will be clearly understood as "exotic." In other words, differences will be identified and interpretations will be made within meaningful contexts.

It is possible to discover identity within a large group of well-preserved burials in southern Peru and northern Chile where preservation is uncommonly complete. Clark's (1993; Clark and Rodman 1995) work in southern Peru identified Estuquiña clothing style as well as deviants where men were buried in women's garments and a woman in a man's old work shirt. In the Atacama desert, individuals buried in the same Coyo Oriente cemetery wore one of two very separate clothing styles (Rodman 1992a, 1992b, 1994). One was closely related to styles discovered throughout the Atacama desert oasis, but the other style had many traits that were foreign and related to the better known style of Tiwanaku in the distant altiplano. Although there were no households with which to compare, the mortuary analysis examined more than artifacts, discussing complete clothing styles and tomb lots. Rather than all foreign or foreign-associated artifacts being accepted into a local tradition, there appeared two different traditions, one local and one with perhaps a memory of and continued connection with an altiplano origin.

In the best possible circumstances, the abandoned Caserones village, located further north in the Chilean desert, offered an examination of textiles in both cemetery and household contexts (Rodman and Cassman 2000). A knotted, striped hat found in burials in a small cemetery compared exactly with identical hat fragments discarded in houses. As predicted, the elaborate Tiwanaku embroidered textiles were only recovered in tombs, but the associated hats had been left in houses and were recovered under slumped walls and fallen rafters (True 1980:141–147).

A third example, and one more related to the focus of this paper, is the Middle Horizon collection excavated by Max Uhle at Chimu Capac on the Peruvian north-central coast near Supe (Kroeber 1925; Rodman 1997a, 1998). Any concepts of community like that considered in the collections from the Chilean coast were abandoned when examining the very elite material uncovered in the burial complex of Chimu Capac. Uhle noted varying burial forms: some placed in cysts in the earth, others in stone-lined chambers, child burials with few grave goods, others with a vast quantity of elaborately patterned ceramics, wood, and textiles (Rodman 1998). Although Uhle's "tomb lots" do not represent complete burial data, enough information does exist to understand that these Chimu Capac tombs are a different sort of mortuary process. These are not community-specific burials all related to a single style, or variations on one or two related styles, or distinct styles of different periods. Instead the burials from Chimu Capac appear to be individuals from a wide variety of locations placed in an abandoned temple complex with grave goods appropriate to the Middle Horizon. No two textiles are alike and no clear pattern of textile traits is evident. Even plain weaves, the basic structure of any community that would identify a community norm, exhibit vast differences. The variety of spinning and weaving styles in a single location could reflect a mixing of traditions during the Middle Horizon.

In contrast to the excellent preservation of usually perishable material noted for the deserts along Peru's central and south coasts and in northern Chile, relatively little is known about north coast Peruvian textile styles. Is it possible to discuss ethnicity and community-specific identity in northern Peru, where periodic rainfall and looting have reduced the archaeological record to fragmentary evidence? The few published textile reports that exist for northern cultures describe textile fragments collected from the surface of discarded looter's pits (Boytner 1998; Prumers 1990) or small collections encountered in excavations and existing in museums (Bruce 1986; Conklin 1979; Conklin and Verstylen 1978; Keatinge 1978; Rowe 1984). Donnan and Donnan's recent (1997) article uniquely discusses a large sample of textiles associated with a Moche cemetery at Pacatnamú where textiles were remarkably preserved.

HUACA CAO VIEJO EXCAVATIONS

This paper summarizes the results of three field seasons in textile analysis of funerary bundles excavated on the north face of the Huaca Cao Viejo Moche pyramid located in the El Brujo complex of the Chicama Valley, Peru (figure 2). The Huaca Cao Viejo collection is distinguished by its excellent excavation record and the large quantities of preserved textiles from the

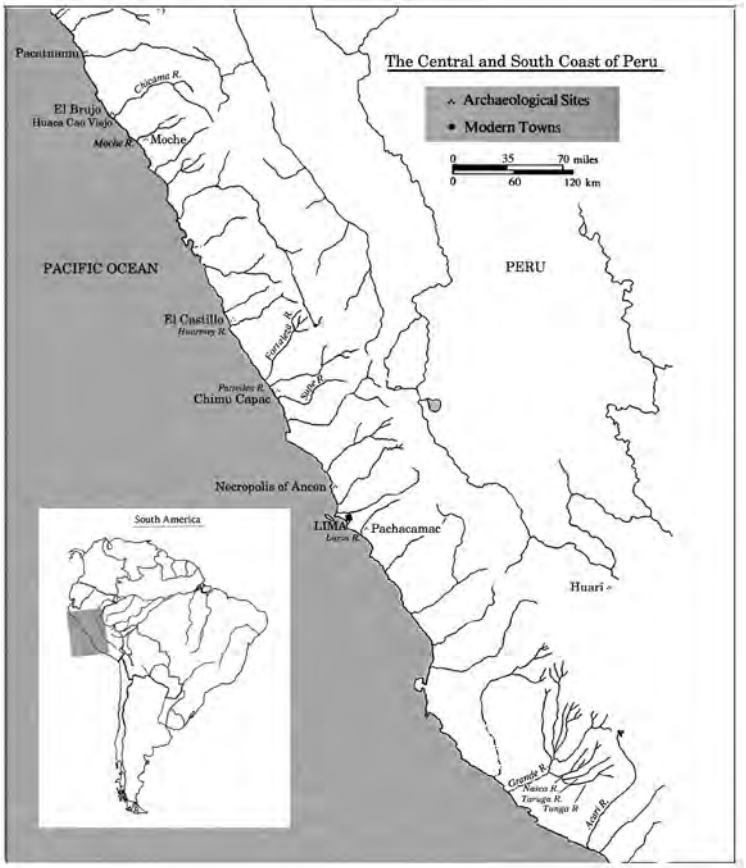


Figure 2. Map of the coast of Peru with archaeological sites discussed in the text. El Brujo and the Huaca Cao Viejo pyramid are located in the Chicama Valley near the Pacific Coast.

Peruvian north coast. The burial complex from Huaca Cao Viejo would appear to offer the ideal context to examine questions of ethnicity. Close to 500 individual burials were uncovered from 1989 to 1997 (Franco et al. 1994, 1999). Preservation is unusually complete in many tombs, and Fernandez (1994, 1995, 1996a, 1996b, 1997, 1998) compiled reports discussing a variety of textile topics. Our combined analysis is oriented toward an identification of ceramic and textile style and burial configuration in order to assess chronological and cultural placement of these post-Moche burials.

Excavations on the north face of the Huaco Cao Viejo began in late 1989 when archaeologists were told of the existence of painted images modeled in relief under the fallen debris covering the abandoned Moche pyramid (Franco et al. 1994, 1999). On excavation of this accumulated fill that included broken adobes fallen from the pyramid's upper surface, it became clear that a people culturally unrelated to the Moche had used the *huaca* (sacred place) as a cemetery. Archaeologists removed hundreds of burials as they revealed the exceptionally decorated surface of the Moche pyramid. Moche burial pattern identifies extended burial positions (Donnan 1995; Donnan and Mackey 1978), but excavations on the surface of Huaca Cao Viejo uncovered flexed individuals in cloth-wrapped bundles placed in circular or oval pits. The usual Cao Viejo burial included a single individual, seated, flexed, covered with cotton cloth, tied with cotton yarn, and surrounded with offerings of llama remains, gourds, and ceramics.

Archaeologists considered this cemetery to relate culturally to northern Lambayeque styles, and, although probably local in content, the burials recovered from the Huaca Cao Viejo have been designated as Lambayeque: "entierros de filiacion Lambayeque" and "entierros humanos de la epoca Lambayeque" (Franco et al. 1994: 156). It is important to realize that the El Brujo complex was originally a burial ground for perhaps tens of thousands of individuals before the arrival of the Spanish, who constructed a Dominican church directly north of the Huaca Cao Viejo's sacred north face. The El Brujo complex also includes Huaca Prieta, Huaca Colorado—sometimes referred to as the Huaca Cortada, and the region in between. The area is particularly dry and was apparently sought after through various millennia as a peculiarly sacred burial precinct. The El Brujo complex has been so heavily looted that the surrounding surface remains methodically cratered, but much of the Huaca Cao Viejo pyramid's surface was not touched before the current excavations. Clearly, considering the excellent preservation at El Brujo, the world's museum collections have benefited from the past looting activity, but community-specific north coast textiles continue unrecognized, and Moche, Lambayeque, and other post-Moche styles remain poorly understood.

Originally, Huaca Cao Viejo served as one of the Moche culture's principal temples in the lower Chicama Valley (Franco et al. 1994, 1999). Recent radiocarbon dates associated with a buried cult statue indicate that the temple was especially active during the middle of the sixth century. Sometime thereafter, perhaps in the next century, structures covering the upper portions of the pyramid were overturned, and broken adobes were scattered over the sacred north face, covering the brilliantly colored relief sculptures adorning the surface. The temple was then abandoned. Beginning possibly

Figure 3. Lambayeque-style ceramic known as a "huaco rey" excavated in the El Brujo burials of the Huaca Cao Viejo pyramid.

in the ninth century, a people whose burial pattern and associated ceramics identify them as culturally, but perhaps not biologically, unrelated to the Moche began to use the ancient huaca as a cemetery. Initially calling it a "Lambayeque" cemetery, we have now determined that the earliest of the burials include collective tombs with face-neck jars, double cloth, and tapestry textiles that identify instead the Middle Horizon burial pattern noted further south to Pachacamac. Later funeral bundles do identify a shift in cultural influence from south to north with Lambayeque–Middle Sican ceramics and patterned textiles with Sican images (figure 3). A late Chimu cemetery in an isolated section in the eastern corner of the north face preserved textiles, ceramics, and a slightly different burial pattern. The far west section of the north face remains unexcavated.

Radiocarbon measurements made at Huaco Cao Viejo identify these distinct cultural periods, Moche III–IV during AD 530–550, Chicama Middle Horizon around AD 900–1000, Lambayeque-Chicama AD 1000–1100, and Chimu at AD 1430. The separation of the Middle Horizon and Lambayeque periods is based on slightly earlier radiocarbon dates for the former and distinct ceramic and textile styles for both. At present it is not possible to date the final use of the pyramid to determine how long it was left vacant before its occupation as a cemetery. In addition, it should be kept in mind that fully one-third of the cemetery remains unexcavated on the western side of the north face. There is little evidence with which to discuss events at Huaca Cao Viejo during the period between Moche IV and this Middle Horizon burial complex. Excavations have not concentrated on habitation areas, and very little work has focused toward the larger site of El Brujo. It is difficult to understand cultural activity at El Brujo after the Moche collapse other than the extensive mortuary use of the site.

HUACA CAO VIEJO TEXTILE TECHNIQUES

Basically, textiles from Huaca Cao Viejo were woven using cotton fiber on a back-strap loom. Actual examples of looms form part of the Huaca Cao Viejo collection recovered from Moche and post-Moche tombs. In this type of loom one wooden or cane loom bar is suspended from a cord that is attached to a fixed structural support. The other loom bar is connected to a belt that is placed around the waist of the weaver. Warp tension is controlled while weaving by leaning forward or back. Loom widths are narrow to accommodate a comfortable weaving position while seated. Cotton was spun on a horizontally held spindle that has a small clay or copper whorl. Spinning this way produces a yarn with a slant like the center of the letter S. These S-spun yarns were commonly used singly or in pairs, but might be loosely plied for use as sewing yarns connecting garment parts or in loom cords. Outside of these basic textile standards, dyed camelid-fiber yarns were used in patterned warp and wefts within cotton clothing. During the Moche period, camelid fibers were spun like cotton in the S direction and were always used plied Z, or S2Z (see Donnan and Donnan 1997 for similar Moche spin direction). During the late Middle Horizon at Huaca Cao Viejo, however, camelid-fiber yarns were spun Z and plied S, or Z2S, probably reflecting a different spinning practice adopted from the south where drop-spindle spinning was always the norm, with the yarn drawn from the top, not the tip, creating a yarn with a slant like the letter Z (Rodman 1997b:18).

Very little is known about the textile styles used by the Moche culture. Moche burials exist, but associated textiles are usually so poorly preserved that

only fragmentary reconstructions have been possible. Notable exceptions are included in the work of Conklin (1979), Donnan and Donnan (1997), and Prumers (1995). Fortunately Moche artists identified textile forms and decoration on their painted and molded ceramics and even left a painted image of textile production (Donnan 1978). Although the Moche textile collection from Huaca Cao Viejo is small, the data are relevant to the site and do suggest certain preferences for this particular Moche group.

MOCHE TEXTILES FROM PYRAMID BURIALS

Current excavations in the Huaca Cao Viejo in 1998 uncovered four complete Moche burials, two of which were opened and analyzed in July 1999. Moche burials particularly contrast with post-Moche funeral bundles excavated at the Huaca Cao Viejo in their extended position and in the finely modeled and painted classic Moche-style ceramics. The male and female Moche burials recently examined included few actual textiles, and only the male was wearing any identifiable garment form, his loincloth, while the post-Moche funeral bundles generally superimpose layers of old and new shirts, dresses, belts, hats, shawls, rolled packages of loincloths, small cloths, and textile offerings.

Most of the cloth associated with the Moche burials was woven as twill in natural brown or white cotton. Large mantles or sheets were formed of two or three separately woven narrow webs with one end finished on the loom and the other cut or torn. The cloth was often folded and used as a doubled textile. Twill-woven cloth has not yet been identified in any post-Moche burial. In addition Moche decorative textiles—such as discontinuous supplementary warp and weft and dovetailed tapestry that were used as a pillow under the male burial—appear entirely distinct from the post-Moche funeral bundles excavated in the fill of the north face of Huaca Cao Viejo. Clearly, the cultural disruption identified in ceramic studies of Moche style exists as well in textile styles. Admittedly, the burial sample remains small, and Moche burials possibly relate to their roles as dedicatory offerings within the pyramid rather than typical cemetery interments, but current textile analysis does identify an entirely different post-Moche burial pattern.

LATE MIDDLE HORIZON TEXTILES AT EL BRUJO

The earliest burials placed in the fill over the Moche pyramid Huaco Cao Viejo were those made by people during a late Middle Horizon period. Termed "Transitional" (Castillo 2000, 2001; Castillo and Donnan 1994) or "Moche-Huari" (Prumers 1990, 1995), the style is associated with similar ceramic and textile forms in many coastal Peruvian sites. Wari influence is noted in these sites by the presence of Wari-related ceramics and textiles. In addition Wari influence is present in a group of similar widely distributed ceramic and textile types discovered by Uhle at Pachacamac (1903), on the principal platform of the Huaca del Sol in the Moche Valley, Site A (Uhle 1913), and at Chimu Capac in the Supe Valley (Kroeber 1925). Similar burials were encountered at Ancon (Kaulicke 1997; Reiss and Stubel 1880–87; Young-Sanchez n.d.), at El Castillo in the Huarmey Valley (Prumers 1990, 1995), and now at the Huaca Cao Viejo in the Chicama Valley.

One common textile type included is red-and-white double cloth with discontinuous wefts over warp floats in small "spots" (Conklin 1979; Conklin and Verstylen 1978; Prumers 1995). Also common to this collection of textiles are slit-tapestry with camelid-fiber borders of plain or cotton gauze, camelid-fiber supplementary-warp woven borders attached to plain woven cotton shirts or square head cloths or mantles, and tapestry plaques in Wari-like designs placed on cotton shirts. This eclectic grouping of textiles actually appears to form a rather coherent unit and is discovered in a variety of regions with the documented presence of discontinuous warp and weft tie-dyed cloth and actual Wari interlocked tapestry tunics.

The ceramics that accompany many of these collections include late Moche-like molded ceramics, press-molded ceramics with elaborate monochrome reliefs in red ware and in black ware; monochrome face-neck jars, some with shoulder bumps imitating the mountain theme; and in some collections actual Wari or coastal-Wari ceramics. All of the collections derive from mortuary contexts, and most, like that at Huaca Cao Viejo, were placed in earlier sacred huacas near the sea.

The textiles and ceramics discovered in two collective burials on Huaca Cao Viejo (1(204)1995 and 1(A–D)1995) are identical to burials of men and women from at least four other complete tombs and perhaps a dozen disturbed tombs at Huaca Cao, where decorated diagnostic textiles have been identified in either women's double-cloth belts or bordered head cloths, men's red shirts with appliqué, or headdresses in openwork plaiting.

Figure 4. Principal burial (1(204)1995) of the Transitional style that was created inside the walls of the abandoned Moche pyramid, the Huaca Cao. The walls of the tomb were fire-blackened, and a collection of Wari-style textiles were discovered as burned fragments next to the funeral bundle.

Burial 1 (204) of 1995

Burial 1(204) appeared different from the hundreds of tombs excavated beginning in 1989. This tomb had been dug out of the pyramid's terraced walls, was a collective tomb including two adults and a child, and appeared fire-blackened (figure 4). Although the tomb walls remained sooty and the cloth-wrapped individuals had been placed over a layer of burned human and camelid bones and textiles, the clothing covering the funeral bundles appeared in pristine condition. The principal individual, an adult male accompanied by an adult female and a child, remained seated and tightly flexed, completely covered within a thick white cotton cloth sewn closed and wrapped with a rope made of hundreds of finely spun cotton yarns. Although covered, his outside garment proclaimed his identity. Over this funeral shroud he wore an orange-red sleeved cotton shirt with camelid-fiber supplementary-warp patterned stripes and a slit-tapestry appliquéd patch below the neck (figure 5). The design on the patch (figure 6), a Wari-derived image—resembling a related tapestry appliqué excavated at Site A on the platform of the Huaca del Sol at Moche (Menzel 1977: figure 89) more than anything—suggested that this individual was in some way related to the Wari polity. A finely woven Wari tapestry tunic (figure 7) formed part of the offering of burned textiles by his side. The ten red-ware and black-ware ceramics (figure 8) include male face-neck jars, round female effigy jars, a hollow figurine, and a black-ware bottle. This bottle, with a relief image of a Pachacamac griffin holding a human head below its beak, is very similar to a bottle sherd from Chimu Capac (Kroeber 1925: plate 75d).

The sequence of events in the burial of this principal individual indicates that periods of significant length separate death and the creation of a first funeral bundle with this final interment. The clean white burial mantle and ropes covered yet another red-orange shirt, quite like the first, except that the appliquéd tapestry patch (figure 9) below the neck depicted a front-facing standing figure with streaming hair, not as Wari-like as the outside shirt. The shirt appeared clean and freshly woven and similar to the outside garment, with the same supplementary-warp stripe border on side and sleeves; it seems that both were made at the same time, perhaps specifically for the final burial. Upon removal of this shirt a very unusual sight appeared. The next layer was composed of another red cotton shirt positioned over a blue cotton shirt with finely embroidered neck and sleeve edges. This layer, although inside the clean wrapping, was found to be dirty. Cobwebs covered the shirts, and dried grass remained that had once grown through the bottom of the bundle and the decomposed corpse and layers of shirts. In many places this thick grass pierced the red tunic. This original funeral bundle had obviously been sitting someplace long enough for grass to have reached a height of almost two feet and for dirt and cobwebs to accumulate on the surface. A clean white cotton bag had been placed on the chest of this bundle. The bag contained what might be called "the sacred earth," a mixture of sandy dirt, cobwebs, guava leaves, grass, sticks—in appearance a collection of soil that was perhaps just under and around the funeral bundle as it rested, perhaps under a guava tree. The soil was collected, poured into the newly woven bag, and placed in the individual's lap, over the old clothing. This important man was then dressed in a new sleeved shirt, wrapped with the plain white burial shroud, and covered with the outside sleeved shirt with neck plaque for the final burial in Huaca Cao Viejo. It is possible, even

Figure 5. Sleeved cotton shirt with appliquéd tapestry neck-plaque (see figure 6) from the Transitional-style burial 1(204)1995. Camelid-fiber bands decorate the sleeves and sides of the shirt with warp-faced plain weave and narrow stripes in supplementary-warp designs.

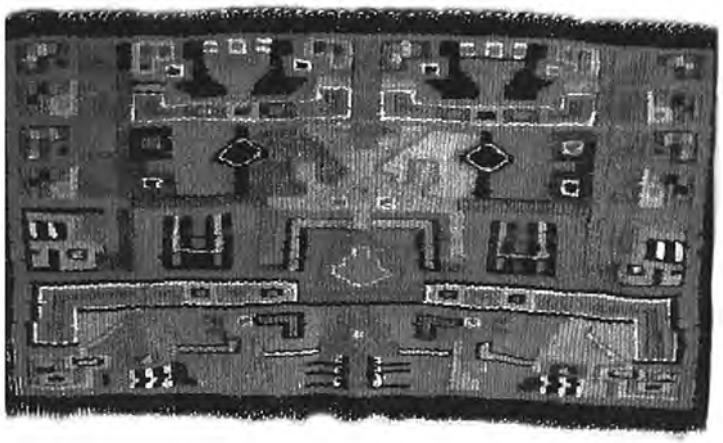


Figure 6. Slit-tapestry plaque with Wari-like design applied to the front of the sleeved cotton shirt (figure 5) in the Transitional-style burial 1(204)1995.

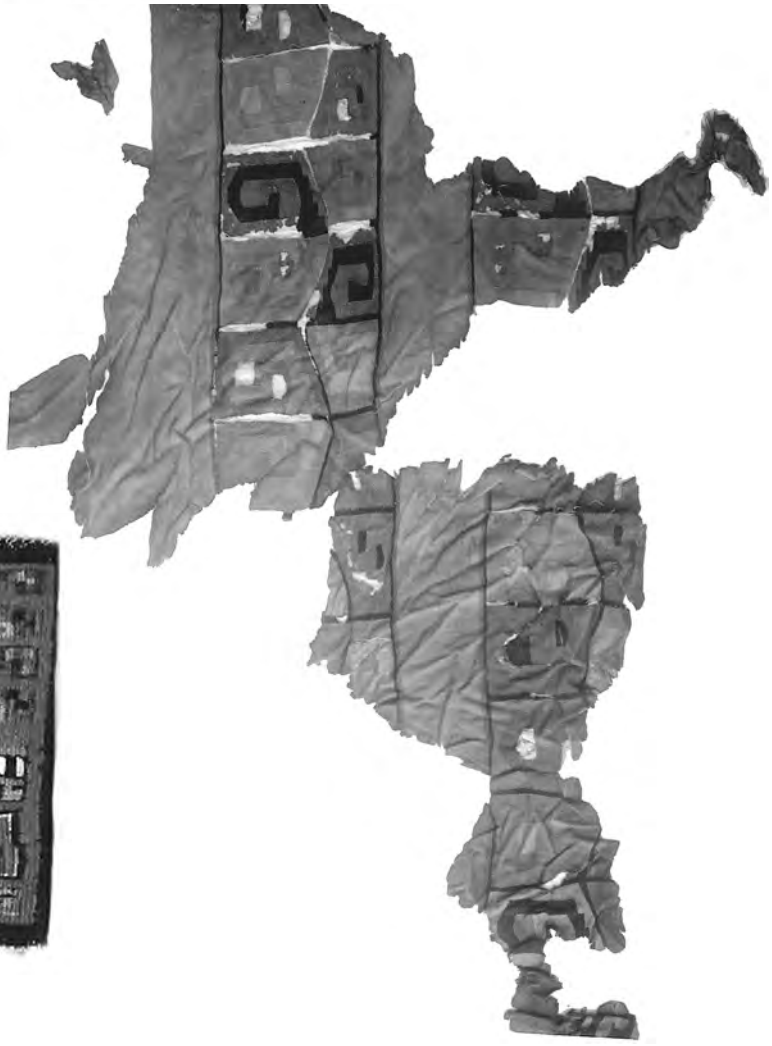


Figure 7. Large fragment of a Wari-style weft-interlocked tapestry shirt with two vertical design panels of interlocking frets in brilliant collors including bright pink. The Wari fragment was discovered as part of a group of burned textiles in the Transitional-style tomb 1(204)1995.

Figure 8. Ceramics included with the principal burial 1(204)1995 of the Transitional style in the Huaca Cao Viejo pyramid.

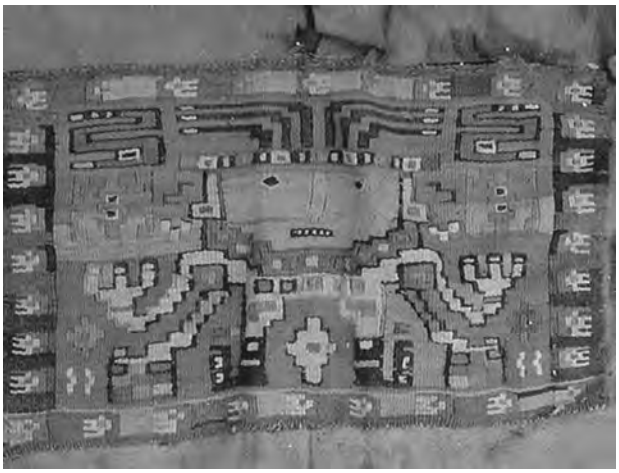


Figure 9. Tapestry neck plaque from the interior sleeved cotton shirt in the burned tomb of the principal burial 1(204)1995.

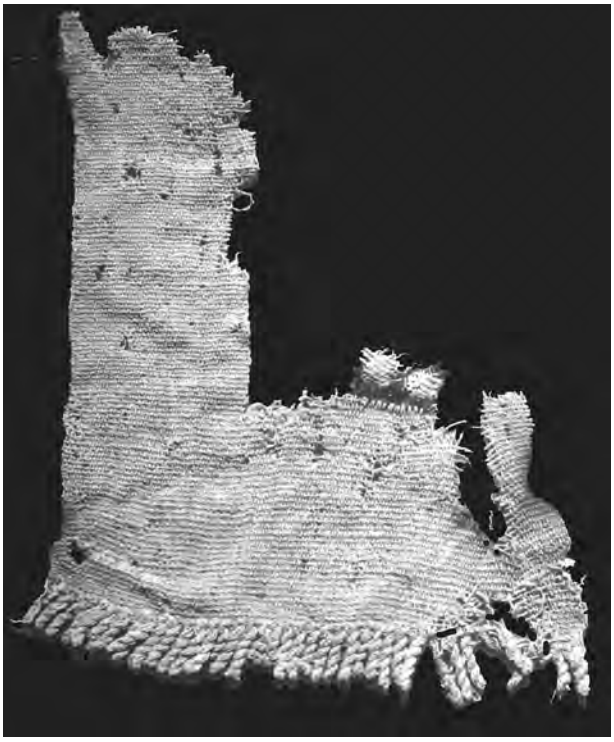


Figure 10. Loom-end fragment with fringe of a discontinuous warp and weft tie-dyed textile included as a burned offering next to the principal burial 1(204)1995.

probable, that the Wari-style textiles found as burned offerings were part of his original burial. These were gathered along with bones from some original mortuary complex and were burned inside the tomb. After the fire had died, the body was placed along with a woman and a child, and the tomb was sealed inside the Huaca Cao Viejo.

The burial contained other artifacts. Two types of plaited plant-fiber headdresses had been tucked between the deteriorated inner shirts. Two shell necklaces of five strands of orange and purple spondylus remained in their original position clasped around his neck. Pieces of rolled gold-surfaced copper (*cobre dorado*) and thick copper in the process of being worked were stacked together and sewn inside a package of decorated cloth in red-dyed camelid fiber patterned in supplementary-weft designs over finely woven cotton. The cloth ends were wrapped over the copper and placed inside the layers of deteriorated fabric closest to the body.

Wari Textile in the Burned Offering

The burned textile offering deposit in the principal tomb included a great variety of different textile types such as slit-tapestry, discontinuous warp and weft tie-dye, and Wari tapestry. Slit-tapestry like this is similar to borders from Chimu Capac (Rodman 1997a) and El Castillo (Prumers 1990). Discontinuous warp and weft tie-dye (figure 10) was also discovered in Pachacamac (Uhle 1903), El Castillo (Prumers 1990), and Chimu Capac (Rodman 1997a), among other places (Rowe 1977:31–32; Strelow 1996). Rowe (1977:31–32) describes the well-known type of Middle Horizon discontinuous warp and weft textiles, which were woven with camelid fiber in step and fret shapes and dyed in tie-dye technique. In this textile type, the warp yarns are dovetailed together and the wefts are sewn with a simple overcast stitch. Yarns were warped over thicker scaffold wefts, which were removed after the weaving was completed and which allowed each individual fret or step section to be separated and individually dyed, then reassembled by dovetailing the warp yarns once again and sewing the weft salvages closed. Rowe (1977:31–32) suggested that the pieces were woven in strips, perhaps with several strips warped and woven together. She mentioned that the technique may have originated in the highlands and been associated particularly with Wari influence (Rowe 1977:32). Discontinuous warp and weft tie-dye was uncovered by Uhle at Pachacamac in direct association with a Wari tapestry tunic (Uhle

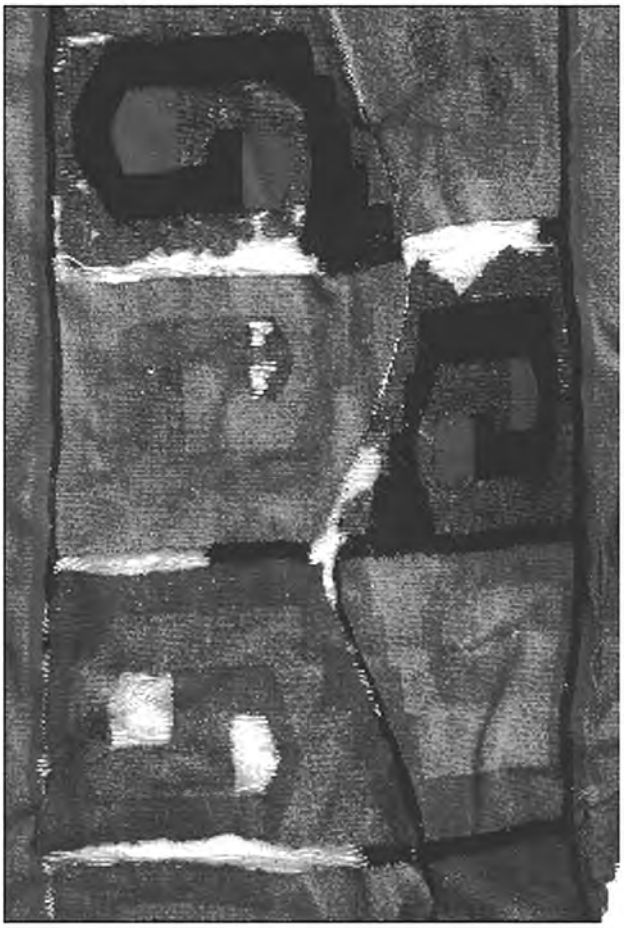


Figure 11. Detail of the vertical design band of the Wari tapestry tunic illustrated in figure 7. As in all Wari tapestry tunics, warp yarns are hidden under the colorful tapestry weft yarns and are oriented horizontally, as worn.

1903:32, figure 31). At the Huaca Cao Viejo the tie-dyed fragment was discovered also in direct association with the large fragment of a Wari tapestry tunic (figure 7). The burned offering included fragments of plain weave with designs of Wari-like griffins in discontinuous weft brocade and many individual fragments of plain weave of varying quality, including extremely fine cotton plain-weave cloth.

The Wari tunic was preserved in a large fragment that included the entire neck opening and enough of one side to reconstruct the design of the complete shirt, which was apparently planned in mirror image in both color and design. The image (figure 11), as in all Wari tunics of this type, was oriented in two wide vertical bands with a narrow band placed on the side selvage. The tunic was woven in two separate long panels on a wide, low tapestry loom that accommodated the weaving of a long cloth (over two meters in many cases), with a very short warp height (less than a meter). The cotton warp, which is oriented sideways in the textile, as worn, is completely covered by camelid fiber wefts dyed in brilliant colors. The most distinctive color used in the Huaca Cao Viejo Wari textile, a bright pink, has been also noted in other Wari tunics. The loom was probably a vertical tapestry type, which allowed the weaver to see both sides of the cloth and to finish both sides completely (Rodman and Cassman 1995). The treatment of the loom ends of Wari tunics in general and of the Huaca Cao Viejo fragment in particular is distinctive. The loom cord placed at the center of the tunic was removed, and the remaining warp loops were chained together. The two sides were then connected with a closely worked figure-eight stitch completely covering the chained warps.

As noted, it is possible that the Wari tapestry and other textiles in the burned offering originally formed part of an earlier funeral bundle. This secondary burial is unique to the known funeral bundles examined at Huaca Cao Viejo, and no other tomb has indicated either burning events or Wari tapestry. In Ancon, the single Wari tapestry published by Reiss and Stubel (1880–87, lam. 16) constituted the outer covering of the funeral bundle with a secondary burial inside (Kaulicke 1997:38). The largest collection of Wari tapestry tunics with provenance derives from El Castillo in Huarmey. Prumers (1990) illustrates fragments of at least fourteen different styles, two of which came from tomb lots (Prumers 1990: figures 6, 10) with face-neck jars or double-spouted bottles very similar to jars represented in most of the collections from this period.

Burial 1(204) also included a large funeral bundle of an adult female wrapped in an orange dyed cotton dress with a horizontal neck opening and a narrow belt of supplementary-warp floats. She was covered with a plaited plant-fiber mat, and a white cotton bag by her side held weaving and spinning supplies, which included both white and brown cotton and dyed camelid-fiber yarns. Although the bundle was obviously complex, with many cloth layers, no complete garments or fabric objects were preserved intact and most were severely deteriorated. The presence of many small blue and white cotton skeins placed around her upper body and large quantities of unspun fiber gave the impression that this woman was meant to be recognized for these textile activities. A small funeral bundle of an infant has not yet been opened.

None of the collective tombs excavated at Huaca Cao Viejo show evidence of repeated entry. There is nothing to explain why more than a single individual

would be placed together, but the composition of each of these three collective tombs suggests family members with a single adult male and female and a child (Burial 1(204), or children (Burial 1(A–D)) (see Kaulicke 1997 for Ancon).

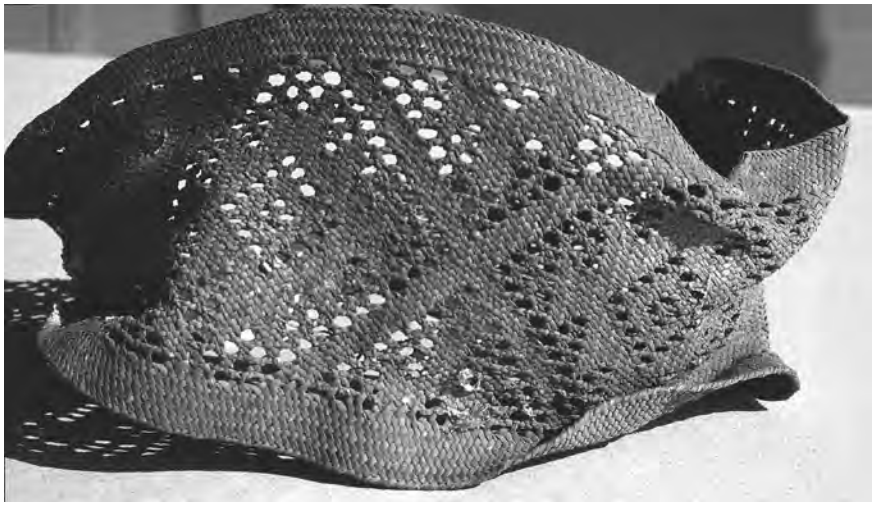


Figure 12. Plaited openwork (oblique interlacing) headdress from the collective burial 1(A–D)1995.

Middle Horizon Burial 1(A–D)

The burials of a man (1B), woman (1C), and two children (1A,D) in a different collective tomb also excalvated in 1995 share many of the same characteristics with Burial 1(204)1995. The man's sleeved red dyed cotton shirt was completely woven in plain weave with no appliqués on the surface, much like the inner shirt of Burial 1(204). His almost complete plaited openwork (oblique interlacing) plant-fiber headdress (figure 12) appears closely similar to one of the headdresses placed with the original bundle of Burial 1(204)1995. This same type of headdress is included in the collections from Chimu Capac, El Castillo, and Ancon (Kaulicke 1977: figure 36:12). An entirely different cloth headdress (figure 13), woven in a cotton supplementary-weft pattern with an attached head cloth, was placed as a rolled offering inside the funeral bundle along with a rolled long rectangular loincloth with attached three-strand braid and a small bag with the same supplementary-weft pattern as that woven in the cloth covering the metal offering in Burial 1(204)1995.

Figure 13. Cloth headdress with attached head cloth, both woven in supplementary-weft patterning in cotton, from the male burial in collective burial 1(A–D)1995.

Garments associated with the adult female include a distinctive large cotton dress woven in two long horizontal sections with horizontally oriented neck slot and arm openings. The dress was worn with a narrow belt (figure 14), which is always discovered wrapped around the funeral bundle on the outside of the dress. The belt is woven in red and white camelid-fiber and cotton double cloth with supplementary weft "spots" in blue, green, and gold camelid-fiber yarns. The belt's structure was known to the Moche, but during the Moche period it was principally woven in cotton (Conklin 1979; Conklin and Verstylen 1978; Prumers 1995). The

Figure 14. Narrow belt fragment woven in red camelid fiber and white cotton double cloth from the female burial in the collective burial 1(A–D)1995.

Figure 15. Red-white double cloth bag with "moon animal" design woven in red camelid fiber and white cotton with discontinuous weft "spots" in blue and gold over floating warps. The bag was associated with the woman's burial in the collective burial 1(A–D)1995.

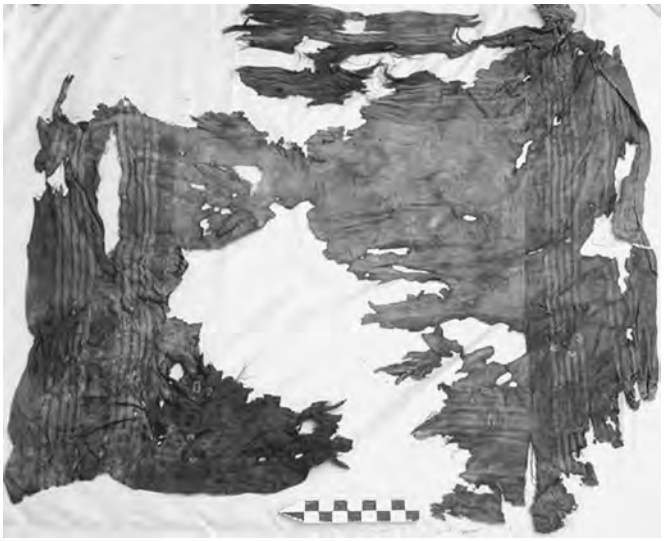


Figure 16. Four-part head cloth with cotton center and camelid-fiber borders in supplementary-warp stripes and supplementary-warp patterning. The corners are also patterned, with floral designs in supplementary-weft patterning. The head cloth was associated with the female burial in the collective burial 1(A–D)1995.

Figure 17. Ceramics excavated in collective burial 1(A–D)1995, including a reused Moche ceramic, a cooking jar, a Teotino-style jar, and two Wari-derived black wares.

addition of camelid fiber is another indication of highland influence common during the Middle Horizon; this is the textile technique Prumers (1995) referred to as "Moche-Huari." The structure has been excavated in all sites of the period discussed in this paper, from Pachacamac to El Brujo.

The female burial also included two bags made in the same red/white double-cloth weave, one with a large image of the "moon animal" (figure 15). Another diagnostic textile included was a square head cloth (figure 16) with a central cotton portion surrounded by four separately woven borders of supplementary-warp stripes, some with supplementary-weft floral patterns in the corners. Similar head cloths were uncovered in the Ancon collection (Young-Sanchez n.d.) and from Chimu Capac. Ceramics with this burial (figure 17) seem an eclectic mix of a reused Moche stirrup-spout vessel, a large Teotino-style jar, a small cooking jar, and two Wari-derived ceramics, a face cup and a face-neck jar with a relief image of a Pachacamac griffin, a design similar to the relief image in Burial 1(204)1995.

Transitional Style: Middle Horizon in El Brujo

Although textiles and ceramics from many sites excavated along the Peruvian coast exhibit closely similar styles to those discussed here at the Huaca Cao, these shared structural traits define a period in Peruvian prehistory when widely separated regions were obviously in close contact. The similarity does not suggest that all textiles are identical, nor that all textiles traveled and were shared between sites. The most clearly diagnostic ones, the warp and weft tie-dyes and the Wari tunics, were probably woven in the highlands and redistributed throughout the coast and highlands. Other textiles merely exhibit traits common to the period, but those discussed here are clearly implanted with enough of a local quality to suggest a style appropriate to the Huaca Cao, and almost certainly to a wider region in the Chicama Valley where textiles have not been preserved.

The Huaca Cao textiles form a coherent group. They represent their period, one in which camelid fiber was widely available and appreciated and in which similar burial patterns and clothing styles were used. But a local Transitional-style costume shines through as well. During this period in El Brujo, women wore a large, rather thick white cotton plain-weave dress with a narrow double-cloth belt. The most diagnostic textiles of this Transitional, Middle Horizon style are the women's double-cloth belts and bags woven in red camelid fiber and

white cotton. In addition to the belts and cotton dresses that appear to have been a common daily garment and not a costume particular to burial, women also wore (or were buried in) cotton head cloths or square mantles with camelid-fiber borders. The floral embroidered designs on these cloths appear particular to the Huaca Cao.

Men's garments in this Transitional style at Huaca Cao Viejo include cotton plain-weave orange-red shirts, some with appliqué neck plaques, and headdresses in openwork plaiting. Neck plaques, or tapestry squares that could originally have been sewn to shirts, have been identified in other coastal collections, but the combination of these particular plaques with the red-dyed cotton shirts seems to be a local style identifier. Decorations on men's shirts and on women's bags, belts, and head cloths are often patterned with the same textile techniques. The flower designs embroidered into women's bordered head cloths decorate men's shirts as well. The particular striping patterns, coloring, and designs in men's shirts and women's head cloths also appear to represent a local garment style variant, not noted in other Peruvian coastal collections. Because few collections have been preserved in the excellent condition of these from the Huaca Cao, it is difficult to know in fact if men's loincloths are particular to this site alone, if the padded cotton headdress is a local variant only discovered here, and if women's dresses are common throughout the Peruvian coast at this time. However, the clothing styles associated with this group of Transitional or late Middle Horizon tombs in the Huaca Cao Viejo cemetery display sufficient characteristics of textile structure and design that they suggest a shared cultural pattern unique to the site. The style is also similar to other textiles woven in the same techniques discovered more widely. The style variant noted at Huaca Cao Viejo is so similar between tombs and shared between both genders that it appears as an ethnic garment style. This style in clothing and ceramics differs from later burials in the Huaca Cao Viejo cemetery that show distinctive Lambayeque–Middle Sican style in form and image.

No other Peruvian textile collection shares all of the same characteristics noted in the burials from the cemetery at Huaca Cao Viejo. But many of the same textile structures, images, and associated ceramics identify a related, contemporary style. Uhle's excavations at Chimu Capac provide the closest comparative material to that noted at Huaca Cao Viejo, but a portion of the textiles and ceramics excavated at El Castillo, Ancon, and Pachacamac, and the small collection uncovered on the Huaca del Sol (Site A), also exhibit a similar style.

LAMBAYEQUE-CHICAMA STYLE TEXTILES

Following the Middle Horizon, many elite burials on the Huaca Cao Viejo show direct Lambayeque-Sican influence in tapestry images, with Sican features and Middle Sican ceramics and local copies (figure 18). The style appears to be more pervasive at the Huaca Cao than the Transitional, Middle Horizon Chicama style just discussed. No Transitional-style textiles have been discovered in these Lambayeque-Chicama burials. Radiocarbon dates and style characteristics suggest that the Lambayeque tombs represent a slightly later period, just following the Middle Horizon. As Shimada (1990: 313) has noted: "Middle Sican ceramics have been assigned stylistically to Middle Horizon Epoch 3," but the radiocarbon dates suggest that time to be 900–1100, the same period represented at Huaca Cao Viejo by both Middle Horizon Chicama and Lambayeque-Chicama styles. Although there are no similar studies of Lambayeque period textiles in the Chicama Valley that might be used to compare with the Huaca Cao Viejo collection, certain characteristics seem to be specific to this site and may be discussed as particular to El Brujo. It will be important to examine other collections to know the extent of this style.

The 1991 excavations at Huaca Cao Viejo uncovered several high-status burials, including an exceptionally large bundle equipped with artificial arms formed of rolled cotton cloth and copper fingernails and a poncho (figure 19). This almost transparent cotton poncho was made of individually woven and dyed cotton discontinuous warp and weft sections or panels with a tapestry

Figure 18. Locally made Sican-style ceramic from a Lambayeque-Chicama period burial at the Huaca Cao Viejo.

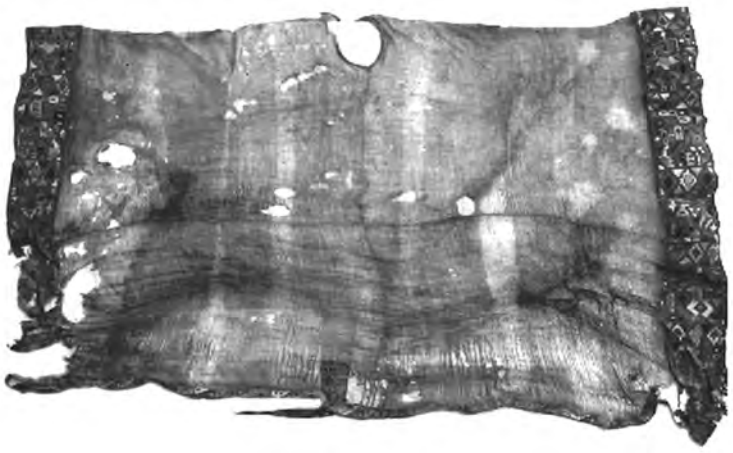
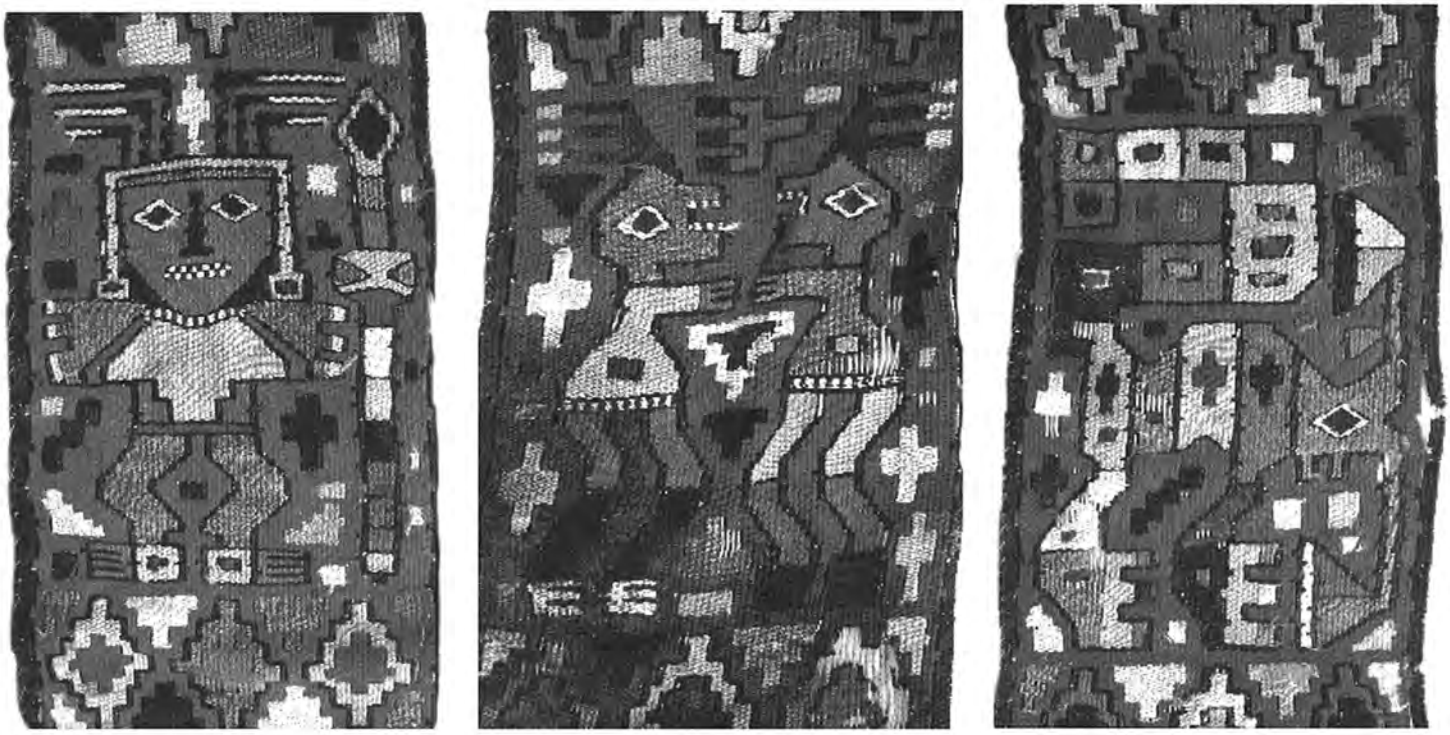


Figure 19. Large cotton poncho (shirt open on both sides) woven in fine discontinuous warp and weft sections in white, cream, red-brown, natural, and dyed blue cotton. Slit-tapestry borders were applied to the sides, woven in camelid fiber and dyed red, blue, gold, white, and black.

border (figure 20). It was worn over a large white cotton sleeved shirt (Fernandez 1996b:104, figures 30–31). An older woman, apparently sacrificed, lay at the feet of the principal male, and she too wore a fine cotton poncho decorated with tapestry bands (Fernandez 1996b:108, figure 32). Ceramics with this burial included local cups and non-local Lambayeque styles known as "Huaco Rey" or Middle Sican (Shimada 1990). Because the outer shirts of both the man and woman in this burial contained so many definitive characteristics, such as discontinuous warp and weft and individually woven and dyed panels with brilliantly dyed camelid-fiber tapestry borders, it was assumed that this represented a diagnostic style for both sexes in "Lambayeque" burials (Fernandez 1996b:118). Current investigations with another high-status burial (73-91) have determined this style to be related to men with both finely made Middle Sican–style ceramics as well as crudely produced copies, local-style cups, and tripod bowls. Lambayeque headdresses (figure 21) are similar to the earlier Middle Horizon–Chicama plaited plant fiber circular bands, but the Lambayeque-style headdresses are wider and do not include openwork designs. Further analysis of lesser-status male tombs with similar headdress types and burial position and undecorated garment styles identifies the style as more widely spread in the Huaca Cao Viejo cemetery.

Confusion yet exists, however, over accompanying female "Lambayeque" styles, as no other female burial has been analyzed that has a highly decorated clothing style like that noted in male burials of the same period, with the single exception of the sacrificed woman mentioned above. Her clothing could be an anomaly, like her status as an individual connected to the elite male tomb. Lambayeque-Chicama–style female burials include the large dress like those identified in Transitional Chicama tombs, woven in long sections and sewn together to create a circular dress with horizontally oriented armholes and neck slot along the top of the garment. Differences do exist. Lambayeque-Chicama dresses are generally



Figures 20a–c. Details of the patterned band from the Lambayeque-Chicama style cotton poncho (figure 19). The design in 20a depicts a single standing figure holding a staff.

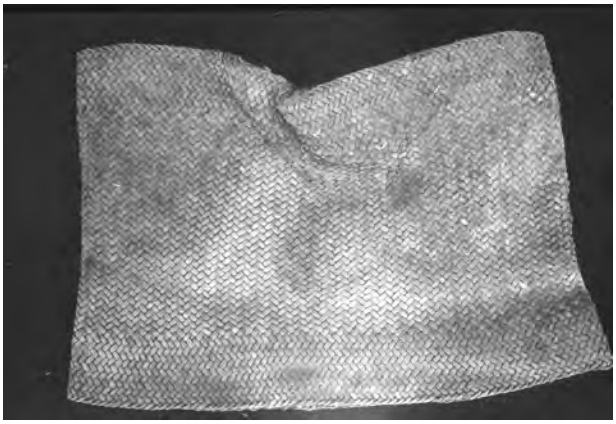


Figure 21. Lambayeque-Chicama–style plaited headdress from burial 73/1991 at the Huaca Cao Viejo.

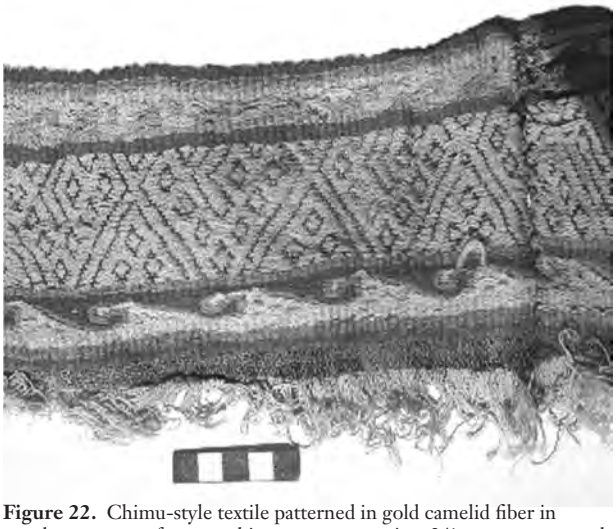


Figure 22. Chimu-style textile patterned in gold camelid fiber in supplementary wefts over white cotton woven in a 2/1 weave, excavated in the Huaca Cao Viejo pyramid.

thicker cotton and are not tinted red-orange as are many in the Middle Horizon Chicama group. There probably originally existed a definitive patterned style associated with belts and bags, but it has not yet been identified. The red-white double-cloth technique common to the Middle Horizon Chicama group has not been discovered in Lambayeque-Chicama burials.

At present there is not enough detailed information to connect men's and women's garments and to identify an ethnically specific clothing during this later period. The large white sleeved shirts found in elite men's burials and the tapestry borders attached to these shirts, or placed alone as offerings in tombs, define a very specific garment style yet to be identified outside of the Chicama Valley. Tapestry designs with Sican-like features and local copies of Middle Sican ceramics do stress the close relationship between the two cultures during this period.

Figure 23. Chimu-style ceramic from a Chimu burial uncovered on the Huaca Cao Viejo pyramid.

CHIMU TEXTILES FROM HUACA CAO VIEJO

A different cemetery was discovered in 1996 while opening a larger area in the northeast section of the north plaza of the temple of Huaca Cao Viejo. So many ceramics of Chimu and Chimu-Inka cultural styles were included with the burials that the cemetery must be Chimu in affiliation. Clearly recognizable Chimu textiles (figure 22) and ceramic styles identify this sector as do locally made cooking jars (figure 23), similar to those used by the earlier people buried in the north-face cemetery. It is suggested that this entire area extending in front of the pyramid was a later and separate mortuary occupation, different from the Lambayeque population located closer to the pyramid face and further south (Fernandez 1997). One radiocarbon date (AD 1430) suggests the time of Chimu occupation at the Huaca Cao Viejo.

So few complete funeral bundles have been uncovered in the Chimu cemetery that any diagnostic burial style is difficult to determine. Preservation of organic material was not as good here. The area in front of the pyramid where these burials were placed contained a particularly sandy soil where water percolated through

the layers, unlike the steep pyramid face where water apparently rolled quickly off the surface. One feature does differentiate the Chimu funeral bundles; their exteriors are covered with thick plant fiber ropes. The ropes wrap the bundle in many turns, covering the cloth-encased body neither completely nor more loosely, as the cotton ropes in the earlier burials. No final outside garment has yet been discovered, although the sample remains small, and only a single bundle has yet been unwrapped. This burial of a young boy included only large mantles and a decorated loincloth. Woven in three sections, the mantles wrapped the head and continued under the body. One of these mantles was formed of three separately woven undecorated white cotton plain-weave webs, and the other cotton mantle contained sections woven with warp stripes in simple blue-dyed cotton and white cotton warp floats.

CONCLUSION

It is possible to measure textile style in many ways. The set of a headdress, specifically colored stripes, weave structure of a single patterned band, braid in the hair, belt of a garment, all might form part of the known style of a traditional group. The Transitional Middle Horizon Chicama group appears unified in a wider set of variables shared within burials of men, women, and children. Garment shape, woven structures, and patterning designs are the most important variables used in defining the textile style. The associated ceramics aid in assigning relative period to the tombs. Many of the basic textile traits of the following Lambayeque-Chicama, such as garment shape, appear to be derived from this style directly preceding it, but textile patterning and associated ceramics are entirely distinctive. Both of these costume types are different from the Moche style that apparently ultimately preceded them at the site. Moche textile preservation is extremely rare, and as yet it is not possible to identify any style particular to the Huaca Cao Viejo Moche group in the Chicama Valley other than the extensive use of twilled cloth in white cotton and especially in soft brown cotton.

Since our sample is so limited, Donnan and Donnan's (1997) analysis of Moche style is the best identification of textile garment form on the Peruvian north coast, and this will serve as a check with our Moche and post-Moche groups as we continue to work at the Huaca Cao Viejo. Men's shirts in a great variety of forms have been uncovered at Pacatnamú, but no Moche shirts are yet known from Huaca Cao Viejo, and relatively few shapes were discovered in the later tombs. And, while many Moche decorated textiles are known, those related to the two Moche burials described briefly here are newly identified. It should be noted that in addition to the two post-Moche styles here discussed, another related style has also been identified, perhaps affiliated with the Transitional Middle Horizon Chicama group. A few of the garments associated with the Transitional group, such as the soft cotton headdress and the bordered head cloth, have been discovered in tombs with sleeveless shirts and ponchos with tie-dyed patterns and fine plain weave with narrow tapestry borders. Ceramics associated with these tombs appear to be more locally oriented, with simple cooking jars or with tripod bowls that will be common in the later cemetery. At present, we are assuming this to be a substyle of the Transitional group and noting similarity with narrow tapestry bands uncovered in Middle Horizon sites such as El Castillo and Chimu Capac. There is as yet not enough evidence to define a local Chimu textile style at Huaca Cao Viejo. Fernandez (1997), discussing a group of textiles uncovered in disturbed tombs in the area, noted many Chimu characteristics identified from the broader Chimu style (Rowe 1984). The method of wrapping the flexed burial will probably be a more distinctive feature for the identification of Chicama-Chimu burials. The blue-white striped cotton cloth and plant fiber ropes appear different from earlier tombs, and these have been observed in other preserved, unopened Chimu burials from Huaca Cao Viejo. Since the young Chimu-affiliated boy wore only a loincloth at death, his burial pattern does not add much to our knowledge of local Chimu garment style.

The most clearly defined style we have been able to recognize in both textiles and ceramics is that here termed Transitional and Transitional Middle Horizon Chicama. The style relates to the eclecticism of the Middle Horizon period and to possible Wari influence in the region, albeit in a very late period. At Huaca Cao Viejo there are few elaborate burials and none with distinctive styles like those noted in Chimu Capac, Ancon, or El Castillo tombs. The kinds of mixing of coastal and highland clothing styles, techniques, and garment forms at El Castillo and Chimu Capac are also absent at Huaca Cao Viejo. Instead, the greater use in this period of dyed camelid-fiber yarns and warp-patterned structures more common to highland groups seems a natural addition into a locally defined costume rather than an isolated foreign trait. Unlike El Castillo, where multiple Wari tunics and early and late Wari ceramic

styles are all present, no highland Wari ceramics have yet been uncovered, and the single Wari tunic was a burned offering with other Wari-associated textiles. The burial bundle form itself arrived with this Wari-associated religion late at Huaca Cao Viejo, and with a close connection to many of the former significantly Moche religious emblems such as the moon animal and earlier structural elements such as double cloth. But the arrival here is noted with clearly defined style traits in men's and women's garments.

It is probable that the burials at Huaca Cao Viejo represent local groups that adopted changing garment styles following the Moche decline. Each group had costume with local and with larger affiliation, recognizing allegiances formed during successive periods. The clothing styles probably do represent an ethnic development locally, but many distinct foreign traditions have influenced local choice: Wari, Lambayeque, and Chimu are the most evident.

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CHAPTER 9

Ethnicity, Kinship, and Ancient DNA

SLOAN R. WILLIAMS

INTRODUCTION

Identifying ethnic groups in the archaeological record is best accomplished through the combined use of shared cultural and biological traits. Shared culture is not a requirement of ethnic groups, but it is a common feature of them. Likewise, although ethnic affiliation does not necessitate a close biological relationship among its members, kinship is often a key qualification for membership, and an important indicator of prehistoric ethnic differentiation.

Archaeologists have grappled with cultural manifestations of ethnicity in prehistory by focusing on critical stylistic attributes such as ceramic and textile styles, house structure, or mortuary customs that are shared among groups of individuals (see Aldenderfer 1993). More conservative traits such as house structure and mortuary customs are generally considered more likely to indicate population continuity and shared biology or kinship than ceramic styles that often change quickly in response to contact with other groups. Bawden (1993) also distinguishes between shared culture traits on the basis of the intended audience. He considers the material aspects of ethnicity to refer to culture traits by which groups project their group identity to outsiders, while other traits, which he groups under the heading of social structure, reinforce shared values within the community, often on a largely unconscious level.

Human remains—most frequently hard tissues such as bones and teeth, but occasionally soft tissues as well—are a valuable tool for estimating kinship. Traditional biodistance studies that use phenotypic traits of either quantitative (continuous) or discrete expression have a long history of study for exactly this reason. The efficacy of using dental morphology (Sutter 2000), skeletal measurements (Droessler 1981; Steadman 2001), and skeletal non-metric characters (Blom 1999; Lozada-Cerna 1998) to assess biological relationships has been demonstrated in numerous recent studies. Biodistance studies have both advantages and disadvantages. They are inexpensive, nondestructive, and have a long history of use, but phenotypic traits may be difficult to record when remains are incomplete or poorly preserved. Furthermore, phenotypic traits

are influenced by many factors, including developmental and environmental ones, and are only partially under genetic control. Consequently, many variables, including selective pressure, will affect phenotypic trait expression and may obscure the underlying genetic signal, decreasing discriminatory power.

Ancient DNA (aDNA) provides a direct measure of genetic structure in ancient populations. Decisions to use aDNA analyses in specific cases should be evaluated carefully though, because aDNA studies are more expensive, time-consuming, and technically difficult to perform than biodistance studies because of the specialized training, equipment requirements, and the difficulties associated with using degraded DNA. In addition, although incomplete remains will not affect the ability to use ancient DNA, poor preservation will result in the loss of ancient DNA. Thus far, researchers have focused on the optimal circumstances under which DNA can be expected to be preserved (Cano et al. 1993; Höss et al. 1996; Lindahl 1993), and have only begun to explore the factors that affect general preservation in archaeological samples. Finally, mitochondrial DNA (mtDNA) is commonly used in aDNA studies because it is more likely to be preserved in archaeological samples than nuclear DNA (nDNA), but the effects of mtDNA's unique properties on the interpretation of observed genetic patterns are poorly understood at this time.

To address this last concern, I recently undertook a genetic study, using a modern population as a test case, to compare the effects of social organization on nuclear and mitochondrial genetic patterns. I chose the Yanomamö because previous studies of their social organization could be used to construct hypotheses about how that social organization would affect their genetic patterns. In this chapter, I focus on the use of genetic information to identify biological kinship, a common component of ethnicity, using genetic methods now possible to apply to archaeological studies of human remains because of the advent of aDNA technology. The chapter begins with a discussion of the problems and potential of the field of aDNA studies. I then present the results of the test case and finish with a discussion of what can be learned from the study and suggestions for directions in future research.

ANCIENT DNA: PROPERTIES, PROBLEMS, AND POTENTIAL

DNA has been found to preserve under a wide range of conditions, from frozen mummies in Greenland (Nielsen, Engberg, and Thuesen 1994; Thuesen and Engberg 1990) to brain tissue preserved in Florida Springs (Doran et al. 1986; Hauswirth 1994; Hauswirth et al. 1994; Lawlor et al. 1991) to naturally and artificially mummified remains from the dry deserts of western South America and Egypt (Merriwether, Rothhammer, and Ferrell 1994; Pääbo 1985a, 1985b; P. Rogan and Salvo 1990; P. K. Rogan and Salvo 1990, 1994; Williams, Beck, and Longmire 1990). Although DNA remains in a broad array of tissues, it is generally damaged, which makes it more difficult to work with than DNA recovered from modern tissues. Even DNA strands preserved under optimal conditions will be heavily fragmented and chemically altered, thereby greatly reducing the number of intact molecules likely to remain in archaeological specimens (Lindahl 1993).

The Polymerase Chain Reaction (PCR) has revolutionized many biomolecular fields by enabling scientists to make huge numbers of faithful copies from very small numbers of original DNA strands, or "templates." Thus, PCR is a necessity for this type of study. During PCR, short DNA sequences called primers, which match unique DNA sequences on a template DNA, attach to the original DNA strand and show the polymerase (DNA copying enzyme) where to begin constructing the complementary DNA strand. Primers ensure that only one section of a DNA sequence at one exact position on a specific chromosome is reproduced. For example, the primers can be designed that make copies only of exon 2 of BCR gene on the long arm of chromosome 22. The primer pairs to be used are selected according to the section of the DNA to be used in subsequent analyses. Tubes containing the DNA, enzyme, and other chemicals cycle through a series of temperature steps. The first temperature denatures, or separates, the double-stranded DNA into single strands. The next temperature anneals, or attaches, the primers to the separated, single strands of DNA. The final temperature step activates the enzyme, which then extends, or builds, the complementary strand for each single DNA strand, resulting in new, yet identical, double-stranded DNA fragments. This three-step series (denaturation, annealing, and extension) is then repeated many times, resulting in the exponential production of new DNA strands. Since the PCR replication process is automated, the required amount of DNA can be manufactured quickly and inexpensively.

PCR's great efficiency is also the reason that contamination from modern sources is the most serious problem when working with aDNA. The presence

of even a single molecule of modern DNA has the potential to contaminate an ancient DNA sample. The PCR polymerase will amplify any modern molecules present in the PCR reaction more efficiently than damaged aDNA strands that have missing or chemically altered bases. Thus, the resulting PCR sample may be composed of DNA strands of mixed origin. Some will be copies of the aDNA strands; others will be copies of the contaminating DNA. The contaminating DNA copies may overwhelmingly predominate because of the greater ease with which they can be copied, even if only a few contaminating molecules were present in the original sample.

Contamination can occur at any phase of the investigation. Prior to excavation, organisms living in the soil may invade archaeological remains, but careful selection of "human-specific" primers will alleviate this problem by making copies of only the ancient human DNA present in the remains. Human contact during excavation or other laboratory analyses can also introduce modern human DNA into samples (Richards, Sykes, and Hedges 1995), so precautions must be taken to minimize handling in the field. The molecular biology laboratory itself is probably the greatest source of potential contamination. Samples may become contaminated with modern DNA molecules during genetic analysis through cross-contamination with other samples or from modern DNA floating in the air, present on surfaces or dissolved in reagents. The precautions and experimental controls necessary to overcome contamination from modern sources have been hotly debated in the field (Béraud-Colomb et al. 1997; Cooper 1997; Kolman and Tuross 2000; Pääbo 1989; Stoneking 1995), but researchers are slowly achieving consensus on the general procedures needed to ensure authentic results (Kaestle and Horsburgh 2002).

Other compounds associated with the DNA in ancient tissues can inhibit or reduce the PCR enzyme's ability to function efficiently. These inhibiting compounds may be present either as a result of the breakdown of cellular components after death or from exchanges between the tissue and surrounding soil once the body has been interred in the ground. Many of these compounds are difficult to remove during the extraction process (Evershed et al. 1997; Scholz, Giddings, and Pusch 1998; Tuross 1994). Many protocols have been developed to reduce

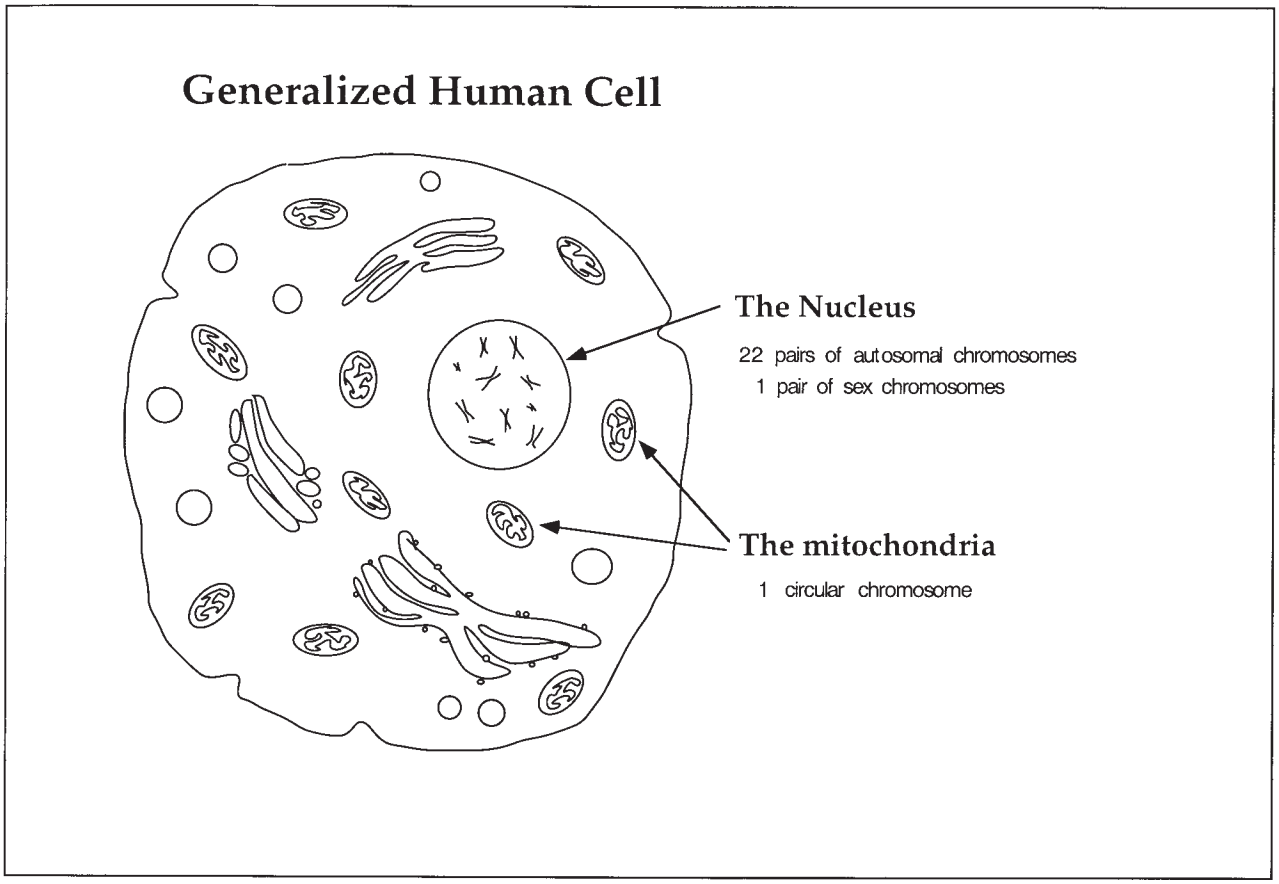


Figure 1. Generalized human cell.

their effects (Hänni et al. 1995; Williams, Doggett, and Moyzis 1992; Yang et al. 1997), but researchers must develop effective methods on a case-by-case basis through experimentation. Although these technical challenges increase the difficulty of using ancient DNA, they can be overcome with thoughtful experimental design and meticulous technique.

In human cells, like those of all higher organisms, DNA is present both in the cell nucleus and in the mitochondria, organelles found in the cellular cytoplasm (figure 1). The nucleus contains "the human genome," or nuclear DNA (nDNA), which is estimated to contain about four billion base pairs[1] (bps) (Lewin 1994). The nuclear genome contains 30,000–40,000 genes (Ewing and Green 2000; Roest Crollius et al. 2000). The nDNA is organized into 22 pairs of homologous autosomal chromosomes and one pair of sex chromosomes, X and Y. The autosomal chromosomes are passed from parent to offspring, with one of each of the homologous chromosome pairs transmitted from the mother and the other contributed by the father. The sex chromosome transmission is somewhat different; X chromosomes can be passed from either parent, but Y chromosomes are transmitted only from father to son. The mitochondrial genome is a single, small circular chromosome, 16,569 base pairs in length, that is found in each human mitochondrion (Anderson et al. 1981) (figure 2) and codes for twenty-four RNA genes and thirteen protein-coding regions (Lewin 1994:744). MtDNA is passed from mother to child in the cytoplasm of the egg.

MtDNA has many properties that make it an excellent molecule for study in ancient tissues. Each mammalian cell contains only one nucleus, but anywhere from 100–1000 mitochondria, each containing an identical genome (Lewin 1994).[2] Therefore, mtDNA is more easily obtained from ancient tissues than nDNA because there may be as many as 1000 times more copies of mtDNA per cell. Furthermore, each individual has only one mtDNA allele because each genome is the same, making allele assignment mistakes less likely. Nuclear genes have two alleles, so mistakes in allele assignment can occur when studying nuclear DNA recovered from ancient tissues. If one allele is missed in the genetic analysis, a common occurrence when

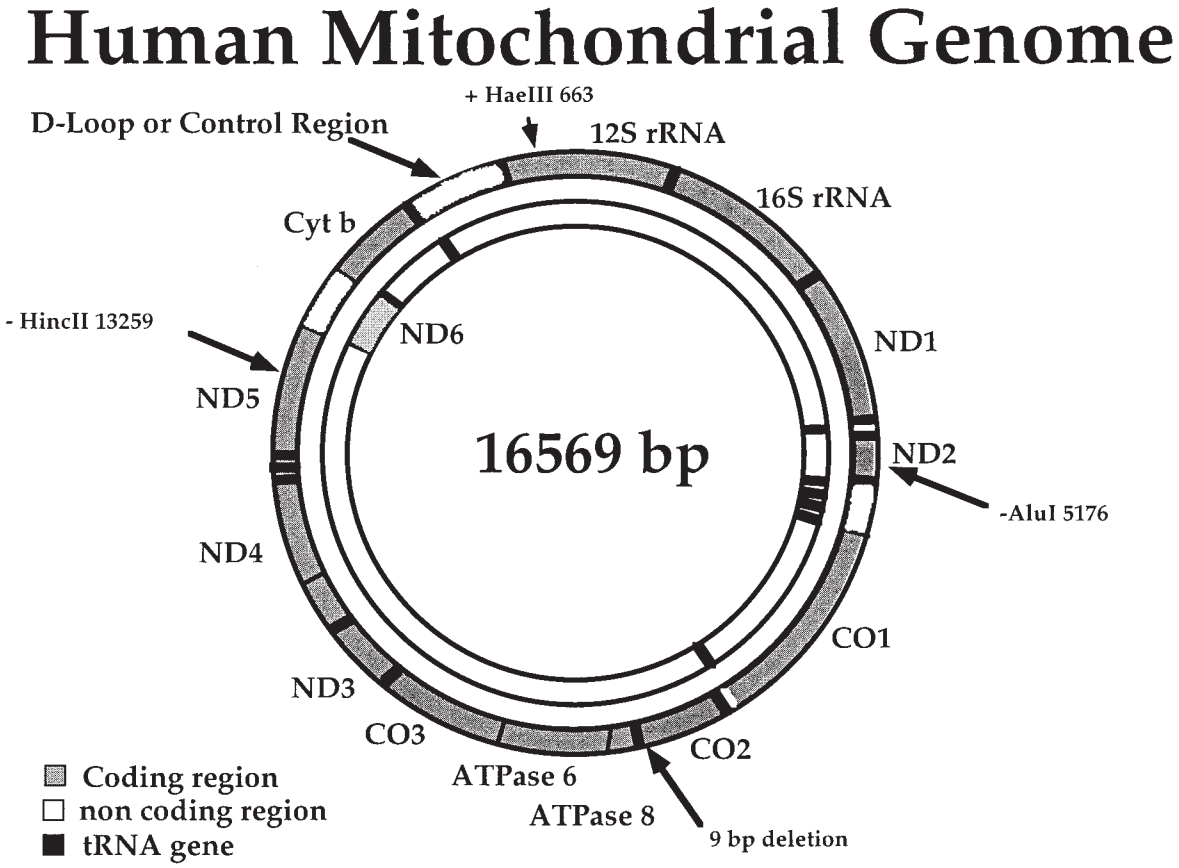


Figure 2. The mitochondrial genome.

only a few copies of the original DNA are left, the individual will be incorrectly identified as a homozygote, i.e., as having two copies of the one allele that was found. Incorrect genotype identifications will invalidate subsequent population genetic analyses. This kind of error cannot happen in mtDNA analysis because no product is formed if the allele is not amplified, so the failure is obvious. Finally, the mitochondrial genome was completely sequenced two decades ago (Anderson et al. 1981), so it has been well studied. Detailed worldwide haplotype distribution studies facilitate comparative analyses and contamination detection. Researchers (Schurr, Ballinger, and Gan 1990; Torroni et al. 1993; Wallace and Torroni 1992) have typed specific restriction site polymorphisms[3] and hypervariable region I D-loop sequences[4] that identify the four dominant modern Native American mtDNA haplogroups (referred to as haplogroups A, B, C, and D) (figure 2). Recently, a fifth founding haplogroup (haplogroup X), previously thought to be present in modern Native American populations because of European admixture, has been identified in prehistoric Amerindian populations (Malhi and Smith 2002; Smith et al. 1999).

These characteristics make mtDNA the genome of choice in ancient DNA studies. Many initial aDNA studies (Merriwether, Rothhammer, and Ferrell 1994; O'Rourke, Carlyle, and Parr 1996; Parr, Carlyle, and O'Rourke 1996; Ribeiro-Dos Santos et al. 1996; Stone and Stoneking 1993, 1998) focused on determining the extent of the diversity present in ancient New World populations in order to assess the effects of the drastic population reductions subsequent to the arrival of Europeans and to determine whether the study of the peopling of the Americas by measuring modern Amerindian genetic diversity was appropriate. Other researchers concentrated their efforts on defining population history within regions, particularly in the Great Basin, but more recently in the American southwest as well (Carlyle et al. 2000; Kaestle 1995; Kaestle, Lorenz, and Smith 1999; Kaestle and Smith 2001; O'Rourke, Carlyle, and Parr 1996; O'Rourke et al. 1999; Parr, Carlyle, and O'Rourke 1996). Most studies presented only haplogroup data (Merriwether, Rothhammer, and Ferrell 1994; O'Rourke, Carlyle, and Parr 1996; Parr, Carlyle, and O'Rourke 1996) or very small numbers of D-loop sequence haplotypes (Ribeiro-Dos Santos et al. 1996) because aDNA analysis is a relatively new technique that is expensive and time-consuming to undertake. In the last few years, however, aDNA data sets have begun to increase in size (e.g., Stone and Stoneking (1998) and Kaestle and Smith (2001)), and studies have begun to compare variation between ancient groups (Carlyle et al. 2000) instead of comparing a single aDNA sample set to one or more modern populations. These latest studies hold promise for those who are interested in the biological relationships among prehistoric groups, which necessitate population genetic analyses that compare haplotype frequencies and require large samples from multiple groups or populations. These recent trends in aDNA research are extremely encouraging and illustrate the tremendous potential value of aDNA studies to archaeological research.

Although mtDNA has many advantages as a study molecule, disadvantages exist as well. The mtDNA maternal mode of inheritance means that its net effective population size is four times smaller than the actual population size. In other words, the amount of variation found in mtDNA is four times smaller than the amount of variation that would be observed in nuclear DNA from the same population. MtDNA variation is four times smaller because nuclear DNA markers are carried by two parents who each carry two alleles, but humans carry only one mtDNA allele inherited from a single parent, the mother. Consequently, the higher mutation rate of mtDNA may not be sufficient to compensate for this reduced effective population size and produce significant variation in closely related groups. Furthermore, the fact that mtDNA is transmitted solely from the mother may introduce bias because the genetic contribution of only one parent is measured. Sex-specific gene flow patterns that could occur because of gender differences in mobility, marriage practices, or other factors could produce significant differences in genetic patterns between the sexes that would not be observed in mtDNA genetic patterns alone. These two issues are of less concern in large-scale evolutionary studies that measure genetic change in a species over thousands of years, but may have a great effect on the small-scale regional studies typical of archaeological research that examine closely related groups over relatively short periods of time. Therefore, before large-scale population-level genetic studies of mtDNA in prehistoric populations can become the norm in aDNA research, it is important to determine whether sufficient variation exists among closely related individuals to permit these studies, and whether the effects of sex-specific gene flow are likely to result in biased measures of genetic relationships among groups.

THE YANOMAMÖ TEST CASE

I designed a genetic study of the Yanomamö to compare the abilities of nDNA and mtDNA to discriminate among closely related groups of individuals and to test how well methods currently used to measure genetic variation among groups would perform under conditions similar to those found in ancient DNA studies of prehistoric populations. Ancient DNA studies of archaeological human skeletal series rely on small, degraded DNA fragments found in ancient tissues taken from relatively small numbers of randomly selected individuals, whose exact biological relationship to each other is unknown. Therefore, I selected nuclear DNA primers that amplified very short DNA segments and, although I amplified the HVRI (hypervariable region I) section of the mtDNA control region in a single step here, I would have sequenced the HVRI region in a series of short, overlapping pieces in an aDNA project. Because of the randomly selected individuals in archaeological samples, individuals included in this study were randomly chosen without regard to their kin relationship to other individuals in the sample. Selecting individuals in this manner resulted in the inclusion of parents, offspring, and siblings, who would not be included in studies designed to measure the maximum amount of diversity present in a population. Modern studies of maximal diversity would include individuals as distantly related as possible, usually excluding individuals who share parents or grandparents. Population genetic studies are based on haplotype or allele frequencies in the population, however, and excluding related individuals will bias those frequencies.

The Sample

The Yanomamö are an indigenous Amerindian group that live along the border of Venezuela and Brazil (figure 3). They have been the subjects of decades of research by many anthropologists and medical researchers, resulting in a rare combination of detailed social, medical, and genetic information (Chagnon 1968a, 1974, 1975, 1979; Chagnon and Irons 1979; Chagnon et al. 1970; Ferguson 1995; Hänni et al. 1995; Henley 1995; Lizot 1985; Neel 1967, 1970; Neel et al. 1972; Neel, Rothhammer, and Lingoes 1974; Neel and Ward 1972; Neel and Weiss 1975; Ramos 1995; Smole 1976; Ward 1972; Ward et al. 1975; Williams, Chagnon, and Spielman 2002). Their social and political organization has been well studied, so we can make reasonable predictions about how that organization may be reflected in the genetic structure or genetic patterning within the group.

The Yanomamö are generally endogamous at the village level, meaning that they tend to marry other members of their village, but many factors influence marriage practices. Their kinship system specifies rules of patrilineal descent, lineage exogamy, brother-sister exchange, and reciprocity (Chagnon 1968a:57). The fulfillment of these requirements still leaves considerable flexibility in mate choice, however, and the Yanomamö prefer to select mates from within the same village that can be classified as cross cousins (Chagnon 1968a:69). Additional factors to be considered in mate selection include the strengthening or forming of new political alliances and economic necessity. Women are more likely to change residence upon marriage, but men are known to move as well. Thus, some gene flow occurs among villages, and MacCluer and colleagues (1971) have estimated that it may be as high as 15% among some of the villages.

When social and political stress within the village become too great, Yanomamö villages fission (Chagnon 1966, 1974, 1975, 1979, 1997). The people in the original village tend to split into factions, and one or more of those factions will then form new villages. These factions tend to be composed of clusters of closely related males, such as brothers, and maybe some other males closely related to them by marriage. The members of the other factions are likely to be related to them as well, but more distantly, perhaps first or second cousins. The fissioning process generally produces linear and branch-like historical relationships among villages, but of course, the reality is less clear cut, and individuals or groups of individuals may leave one village to join another, either temporarily or permanently, if they feel the move will be advantageous to them.

Methods

The historical and ethnographic information provided the framework for selecting the five villages included in the study. The five villages were located in close proximity to each other and belonged to the closely related Shamatari cluster. The village fission history for the entire area was known and spanned a period of less than one hundred years (figure 4). Villages were selected for the study that had diverged at different times in order to examine how quickly endogamous groups could be recognized as genetically distinct.

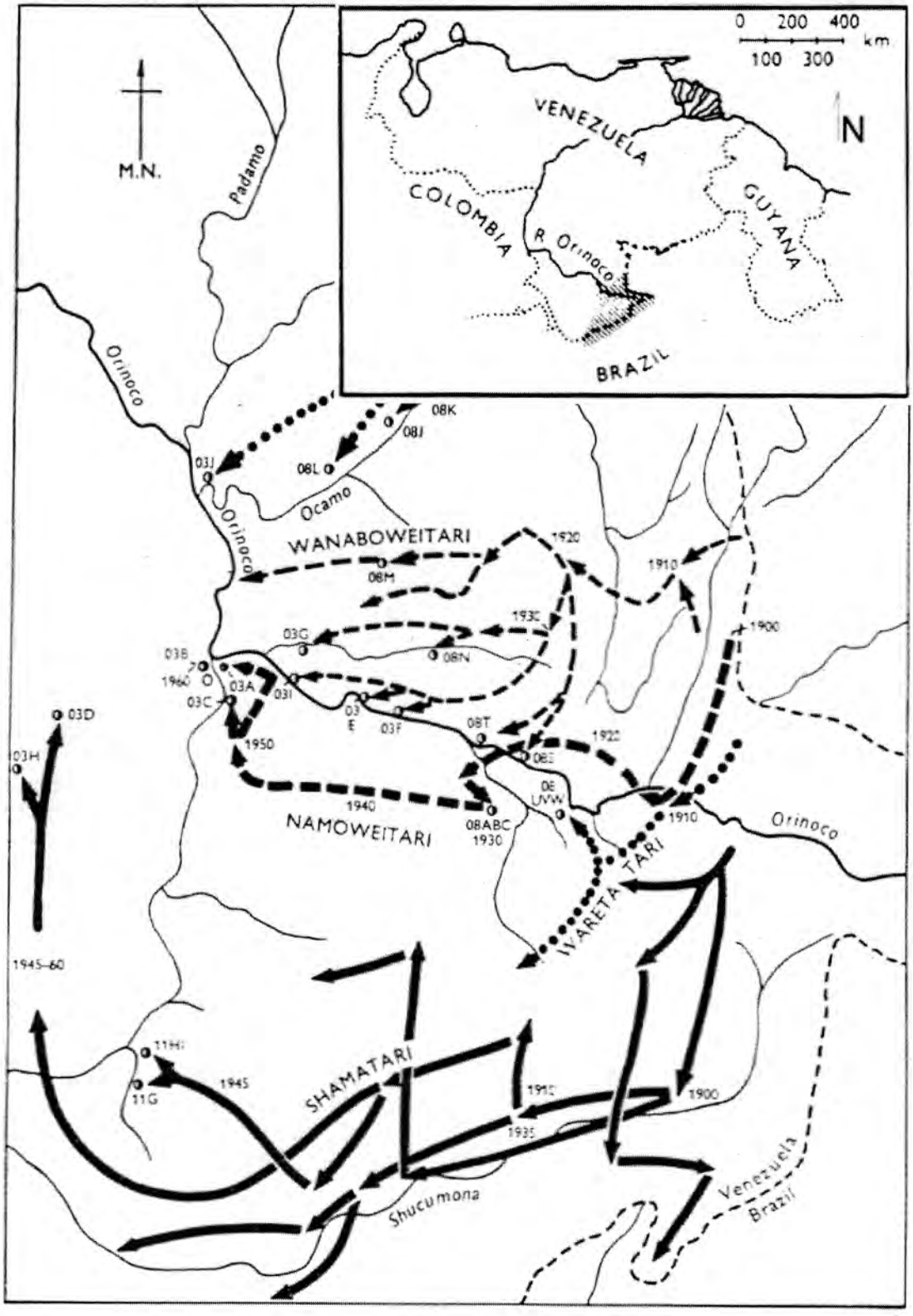
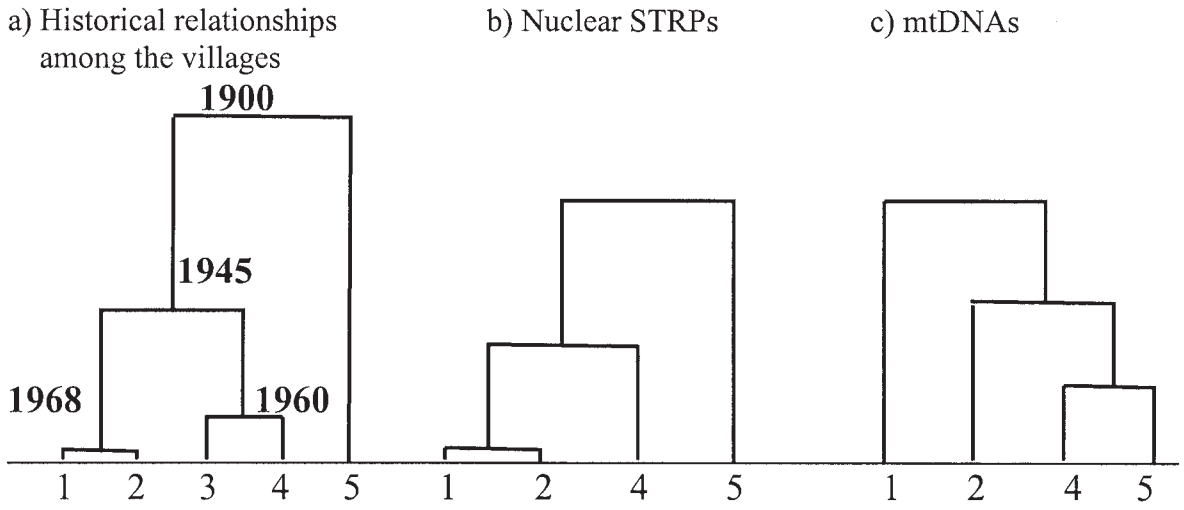


Figure 3. A map showing the major historical movements and approximate fission dates of the Yanomamö clusters and villages. The inset shows the distribution of the Yanomamö in South America (from Ward 1972, original sources Chagnon 1966, 1968b). The Shamatari movements are indicated by the unbroken arrows.



STRP inter-village distances

	1	2	4	5
1	0.00			
2	0.00	0.00		
4	0.04*	0.04	0.00	
5	0.09*	0.04*	0.10*	0.00

mtDNA inter-village distances

	1	2	4	5
1	0.00			
2	0.07	0.00		
4	0.26*	0.06*	0.00	
5	0.47*	0.22*	0.06	0.00

Figure 4. The dendrograms represent a) historical relationships among villages with approximate fission dates, b) nuclear STRP genetic distances among villages, and c) mtDNA STRP genetic distances among villages. Distance matrices from AMOVA are presented beneath STRP and mtDNA dendrograms.

The study was composed of blood samples collected in the 1960s and 1970s from individuals who lived in these villages by Napoleon Chagnon and colleagues. A condensed description of the methods is provided here because more detailed descriptions have been published elsewhere (Williams, Chagnon, and Spielman 2002). DNA was extracted from red blood cell pellets or blood samples from 150 adults, about fifteen to forty individuals per village. The four polymorphic restriction sites and one length polymorphism that Wallace and colleagues (Schurr, Ballinger, and Gan 1990; Torroni et al. 1993; Wallace and Torroni 1992) used to identify the modern Native American mtDNA haplogroups were typed. The HVRI of the mitochondrial genome was sequenced. Ten nuclear microsatellites (also called simple tandem repeat polymorphisms, or STRPs) of small size (less than 250 base pairs (bps) in length) were genotyped.

Analysis of Molecular Variance (AMOVA) (Excoffier, Smouse, and Quattro 1992; Schneider, Roessli, and Excoffier 2000) was used to calculate the F-statistics analogs and genetic distances used to analyze the nuclear and mitochondrial genetic data. F-statistics were performed to assess how the genetic variation, as determined by differences in allele or haplotype frequencies,[5] was distributed throughout the population, both within and between villages. Genetic distance analyses were performed to measure genetic differences between specific villages, or gender groups within villages. The F-statistics and genetic distances were expected to show the following patterns: 1) there would be significant differences between villages, 2) males and females would be more similar to members of the opposite gender from the same village, than to members of the same sex from a different village, and 3) the genetic distances would reflect the fission history, meaning that the distances between recently separated villages would be smaller than the distances between villages whose ancestral villages had fissioned long ago.

Two models frequently used in archaeological biodistance studies, the Lane & Sublett method and the Spence method, were used to estimate the effect of sex-specific migration on genetic patterns. The Lane & Sublett (1972) and the Spence (1974) methods

predict the effects of sex-specific migration on inter- and intravillage genetic variation, respectively. Briefly, the Lane & Sublett method predicts that when men or women change residence upon marriage, the more mobile sex will be more homogeneous than will the members of the sex who remain in their natal villages. In other words, the more mobile sex, in this case, the women, will resemble the women in other villages because women are moving back and forth between those villages through marriage. Therefore, their nearest relatives are likely to be in neighboring villages. The men will be more genetically distinct from men in other villages because the villages are composed of clusters of closely related males. The Spence method focuses on sex differences within the same village. Here, the more heterogeneous sex is believed to include a higher proportion of individuals who have moved to the village upon marriage. Among the Yanomamö, one would expect the women to be the more heterogeneous sex because they are more likely to have moved to the village from another village, after marrying one of the village men. The Lane & Sublett and the Spence methods were tested using F-statistics and genetic distances in the first case and t-tests in the second case.

Results

Considerable variation was present in the nDNA and the mtDNA loci tested. The microsatellite heterozygosity values[6] calculated from Shamatari allele frequencies ranged from 0.58 to 0.80, with a mean of 0.70 (table 1). The number of alleles per microsatellite observed in the Shamatari varied between four and nine alleles per locus, with a mean of 6.2 alleles. These frequencies are very similar to the values reported from American and European studies, where participants are more distantly related to each other. The five restriction site and length polymorphisms and 400 bases of HRVI sequence produced six different Yanomamö haplotypes (Table 2), about the same amount of variation as any one of the nuclear microsatellites. The mtDNA heterozygosity value was 0.64, a high value also similar to the microsatellite values.

Most, but not all, of the predictions of the effect that endogamy, and social organization in general, would have on the genetic patterns were met. The first prediction, that there were small, but significant differences among people who lived in different villages, was confirmed in both F-statistics and genetic distance analyses by both nDNA and mtDNA data (table 3). The second prediction, that no significant genetic differences between males and females living in the same village would be observed, but that there would be differences between members of the same gender from different villages, was confirmed by both nDNA and mtDNA F-statistics analyses. The genetic distance analyses were split, however. The nDNA genetic distances agreed with the AMOVA analyses, but the mtDNA distances showed significant differences in haplotype frequencies between males and females in two of the four villages (table 4). The F-statistic results provide a general view of the overall distribution of genetic variation among the designated groups, which means that the overall differences between the sexes in each of the four villages were small. The mtDNA genetic distance indicates that significant differences in the mtDNA patterns were detected in two cases that were not big enough to affect the mtDNA F-statistics results. Finally, the third prediction, stating that the genetic distances would correlate with the length of time since the villages had fissioned, was also divided. The prediction was met by the nDNA genetic distance analyses (figure 4). The prediction was not met by the mtDNA genetic distances, which grouped two long-separated villages together (figure 4). The mtDNA analyses showed some subtle differences that suggested that the mtDNA genetic patterns did not completely conform to the predictions generated from the ethnographic information. The fact that the nDNA confirmed those predictions indicates that the ethnographic information accurately depicted actual practices, however.

The observed differences between the nDNA and mtDNA genetic distance analyses could be the result of gene flow or sampling problems. If the differences result from gene flow, low levels or recent gene flow could explain the results because mtDNA's smaller effective population size would cause the mtDNA patterns to change more quickly than nuclear DNA patterns. Furthermore, the effects of female mobility would be magnified in mtDNA haplotype frequencies because mtDNA variation shows only the relationships among Yanomamö women. If sampling problems account for the observed differences, the fact that the microsatellite study included ten loci, while the mtDNA study included only one locus, could explain the results. Multilocus analyses like this microsatellite study calculate the allele frequencies in a number of loci and average the results over the number of loci, which minimizes the effects of extreme values. MtDNA, a single locus, would more likely be affected by random fluctuations.

Table 1. Nuclear STRP allele frequencies.

D12S375			D13S317			D14S306			D15S642			D16S475		
H[a]=0.68			H=0.80			H=0.58			H=0.60			H=0.71		
bp[b]	n[c]	*f*[d]	bp	n	*f*	bp	n	*f*	bp	n	*f*	bp	n	*f*
168	22	0.06	175	1	0.00	189	12	0.03	204	49	0.14	171	26	0.08
172	16	0.05	179	88	0.26	193	169	0.49	206	29	0.08	175	45	0.13
176	149	0.43	183	10	0.03	197	144	0.42	208	16	0.05	179	74	0.22
180	113	0.33	187	57	0.17	205	19	0.06	210	206	0.60	181	5	0.02
184	44	0.13	191	61	0.18				212	23	0.07	183	157	0.46
			195	38	0.11				214	1	0.00	185	13	0.04
			199	87	0.25				216	22	0.06	187	11	0.03
			203	2	0.01							191	1	0.00
												195	8	0.02
D17S933			D18S535			D19S253			D21S1435			D22S684		
H=0.67			H=0.77			H=0.73			H=77			H=0.72		
bp	n	*f*	bp	n	*f*	bp	n	*f*	bp	n	*f*	bp	n	*f*
188	4	0.01	144	78	0.22	212	11	0.03	170	84	0.25	231	101	0.29
190	20	0.06	148	55	0.16	224	69	0.2	174	84	0.25	235	113	0.33
192	76	0.22	152	129	0.37	228	94	0.28	178	100	0.30	239	94	0.27
196	175	0.51	156	84	0.24	232	126	0.37	182	14	0.04	243	37	0.11
198	26	0.08				236	34	0.1	186	38	0.11	255	1	0.00
202	18	0.05				240	6	0.02	190	18	0.05			
204	26	0.08												
206	1	0.00												

[a]heterozygosity value, the percentage of individuals likely to be heterozygous at this locus
[b]length of alleles in base pairs (bp)
[c]number of alleles observed
[d]frequency of occurrences of allele

Table 2. Mitochondrial DNA haplotypes.

		16104	16179	16183	16189	16215	16217	16223	16288	16294	16298	16302	16311	16325	16327	16353	16362		
reference[1]		C	C	A	T	A	T	C	T	C	T	A	T	T	C	C	T	n	frequency
B[2]	1	.	.	C	C	.	C	.	.	.	.	.	.	.	.	.	.	75	0.48
	2	.	.	C	C	.	C	.	C	.	.	.	C	.	.	.	.	11	0.07
	3	.	.	C	C	G	C	.	.	.	.	.	.	.	.	.	.	1	0.006
C	1	.	.	.	.	.	.	T	.	.	C	.	.	C	T	.	.	49	0.32
D	1	G	.	.	.	.	.	.	.	T	.	G	.	C	.	.	C	13	0.08
	2	.	A	.	.	.	.	T	.	.	.	.	.	C	.	T	C	6	0.04

[1]Cambridge reference sequence (Anderson et al. 1981). The numbers above it refer to nucleotide positions.
[2]Haplogroup to which the sequence belongs (A, B, C, or D)

Table 3. Nuclear STRP and mtDNA F-statistics analog results for males and females from four villages.

	Among villages				Among sexes within villages				Within sexes			
STRPs	Variance	% Total[a]	Φ_{ct}[b]	p[c]	Variance	% Total	Φ_{sc}	p	Variance	% Total	Φ_{st}	p
combined	0.231	3.90	0.039	*	-0.035	-0.59	0.000	*	5.718	96.70	0.033	*
	Among villages				Among sexes within villages				Within sexes			
	Variance	% Total	Φ_{ct}	p	Variance	% Total	Φ_{sc}	p	Variance	% Total	Φ_{st}	p
mtDNA	0.370	15.57	0.156	*	0.136	5.72	0.068	~	1.872	78.70	0.213	*

[a]percent of total variance found in this variance component. Both variance components and percents can be negative (see text).
[b]F-statistic analogue
[c]probability that a more extreme value could be generated by chance. * indicates that p<0.05. ~ indicates that p<0.06

Table 4. Genetic distances between males and females in each village.

	STRPs	mtDNA
village 1	-0.01	-0.03
village 2	-0.01	0.15*
village 4	0.01	-0.08
village 5	0.00	0.09*

*significant at p<0.05 level

Table 5. Lane and Sublett method for assessing postmarital residence change.

Marker	female F_{st}	male F_{st}	female F_{st}/ male F_{st}		p[1]	
STRP	0.036	0.029	0.036	= 1.24	0.71	not significant
			0.029			
mtDNA	0.225	0.181	0.225	= 1.24	0.42	not significant
			0.181			

[1]probability that a more extreme value could occur by chance.

Table 6. Spence method of assessing postmarital residence change.

STRP			
Village	n[1] (males)	n (females)	V_m/V_f[2]
1	24	15	1.005
2	25	28	0.985
4	10	12	0.977
5	16	15	1.069
mtDNA			
Village	n (males)	n (females)	V_m/V_f
1	24	15	0.994
2	25	28	1.043
4	10	12	1.302
5	16	15	3.292*

[1]n is the sample number
[2]V_m is the male variance, V_f is the female variance
*greater than $F_{.05}$ value

Table 7. Methods of Lane and Sublett (1972) and Spence (1974) predictions for intergender differences in nuclear and mitochondrial genetic variance.

	Patrilocal Residence	Matrilocal Residence	Endogamy
NUCLEAR DNA			
Lane and Sublett Method	$V^1_{female}/V_{male} < 1.0$	$V_{female}/V_{male} > 1.0$	$V_{female}/V_{male} = 1.0$
Spence Method	$V_{female}/V_{male} > 1.0$	$V_{female}/V_{male} < 1.0$	$V_{female}/V_{male} = 1.0$
MITOCHONDRIAL DNA			
Lane and Sublett Method	$V_{female}/V_{male} = 1.0$	$V_{female}/V_{male} > 1.0$	$V_{female}/V_{male} = 1.0$
Spence Method	$V_{female}/V_{male} = 1.0$	$V_{female}/V_{male} < 1.0$	$V_{female}/V_{male} = 1.0$

[1]variance

Furthermore, only part of the mitochondrial genome was sequenced, so sequencing a different section might have produced a slightly different result.

The Lane & Sublett (table 5) and the Spence (table 6) methods were used to determine whether the observed effects could be attributed to the greater mobility of women among Yanomamö villages. Neither method showed any real significant differences[7] in mobility patterns, implying that the general pattern of endogamy observed in Yanomamö villages is not significantly influenced by the small amount of gene flow known to occur in this group. MtDNA analyses, unlike nuclear DNA analyses, however, do not discriminate between situations where women move (patrilocal residence) and situations where no one moves (endogamy) (table 7). Consequently, the results of the mtDNA residence pattern analyses are consistent with either endogamy or patrilocal residence. Therefore, the observed differences between nuclear and mtDNA could be the result of gene flow having greater impact on mtDNA patterns, but currently available analytical methods could not distinguish between the two possibilities.

DISCUSSION

The settlement history of the Andes is relatively short, at most 15,000–20,000 years long (Dillehay 1997; Meltzer et al. 1997), so members of ethnic groups in this area are likely to have diverged relatively recently from a common ancestral population. The amount of diversity these original settlers brought with them is still a matter of debate (Merriwether, Rothhammer, and Ferrell 1995; Schurr, Ballinger, and Gan 1990; Torroni et al. 1993; Wallace and Torroni 1992) and ultimately will be best addressed through ancient DNA analyses. This recent divergence date means that Andean groups, even those who belong to different ethnic groups, are likely to be quite closely related to each other, so the genetic patterns observed among the Yanomamö are a reasonable approximation of genetic patterns likely to be observed among the more closely related groups.

The basic question addressed here was whether genetic studies in general, and mtDNA studies in particular, could be successfully used to identify genetic relationships among groups of relatively closely related individuals such as would likely be found in nearby archaeological sites. I used the Yanomamö as a test case because good genealogical information was available to minimize the potentially confounding affects of performing genetic analyses on individuals of unknown biological relationship to each other. The Yanomamö data was used to address some fundamental questions that included whether any genetic differences could be identified among groups as closely related to each other as the individuals who lived in these villages, and especially, whether genetic variation in mtDNA, which has some unique properties, could identify differences in these groups.

The nuclear microsatellite analyses were an excellent indicator of endogamy in closely related groups like the Yanomamö Shamatari villages described here. Whether they are the best means of identifying endogamy in the prehistoric past is less clear because of the limitations of using a damaged template like ancient DNA. The presence of only a single copy of nuclear DNA per cell means that even when amplification (or copy making) is successful, often only one of the two alleles present in a person's nuclear genome will amplify. Zierdt and colleagues (1996) illustrated the potential problems involved in the use of nDNA markers in ancient DNA studies. Twice as many individuals in their study were typed as homozygous at the VWA31/A microsatellite loci as would be expected under Hardy Weinberg Equilibrium conditions. While similarly high levels of homozygosity might be observed as a consequence of inbreeding, they concluded that the observed values were more likely caused by technical problems resulting from the failure to amplify both alleles present in some samples. Inflated estimates of homozygosity resulting from unequal allele amplification will result in incorrect allele frequencies, making nuclear DNA microsatellites a poor choice for population genetic studies of prehistoric groups until techniques have been developed to ensure greater genotype accuracy. For now, nuclear DNA microsatellite studies based on ancient DNA are better used in studies requiring only a few individuals, like parent-offspring determinations, where the number of typings per locus is small, so the number of loci can be increased easily. Microsatellite markers that give homozygous typings in any of the study individuals can then be discarded and replaced by another marker, a strategy highly impractical to implement in larger studies.

The research described here shows that significant mtDNA haplotypes can be present even in closely related groups. The study provides an estimate of the kind of variation that might be expected to be observed in individuals buried at a single site or in a group of closely related sites, which makes artificially high mtDNA haplotype frequencies in aDNA studies caused by template degradation more likely to be detected.

Although mtDNA will remain the preferred genome for study in ancient DNA research, it should be noted that the Yanomamö mtDNA analyses failed to fulfill several critical expectations for the identification of the relationships among endogamous groups with a recent common ancestor. The mtDNA genetic distances did not match the fission history of the villages or the distances calculated from nuclear DNA, possibly because of undetected gene flow or sampling problems. Although the Lane & Sublett and Spence models performed reasonably well, both matching the expectations for genetic relationships among largely endogamous groups, they did not provide information that could be used to choose between gene flow and sampling as possible explanations for the discrepancies in the mtDNA patterns. Neither model could detect whether low levels of sex-mediated gene flow influenced the mtDNA patterns. Their value to archaeological research is even more problematic because the models require assumptions that are difficult to meet in archaeological studies (Konigsberg 1987, 1988; Souza Aguiar and Neves 1991; Williams-Blangero and Blangero 1990). Konigsberg (1987, 1988) noted that sites must overlap in time to belong to the same mating network, and that only groups who participated in the same mating network can be included when using the model, which requires exacting dating techniques and access to information not commonly available to archaeologists. Williams-Blangero and Blangero (1990) speculated that the disappointing results they obtained when using the Spence model to study a modern group was caused by unequal genetic variance among the villages they included in their work. The Lane & Sublett model can work well, but requires assumptions that are difficult to meet when using archaeological samples. The Spence model is such a weak statistical test that it may not work under the best of conditions in living populations.

If the mtDNA patterns observed in the Yanomamö accurately reflect a degree of gene flow undetected by nuclear DNA, Y haplotype analyses may provide an important additional source of information. Bamshad and colleagues' (1998) study of gene flow among Indian castes effectively demonstrated the advantages of combining mtDNA and Y haplotype frequency analyses. Y haplotyping provides an additional locus and adds a measure of male relatedness to complement the measure of female relationships provided by mtDNA. Y chromosome studies are an appropriate choice for ancient DNA studies because, although the DNA will be present in smaller amounts than mtDNA, uneven allele amplification will not affect Y chromosome analyses. Each male has only one Y chromosome, so no product forms if the allele fails to amplify. The introduction of error into subsequent analyses can be avoided because missing or null alleles are immediately apparent.

Finally, combining aDNA analyses with other techniques that measure similar, but slightly different biological processes, such as traditional biodistance and stable isotope studies, will strengthen the conclusions that can be drawn from each. Traditional biodistance studies measure metric and non-metric trait variation. These phenotypic or epigenetic traits are physical expressions of combinations of alleles at multiple genetic loci, but their expression is also affected by developmental and environmental processes. Stable isotope analyses measure the ratios of naturally occurring, nonradioactive isotopes of elements such as strontium (Sr), oxygen (O), and lead (Pb) in human bone or tooth samples (Katzenberg 2000; Price, Burton, and Bentley 2002). The concentrations of each element's stable isotopes, and thus their ratios, vary throughout the physical environment and are incorporated into the tissues of the people who live in the area through their diet. Stable isotopes yield information about the physical movements of individuals during their lives by comparing the ratios in teeth that result from childhood diet with the ratios in bone that reflect adult diet (Bentley, Chikhi, and Price 2003; Bentley, Price, and Lüning 2002; Bentley et. al 2002; Katzenberg 2000; Price, Grupe, and Schröter 1998). Both of these techniques provide important information either about the biological relationships among individuals or of population movements across the landscape that can reinforce data from aDNA studies.

CONCLUSION

In general, the longer the separation time between groups and the more severe the reduction in gene flow, the greater the genetic divergence will be and the easier it will be for current methods to discriminate between groups. The following example serves as a reminder that ethnic groups are not necessarily biologically identifiable entities and that shared culture is often the defining characteristic of "ethnicity." In a previous study of blood proteins (Chagnon et al. 1970), geneticists were surprised to find a "Yanomamö" village that more closely resembled the "Makiritare," a neighboring tribe whose nearest village was some 200 miles to the north of this particular Yanomamö village. The

Makiritare and Yanomamö speak different languages, and their cultural practices differ in many ways (Chagnon et al. 1970). Ethnographers eventually discovered that the ancestors of these villagers had lived on the Makiritare-Yanomamö frontier around 1900, and the earlier village had included a half-Makiritare headman and several Makiritare women who had been abducted by men from this village. Within three generations, some blood protein alleles previously found only in the Makiritare had reached higher frequencies in this village than in any of the Makiritare villages surveyed (Chagnon et al. 1970:347). The villagers considered themselves "Yanomamö," not a village of "mixed" Yanomamö and Makiritare ancestry. This case highlights the rapidity with which significant gene flow can ameliorate genetic differences between two groups who perceive each other as different ethnic groups.

The amount and pattern of gene flow among neighboring ethnic groups will dramatically affect the extent to which ethnic groups can be distinguished by differences in their genetic patterns. Because ethnicity is self-defined, individuals may consider themselves members of a separate ethnic group, even when extensive intergroup gene flow, whether sanctioned or not, occurs with their neighbors. Therefore, ethnicity will have variable effects on allele frequencies, making their use as ethnic identifiers similarly complicated. While some ethnic groups may be completely closed (endogamous groups), other ethnic groups may have few rules concerning marriage to individuals outside the group. In these latter cases, there may be no genetic correlate of shared ethnicity. In reality, these two extremes of behavior likely will be rare. More likely, patterned gene flow will result in differences in allele frequencies among ethnic groups, but the effects of these patterns may be difficult to interpret.

This variability means that ethnic groups can never be identified solely from biological attributes. Often, putative prehistoric ethnic groups can be defined by shared cultural traits, such as textile production or mortuary custom, with genetic evidence used to test whether the individuals that share these characteristics share a close biological relationship as well. Sometimes, the cultural and biological patterns will correspond, as Blom and colleagues (1998) demonstrated when they found significant biological differences between individuals buried at Chiribaya and Tiwanaku sites, two neighboring ethnic groups who once lived in the Osmore Drainage. Elsewhere, groups may share cultural characteristics, but not biology. For example, after Inka conquest, Wanka elite houses began to resemble Inka houses (Costin and Earle 1989). Ethnohistoric documents showed that these homes continued to belong to Wanka elite, so the researchers could focus on explaining the reasons for this change. Costin and Earle reasoned that the Wanka elite adopted Inka-style architecture to emphasize their association with Inka rulers and emphasize their own power within the community. Had no ethnohistoric documents existed, researchers might have incorrectly concluded that this change in architectural style signaled the arrival of an Inka elite as a means of direct rule in this area. Sutter's (2000) dental trait analysis provides an example of the opposite case, where biology is shared, but cultural characteristics differ. His study indicates that, although cultural traits change through time in the Azapa Valley, biological continuity is present. Clearly, the combined use of culture traits and biological markers can be a powerful means to identify and study prehistoric ethnic groups.

MtDNA has already proven useful in the study of continental levels of variation and should help clarify regional and local population histories as well. The fact that mtDNA diversity exists in small, closely related populations indicates that prehistoric mtDNA population studies are feasible. The combination of mtDNA and Y chromosome analyses should provide a powerful means with which to identify gene flow in prehistory.

The biological and social nature of the relationships that existed among Andean peoples are of great interest to archaeologists, but are extremely difficult to discern in the archaeological record. No one method is destined to provide the complete answer. Combining the information gained from biological and chemical techniques with careful studies of material culture will be required to unravel the intricate interactions among prehistoric peoples and enable us to better understand the importance of ethnicity in regional culture history and evolution.

NOTES

1. Base pairs are complementary pairs of nucleic acids whose bonds with each other form the rungs of the DNA helix.

2. Some variation may be present in the mitochondrial genomes of individuals, but will have relatively little impact on studies of this kind.

3. Restriction enzymes recognize and cut unique four-to-six-bases-long DNA sequences. Not all individuals have the same sequence in these regions, so some individuals will have the "restriction site," while others will not.

4. There are two hypervariable sections within the d-loop or control region of the mitochondrial genome. The d-loop does not code for any genes, it is where transcription (genome duplication) initiates, so the region is more variable among individuals. The hypervariable regions are areas within the d-loop where the largest amount of nucleotide variation is concentrated.

5. Allele frequencies, also referred to as gene frequencies, usually refer to frequencies of various forms of a gene or small DNA segment. Haplotype frequencies are used when referring to alternative mtDNA sequences because the genome is inherited as a single unit composed of multiple genes.

6. A heterozygosity value is the percentage of individuals likely to have two different alleles, or genetic sequences at a particular locus.

7. The mitochondrial DNA intersex comparison for village 5 indicated that male variance was significantly larger than female variance.

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CHAPTER 10

A Bioarchaeological Approach to Tiwanaku Group Dynamics

DEBORAH E. BLOM

INTRODUCTION

Most papers in this volume concentrate on material culture in addressing issues of identity and ethnicity. This chapter, as well as those by Lozada and Buikstra, Sutter, and Williams, will focus on the contribution that analyses of human skeletal remains can add to the theme of identity in past societies. Bioarchaeological data contribute information that cannot be gained through material culture alone and thus provide additional insights toward archaeological inquiry. This is especially important in the ancient Andes, where explanations of cultural change often invoke population movement and the convergence of peoples from diverse regions. In the present study, I provide a bioarchaeological approach to the investigation of Tiwanaku, one of the most extensive and long-lived polities in the Andean region, with two bioarchaeological foci: genetic relationships and body modification.

The human body is one of the most powerful and controversial means by which groups identify themselves. In an official statement of the American Anthropological Association (1998), anthropologists stress that it is biologically invalid to define "ethnic" or "racial" groups on the basis of discrete physical differences and argue that human variation can generally be viewed as a continuum. Ethnicity and race are essentially social constructs. However, highly visible features of an individual that cannot readily be changed or controlled, for example physical features such as skin or hair color, are often used as identifiers by others[1] (Rosenthal 1995; Royce 1982). Additionally, humans often create distinct differences where they do not exist biologically through an almost universal propensity to modify and decorate bodies, embodying cultural constructs even further. Such highly visible cues generally are used to exchange information and indicate group or ethnic boundaries (Hegmon 1992; Jones and Hegmon 1991), and these modifications are sometimes present in the archaeological record. Therefore, culturally constructed human bodies can provide a powerful means of studying social dynamics in ancient populations.

Early European chroniclers described how ethnic groups or "tribes" in the Andes distinguished themselves through distinct manners of emblems, dress, and hairstyles (e.g., Casas 1967 [ca. 1550]:594–595; Cieza de León 1984 [1553]:173; Garcilaso de la Vega 1966 [1609]:485; Vaca de Castro 1920 [1542]:18). Several of these sources also document Andean groups that were visibly distinguishing themselves from one another by molding the heads of their infants into different shapes (Casas 1892 [1561]; Cieza de León 1984 [1553]:124; Cobo 1990 [1653]:196–197; Julien 1985:219; Murra 1980 [1956]:67). Further corroborating these claims, distinct differences in cranial modification have been noted in the archaeological record (Allison et al. 1981; Arriaza 1988; Dembo and Imbelloni 1938; Gerszten 1993; Hoshower et al. 1995; Hrdlicka 1912; Lozada 1998; Munizaga 1964, 1976; O'Brien and Sanzetenea 2002; Soto-Heim 1987; Stewart 1950; Weiss 1962, 1972). Permanent body modifications such as this or tattooing and scarring are specifically those that tend to denote group membership in general (Brain 1979; Ebin 1979; Isaacs 1975; Lyman and Douglass 1973; Rosenthal 1995; Royce 1982), and permanent modifications will be examined in this study.

The study of permanent style as expressed in cranial modification complements that of more flexible stylistic variation in material culture, upon which archaeological studies traditionally rely. Archaeologists cannot address ascription, the most critical aspect of group membership, in which members recognize themselves and others as belonging to distinct groups holding different cultural values (Banks 1996; Barth 1969; Chapman 1993). However, these values are frequently displayed indirectly in the "cultural content" or directly through overt signs or symbols. This provides archaeologists an opportunity to distinguish social groups through "styles" in material culture (Aldenderfer and Stanish 1993; Conkey and Hastorf 1990; Jones 1997; Oakland Rodman 1992; Plog 1983; Shennan 1989; Wiessner 1983).

Cranial modification differs from other expressions of style, because individuals or groups may use cultural material of another group or vary styles that they use when changing residence, status, or affiliation (Dietler and Herbich 1989). Objects, ideas, and even ceramic specialists (Hyslop 1993) can be moved independently of populations, and archaeologists have long recognized that inferring population movement or identity based on material culture alone may not be entirely reliable (Childe 1950:1; Hodder 1978; Trigger 1986:39–47). Consequently, cranial modification is more conservative in reflecting rapid changes in society compared to material culture. Because it must be effected on the head of an infant, it is an imposed symbol that reflects the values of the parents and society into which the child was born. People may simultaneously have many identities, but in cranial modification only one of these identities may be expressed. Stylistic analyses of head form and how these styles and others in material culture are used and manipulated should prove especially fruitful in addressing social complexity and group affiliation in the past.

Although it is recognized that group identity is determined by ascription, a genetic component is often present. Boundaries to biological reproduction are often maintained through social means such as sexual taboos and marriage rules or through geographic isolation (Macbeth 1993). While social boundaries can be crossed, interactions between ethnic groups are often quite rigidly controlled in order to maintain these boundaries (Barth 1969). On the other hand, in certain cases, some individuals may be encouraged to marry into other groups. For example, Kolata (1993) has suggested that marriage alliances may have been made between elites of different ethnic groups composing Tiwanaku society. However, although smaller social groups such as *ayllus* (or Andean descent groups) are often exogamous, larger groups, such as ethnic groups, are generally endogamous (Bastien 1978; Isbell 1977; Rasnake 1988). Certainly, in the cases in which two groups are geographically isolated, barriers to biological relationships are further increased and even illicit sexual relationships are not a factor.

In this study I use inherited, discrete variations in teeth and bone to observe biological interactions between groups. Inherited skeletal traits can be used to distinguish between the movement of material culture or adoption of styles (even cranial styles) and the movement of people. Consequently, bioarchaeological data provide an important complement to other studies in understanding social dynamics in Tiwanaku, the focus of my study.

THE STUDY SAMPLE

With its capital centered on the shores of Lake Titicaca, Tiwanaku flourished in the south-central Andes for more than 600 years, roughly from 500 to 1100 AD. Toward the end of this period, Tiwanaku-style material culture could be found in regions of modern-day Peru, Bolivia, Chile, and Argentina, making it one of the most extensive pre-Inka polities. Extensive

archaeological research over the last two decades has significantly increased our understanding of Tiwanaku and the dynamics of sociopolitical complexity in the highland demographic "core" (e.g., Albarracin-Jordán 1996a; Alconini Mújica 1995; Bermann 1994; Blom, Janusek, and Buikstra 2003; Couture 2002, 2003; Escalante 1992; Janusek 1994; Kolata 2003; Ponce Sanginés 1972; Rivera Casanovas 1994; Seddon 1994; Stanish 1994; Vranich 1999).

Over the last ten to twenty years, significant debate has occurred over the exact nature of Tiwanaku social complexity. Tiwanaku is now generally viewed as encompassing various social groups, be they ayllus (Albarracin-Jordán 1996b), moieties, or "ethnic groups" (Janusek 1994; Kolata 1993; Ponce Sanginés 1972). On one hand, some archaeologists emphasize centralization, unification, and integration of diverse groups within Tiwanaku (e.g., Kolata 1993). Others maintain that Andean polities were always grounded in local communities and argue that small-scale, local political structure was sufficient for organizing the construction of many of the impressive monumental projects that others traditionally attribute to centralized states (e.g., Albarracin-Jordán 1996b; see also Erickson 1993). More recently, archaeologists are discovering that elements of both integration and local ties were operating in Andean complex societies (e.g., Bermann 1994; Janusek 1994). In this view, while there is still a shared Tiwanaku culture, local identity is displayed within the larger context of a Tiwanaku identity.

Studies of Tiwanaku social dynamics have also been carried out in the lowland regions in which Tiwanaku material culture has been found. Most specifically, for the Moquegua Valley of southern Peru, Goldstein (1989, 1993, 2000b) has proposed that Tiwanaku established a diaspora community or provincial center, where immigrants from the altiplano lived while maintaining their altiplano identity (see also Blom et al. 1998; Cohen, Bandy, and Goldstein 1995; Mujica, Rivera, and Lynch 1983). However, Goldstein and his colleagues acknowledge that the "Tiwanaku" population in the Moquegua Valley could have been an autonomous group who appeared culturally as Tiwanaku because they were part of a "Tiwanaku Interaction Sphere" (Moseley et al. 1991:123). This is consistent with others who argue that Tiwanaku iconography and art may have spread by llama caravans moving between the altiplano and lowlands (Browman 1978, 1984; Kolata 1993; Lynch 1983). Therefore, the mere possession of these artifacts might not indicate population movement and shifts in identity. The present study builds upon this work to address issues of identity within the Tiwanaku realm. In this study, I use human skeletal samples from the Tiwanaku heartland in the Bolivian altiplano and from the distant settlements in the middle Moquegua Valley (figure 1).

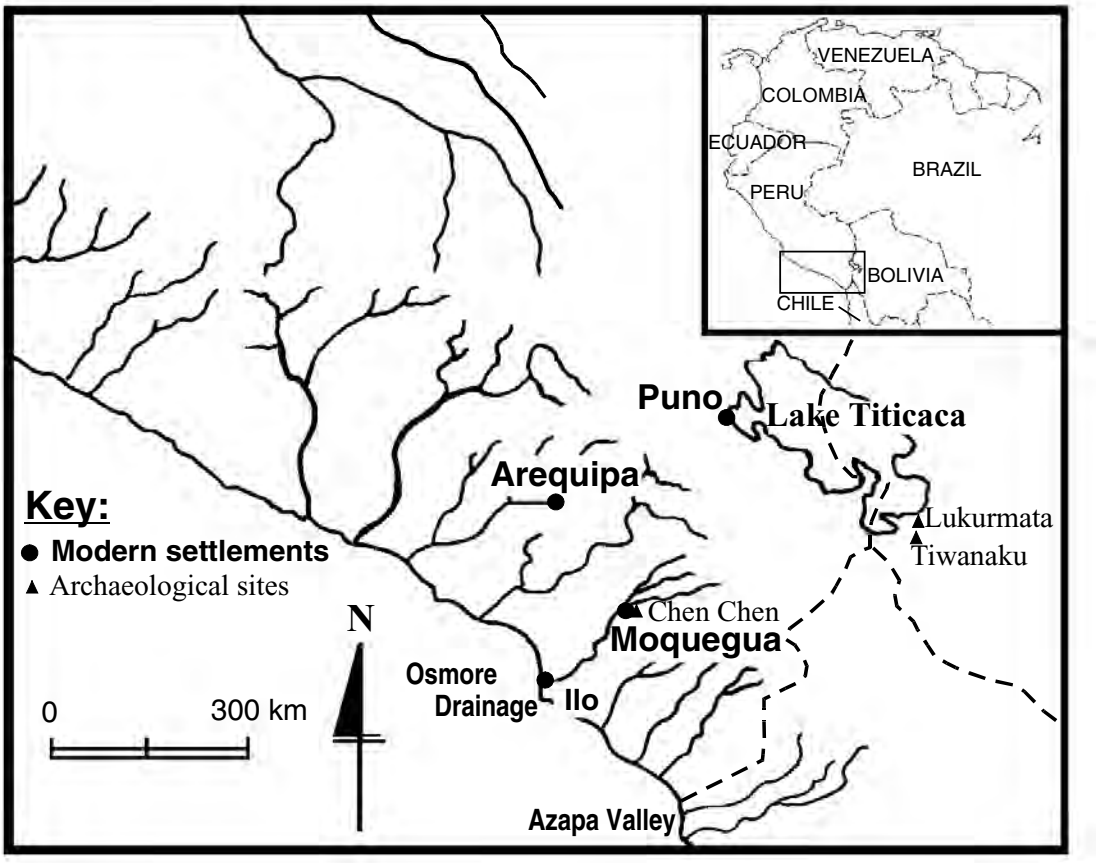

Figure 1. The study area.

Table 1. The sample used in the study.

Moquegua Valley Tiwanaku Sites:	**406**
Chen Chen (M1) [N=394]	
Cancha de Yacango (M1666) [N=6]	
Rio Muerto (M43) [N=4]	
Cerro Trapiche (M7) [N=2]	
Moquegua Valley Huaracane Sites:	**30**
Pampa Huaracane (M29, M30) [N=11]	
Omo (M10) Y [N=19]	
M162 [N=1]	
Katari Basin Sites:	**106**
Lukurmata [N=78]	
CK65 [N=15]	
CK70 [N=9]	
CK104 [N=2]	
CK152 [N=2]	
Tiwanaku Valley Sites:	**105**
Tiwanaku [N=95]	
Tiwanaku Lower Valley:	
Obsidiana [N=1]	
Pukara [N=4]	
Guaqui [N=2]	
Iwawe [N=1]	
Tiwanaku Middle Valley:	
TMV101 [N=7]	
TMV228 [N=3]	
TMV332 [N=1]	
TMV558 [N=1]	
Total:	*657*

The Moquegua sample consists of 436 individuals and is primarily derived from the large site of Chen Chen and secondarily from smaller sites in the valley (table 1; figure 2). These collections are associated with what was formerly considered the "Chen Chen phase" (ca. AD 500–1000; see Owen and Goldstein 2001) and the earlier Huaracane (Formative) phase (ca. 385 BC–ca. AD 340 per Goldstein 2000a). The remains from Moquegua are compared to two major areas in the Lake Titicaca basin region: the Tiwanaku and Katari valleys. The Tiwanaku Valley sample is dominated by the large, urban site of Tiwanaku, which served as a dense settlement of ~20,000–40,000 inhabitants (Kolata 1993; Parsons 1968). The Katari Valley houses Lukurmata, a Tiwanaku "regional center" that seems to have retained its own local tradition while becoming part of Tiwanaku society (Bermann 1994; Janusek 1994), as well as some smaller sites with these characteristics in the nearby Pampa Koani, surrounding the site of Kirawi (CK65) (figure 3). The samples from these valleys are smaller, with 105 and 106 crania, respectively. Using the most recent chronology for the Titicaca basin (Janusek 2003), the samples can be broken into Late Formative and Tiwanaku period contexts from the Katari and Moquegua valleys, and only Tiwanaku period contexts are available from the Tiwanaku Valley (table 2). The cranial modification sample consists of a smaller sample of relatively complete crania, and the results will be broken down into more precise time periods when possible. The biological distance sample includes individuals from Chen Chen, the Moquegua Huaracane sites, and all Tiwanaku and Katari valley sites mentioned.

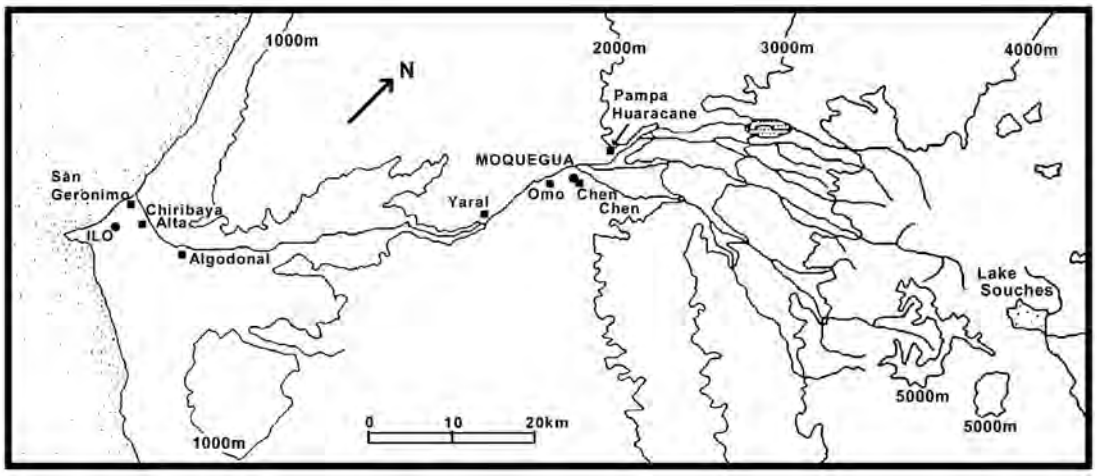

Figure 2. Osmore Drainage with detail of the Moquegua Valley sites mentioned.

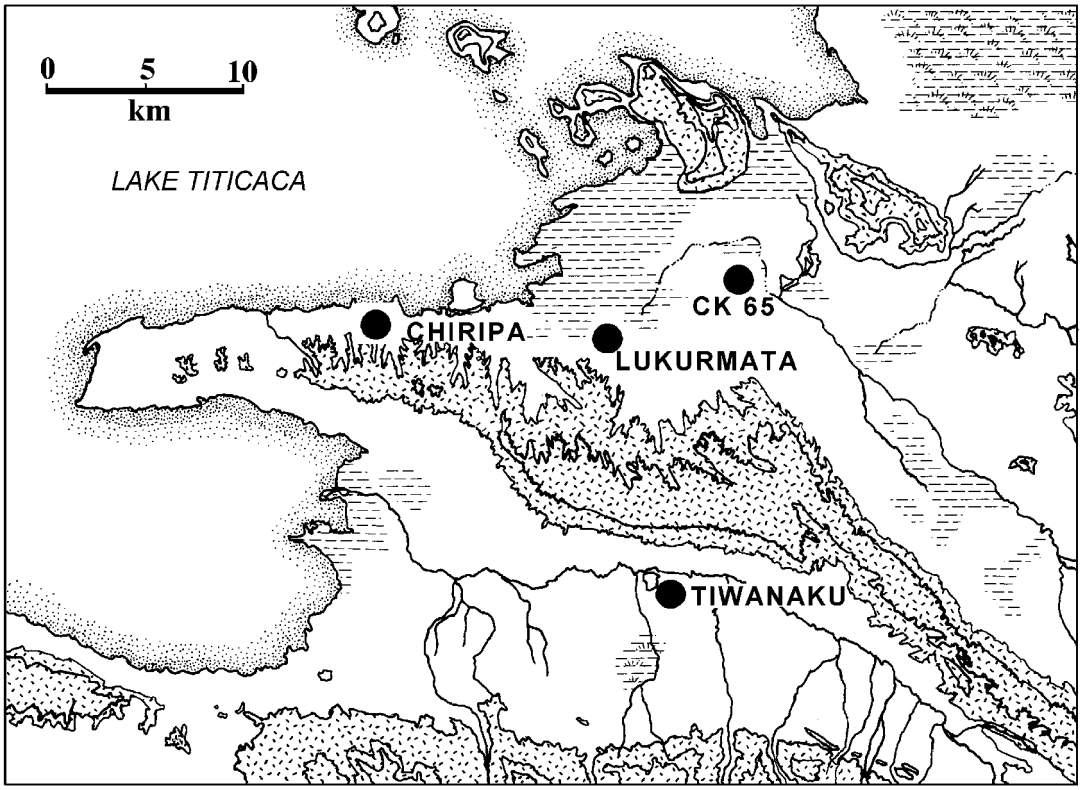

Figure 3. Tiwanaku heartland. Source: after Kolata 1986: figure 2.

Table 2. Titicaca basin chronology (Janusek 2003).

Period	Phase	Time
Tiwanaku Period	Late Tiwanaku V	AD 1000 – 1100
	Early Tiwanaku V	AD 800 – 1000
	Late Tiwanaku IV	AD 600 – 800
	Early Tiwanaku IV	AD 500 – 600
Formative Period	Tiwanaku I/III (Late Formative)	200 BC – AD 500
	Late Chiripa	800 BC – 100 BC
	Middle Chiripa	1000 BC – 800 BC
	Early Chiripa	1500 BC – 1000 BC

METHODS

Cranial Modification Methods

The cranial modification typology used in this study is designed for viewing cranial modification from a regional perspective. It was developed by Lozada and myself through the study of cranial modification in a large (N=255) series from the three coastal sites (Chiribaya Alta, San Gerónimo, Algodonal) and one middle valley site (Yaral) from Moquegua's Chiribaya and Tumilaca phases (Lozada 1998; Lozada, Blom, and Buikstra 1997; see also figure 2). This system was elaborated to extend to the Moquegua middle valley and altiplano sites for this study. Because this typology was designed to examine broad regional differences and cranial modification as a marker of identity, externally visible skull shape was considered in addition to the more technologically based modification apparati. A typology focused on technology that was developed by Hoshower et al. (1995) through the study of thirty-three skulls from cemeteries at Omo M10 and M11[2] was also used for some comparisons within Moquegua. This typology focused on the specific modification apparatus used, with the goal of discerning variation within smaller cultural groups. After first examining the same

crania studied by Hoshower and Buikstra, the typology was applied to the Chen Chen sample (Blom, Yeatts, and Buikstra 1995; Yeatts 1994). The typology for the present study and that of Hoshower et al. overlap in a statistically significant manner ($\chi 2 = 216.747$, df=12, $p < 0.001$, N = 131).

For the typology used here, the skulls were laid out and grouped according to skull shape. All skulls were mixed before classification in order to prevent biases based on knowledge of the contextual information by site, associated ceramic styles, or cemeteries. The skulls were then sorted into main types, and then specifics were recorded using the coding schema outlined in table 3, which is a modified version of that found in Buikstra and Ubelaker (1994). The procedure was repeated twice to minimize error. If the crania were too fragmented for the modification type to be determined, they were recorded as unmodified or modified when possible.

Table 3. Cranial Deformation Coding.

POSTERIOR DEFORMATION:	ANTERIOR DEFORMATION:
Number of Posterior Pads: 1=None 2=1 "pad" (midline) 3=2 "pads" (lateral to midline) *(Note if asymmetrical)* 4=Band	**Number of Anterior Pads:** 1=None 2=2 "pads" (lateral to midline) *(Note if asymmetrical)* 3=1 "pad" (midline) 4=No definite pad impression, likely band 5=Band *Note bregmatic elevations*
Posterior Pad Location: 1=Absent 2=Lambda 3=Planum occipitale 4=Squamous portion of occipital	**Anterior Pad Location:** 1=Absent 2=High near coronal 3=Above bosses 4=Inferior, near or below bosses
Plane of Pressure in Relation to Transverse Plane: 1=Absent 2=Perpendicular (90°) 3=Acute (<90°) 4=Obtuse (>90°)	**Anterior Pad Shape:** 1=Absent 2=Circular or oval 3=Donut-shaped 4=Triangular 5=Rectangular 6=Irregular form 7=Band *Note impression of bindings*
Posterior Pad Shape: 1=Absent 2=Circular or oval 3=Donut-shaped 4=Triangular 5=Rectangular 6=Irregular form 7=Band 8=Unknown *Note impression of bindings*	**Degree of Anterior Depressions:** 1=Absent (Band, also) 2=Faint 3=Marked
Sagittal Depression: 1=Absent 2=Slight near lambda (slight) 3=Almost to coronal suture (moderate) 4=Continuous (marked) *Note lambdic elevation or depression or sagittal elevation*	**Post-Coronal Constriction:** 1=Absent 2=Slight 3=Marked **Post-Coronal Constriction Continuous:** 1=Absent 2=Not Continuous 3=Continuous

Biological Distance Methods

Selection of Traits and Scoring

Although several methods of scoring inherited non-metric traits have been adopted over the last century, attempts to standardize data collection in bioarchaeology in the last decade have resulted in general guidelines for biological distance studies (e.g., Buikstra and Ubelaker 1994; Turner, Nichol, and Scott 1991). Most studies of non-metric traits focus on cranial, postcranial, or dental traits in isolation. However, using a large number of traits from various parts of the body will ameliorate any potential effects of local environment on the results (Howe and Parsons 1967; Sofaer, Smith, and Kaye 1986). For this reason and because some of the collections are from geographic areas in which skeletal preservation is not ideal, utilizing traits from the whole skeleton was preferable in the present study.

The list of non-metric traits recorded for this study comprises ninety-four cranial, postcranial, and dental traits (appendix 1). These traits were selected from bioarchaeological standards published by Buikstra and Ubelaker (1994). The skeletal traits were compiled from numerous sources (e.g., Finnegan 1978; Hauser and De-Stefano 1989; Saunders 1978; Turner, Nichol, and Scott 1991; Winder 1981), while the dental traits compose a subset of those described by Turner and colleagues (1991). The rationale for selecting the traits was based on ease of scoring and minimal sexual dimorphism, as well as minimal intra- and interobserver error. In order to further minimize error, skeletal traits were scored using the illustrations and descriptions published in Buikstra and Ubelaker (1994) and Finnegan (1978). Dental traits were scored utilizing the procedures described by Turner, Nichol, and Scott (1991) and the graded dental casts supplied by the Arizona State University Dental Laboratory.

Preparing the Data for Population Comparisons

The possible methods of coding and analysis for studies using non-metric traits vary widely depending on the researcher and the project. The various considerations are outlined here. See the appendix for the list of traits recorded in the study and used in the final analysis. Traits were originally recorded

through partial trait scoring, but were later dichotomized to reduce error. The dental traits were recoded as presence/absence following standard methods (see Sutter 1997; Turner 1985, 1987). Cranial and postcranial non-metrics were collapsed into presence/absence based on a similar scheme. Details are provided in the appendix. Two traits were removed because they did not vary overall (bregmatic bone and supratrochlear spur).

Many of the traits used in this study are bilateral. Although it has been suggested that asymmetry is genetically based (Ossenberg 1981), studies indicate that asymmetry is caused by developmental factors (Korey 1970; McGrath, Cheverud, and Buikstra 1984; Saunders, Popovich, and Thompson 1978; Winder 1981), and the use of both sides will provide inaccurate results. Because the two sides of bilateral traits are invariably correlated (Finnegan 1978), it is necessary to combine the data so that each trait is represented only once when performing biodistance analyses. Two basic methods have been suggested for dealing with bilateral traits and their occasional asymmetry: "side-count methods," which involve adding all sides as independent observations (e.g., Johnson and Lovell 1994; Prowse and Lovell 1996), and "individual count methods," in which each trait is only counted once per individual (e.g., Buikstra 1976; Konigsberg 1990; Korey 1970; McGrath, Cheverud, and Buikstra 1984).

An individual count method was used in this study because side-count methods artificially inflate the sample size and, therefore, bias significance values (Perizonius 1979). Although values can be calculated using one, randomly selected side when both are available, the procedure used here follows the established protocol for dental studies (Turner, Nichol, and Scott 1991; Turner and Scott 1977). This method assumes that one genotype exists for bilateral traits, and, in the case of asymmetry, the maximal expression of the trait more closely approximates the underlying genotype. Therefore, only the maximal expression is used for subsequent analyses. Unfortunately in the case of only one side being available, it must be accepted as the maximum expression, so a slight bias is introduced in poorly preserved samples. However, since significant asymmetry is generally uncommon (Berry 1979; Cosseddu, Floris, and Vona 1979), this is not expected to bias the final analyses.

Not all traits are used in the final analyses because biodistance analyses can be biased by low-frequency traits or exceedingly small samples (Cavalli-Sforza, Menozzi, and Piazza 1994). Traits were removed if: 1) the overall frequency was 0 or 100% in the total sample; 2) the trait did not vary in at least two of the samples; 3) less than ten observations were possible for more than 25% of the samples; or 4) less than three observations were possible for any of the samples. Twenty-eight skeletal traits were removed because they violated the necessary conditions for frequency and sample size outlined above.

Clearly, some trait expression is age dependent in children (Buikstra 1976). Therefore, the present study is restricted to postadolescents. In addition, skeletal traits that were significantly different ($p < 0.001$) for the age groups (postadolescent (12–20), young adult (20–34), middle adult (35–49), and old adult (50+)) were removed from further analysis. The phi coefficient, which produces identical results as the Pearson's chi-square in this sample, was used to determine significance. Because traits on the permanent dentition are not affected by age, dental traits will be used for all individuals. It is expected that the inclusion of dental traits will help to ameliorate the effects of any small associations with age in the skeletal traits. One skeletal trait (Allen's fossa) was removed, because it was highly correlated with age (phi = 0.414, df = 3, $p < 0.001$).

In spite of initial reports of minimal linkage (Berry and Berry 1967), several studies in humans have found that some non-metric traits are associated with sex in archaeological samples (Corruccini 1974; Saunders 1978). Two traits were removed because they were highly sex dependent: rocker mandible (phi = -0.241, df = 1, $p < 0.001$) and mandibular torus (phi = 0.151, df = 1, $p < 0.022$).

Because the variables are not independent of one another, using associated traits violates the assumptions of many statistical procedures. In the present study, intertrait associations were tested between traits in similar body areas. In the case of highly significant associations (phi coefficient $p < 0.001$), hyperostotic traits were chosen over other traits, which are less heritable (Cheverud and Buikstra 1982). Dental traits are generally not intercorrelated, except the same trait within a tooth type (i.e., Cusp 7 on the first, second, and third molars) (Sutter 1997). To avoid this intercorrelation, only one tooth was used for each trait. Because sample size is a concern, the "best" tooth was determined based on the largest available sample. Of the traits that were not removed due to previous considerations, two were intercorrelated ($p < 0.01$): divided hypoglossal canal–within canal and divided hypoglossal canal-internal. The within-canal variant was removed.

Intra- and interobserver error must also be considered in studies of non-metric traits. Because intra- and interobserver error is high for partial trait manifestations, the error is generally reduced by dichotomizing the data into presence/absence observations and through the use of the ASU dental casts (Molto 1983; Nichol and Turner 1986; Saunders 1978, 1989). In order to reduce error further, an initial learning period was allowed in which the traits were observed on several skeletons. The entire Chen Chen series was re-scored after the initial scoring, because it was felt that it could be more reliably recorded in this manner.

Intra- and interobserver error studies were carried out on thirty individuals at Field Museum of Natural History (Chicago, Illinois) and during the course of the data collection. Interobserver error is not an issue in the sample presented here, but was used for comparisons presented elsewhere (Lozada 1998; Lozada et al. 1997). The phi coefficient was used to evaluate the dichotomized (presence/absence) data (Zar 1984:321–323, cited in Buikstra and Ubelaker 1994), and only one remaining trait (Poirier's facet) had significantly high intraobserver error.

In contrast to the results of other researchers (e.g., Rothhammer et al. 1984; Sutter 1997), traits that did not vary among the groups studied were not eliminated. In a large set of traits, some differences between samples will likely appear at random. Therefore, selecting such traits for analysis might create artifactual differences between samples.

Finally, some traits are affected by cranial modification, specifically wormian bones in the cranial sutures (Dorsey 1897; Guillén 1991; Konigsberg, Kohn, and Cheverud 1993; Pucciarelli 1975). However, after all traits that did not meet the requirements for use were removed, no wormian bone traits remained.

Biodistance Analyses

Various means of determining biodistance can be used. In the present study, a strictly model-free approach is employed, and biodistance between each pair of sites was determined using the mean difference of the trait frequencies:

$$D = \frac{\sum_{i=1}^{n} \left| f_{1i} - f_{2i} \right|}{n}$$

Where D is biodistance, f_{1i} and f_{2i} are frequencies of the ith trait for populations 1 and 2, and n is the number of traits. To calculate the probability that each distance was obtained by chance in samples drawn from a homogenous population (that the distance was actually smaller), a bootstrap method was used. In this method, the data set was subjected to a series of 1,000 randomizations in which each variable was independently sorted according to random numbers. This has the effect of randomizing the assignment of values to individuals while maintaining the probability distribution of trait values for the whole sample. This simulates the null hypothesis that the samples are drawn from the same population.

"Missing values" are present in the data when the trait was not observable for a particular individual because the element was not present or was obscured by soft tissue, pathological processes, or other artifacts. These missing values were excluded from the frequency calculations after randomization. Therefore, the frequency of a trait was calculated as the number of times the trait was scored as "present" divided by the sum of "present" plus "absent." In cases where all individuals of a group had unobservable values for any trait, that trait was eliminated for all comparisons with that group. This applies both to the calculation of the actual distance and to the distances generated at each iteration by the bootstrap. This procedure prevents the occurrence of biasing results from fragmentary data sets where many individuals have missing values. This test is, therefore, sensitive to missing values only in that missing values will tend to inflate the randomized variance of within-sample trait frequencies and make significant p-values harder to obtain. This procedure was selected in order to make results comparable to those of Lozada (1998), who also used this method. Groups of less than ten individuals were not used for analysis because very small samples will not give useful results.

RESULTS

The Cranial Modification Types

The cranial modification typology resulted in the following categories (see also figure 4):

Modification Absent

Cranial modification was classified as "absent" when no apparent alteration in shape by a modifying device was observed. Because this study focuses on intentional modification, crania that had evidence of "unintentional" modification resulting from the infant lying on

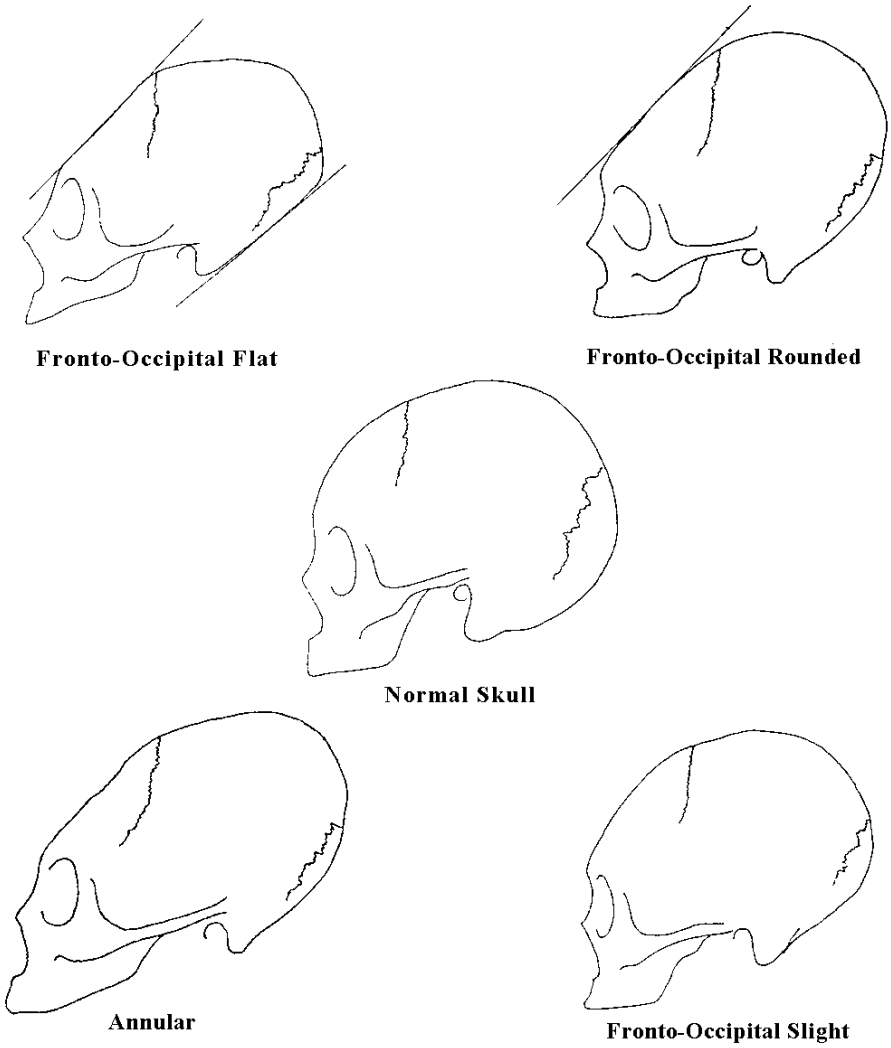

Figure 4. Cranial modification styles.

a hard surface were also considered unmodified. The skulls that were "unintentionally modified" present a slight, acutely angled flattening at lambda with no concurrent modification of the frontal. Overall, crania in the "absent" category do not evince any obvious marking which could be attributed to modifying apparati.

Fronto-Occipital or Tabular Oblique

The crania corresponding to the fronto-occipital or tabular oblique type of modification exhibit anterior-posterior compression of the frontal and occipital bones, which results in a relative shortening of the parietal chord and lengthening of the occipital chord. In extreme cases, the parietals expand laterally, resulting in highly prominent parietal bossing. This style was effected by using tablets or rigid pads bound by thin straps. Depending on the placement of the tablets or pads, their relative flexibility, and the angle at which the pressure was applied, a variety of slightly different cranial forms were produced, as seen in figure 4.

Circumferential or Annular

The annular oblique type is considerably different from the fronto-occipital types of cranial modification and would have produced a visible difference in head shape. These crania were characterized by an elongated, tubular vault, produced by circumferential compression from bands that encircled the frontal, temporal, parietal (below the temporal line), and occipital bones. The modifiers used for this technique were probably constructed of textiles and pads, or even thin flexible pieces of wood. This modification type for the present study differs

Table 4. Aymara terms regarding heads and head forms (italics indicates dictionary heading, whether in Spanish or Aymara) (Bertonio 1984 [1612]).

Aymara	Spanish	English
Ppekena, Cchuncchu, Chhikhana	*Cabeza*	head
Sayttu, Sucuya, Cchocata, Sau, Chunta, Kistuna, Ppekena (e.g., Chunta ppekenani)	*Cabeza ahusada*	tapered head
Molloko, Moko, Mati ppekena (Mocona)	*Cabeza redonda*	round head
Phekena saytu	*De cabeza ahusada, cabeza sauu*	of tapered head
Phekena suticaa (or pallalla)	*De cabeza aplastada*	of squashed head
Sayttu Ppekenani	*De cabeza ahusada*	of tapered head
Sucuya Ppekenani	*De cabeza ahusada*	of tapered head
Cchacata ppekenani	*Same?*	
Cchocatha	*Ppekeñani, o atar la cabeza con una trancadera, o por enfermedad, o porque ahusándose la cabeza de los niños y niñas encajen mejor el sombrero, o capirote*	tie or bind the head with a binding, or from sickness, or because they taper the heads of the children they fit into the caps better
Cchocana	*La trancadera así*	the apparatus used
Cchocatha ppekenani	*De cabeza ahusada*	of tapered head

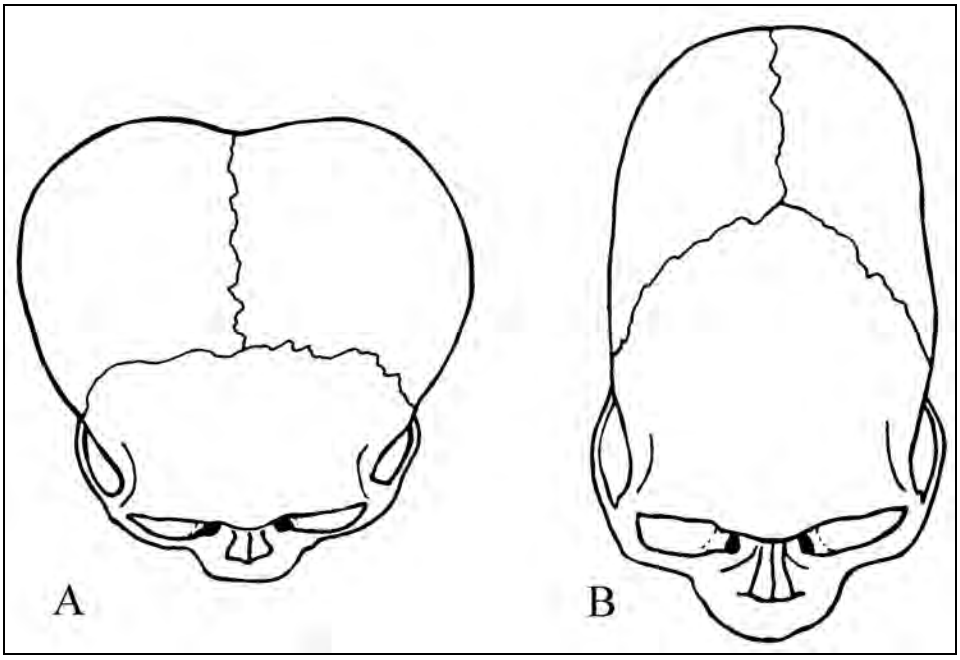

Figure 5. Superior view of crania (A. fronto-occipital, B. annular). Source: Anton 1989

considerably from the annular type that we have previously reported for Chiribaya period skulls (Lozada 1998; Lozada, Blom, and Buikstra 1997). On the Chiribaya individuals, the bands were likely of an approximately ten-centimeter width, while those discussed here were thinner. Therefore, the skulls in the present study do not have the "loaf shape" of those from Chiribaya contexts. Circumferential pressure still represents the principal modifying force in skulls belonging to this category.

Only one skull in the study did not fit within the typology outlined because the plane of modification in the occipital region was distinctly perpendicular (tabular erect). The three main categories outlined (absent ("round"), fronto-occipital ("squashed") and annular ("tapered")) coincide with Aymara terms regarding head form (Bertonio 1984 [1612]; table 4), and the two modification styles are similar to those defined by Anton (1989) (figure 5).

Upon examination of the cranial modification styles from these samples, it is immediately apparent that modification was practiced on the majority of the population, since only 17% of the skulls (N=63/379) were unmodified. The likelihood of an individual having an unmodified head is not statistically different between the valleys sampled (χ^2 = 0.48, df = 2, p = 0.976, N = 379). Neither modification in general (χ^2 = 0.001, df = 1, p = 0.976, N = 248) nor specific modification styles (χ^2 = 3.174, df = 4, p = 0.529, N = 201) were associated with the sex of the individuals (see Blom 1999 for more details). When the cranial modification styles within Tiwanaku, Lukurmata, and Chen Chen and their surrounding sites are analyzed, competing and complementary patterns are visible.

The Moquegua Valley sample consists of two main temporal contexts, one associated with the Tiwanaku period (N=299) and the other with the earlier, Formative, Huaracane phase (N=5) (table 5). During the Tiwanaku period, all individuals in Moquegua with cranial modification were using fronto-occipital cranial modification styles. This is also true of the Formative period remains. Sixteen percent of the remains evinced no head shape modification.

The Katari Valley sample also includes individuals from the Formative (N=12) and Tiwanaku (N=19) periods (table 6). In contrast to the patterns seen in Moquegua, those buried at Lukurmata and the other

Table 5. Moquegua Valley Cranial Modification.

		Modified				Unmodified		
Site(s)	**Time**	**F/O**		**Annular**				**Total**
		N	%	N	%	N	%	
ChenChen	Tiwanaku V	201	100%			45	16%	287
M1666	Tiwanaku	4	100%			2	33%	6
M43	Tiwanaku	3	100%			1	25%	4
M7	Tiwanaku	1	100%					2
Total	*Tiwanaku*	*209*	*100%*			*48*	*16%*	*299*
Omo M10	Huaracane	4	100%					4
M162	Huaracane					1	100%	1
Total	*Huaracane*	*4*	*100%*			*1*	*20%*	*5*
Total	**Moquegua**	**213**	**100%**			**49**	**16%**	**304**

Table 6. Katari Valley Cranial Modification.

		Modified				Unmodified		
Site(s)	**Time**	**F/O**		**Annular**				**Total**
		N	%	N	%	N	%	
Lukurmata	Tiwanaku I/III			6	100%			7
CK-65	Tiwanaku III			3	100%			4
CK-152	Late Chiripa			1	100%			1
Total	*Formative*			*10*	*100%*			*12*
CK-152	Tiw III-Early IV			1	100%			1
CK-104.2	Tiwanaku IV			1	100%			1
Lukurmata	Tiwanaku IV			3	100%	4	44%	9
CK-65	Tiwanaku V			3	100%	1	25%	4
CK-70	Tiwanaku V					1	100%	1
Lukurmata	Tiwanaku V	1	50%	1	50%			3
Total	*Tiwanaku*	*1*	*10%*	*9*	*90%*	*6*	*33%*	*19*
Total	Katari Valley	1	5%	19	95%	6	19%	31

Table 7. Tiwanaku Valley Cranial Modification.

		Modified				Unmodified		
Site(s)	**Time**	**F/O**		**Annular**				**Total**
		N	%	N	%	N	%	
Tiwanaku	Tiwanaku IV					1	33%	3
Tiwanaku	Late Tiw IV	3	100%			1	25%	4
Tiwanaku	Late IV-Early V			1	100%	1	33%	3
Tiwanaku	Tiw IV-V	8	57%	6	43%	3	16%	19
Tiwanaku	Tiwanaku V	4	67%	2	33%			6
Lower Tiwanaku Valley[a]	Tiw IV-V	1	100%					1
Lower Tiwanaku Valley	Tiwanaku V							2
Middle Tiwanaku Valley[b]	Tiwanaku V			4	100%			6
Total	*Tiwanaku Period*	*16*	*55%*	*13*	*45%*	*6*	*14%*	*44*
Total Tiwanaku	**Valley**	**16**	**55%**	**13**	**45%**	**6**	**14%**	**44**

[a]Pukara, Iwawe, Guaqui, Obsidiana
[b]MV228, MV332, and Tilata

Katari Valley sites were displaying predominately annular modification. Only one individual from a Tiwanaku V context at Lukurmata was using a fronto-occipital modification style. Nineteen percent of the individuals overall had no cranial modification.

In contrast to the differences seen between the Katari and Moquegua valleys, within the Tiwanaku Valley and capital both tapered and fronto-occipitally flattened skulls were found (table 7). Roughly half of the modified crania were found to be of each major style, with 55% modified into the fronto-occipital form and 45% presenting the annular style. Fourteen percent of the crania were unmodified.

When comparing the two modification types by area with chi-square analyses, significant differences in the three cranial styles (absent, fronto-occipital, and annular) were observed between highland (altiplano) and lowland (Moquegua) populations ($\chi^2 = 158.455$, df = 1, $p < 0.001$, N = 262). The differences between the Moquegua, Katari, and Tiwanaku valleys are also significant ($\chi^2 = 182.724$, df = 2, $p < 0.001$, N = 262), as are those between the major spatial/temporal groups of Moquegua/Formative, Moquegua/Tiwanaku, Katari/Formative, Katari/Tiwanaku, and Tiwanaku/Tiwanaku ($\chi^2 = 186.712$, df = 4, $p < 0.001$, N = 262). Although I will not present the extensive comparisons here (see Blom 1999, n.d.), no intraregional or intrasite patterns were seen in this sample.

Biodistance

Biological relationships can also add to the interpretation. In order to fully understand the distance measurements between the broad temporal/spatial groups outlined in this chapter, it is helpful to look at those between spatially distinct areas within the cemetery of Chen Chen (table 8). Since it is largely irrelevant for the present purposes, I do not include the detailed map of these sectors; it can be found in Blom (1999). The data indicate small distance measurements that are statistically insignificant. This lack of significance indicates that the actual distances in the populations are likely to have been smaller than those seen in the study sample. Overall these data suggest that the Chen Chen burial population was relatively homogeneous, an observation that is consistent with the data on cranial modification for Moquegua. Furthermore, these comparisons provide a general indication of what biodistances can be considered "small."

When the biological distance between the broad spatial/temporal groups is analyzed, a pattern emerges (table 9). As seen in the large p-values, comparisons with the Katari Valley Formative sample do not produce significant results (i.e., the distance measurements could have actually been smaller in the populations). This could, in part, be due to small sample sizes and fragmented remains. Nevertheless, the distance measurement between the Formative period Katari and Moquegua valley samples is nearly significant at the 0.05 level ($p = 0.057$; meaning that the distance is not likely to be smaller), and the measurement is larger than that seen elsewhere. This indicates that the largest biological distance is between the Moquegua and Katari valleys during the Formative period. The Katari/Tiwanaku

Table 8. Distance measurements and p-values for Chen Chen broad mortuary areas.

	Hilltop	Ridge	South
Hilltop N = 56			
Ridge N = 107	d = 0.098 p = 0.121		
South N = 52	d = 0.110 p = 0.195	d = 0.106 p = 0.065	
Slope N = 120	d = 0.093 p = 0.201	d = 0.081 p = 0.088	d = 0.096 p = 0.185

Table 9. Distance measurements and p-values for context by time.

Context/Time Number of Individuals	Katari / Formative	Katari / Tiwanaku	Tiwanaku/ Tiwanaku	Chen Chen
Katari/Formative N = 12				
Katari/Tiwanaku N = 36	d = 0.139 p = 0.975			
Tiwanaku/Tiwanaku N = 72	d = 0.156 p = 0.840	d = 0.128 p = 0.134		
Chen Chen/Tiwanaku N = 335	d = 0.157 p = 0.771	d = 0.105 p = 0.253	***d = 0.110*** ***p = 0.000***	
Huaracane/Formative N = 30	d = 0.244 p = 0.057	***d = 0.208*** ***p = 0.000***	***d = 0.161*** ***p = 0.004***	***d = 0.146*** ***p = 0.008***

(statistically significant values italicized)

sample also has a relatively large and quite significant distance from the Moquegua/Formative sample. In contrast, significantly large distances are not found between the Katari/Tiwanaku sample and the other samples. As always, we are slightly limited by the lack of a Tiwanaku Formative period sample.

Surprisingly, the distance between the Tiwanaku Valley (Tiwanaku/Tiwanaku) sample and the Moquegua/Tiwanaku (Chen Chen) sample is as small as that between samples within the Chen Chen site, as seen previously in table 8. Other values which are not significant and are likely to be smaller than that between Chen Chen and the Tiwanaku Valley sample are comparisons between the Katari/Tiwanaku sample and those from Moquegua/Tiwanaku and Tiwanaku/Tiwanaku. Therefore, the three Tiwanaku period groups of Chen Chen, the Katari basin, and Tiwanaku are most closely linked, with small biological distances. The most distant measurements are between the Huaracane sample and the Katari Valley samples. While the Huaracane sample's closest biological distance is with Chen Chen, the Chen Chen sample is closer to the altiplano Tiwanaku period samples than it is to the Huaracane individuals. Therefore, this would indicate more gene flow between Chen Chen and Tiwanaku than between Chen Chen and earlier Moquegua populations.

In summary, analyses between broad area/time period groups in the entire region indicate: 1) the largest distances between the Moquegua Formative (Huaracane) and the Katari Valley Formative and Tiwanaku period samples; 2) the smallest distances between the three Tiwanaku period samples (Katari Valley, Tiwanaku Valley, and Moquegua Valley); and 3) smaller distances between Moquegua and altiplano Tiwanaku period samples than between the Moquegua Valley Tiwanaku and Formative period samples.

DISCUSSION

Before assuming that cranial modification is linked to ethnicity in Tiwanaku society, other possibilities must be explored. Several lines of evidence can be considered in explaining the results observed, and other possibilities include status, gender, economic specialization, and highland/lowland residence, most of which would not necessarily exclude ethnicity as a factor.

Although it has been suggested by some that cranial modification was practiced by only high-status

individuals (e.g., d'Orbigny 1944; Posnansky 1957), no evidence exists to support the idea. The preponderance of individuals makes the use of modification as a marker of status differentiation unlikely. Likewise, the lack of any significant intrasite patterning in cranial modification styles also suggests that there is no link between status and different types of modification. This is most apparent in the core area of the Tiwanaku site, a sector that has been repeatedly recognized as inhabited by elite individuals (e.g., Couture 2002; Janusek 1999; Kolata 1993; Kolata and Ponce Sanginés 1992). Previous studies have also shown no correlation between cranial modification and tomb location, tomb type, or grave offerings at Chen Chen (Blom 1999). D'Orbigny (1944:186) also claimed a correlation between gender and altered head shape, but this suggestion is also not supported with the current data. Therefore, neither social status nor gender can explain cranial modification patterns seen here.

While observing the regional trend in cranial modification seen in this study, the oft-repeated "truth" comes to mind that annular modification is present in the highlands while tabular modification is found on the coast (e.g., Björk and Björk 1964; Broca 1878; Squier 1973 [1877]: appendix B; Stewart 1950; Weiss 1962). Based on the results from the Katari and Moquegua valleys, it could seem possible that during the Middle Horizon, the dichotomy between coastal (fronto-occipital) and highland (annular) styles holds. However, the Tiwanaku Valley results denote that the distinction is not nearly as clear as proposed, and individuals with both annular and fronto-occipital variations are found in the highlands during the Middle Horizon at least. In addition, this pattern clearly does not hold for groups in the immediate coastal area of the south Andes (e.g., Chiribaya and Chinchorro) from Archaic to Colonial periods. In these populations, distinctive annular types were also common, especially in contemporaneous Chiribaya sites in the Moquegua region (Lozada 1998; Lozada, Blom, and Buikstra 1997; see also Lozada and Buikstra and Sutter, this volume).

Studies have also shown that in these Chiribaya sites cranial modification types were linked to groups differentiated by economic specialization (Lozada 1998). Since areas of craft specialization have been noted at Tiwanaku (Janusek 1999) and in Tiwanaku period contexts in the Moquegua Valley (Goldstein 1993), this is a potential explanation for the variation in cranial modification in Tiwanaku society. However, because no clear intrasite patterning was seen in the present study, the hypothesis that cranial shape modification and economic specialization are linked is not supported.

After ruling out other variables, ethnicity is a potential explanation for the cranial modification patterns revealed by this study. Certainly, the chroniclers described certain ethnic groups that distinguished themselves by head forms (see Blom n.d. for details regarding this literature), and these are precisely the types of body modification that are often used as ethnic markers. However, the hypothesis must be tested in each individual case, since other groups can self-identify or be identified, such as those based on gender, social class, and occupation, the very groups that did not explain the cranial modification data in this study. Jones (1997:84) defines ethnic groups as "culturally ascribed identity groups, which are based on the expression of real or assumed shared culture and common descent usually through the objectification of cultural, linguistic, religious, historical, and/or physical characteristics." Do the patterns that we see in Tiwanaku society indicate ethnicity?

The patterning in cranial modification demonstrates two regions with very distinct styles. In the Moquegua Valley near the Pacific Coast, individuals used frontal-occipital styles. In contrast, to the northeast of Tiwanaku an annular type of modification predominated in the Katari Valley. Consequently, it is possible to view the Tiwanaku realm as divided in two conceptually, with Moquegua and fronto-occipital types to one side and the Katari Valley and annular forms to the other. Between these two regions, we find the Tiwanaku Valley with the capital, where individuals with both head shapes were found. The border between east and west is not a clearly demarcated line, but a dynamic boundary where groups might converge. The patterning of cranial modification styles also implies little or no permanent movement of individuals with modified skulls between the east and west regions. On the surface, this very much gives the impression of ethnic-group boundary maintenance as described by Barth (1969). Since ethnohistorical sources document it as such in other areas, it can be reasonably proposed that cranial shape modification was a stereotyped, overt sign of ethnic ascription and differentiation key in the maintenance of boundaries in Tiwanaku society. Studies of this Tiwanaku material culture can add to the interpretation of these bioarchaeological data.

Various "levels" of "ethnicity" have been proposed by archaeologists identifying spatial patterning in the material culture throughout the Tiwanaku realm. Goldstein (1989, 1993, 2000b) argues that distant Tiwanaku

settlements in the Moquegua Valley were composed of a single ethnic group from Tiwanaku, or a "diaspora community," in which all the inhabitants identified stylistically with Tiwanaku. Owen and Goldstein (Owen and Goldstein 2001) have also recently reinterpreted Tiwanaku-affiliated sites in Moquegua, which were once thought to be temporally distinct on the basis of ceramic styles, as two intraregional and contemporaneous ethnic groups. Unfortunately, the data presented here fit into only one of these groups. In the altiplano, Janusek (1999, this volume; see also Bermann 1994) documents subtle variation between compounds at Tiwanaku and between Tiwanaku and Lukurmata in terms of serving vessel form and decoration, household practices, and differential access to particular resources and ceramic styles. He argues that regional and household "ethnic-like" groups were actively displaying their local identity within the broader identity as a member of Tiwanaku society. Therefore, in many ways a correlation between variation in ceramic styles and head form exists. However, this correlation is not exact, and deviations from it provide us with additional information.

As Barth (1969) points out in his classic piece on ethnicity, not all cultural "stuff" is relevant in maintaining ethnic boundaries, since personnel and items usually flow across those boundaries. The use of cranial modification and biodistance analyses allow us to directly observe social mobility throughout an individual's life and the boundaries to that mobility in Tiwanaku society. Although there is a vast change in material culture between the Formative and Tiwanaku periods, altered cranial shapes remained the same in the Katari and Moquegua valleys. This would mean, if one takes a primordial approach to ethnicity, that the boundaries of the groups remained unchanged even though other cultural elements were transformed, unless, of course, the meaning of modification changed over time (see Hensel 1996). Cranial modification does not vary between structures in the site of Tiwanaku, even though Janusek documents distinctions in material culture. However, the differences he outlines between Lukurmata and Tiwanaku can be seen in the dissimilarity between the Katari and Tiwanaku valleys.

By focusing on boundaries, Barth discusses how identity is maintained when groups interact, deviating from past assumptions that such groups become homogenized over time. Based on migration studies from Western Europe, a common assumption was that, in general, integration resulted in a loss of kinship bonds (du Toit 1975: 9; see also Childe 1950; Park 1950; and Weber 1958, 1979). However, there are many examples of people migrating specifically to areas where they have family, and it is very common to retain kin ties in the homeland after migration (du Toit 1975; Lewis 1965). Even in situations when no kin ties exist, fictive-kinship (*compadrazgo* or ritual kinship) becomes important. Therefore, we have no reason to expect that those who are physically or emotionally integrated into a larger whole would not retain their ties in their perceived homeland, even while creating new relationships. The likelihood of maintaining homeland identity is further increased by the common tendency to visit or return "home," and kin may act as a "bridge" between two communities (Anthony 1990; du Toit 1975). This would be true in the case of migration to or from Tiwanaku. People have a clear capacity to retain many identities at one time, even those that may seem incongruous to an outsider.

Data on inherited skeletal traits through biodistance analyses add more information to the interpretation. Biodistance analyses indicated an increase in gene flow between regions from the Formative to Tiwanaku periods. In the Formative period, populations from the Katari and Moquegua valleys were quite distant biologically, appearing to have been generally isolated from one another. During the Tiwanaku period, biological distance measures show a drastic change in which biodistances between all regions become quite small, likely indicating movement of people between these areas or at least an increase in sexual reproduction between individuals from these regions. Therefore, in contrast to what was seen earlier, cranial modification seems to have posed no real or strict barrier to sexual reproduction while Tiwanaku material culture styles were being used by the larger region. In fact, Tiwanaku culture in some ways encouraged the convergence of diverse groups, at least temporarily if not permanently.

During the Tiwanaku period, diverse people from a large region were using a common material culture style. Tiwanaku style has been generally viewed as emerging from the highland "core" and spreading into the peripheral areas where regional variants (e.g., Cochabamba and Moquegua) were developed (Bennett 1936:402; Ponce Sanginés 1972; Rydén 1957, 1959). However, based on the present data, this pattern can best be characterized as Tiwanaku drawing individuals from outlying homogeneous areas into a heterogeneous center, or boundary. This is consistent with recent work on migration that points out that migration is very rarely one-way (Anthony 1990). We can probably best view population movement in and out of Tiwanaku as

cyclical. Yet, through rules of interaction, sociocultural boundaries were maintained, as seen in data on cranial modification styles and biological distance. Only in the capital do we visibly see individuals of diverse groups living and buried together. However, outside of the boundary and capital, we see a strong sense of local, perhaps ayllu, identity being displayed with homogeneity in culturally constructed head shape.

CONCLUSION

Using different forms of style in material culture, archaeologists have addressed the issue of group membership and diversity in Tiwanaku. The present study illustrates the importance of a bioarchaeological approach in addressing social complexity and group dynamics in Tiwanaku society. This study also demonstrates that boundaries can be seen in Tiwanaku society. However, the complexity of these boundaries is only apparent when studies include both the heartland and "peripheries." In this way, the Tiwanaku Valley during the Tiwanaku period can be viewed as a distinct "borderland" at which interactions between neighboring regions occurred.

Through this analysis of permanent body modification and biological distance, two major regions in the Tiwanaku realm are revealed, each of which maintained a sense of a clear boundary while incorporated within Tiwanaku society. The capital city of Tiwanaku is envisioned as a cosmopolitan center, welcoming individuals of the diverse neighboring regions. Tiwanaku expansion is viewed as more than individuals from the highlands spreading into the lowlands during the later Tiwanaku period. These data indicate that individuals may have moved to and fro, perhaps in areas in which they already had some local ties.

It is hoped that the methods outlined here may allow us to utilize a broader array of collections in studying Andean social complexity. It is recognized that nondomestic contexts, such as mortuary areas, are not suitable independently for testing archaeological models (Stanish 1992). Mortuary contexts have been shown to contain exotic material, and the models necessitate detecting information about the local population. Using cranial modification styles and inherited traits, we can access a portion of the mortuary context that is fundamentally local, allowing mortuary remains, which make up a large part of the collections housed in the Andes, to be used for a wider range of inquiry.

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NOTES

1. Less visible differences may be used to differentiate within groups, but highly visible traits are generally those used by outsiders to identify group membership.

2. This sample consisted of twenty-four skulls from Tiwanaku V phase contexts from Omo M10; four Tumilaca phase individuals from M10; four Huaracane phase skulls from M10; and one Tumilaca phase cranium from Omo M11 (Hoshower et al. 1995:54–55).

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APPENDIX 1: TRAITS AND CODING SCHEMA (BIODISTANCE)

NON-METRIC TRAITS USED IN THE STUDY

CRANIAL TRAITS:	POSTCRANIAL TRAITS:
Accessory lesser palatine foramen	Allen's fossa
Apical bone	Atlas lateral bridging*
Asterionic bone	Atlas posterior bridge
Auditory exostoses	Atlas retroarticular bridge
Bregmatic bone	Atlas transverse foramen bridge*
Condylar canal	Circumflex sulcus*
Coronal ossicle	Poirier's facet
Divided hypoglossal canal-internal*	Septal aperture*
Divided hypoglossal canal-within canal	'Squatting facet'-lateral*
Epipteric bone	'Squatting facet'-medial*
Foramen ovale incomplete	Sternal foramen*
Foramen spinosum incomplete	Suprascapular foramen/notch
Inca bone	Supratrochlear spur
Infraorbital suture	Talar articulation shape*
Lambdoid ossicle	Third trochanter*
Mandibular torus	Trochlear notch form*
Mastoid foramen	Vastus notch*
Mental foramen*	
Metopic suture*	**DENTAL TRAITS:**
Multiple infraorbital foramina	Groove pattern-lower molars [M1*]
Mylohyoid bridge-center of groove*	Cusp number-lower molars [M1*]
Mylohyoid bridge-mandibular foramen*	Root number-lower molars [M1*]
Ossicle in occipito-mastoid suture	Root number-upper 1st premolar*
Palatine torus	Protostylid-lower molars [M1*]
Parietal foramen	Cusp 5-lower molars [M1*]
Parietal notch bone	Cusp 6-lower molars [M1*]
Pterygo-alar bridge	Cusp 7-lower molars [M1*]
Pterygo-spinous bridge	Tome's root-lower 1st premolar*
Rocker mandible	Shoveling-upper incisors [I1*]
Sagittal ossicle	Double shoveling-upper incisors [I1*]
Superior sagittal sulcus turns left*	Peg-shaped incisors-upper lateral incisor*
Suprameatal pit*	Winging-upper central incisors*
Supraorbital foramen*	Hypocone-upper molars [M1*]
Supratrochlear foramen*	Cusp 5 (metaconule)-upper molars [M1*]
Tympanic dihiscence*	Carabelli's trait-upper molars [M1*]
Zygomatico-facial foramen	Enamel extensions-upper molars [M1*]

*Traits used in final analysis.

CODING SCHEMA CRANIAL NON-METRIC TRAITS

METOPIC SUTURE:
1. absent
2. partial
3. complete
9. unobservable

SUPRAORBITAL NOTCH:
1. absent
2. <1/2 occluded by spicules
3. >1/2 occluded by spicules
4. present, degree unknown
5. multiple notches
9. unobservable

SUPRAORBITAL FORAMEN:
1. absent
2. present
3. multiple foramina
9. unobservable

SUPRATROCHLEAR NOTCH:
1. absent
2. without spur
3. with spurs
9. unobservable

SUPRATROCHLEAR FORAMEN:
1. absent
2. present
9. unobservable

INFRAORBITAL SUTURE:
1. absent
2. partial
3. complete
9. unobservable

MULTIPLE INFRAORBITAL FORAMINA:
1. absent
2. internal division only
3. two distinct foramina
4. > two distinct foramina
9. unobservable

ZYGOMATICO-FACIAL FORAMEN:
1. absent
2. 1 large
3. 1 large plus smaller f.
4. 2 large
5. 2 large plus smaller f.
6. 1 small
7. multiple small
8. multiple large
9. unobservable

PARIETAL FORAMEN:
1. absent
2. present, on parietal
3. present, on sutural
9. unobservable

SUTURAL BONES:
1. absent
2. present
9. unobservable
 a. epiteric bone
 b. coronal ossicle
 c. bregmatic bone
 d. sagittal ossicle
 e. apical bone (lambda)
 f. lambdoid ossicle
 g. asterionic bone
 h. ossicle in occipito-mastoid suture
 i. parietal notch bone

INCA BONE:
1. absent
2. complete, single bone
3. bipartite
4. tripartite
5. partial
9. unobservable

CONDYLAR CANAL:
1. absent
2. present
9. unobservable

DIVIDED HYPOGLOSSAL CANAL:
1. absent
2. partial, internal surface
3. partial, within canal
4. complete, internal surface
5. complete, within canal
9. unobservable

FLEXURE OF SUPERIOR SAGITTAL SULCUS:
1. right
2. left
3. bifurcate
4. right with elevation
5. left with elevation
9. unobservable

FORAMEN OVALE INCOMPLETE:
1. absent
2. partial formation
3. no definition of foramen
9. unobservable

FORAMEN SPINOSUM INCOMPLETE:
1. absent
2. partial formation
3. no definition of foramen
9. unobservable

PTERYGO-SPINOUS BRIDGE:
1. absent
2. trace (spicule only)
3. partial bridge
4. complete bridge
5. 2 spicules bilateral to foramen
9. unobservable

PTERYGO-ALAR BRIDGE:
1. absent
2. trace (spicule only)
3. partial bridge
4. complete bridge
9. unobservable

TYMPANIC DIHISCENCE:
1. absent
2. foramen only
3. full defect present
9. unobservable

AUDITORY EXOSTOSES:
1. absent
2. <1/3 canal occluded
3. 1/3. 2/3 canal occluded
4. >2/3 canal occluded
9. unobservable

SUPRAMEATAL PIT:
1. absent
2. small pit
3. large, shelf like
9. unobservable

ACCESSORY LESSER PALATINE FORAMEN:
1. absent
2. present
9. unobservable

b. Number:
1. absent
2. 1
3. 2
4. > 2
9. unobservable

MANDIBULAR TORUS:
1. absent
2. trace (can palpate)
3. moderate; elevation between 2-5 mm
4. marked; elevation > 5 mm
9. unobservable

ROCKER MANDIBLE:
1. absent
2. present
9. unobservable

MENTAL FORAMEN:
1. absent
2. 1
3. 2
4. more than 2
9. unobservable

MYLOHYOID BRIDGE:
a. Location:
1. absent
2. near mandibular foramen
3. center of groove
4. both bridges described in 1) and 2) with hiatus
5. both bridges described in 1) and 2), no hiatus
9. unobservable

b. Degree:
1. absent
2. partial (definite spicule)
3. compete
9. unobservable

CODING SCHEMA POSTCRANIAL NON-METRIC TRAITS

FEMUR – POIRIER'S FACET:
1. Absent
2. Slight
3. Marked
9. Unobservable

FEMUR – ALLEN'S FOSSA:
1. Absent
2. Small
3. Large
9. Unobservable

TIBIA – 'SQUATTING' FACETS:
1. Absent
2. Medial
3. Lateral
4. Medial and lateral
9. Unobservable

CALCANEUS – SHAPE OF TALAR ARTICULAR SURFACES:
1. Anterior absent
2. Ovoid
3. Hourglass
4. 2 facets
5. Hourglass with slight division
9. Unobservable

SCAPULA – SUPRASCAPULAR FORAMEN/NOTCH FORM:
1. Absent
2. Notch with spurs
3. Foramen
9. Unobservable

SCAPULA – CIRCUMFLEX SULCUS:
1. Absent
2. Present
9. Unobservable

FEMUR – 3RD TROCHANTER:
1. Absent
2. Slight
3. Marked
9. Unobservable

PATELLA – VASTUS NOTCH:
1. Absent
2. Present
9. Unobservable

HUMERUS – SUPRATROCHLEAR SPUR:
1. Absent
2. Small (<1cm)
3. Large (>1cm)
9. Unobservable

STERNUM – STERNAL FORAMEN:
1. Absent
2. Present
9. Unobservable

ULNA – TROCHLEAR NOTCH FORM:
1. Absent
2. 2 facets
3. one facet with large division
9. Unobservable

3RD – 7TH CERVICAL VERTEBRAE – TRANSVERSE FORAMEN BIPARTITE
Present/# Observable

1ST CERVICAL VERTEBRA – POSTERIOR BRIDGE:
1. Absent
2. Spurs
3. Bridge
9. Unobservable

1ST CERVICAL VERTEBRA – RETROARTICULAR BRIDGE:
1. Absent
2. Spurs
3. Bridge
9. Unobservable

CODING SCHEMA DENTAL NON-METRIC TRAITS

LOWER MOLARS:

PROTOSTYLID

1. No expression of any sort. Buccal surface is smooth.
2. A pit occurs in the buccal groove.
3. Buccal groove is curved distally.
4. A faint secondary groove extends mesially from the buccal groove.
5. Secondary groove is slightly more pronounced.
6. Secondary groove is stronger and can easily be seen.
7. Secondary groove extends across most of the buccal surface of cusp 1. This is considered a weak or small cusp.
8. A cusp with a free apex occurs.
9. Unobservable

CUSP 5

1. Absence. Molar has only 4 cusps.
2. Cusp 5 is present and very small.
3. Cusp 5 is small
4. Cusp 5 is medium sized.
5. Cusp 5 is large
6. Cusp 5 is very large.
7. Cusp 6 is present.
9. Unobservable

CUSP 6

1. Cusp 6 is absent.
2. Cusp 6 is much smaller than cusp 5.
3. Cusp 6 is smaller than cusp 5.
4. Cusp 6 is equal in size to cusp 5.
5. Cusp 6 is larger than cusp 5.
6. Cusp 6 is much larger than cusp 5.
9. Unobservable

CUSP 7

1. No occurrence of cusp 7.
2. Faint cusp is present. Two weak lingual grooves are present instead of one.
3. A faint tipless cusp 7 occurs displaced as a bulge on the lingual surface of cusp 2.
4. Cusp 7 is small.
5. Cusp 7 is medium sized.
6. Cusp 7 is large.
9. Unobservable

ROOT NUMBER

1. One Root: root tip may be bifurcated. If tips are free for more than one-fourth to one-third of the total root length, score as two roots.
2. Two Roots: Two separate roots exist for at least 1/4 to 1/3 the total root length.
3. Three Roots: A third (supernumerary) root is present on the distolingual aspect.
9. Unobservable

LOWER FIRST PREMOLARS:

ROOT NUMBER (TOME'S ROOT)

1. Developmental grooving is absent or, if present, shallow with rounded rather than V-shaped indentation.
2. Developmental groove is present and has a shallow V-shaped cross-section.
3. Developmental groove is present and had a moderately deep V-shaped cross-section.
4. Developmental groove is present, V shaped, and deep.
5. Developmental grooving is deeply invaginated on both the mesial and distal borders.
6. Two free roots are present. They are separate for at least one-quarter to one-third of the total root length.
9. Unobservable

UPPER CENTRAL INCISORS:

SHOVELING

1. None: Lingual surface is essentially flat.
2. Faint: Vary slight elevations of mesial and distal aspects of lingual surface can be seen and palpated.
3. Trace: Elevations are easily seen.
4. Semi-shovel: Stronger ridging is present and there is a tendency for ridge convergence at the cingulum.
5. Semi-shovel: Convergence and ridging are stronger than in grade 3.
6. Shovel: Strong development of ridges, which almost contact at the cingulum.
7. Marked Shovel: Strongest development. Mesial and distal lingual ridges are sometimes in contact at the cingulum.
8. Barrel (U12 only): Expression exceeds grade 6.
9. Unobservable

DOUBLE SHOVELING

1. None: Labial surface is smooth.
2. Faint: Mesial and distal ridging can be seen in strong contrasting light. Distal ridge may be absent in this and stronger grades.
3. Trace: Ridging is more easily seen and palpated.
4. Semi-Double Shovel: Ridging can be readily palpated.
5. Double Shovel: Ridging is pronounced on at least one-half of the total crown height.
6. Pronounced Double Shovel: Ridging is very prominent and may occur from the occlusal surface to the CEJ.
7. Extreme Double Shovel: Very pronounced ridging.
9. Unobservable

WINGING

1. Absent.
2. Bilateral Winging: Central incisors are rotated mesiolingually. When the angle formed is greater than 20 degrees, it is classed as 1A; when less than 20 degrees, 1B.
3. Unilateral Winging: Only one of the incisors is rotated.
4. Straight: Both teeth form a straight labial surface or follow the curvature of the arcade.
5. Counter Winging: One or both teeth are rotated distolingually.
9. Unobservable

UPPER LATERAL INCISORS:

PEG-SHAPED INCISORS

1. Normal-sized incisor.
2. Incisor reduced in size, but having normal crown form.
3. Peg-shaped incisor as defined above.
9. Unobservable

UPPER MOLARS:

CARABELLI'S TRAIT

1. Mesiolingual aspect of cusp 1 is smooth.
2. Groove present.
3. Pit present.
4. A small Y-shaped depression is present.
5. A large y-shaped depression is present.
6. A small cusp without a free apex occurs. The distal border of the cusp does not contact the lingual groove separating cusps 1 and 4.
7. A medium-sized cusp with an attached apex making contact with the medial lingual groove is present.
8. A large free cusp is present
9. Unobservable

CUSP 5 (METACONULE)

1. Site of cusp 5 is smooth, with only a single distal groove separating cusps 3 and 4.
2. Faint cuspule present.
3. Trace cuspule present.
4. Small cuspule present
5. Small cusp present.
6. Medium-sized cusp present.
9. Unobservable

ENAMEL EXTENSIONS

1. Enamel border is straight, or, rarely, curved toward the crown. Score any extension not attached to the crown as absent.
2. A faint, approximately 1.0mm long extension projecting toward and along the root.
3. A medium-sized, approximately 2.0 mm long extension.
4. A lengthy extension, generally >4.00 mm in length. It may extend all the way to the root bifurcation.
9. Unobservable

UPPER FIRST PREMOLARS:

ROOT NUMBER

1. One root. Tip may be bifid for less than 1/3 of its length.
2. Two roots. Separate roots must be greater than one-quarter to one-third of the total root length.
3. Three roots. Length defined as in grade 2.
9. Unobservable

RECODING INTO "PRESENT/ABSENT" FOR NON-METRIC TRAITS

Skeletal Trait Recoding

Trait Name	Present	Absent
Accessory Lesser Palatine Foramen	2	1
Allen's Fossa	3	2, 1
Apical Bone	2	1
Asterionic Bone	2	1
Atlas Lateral Bridging	2, 3	1
Atlas Posterior Bridge	2, 3	1
Atlas Retroarticular Bridge	2, 3	1
Atlas Transverse Foramen Bridge	1+/1+	0/1+
Auditory Exostoses	2	1
Bregmatic Bone	2	1
Circumflex Sulcus	2	1
Condylar Canal	2	1
Coronal Ossicle	2	1
Divided Hypoglossal Canal-Internal	2, 4	1
Divided Hypoglossal Canal-Within Canal	3, 5	1
Epiteric bone	2	1
Flexure of Superior Sagittal Sulcus-Left	2, 3, 5	1, 4
Foramen Ovale Incomplete	2	1
Foramen Spinosum Incomplete	2	1
Inca Bone	2-5	1
Infraorbital Suture	2	1
Lambdoid Ossicle	2	1
Mandibular Torus	3, 4	1, 2
Mastoid Foramen		1
Mental Foramen	3, 4	1, 2
Metopic Suture	3	1, 2
Multiple Infraorbital Foramina	2	1
Mylohyoid Bridge Center of Groove	location=2+ number=1+	1
Mylohyoid Bridge Near Mandibular Foramen	location=2, 4, 5 number=2+	1
Ossicle in Occipito-Mastoid Suture	2	1
Palatine Torus	2	1
Parietal Foramen	2	1
Parietal Notch Bone	2	1
Poirier's Facet	2, 3	1
Pterygo-alar Bridge	3, 4	1, 2
Pterygo-spinous Bridge	3, 4	1, 2
Rocker Mandible	2	1
Sagittal Ossicle	2	1
Septal Aperture	2, 3	1
Squatting Facet-Lateral	2	1
Squatting Facet-Medial	2	1
Sternal Foramen	2	1
Supratrochlear Foramen	2	1
Supratrochlear Spur		
Suprameatal Pit	2	1
Supraorbital Foramen	2	1
Suprascapular Foramen/Notch Form	2, 3	1
Supratrochlear Spur-Humerus	2, 3	1
Talar Articulation 2 facets	4	2, 3, 5
Third Trochanter	2, 3	1
Trochlear Notch Form	2	1, 3*
Tympanic Dihiscence	3	1, 2
Vastus Notch	2	1
Zygomatico-facial Foramen	3-5, 7	1, 2, 6

Dental Trait Recoding

Arcade	Trait	Present	Absent	Null
Lower	Groove Pattern	Y	X,+,W	
	Cusp#-M2&3	4	5, 6	
	Cusp#-M1	6	4, 5	
	Protostylid	3-8	1, 2	
	Cusp5 (Hypoconulid)	2-6	1	7
	Cusp6 (Entoconulid)	2-6	1	
	Cusp7 (Metaconulid)	2-6	1	
	Root#-M2&3	2	1, 3	
	Root#-M1	3	1, 2	
	Root#-PM1			
Upper	Root#-PM1	1	2, 3	
	Hypocone	6, 7	1-5	
	Metaconule	2-6	1	
	Carabelli's Cusp	3-8	1, 2	
	Enamel Extension	3, 4	1, 2	
	Shoveling	3-8	1, 2	
	Double shoveling	3-7	1, 2	
	Winging	2, 3	1, 4, 5	
	Peg-shaped	3	1, 2	

CHAPTER 11

A Bioarchaeological Assessment of Prehistoric Ethnicity among Early Late Intermediate Period Populations of the Azapa Valley, Chile

RICHARD C. SUTTER

INTRODUCTION

The concept of ethnicity is widely recognized as one that is both difficult to define and operationalize, even among living people. While much disagreement exists on exactly what defines ethnicity, most scholars agree that ethnic identity often involves assigning importance to perceived affinities among individuals as well as some sense of differences among groups (Barth 1969; Carter Bentley 1987; Drummond 1980; Southall 1976). Further, group affinities and differences are often expressed culturally through both material objects and shared, group-specific behavior (Carter Bentley 1987).

APPROACHES TO PREHISTORIC ETHNICITY IN THE SOUTH-CENTRAL ANDES

As is evident by the contributions of this volume, a number of archaeologists and bioarchaeologists working in the south-central Andes have explored methodologies for identifying prehistoric ethnic groups. More specifically, archaeologists working within the south-central Andes have explored material correlates of ethnicity, largely due to the stated goal of identifying ethnic altiplano colonies within the coastal valleys of the region. The identification of ethnic groups in the archaeological record has traditionally been based upon variation among artifacts and features that are thought to have been contemporaneous.

Stanish (1989b) notes that archaeological investigations in the south-central Andes have traditionally relied upon what he refers to as an "artifact-based" approach to determine both the cultural and biological affiliation among sites from different regions. He defines this approach as one that relies upon the presence of particular classes of artifacts (generally ceramics and other highly valued objects from funerary and ceremonial contexts) but fails to control for the context where they are found. These artifacts are then used to determine a given site's cultural affiliation. However, as Stanish (1989a, 1989b) and others (Aldenderfer and Stanish 1993) correctly indicate, this approach does not distinguish among the material correlates of trade,

ideology, and colonization; one of the greatest problems with an artifact-based methodology is that artifacts such as ceramics, textiles, and metal objects are highly transportable and can appear in archaeological contexts far outside their range of production.

Because altiplano colonists are expected to defend and display their ethnic affiliation with the homeland, ethnicity has been a concept of primary importance for identifying altiplano colonies in the archaeological record. A variety of artifacts, features, and cultural practices believed to be reliable indicators of ethnicity have been used to test the presence of ethnically altiplano colonists in the coastal valleys of the Andes. These include ceramics (Owen 1993), textiles (Cassman 1997; Oakland 1992), domestic architecture (Aldenderfer and Stanish 1993; Stanish 1989b), mortuary practices (Buikstra 1995), and cranial deformations (Lozada, Blom, and Buikstra 1996), all of which have been used to test the presence of altiplano colonies. The interest, in these cases, has been to identify material objects, features, or other indicators of culturally mediated behavior that reflect stylistic similarities among assemblages from the coastal valleys with those of known altiplano origin.

While not always explicitly stated, the goal of archaeologically based methodologies of ethnicity is not only to identify cultural affiliation with the altiplano, but also to infer genetic relatedness with altiplano populations. However, if the goal is to identify genetic relatedness among coastal and highland populations sharing cultural expressions of group identity, this may be confounded by a variety of factors. Although recent investigations that explore prehistoric ethnicity are more explicit in their methodology, they largely ignore genetic relations among the groups being studied (although see Haydon 1993; Lozada, Haydon, and Buikstra 1993; Sutter 1997, 2000).

An implicit assumption of many archaeological investigations that examine prehistoric ethnicity is that spatially associated contemporaneous stylistic differences among cultural practices (i.e., features and artifact assemblages, bodily modification) represent prehistoric multiethnic settlement. However, the usefulness of archaeologically based methodologies is unclear because there is no *a priori* reason to assume that any given culturally based behavior (i.e., artifact manufacture and use, archaeological features, cranial deformation, etc.) will be an indicator of group affiliation. This is because group formation and affiliation have been shown to often be situational (Geary 1983). Indeed, there may be different social contexts that evoke different group affiliations (Berreman 1972; Carter Bentley 1987; Cohen 1981), and instances when individuals will hold multiple ethnic identities that are not necessarily mutually exclusive (Keyes 1976). For these reasons, ethnicity has remained a difficult concept to define (Barth 1969; Carr and Neitzel 1995) and presents unique challenges for those trying to apply the concept to the archaeological record (Aldenderfer and Stanish 1993; Bawden 1993; Bermann 1994).

AN ALTERNATIVE APPROACH—BIOARCHAEOLOGY AS METHODOLOGY

Because no class of objects will always be directly correlated with ethnic affiliation, or, necessarily, with the genetic composition of a given population, the concept of ethnicity as applied to the archaeological record cannot, *by itself*, satisfactorily address the larger problem of identifying the source(s) for the formation of ethnic groups. For these reasons, a bioarchaeological methodology has some advantages over strictly archaeologically based methodologies, if the relationship between genetic relatedness and culturally expressed group identity (i.e., ethnicity) can be identified. This is an important methodological distinction because groups of people can be genetically related (i.e., have recent common ancestors), yet actively express group distinctions through material culture. On the other hand, genetically unrelated populations with distinct cultural histories can share economic orientation, ideology, religion, and ethnic or political affiliation (Sutter 1997, 2000).

Within this paper I utilize the concept of biocultural groups. Biocultural groups are operationally defined here as groups that demonstrate ethnic affiliation as indicated by culturally based behavior, genetic relatedness, and shared economic activities and interests (Carter Bentley 1987). The assumption of this approach is that each of these factors will be influenced, to varying degrees, by culturally defined group affiliation (figure 1).

For this study, conscious stylistic (emblemic) expression of group identity is inferred by examining grave offerings and cranial deformations, while shared socioeconomic activities, interests, and diet are inferred using both dental pathologies and grave furniture. Genetic relatedness is explored using both dental and cranial epigenetic traits. This methodology is illustrated using four early Late Intermediate period mortuary populations from the Azapa Valley, Chile.

The goals of this paper are to uncover which of those variables are related to "ethnic" variation and to

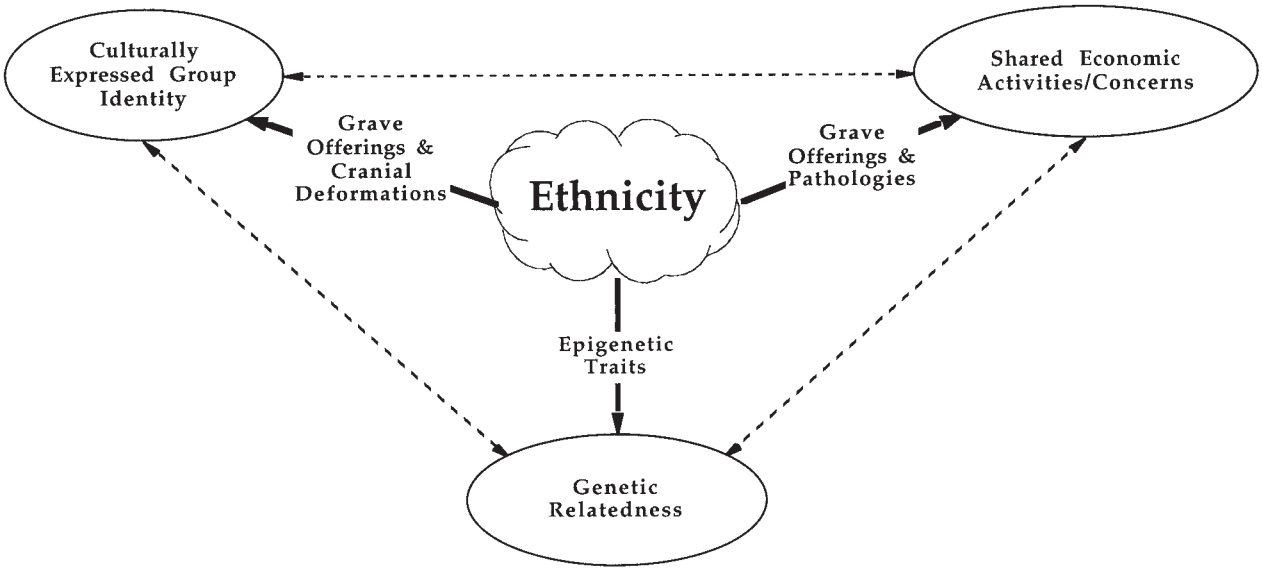

Figure 1: Components of ethnicity and methods used by this study to infer each component.

identify the basis of ethnic variation among these Late Intermediate period mortuary populations. In doing so, I hope to illustrate the usefulness of the proposed bioarchaeological methodology.

ESTABLISHING LATE INTERMEDIATE PERIOD ETHNICITY WITHIN THE AZAPA VALLEY

A basic, yet far from trivial task for all studies attempting to identify ethnicity-based variation in the archaeological record is to establish the contemporaneity among apparently distinct cultural groups. The culture history for the Azapa Valley, especially for the terminal Middle Horizon and early Late Intermediate period (AD 950–1476), as reported to date, is at best confusing. This is especially true for the Cabuza, Maitas-Chiribaya, and San Miguel ceramic traditions. Most scholars working in the Azapa Valley argue that the presence of Middle Horizon Tiwanaku V, Loreto Viejo, Sobraya, Cabuza, and Maitas-Chiribaya ceramics from mortuary contexts within the same cemetery is evidence of multiethnic settlement of the Azapa Valley by altiplano colonists. However, many archaeologists working in the Moquegua Valley, Peru—where cultural and ceramic traditions are similar to those for the Azapa Valley—have commented on the wide discrepancies among the dates for the cultural developments within these two valleys (Goldstein 1995; Owen 1993; Sutter 1997). For example, the Chilean Sobraya, Cabuza, and Maitas-Chiribaya ceramic traditions demonstrate clear formal and stylistic similarities to Moquegua Valley Tumilaca, Ilo-Tumilaca, Ilo-Cabuza, and Chiribaya ceramic traditions recovered from stratified post-Tiwanaku Late Intermediate period contexts.

The Late Intermediate period is defined by the decline of Tiwanaku's influence in the region. Tiwanaku's collapse appears to have begun in the periphery first and progressed toward the Tiwanaku heartland. While Tiwanaku's influence may have persisted until AD 1200 in the altiplano (Kolata 1993), evidence from the Moquegua and Azapa valleys suggests Tiwanaku's influence ended in those areas sometime prior to AD 950 (Goldstein 1993, 1995). Following its demise in the coastal valleys of the south-central Andes, the cultural influence of Tiwanaku was quickly replaced by distinctive regional architecture, ceramics, burial practices, and textiles.

While scholars working in the Azapa Valley believe that Cabuza and Maitas-Chiribaya ceramics are Middle Horizon ceramic traditions, a critical evaluation of both stylistic and chronometric evidence clearly indicates these traditions largely postdate the Middle Horizon. The archaeological and radiometric evidence I present here indicates that these ceramic traditions have been chronologically misplaced. Many of the radiocarbon dates for the Azapa Valley are presented here with their calibrations for the first time. This comparison provides essential information that permits a critical evaluation of culture history for this valley. To ensure comparability of calibrated dates presented here, I used MacCALIB 3.0.3A (Stuiver and Reimer 1993b) to calibrate all radiometric dates using Method A. The

calibrated dates produced using Method A represent the intercept of the radiocarbon age with the calibration curve (Stuiver and Reimer 1993a).

With the exception of a single calibrated radiocarbon date of AD 540 and a second date of AD 310 obtained through thermoluminesence (Schiappacasse et al. 1991: 45), the remaining thermoluminesence and sixteen calibrated radiocarbon dates for Cabuza range between AD 1020 and 1430 (table 1). While the two earlier dates clearly allow for some overlap with Tiwanaku, the majority of these dates firmly place the Cabuza tradition contemporaneous with early Late Intermediate period Tumilaca and Ilo-Tumilaca/Cabuza ceramic traditions of the Moquegua Valley (Owen 1993). Indeed, although most of the dates from Cabuza range between AD 1020 and AD 1250, some of the Cabuza dates from textiles are considerably more recent than is expected for this cultural tradition.

The Middle Horizon antiquity of the Chilean Maitas-Chiribaya ceramic tradition is also doubtful for the same reasons. Muñoz (1983:83) reports ten radiocarbon dates from Maitas-Chiribaya funerary contexts that, when calibrated, range between AD 890 and 1030. However, nineteen additional radiocarbon dates and more than fifteen thermoluminesence dates for Maitas-Chiribaya range between AD 950 and 1440 (Schiappacasse et al. 1991:45), clearly placing the Maitas-Chiribaya tradition in the Late Intermediate period (table 2).

The black paint on white slip San Miguel ceramic tradition is closely related to the middle and terminal Late Intermediate period Pocoma and Gentilar ceramic traditions (Espoueys et al. 1994). The calibrations for the six reported radiocarbon dates for San Miguel range between AD 1030 and 1380 (table 3), making this tradition contemporaneous with the Cabuza and Maitas-Chiribaya cultural traditions. The forms and pastes of Azapa Valley San Miguel ceramics are nearly identical to Maitas-Chiribaya ceramics (Mariela Santos, personal communication 1994), also suggesting that these ceramics are contemporaneous. Further, the co-occurrence in tombs of San Miguel ceramics with Cabuza and Maitas-Chiribaya ceramics is also an independent, albeit ambiguous, indication that these ceramic traditions are contemporaneous (Espinoza et al. 1994). This is not a widely held opinion of archaeologists working in northern Chile, who see the San Miguel tradition as being derived from the Maitas-Chiribaya tradition (Espoueys et al. 1994; Muñoz and Focacci 1985). However, when critically evaluated, the archaeological record for the Azapa Valley indicates the coexistence of the Cabuza, Maitas-Chiribaya, and San Miguel ceramic traditions during the Late Intermediate period. It is important to emphasize that none of these three ceramic traditions considered here has a known altiplano counterpart.

MATERIALS AND METHODS

I. Grave Good Analysis

Mortuary practices are well understood for Late Intermediate period cultural traditions within the Azapa Valley. This investigation examines human burials and their associated goods from Late Intermediate period sites Playa Miller-4, Azapa-140, Azapa-71, and Azapa-6 of the Azapa Valley, Chile (figure 2). Grave good data discussed by this investigation are based upon the examination of textiles by Cassman (1997), the consultation of site reports and field notes (Focacci 1961, 1968, 1969a, 1969b, 1982, 1993; Muñoz and Focacci 1985), and a recently compiled grave good database for the mortuary populations examined by this study (Espinoza et al. 1994).

1) *Playa Miller-4.* Playa Miller-4 is a Late Intermediate period cemetery site associated with a fishing village. The cemetery is located approximately 50 m down the coast from the Formative period Playa Miller-7 site and is adjacent to the contemporaneous cemetery sites Playa Miller-2, 6, and 9 (Focacci 1969b, 1974, 1982).

These nearby sites represent different areas of the same prehistoric cemetery that were excavated during subsequent field seasons. Only those remains from Playa Miller-4 were available for this study. With the exception of a few brief remarks in publications by Focacci (1980), Muñoz (1983), and Soto-Heim (1987), relatively little has been published concerning Playa Miller-4. Tombs at Playa Miller-4 were pits excavated into the sand. Graves were frequently lined with two or three rock slabs to support the walls of the tomb. Playa Miller-4 tombs contained single, flexed burials placed in their graves in a seated position. Grave lots indicate that maritime economic activities were practiced by individuals interred at Playa Miller-4. The remains and grave goods of forty-one individuals were examined for this site, and were primarily associated with ceramics of the San Miguel tradition.

2) *Azapa-140.* The cemetery site Azapa-140 is located 12.5 km inland from the coast, and a few meters east of the habitational site Azapa-11, also known as Pucará San Lorenzo (Muñoz and Focacci 1985).

Table 1. Radiocarbon dates for the Azapa Valley Cabuza ceramic tradition.

Site	Context	Culture	Lab ID	Sample	Uncorrected C14	±	Dendo-Calibrated	Reference
AZ-71	T-332	Cabuza	Beta-78963	Textile	490	60	AD 1407 (1433) 1449	Cassman 1997:68
AZ-71	T-21	Cabuza	Beta-78953	Textile	650	60	AD 1290 (1305, 1367, 1373) 1398	Cassman 1997:68
AZ-71	T-228	Cabuza	Beta-78960	Textile	660	70	AD 1286 (1302) 1398	Cassman 1997:68
AZ-71	T-112A	Cabuza	Beta-78955	Textile	670	50	AD 1288 (1300) 1391	Cassman 1997:68
AZ-71	T-214	Cabuza	Beta-78952	Textile	800	70	AD 1192 (1253) 1286	Cassman 1997:68
AZ-71	T-278A	Cabuza	Beta-80634	Textile	810	70	AD 1174 (1245) 1284	Cassman 1997:68
AZ-71	T-187	Cabuza	Beta-78959	Textile	820	40	AD 1213 (1229) 1277	Cassman 1997:68
AZ-71	T-147	Cabuza	Beta-77222	Textile	830	50	AD 1174 (1225) 1276	Cassman 1997:68
AZ-71	T-173C	Cabuza	Beta-77223	Textile	850	40	AD 1168 (1218) 1249	Cassman 1997:68
AZ-71	T-99B	Cabuza	Beta-78954	Textile	850	50	AD 1165 (1218) 1255	Cassman 1997:68
AZ-71	T-174	Cabuza	Beta-78958	Textile	850	50	AD 1165 (1218) 1255	Cassman 1997:68
AZ-71	T-242	Cabuza	Beta-78961	Textile	850	60	AD 1162 (1218) 1267	Cassman 1997:68
AZ-141	T-52	Cabuza	-	Muscle	870	80	AD 1041 (1195) 1266	Museo San Miguel de Azapa Lab Records
AZ-141	T-24	Cabuza	I-13, 780	Muscle	930	80	AD 1019 (1052, 1085, 1121, 1139, 1156) 1218	Museo San Miguel de Azapa Lab Records
AZ-141	T-47	Cabuza	-	Muscle	980	80	AD 996 (1028) 1165	Museo San Miguel de Azapa Lab Records
AZ-71	T-140	Cabuza	Beta-78956	Textile	1010	80	AD 978 (1020) 1156	Cassman 1997:68
AZ-6	T-25	Cabuza-Sobraya	GaK 5816	Camote	1570	65	AD 421 (535) 594	Focacci 1982:74

Table 2. Radiocarbon dates for the Azapa Valley Maitas-Chiribaya ceramic tradition.

Site	Context	Culture	Lab ID	Sample	Uncorrected C14	±	Dendo-Calibrated	Reference
AZ-140	T-6	Maitas-Chiribaya	Beta-78627	Textile	450	50	AD 1430 (1444) 1473	Cassman 1997:68
AZ-140	T-44	Maitas-Chiribaya	Beta-78967	Textile	500	60	AD 1405 (1431) 1446	Cassman 1997:68
AZ-140	T-100	Maitas-Chribaya	Beta-78631	Textile	530	50	AD 1400 (1415) 1436	Cassman 1997:68
AZ-140	T-28	Maitas-Chiribaya	Beta-78628	Textile	560	50	AD 1321 (1405) 1427	Cassman 1997:68
AZ-140	T-71	Maitas-Chiribaya	Beta-78630	Textile	670	60	AD 1286 (1300) 1393	Cassman 1997:68
AZ-140	T-101	Maitas-Chiribaya	Beta-78968	Textile	690	60	AD 1281 (1295) 1386	Cassman 1997:68
AZ-140	T-122	Maitas-Chiribaya	Beta-78632	Textile	690	60	AD 1281 (1295) 1386	Cassman 1997:68
AZ-71	T-480	Maitas-Chiribaya	I-11-641	Muscle	695	75	AD 1276 (1293) 1389	Focacci 1982:74
AZ-6	T-141	Maitas-Chiribaya	1-11,622	Coronta/Camote	715	130	AD 1219 (1289) 1399	Focacci 1982:74
AZ-140	T-16	Maitas-Chribaya	Beta-78966	Textile	740	60	AD 1251 (1284) 1298	Cassman 1997:68
AZ-140	T-24B	Maitas-Chiribaya	Beta-78964	Textile	740	60	AD 1251 (1284) 1298	Cassman 1997:68
AZ-140	T-56	Maitas-Chiribaya	Beta-78629	Textile	740	70	AD 1240 (1284) 1300	Cassman 1997:68
AZ-71	T-X	Maitas-Chiribaya	I-11, 621	Sorona	765	75	AD 1219 (1278) 1294	Focacci 1982:74
AZ-140	T-128	Maitas-Chiribaya	Beta-78965	Textile	800	70	AD 1192 (1253) 1286	Cassman 1997:68
AZ-140	T-118	Maitas-Chiribaya	Beta-78969	Textile	820	60	AD 1174 (1229) 1280	Cassman 1997:68
AZ-71	T-245	Maitas-Chiribaya	Beta-78962	Textile	860	70	AD 1052 (1214) 1266	Cassman 1997:68
AZ-140	T-127	Maitas-Chiribaya	Beta-78633	Textile	880	70	AD 1041 (1176) 1248	Cassman 1997:68
AZ-6	T-141	Maitas-Chiribaya	I-11,625	Coca	910	145	AD 1000 (1162) 1279	Focacci 1982:74
AZ-140	T-105	Maitas-Chiribaya	1-12-336	Muscle	980	80	AD 996 (1028) 1165	Muñoz 1983:83
AZ-140	T-23	Maitas-Chiribaya	I-12-349	Muscle	980	80	AD 996 (1028) 1165	Muñoz 1983:83
AZ-140	T-36	Maitas-Chiribaya	1-12-337	Muscle	1000	80	AD 984 (1022) 1159	Muñoz 1983:83
PLM-9	T-24	Maitas-Chiribaya	I-11-624	Sorona	1008	80	AD 978 (1020) 1156	Focacci 1982:74
AZ-140	T-24	Maitas-Chiribaya	I-11-624	Sorona	1055	80	AD 893 (997) 1028	Muñoz 1983:83
AZ-140	T-XPB2A	Maitas-Chiribaya	I-12, 335	Muscle	1070	80	AD 890 (989) 1026	Muñoz 1983:83
AZ-11	Sector Este	Maitas-Chiribaya	I-12-335	Totora	1090	80	AD 886 (978) 1020	Muñoz 1983:83
AZ-11	T-9	Maitas-Chiribaya	I-12-352	Muscle	1090	80	AD 886 (978) 1020	Muñoz 1983:83
AZ-11	-	Maitas-Chiribaya	I-12-352	Midden	1140	80	AD 789 (893) 997	Muñoz 1983:83
AZ-11	-	Maitas-Chiribaya	I-12-334	Reed	1160	80	AD 782 (888) 984	Muñoz 1983:83
AZ-140	T-75	Maitas-Chiribaya	I-12-348	Muscle	1190	80	AD 727 (881) 967	Muñoz 1983:83

Table 3. Radiocarbon dates for the Azapa Valley San Miguel ceramic tradition.

Site	Context	Culture	Lab ID	Sample	Uncorrected C14	±	Dendo-Calibrated	Reference
PLM-9	T-18	Desarrollo Regional	Beta-78635	Textile	640	50	AD 1295 (1307, 1360, 1379) 1398	Cassman 1997:68
PLM-9	T-1	Desarrollo Regional	Beta-78634	Textile	720	60	AD 1272 (1288) 1303	Cassman 1997:68
PLM-9	T-M9-T14	San Miguel	I-10-861	Sorona	775	80	AD 1214 (1275) 1293	Muñoz 1983:83
PLM-9	T-14	San Miguel	I-10, 861	Leaves	775	80	AD 1215 (1276) 1294	Focacci 1982:74
PLM-9	T-21	Desarrollo Regional	Beta-78636	Textile	920	50	AD 1031 (1064, 1075, 1127, 1133, 1159) 1201	Cassman 1997:68
AZ-11	T-8	San Miguel	-	Muscle	970	80	AD 1004 (1032) 1168	Muñoz 1983:83

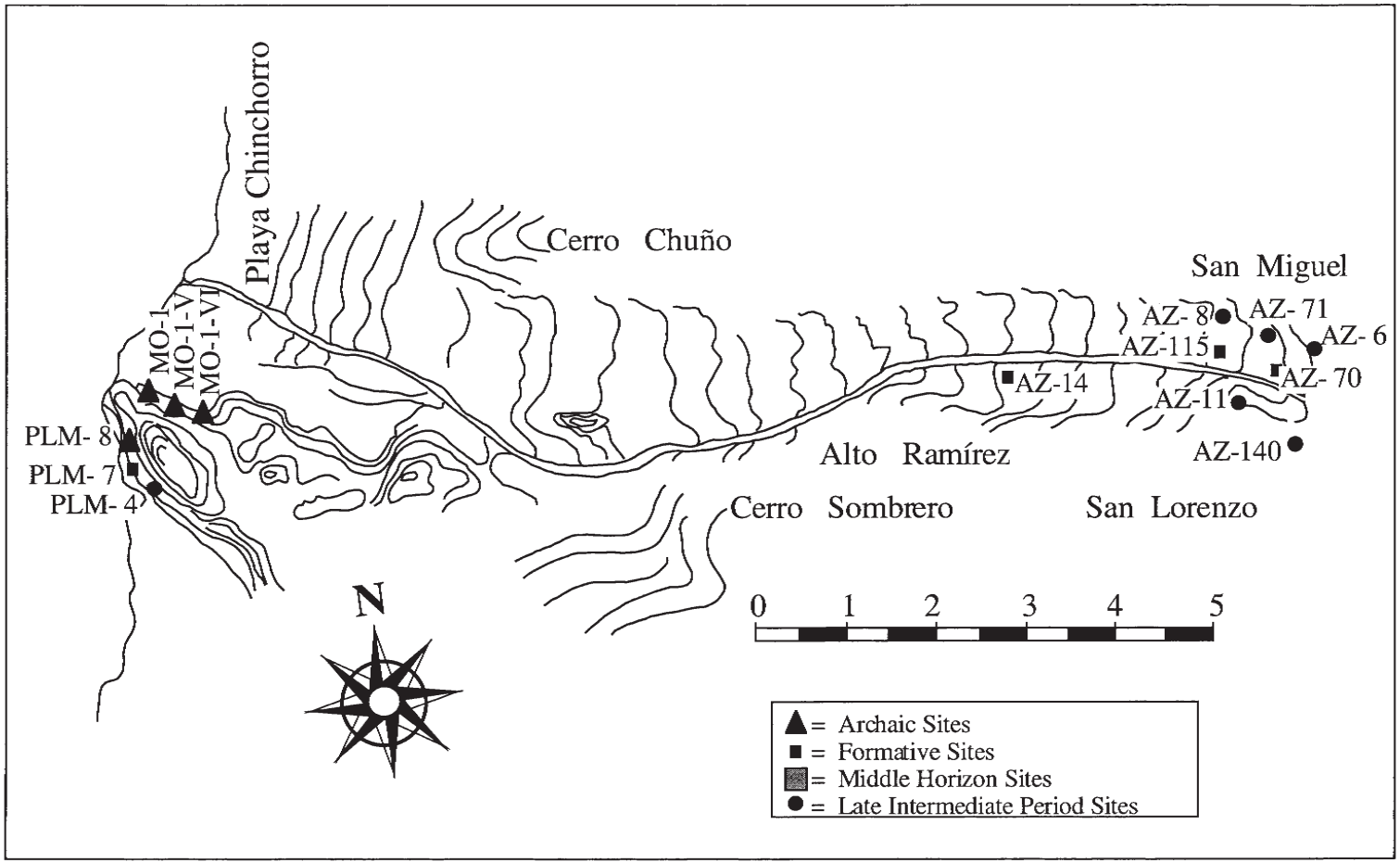

Figure 2: Azapa Valley archaeological sites discussed by this study.

The cemetery occupies the southern slope of the Azapa Valley directly across from Late Intermediate period sites Azapa-6 and Azapa-71. Burials were placed in sandy cavities in a seated position. Grave lots reflect a mixed agropastoral and maritime subsistence. Of the seventy-seven remains examined from Azapa-140, sixty-nine were associated with Maitas and Maitas-Chiribaya ceramics, while only four were associated with San Miguel ceramics. The implications of associated ceramics will be examined in greater detail in subsequent sections of this paper.

3) *Azapa-71.* Azapa-71 (AZ-71) is primarily a Late Intermediate period cemetery located 12.5 km from the coast of Arica along the northern slope of the Azapa Valley (Espinoza et al. 1994; Focacci 1961, 1968, 1993). This cemetery is located approximately 150 m west of the contemporaneous Late Intermediate period cemetery Azapa-6 described below. Associated grave offerings reflect that agropastoral activities were practiced by individuals interred at the site. Tombs from Azapa-71 contained single, flexed burials wrapped in one or two wool shirts of relatively unremarkable quality. Burials were placed in sandy pit tombs in a seated flexed position (Focacci 1993). The overwhelming majority of burials at Azapa-71 were associated with Cabuza style ceramics. Only two of the forty-three Late Intermediate period remains from Azapa-71 examined by this study were associated with non-Cabuza ceramics. Once again, this information will be examined in greater detail below.
4) *Azapa-6.* Azapa-6 (AZ-6) is a Late Intermediate period cemetery located 13 km from the coast of Arica along the northern slope of the Azapa Valley (Espinoza et al. 1994; Focacci 1961, 1993). This cemetery is located adjacent to the modern cemetery of the town of San Miguel and the contemporaneous Late Intermediate period cemetery Azapa-71 described above. Mortuary practices for Azapa-6 are nearly identical to those described above for Azapa-71 and will not be discussed further. The majority of Azapa-6 remains examined in this study were associated with Cabuza style ceramics. Of the forty remains from Azapa-6 examined by this study, twelve were associated with non-Cabuza Late Intermediate period ceramics. These tombs were associated with San Miguel (n = 7) and Maitas-Chiribaya (n = 5), and were spatially separated from Cabuza tombs within the cemetery (Focacci 1993; Muñoz and Focacci 1985). As already mentioned for the other three sites examined by this study, these data will be examined in greater detail below.

II. Genetic Relations

Genetic relatedness may be considered analogous to unconscious (i.e., isochrestic) stylistic variation that is related to group identity, because it also represents an unintended consequence of the degree of reproductive relations among groups. While, at some level, we always expect to encounter some degree of genetic difference among groups — even those with recent common ancestors—biodistance measures provide valuable information regarding the extent to which active expressions of group affiliation and distinction are related to genetic difference.

Genetic relations among the mortuary populations examined by this study were estimated using both dental and cranial epigenetic traits. Dental traits were scored using standardized descriptions and casts (Turner, Nichol, and Scott 1991), while cranial traits were scored using a standardized list of traits and descriptions (Buikstra and Ubelaker 1994). Once collected, the frequencies for each set of epigenetic traits were arcsine transformed before calculating the standardized mean measure of divergence (Berry and Berry 1967; Green and Myers Suchey 1976; Lukacs and Hemphill 1991; Sjøvold 1973). The matrices of standardized mean measures of divergence for both dental and cranial epigenetic traits were analyzed using hierarchical clustering procedures.

III. Cranial Deformations

Cranial deformations represent an intentional (i.e., emblemic), culturally influenced practice of altering skull shape. Skull form is usually altered through application of pressure to the skull using pads and boards. The process usually begins during infancy (Guillén 1992; Hoshower et al. 1995; Lozada, Blom, and Buikstra 1996). Deformations are thought to be particularly promising in the identification of prehistoric ethnicity, given the ethnohistoric evidence indicating that cranial deformation was used by Andeans to express ethnic differences (Cobo 1983 [1653]), and the fact that cranial deformations represent a permanent, culturally mediated behavior that can be directly associated with the ancient people in question.

While a number of studies have proposed different methods for classifying and describing cranial deformations (Hoshower et al. 1995; Lozada, Blom, and Buikstra 1996; also see Blom and Lozada and Buikstra chapters, this volume), no clear standard currently exists. I rely upon widely recognized descriptions that are largely based upon skull form. Cranial deformations encountered during this investigation include normal or undeformed skulls, tabular erect, tabular oblique, annular (also referred to as "turban"), and fronto-occipital round. While it is recognized that this scheme does not provide detailed information on the materials used and location of pressure used to deform the skull, I chose it for the purposes of replicability and simplicity.

IV. Dental Pathologies

In order to evaluate ethnic differences that might be reflected in dietary differences, dental pathologies were examined for human remains that were dentally mature (i.e., have a full complement of permanent dentition). The dental pathologies examined for this study include caries (or cavities) and premortem tooth loss. Dental caries are a disease process that result from the demineralization of a tooth's enamel surface by acids created by bacteria *(Lactobacillus acidophilus*, *Streptococcus mutans*, and many others). These bacteria inhabit the plaque that covers tooth surfaces and ferment dietary sugars (Menaker 1980; Newburn 1978, 1982). Dental caries and tooth loss are often used to infer subsistence and the relative proportions of carbohydrates among prehistoric peoples (Moore and Corbett 1971; Powell 1985; Turner 1979).

A number of factors contribute to an individual's caries susceptibility. Dietary carbohydrates are the only substances that cariogenic bacteria consume—fats and proteins do not contribute to caries. Therefore, those individuals who consume great quantities of carbohydrates will be at greater risk of obtaining caries. Vigorous mastication increases the natural cleansing of the mouth by increasing salivary flow, producing an inhibitory effect on caries. Dental wear effectively decreases the surface area of a tooth that is exposed to carious activities (Powell 1985). The age of an individual influences their susceptibility to caries and dental disease; older individuals have teeth that have been exposed to carious processes for longer periods of time than the teeth of younger individuals.

Dental pathologies related to diet will, at times, be analogous to isochrestic variation identified among material objects (Sackett 1982), in that, on a group level, these pathologies may discriminate among ethnic groups when differences in the levels of dental pathologies represent a consequence of group-specific subsistence activities.

For this study, tooth surfaces and sockets were visually inspected for caries and premortem tooth loss, and the *Diseased-Missing Index* was calculated for each individual (Moore and Corbett 1971). This index uses the ratio of carious teeth and teeth missing prior to death relative to the total number of teeth and toothless sockets observed for each individual's dentition. An implicit assumption made when using this index is that premortem tooth loss results from carious activities. There are certainly other factors that may cause premortem tooth loss. However, there is substantial clinical evidence supporting the use of this index as an indication of carious activities (Harris 1968; Menaker 1980).

For comparisons of the Diseased-Missing Index, dental wear and age-at-death were used as covariates during Multivariate Analysis of Covariance (MANCOVA) statistical procedures. This procedure permits control for differences in age and wear so that the relationship among carious indicators and the independent variables can be investigated (Sutter 1995). Independent variables examined by this study include site, ceramic association, and cranial deformation. The interactions among these variables was also explored. A 0.05 level of significance was used for all analyses.

RESULTS

I. Grave Good Analysis

1) *Playa Miller-4.* While the attempt to completely register tombs and grave goods from Playa Miller-4 is currently in progress, nearly all burials were accompanied by Late Intermediate period San Miguel style ceramics. A small percentage of the tombs were interred with Maitas-Chiribaya ceramics. None of the burials from Playa Miller-4 contained Cabuza style ceramics. Grave offerings clearly reflect a maritime subsistence—male burials contained fishing tackle, harpoons, *chopes* (tools made of modified sea lion ribs used for prying off and opening shell fish), and model boats, and, occasionally, males were interred with copper fish hooks. Female remains from Playa Miller-4 were often interred with textiles tools, wool, and dye boxes. Nearly all burials of both sexes and all ages were interred with food offerings of dried

fish, mollusks, as well as some agricultural products (primarily maize). Playa Miller-4 grave lots contained the richest and highest quality grave offerings of all the Late Intermediate period Azapa Valley sites examined by this study (Cassman 1997).

2) *Azapa-140*. The grave lots of Azapa-140 burials include items that suggest a mixed agropastoral and maritime subsistence. Much like contemporaneous burials from Playa Miller, males were often accompanied by fishing gear and model boats, but were also often interred with digging sticks, while weaving toolkits and materials for the production of textiles were often included with the grave offerings of females. Azapa-140 graves commonly contained agricultural food offerings, such as maize, porotos (beans), aji peppers, dried fish, and a pair of llama feet.

Analysis of the grave offerings indicates that individuals interred at Azapa-140 were accompanied by fewer and poorer quality offerings than those recorded from other sites examined by this study (Espinoza et al. 1994). Cassman (1997) reports that graves from Azapa-140 were wrapped in one or two wool shirts of relatively poor quality when compared with those from Azapa-71 and contemporaneous Late Intermediate period Playa Miller sites.

As noted above, of the seventy-seven remains examined from Azapa-140, sixty-nine were associated with Maitas and Maitas-Chiribaya ceramics, while only four were associated with San Miguel ceramics. None of the burials from this cemetery were associated with ceramics of the Cabuza tradition. Interestingly, of the four burials associated with San Miguel ceramics, three were adult females, while one was that of a subadult male twelve years of age. To confirm this pattern, I also examined information on the graves and grave goods that did not qualify for this study (i.e., juvenile remains, those missing skulls, and unwrapped *fardos*, or mummy bundles). Of the 126 burials registered for Azapa-140, only eight contained non–Maitas-Chiribaya (i.e., San Miguel) ceramics. Of those burials, four were adult females and the remaining four were subadults (i.e., <12) or infants that were often interred with the females.

3) *Azapa-71*. Grave lots from Azapa-71 reflect agropastoral economic activities. Grave offerings included ceramics, agricultural tools, a pair of llama feet, and agricultural offerings, such as maize, porotos, coca, and aji peppers. Relatively little intrasite social stratification was evident among the grave lots from Azapa-71. When wealthier burials did occur, they tended to be tombs that included textiles of higher quality (Cassman 1997) and ceramics of more than one ceramic tradition (i.e., both Cabuza and San Miguel ceramics). According to Cassman (1997), burials at Azapa-71 were wrapped in one or two wool shirts of relatively unremarkable quality, slightly better than AZ-140, but clearly of lower quality than those associated with coastal Playa Miller burials.

As mentioned above, the overwhelming majority of burials at Azapa-71 were associated with Cabuza style ceramics. Only two of the forty-three Late Intermediate period remains from Azapa-71 examined by this study were associated with non-Cabuza ceramics. Both of these burials were those of females associated with Maitas-Chiribaya ceramics. To confirm this pattern, I also examined information on the graves and grave goods that did not qualify for this study (i.e., juvenile remains, those missing skulls, and unwrapped fardos). Of the ninety-eight Late Intermediate period burials registered for Azapa-71, three (two adult females and one juvenile) were associated with San Miguel ceramics, while only four burials (three adult females and the remains of a fetus) were associated with Maitas-Chiribaya ceramics.

4) *Azapa-6*. Interestingly, with the exception of three tombs of adult males (one associated with Maitas-Chiribaya ceramics, the other two associated with San Miguel ceramics), those tombs containing non-Cabuza ceramics were those of females and subadults. To confirm this pattern, I also examined information on the graves and grave goods that did not qualify for this study. Of the fifty-eight Late Intermediate period tombs registered for Azapa-6, thirty-nine were associated with Cabuza ceramics, while nineteen were interred with non-Cabuza (i.e., either Maitas-Chiribaya and San Miguel) ceramics.

While the patterns for Azapa-6 are not as universal as those described above for the other sites examined here, nearly all tombs associated with non-Cabuza ceramics were those of females and subadults (n = 15). Indeed, of the ten burials interred with Maitas-Chiribaya ceramics, only one was that of an adult male, and only three of the nine burials interred with San Miguel ceramics were those of adult males.

II. Genetic Relatedness—Epigenetic Trait Analysis

In examination of epigenetic relations as evaluated using dental traits, I have previously reported (Sutter 1994, 1996, 1997, 2000) that biodistance measures for the Azapa Valley are small and insignificant (figure 3). A closer examination of these data indicates that, although relations among Azapa Valley mortuary populations is spatially insignificant (table 4), there are some noteworthy patterns. More specifically, the dental trait data indicate that there is some degree of genetic continuity among the Late Intermediate period population from Playa Miller-4 and earlier El Laucho and Chinchorro coastal populations (figure 4). Indeed, among the Late Intermediate period mortuary populations examined by this study, the population from Playa Miller-4 is the least similar to other contemporaneous coastal valley populations.

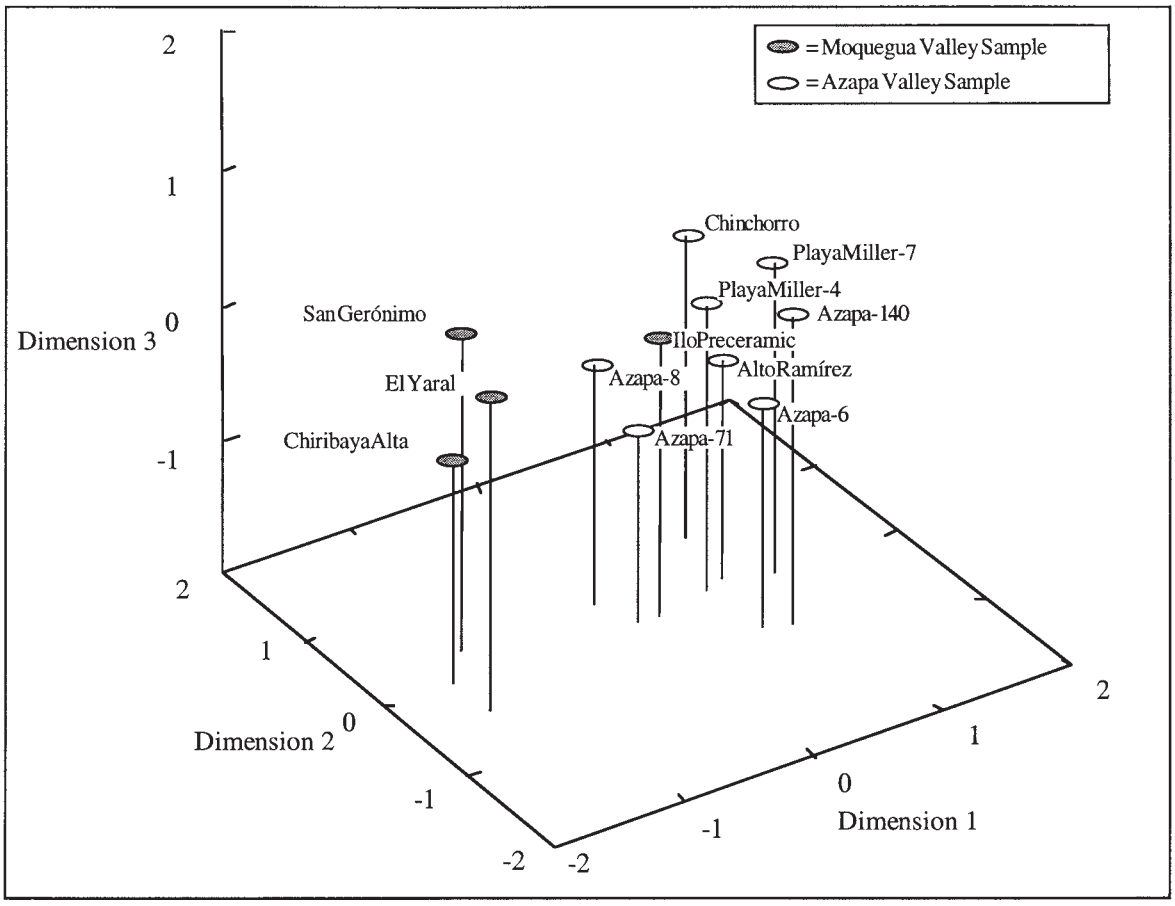

Figure 3: Multidimensional scaling solution for 12 south-central Andean samples.

Table 4. Standardized Mean Measure of Distance (stMMD) values based upon non-metric dental traits for eight prehistoric Azapa Valley mortuary populations.

		Alto Ramirez	Azapa - 6	Azapa - 71	Azapa - 8	Playa Miller - 4	Playa Miller -7	Azapa - 140	Chinchorro
Alto Ramirez		.	.	.	.	.	.	.	.
Azapa - 6		-0.400	.	.	.	.	.	.	.
Azapa - 71		-0.256	-0.182	.	.	.	.	.	.
Azapa - 8		-0.155	0.091	0.004	.	.	.	.	.
Playa Miller - 4		-0.013	0.283	0.243	-0.334	.	.	.	.
Playa Miller -7		-0.391	-0.284	-0.313	-0.247	-0.290	.	.	.
Azapa - 140		-0.075	-0.005	-0.195	0.174	0.299	-0.386	.	.
Chinchorro		-0.142	0.497	0.078	0.020	0.119	-0.272	-0.314	.

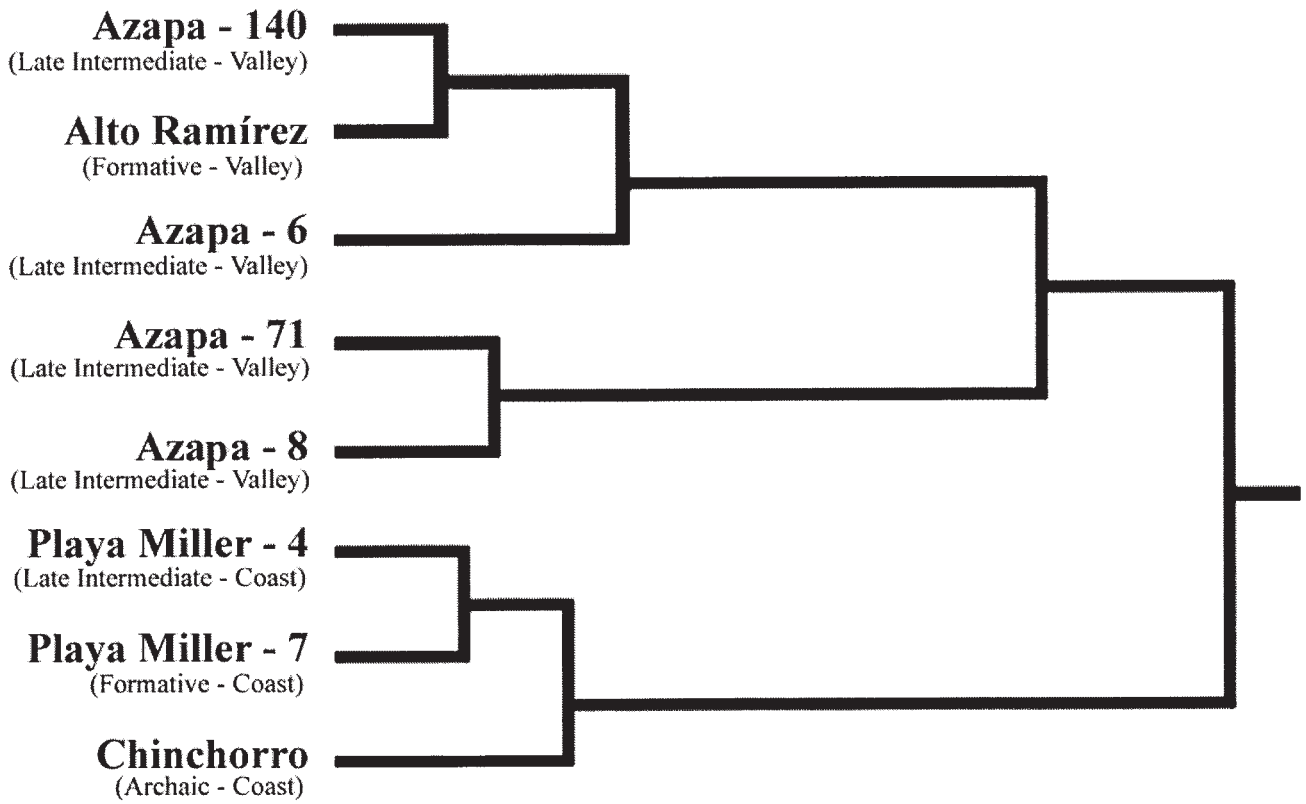

Figure 4: Cluster analysis of standardized Mean Measure of Distance (stMMD) values calculated using non-metric dental traits for Azapa Valley mortuary populations.

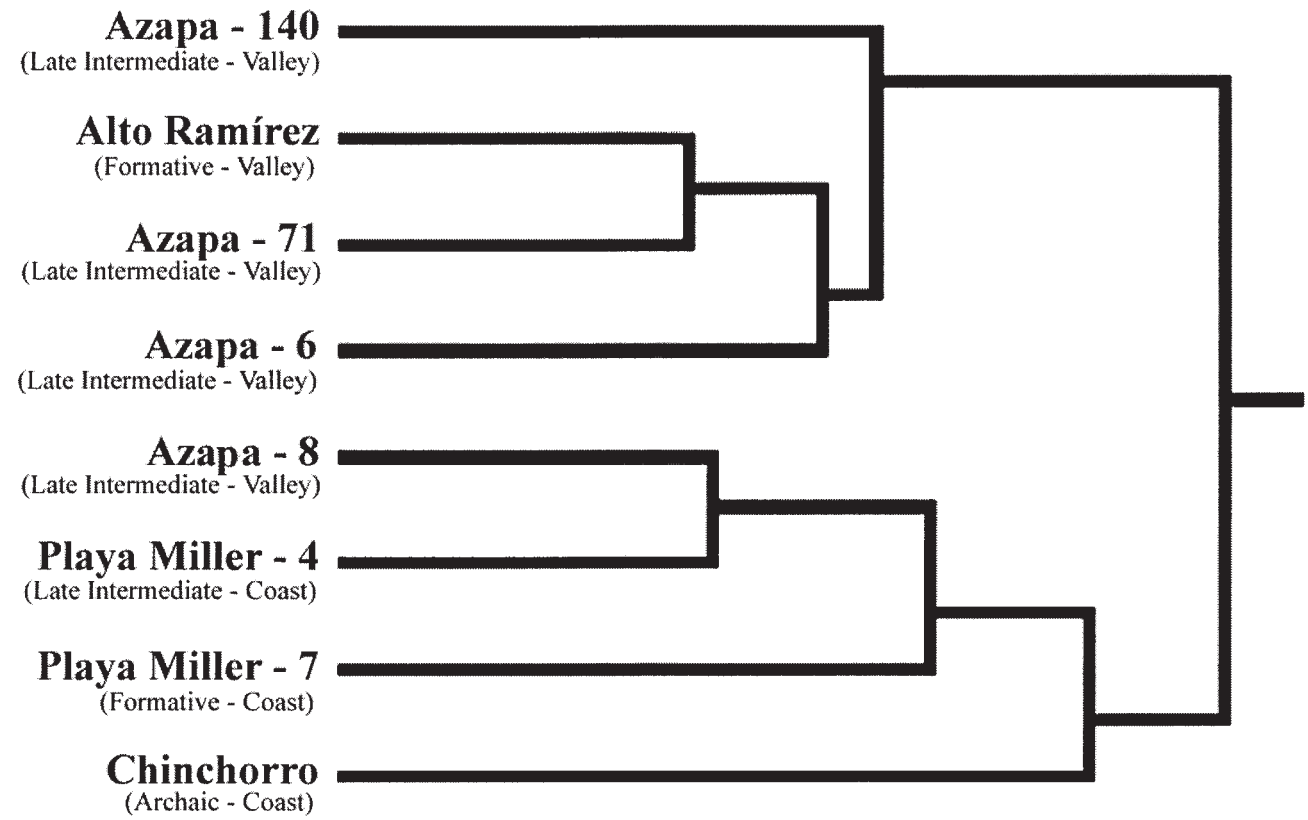

Figure 5: Cluster analysis of standardized Mean Measure of Distance (stMMD) values calculated using non-metric cranial traits for Azapa Valley mortuary populations.

Table 5. Standardized Mean Measure of Distance (stMMD) values based upon non-metric cranial traits for eight prehistoric Azapa Valley mortuary populations.

	Alto Ramirez	Azapa - 6	Azapa - 71	Azapa - 8	Playa Miller - 4	Playa Miller -7	Azapa - 140	Chinchorro
Alto Ramirez	.	.	.	.	.	.	.	.
Azapa - 6	-0.061	.	.	.	.	.	.	.
Azapa - 71	-0.280	-0.317	.	.	.	.	.	.
Azapa - 8	-0.308	-0.248	-0.403	.	.	.	.	.
Playa Miller - 4	0.283	0.309	0.037	-0.078	.	.	.	.
Playa Miller -7	0.443	0.494	0.211	0.338	0.050	.	.	.
Azapa - 140	-0.161	-0.228	-0.498	-0.297	0.514	0.683	.	.
Chinchorro	0.077	-0.060	-0.351	-0.431	0.029	0.419	-0.150	.

Table 6. Cranial deformation by site.

Deformation Type	Playa Miller - 4	Azapa - 6	Azapa - 71	Azapa - 140	Overall
Normal	23.7% (9)	*32.3% (10)*	19.4% (7)	*35.5% (22)*	*28.7%*
Tabular Erect	5.3% (2)	3.2% (1)	13.9% (5)	3.2% (2)	6.0%
Tabular Oblique	7.9% (3)	*32.3% (10)*	*50.0% (18)*	27.4% (17)	*28.7%*
Annular	*44.7% (17)*	6.5% (2)	13.9% (5)	24.2% (15)	23.4%
Fronto-Occipital Rounding	18.4% (7)	25.8% (8)	2.8% (1)	9.7% (6)	13.2%
TOTAL	38	31	36	62	167

*Values in italics represent the most common form of cranial deformation for each column.

Using epigenetic cranial traits to estimate genetic relations among the same Azapa Valley populations, Sutter and Mertz (2004) report similar biodistance results to those obtained here using non-metric dental traits. Analysis of the cranial data indicates small and non-significant biological distances (table 5), indicating genetic continuity with relatively unsubstantial gene flow among prehistoric Azapa coastal valley populations. As reported for results obtained using dental traits, it is apparent that the mortuary population from Playa Miller-4 is least similar to contemporaneous coastal valley sites, and more similar to earlier coastal populations (figure 5).

III. Cranial Deformations

Results of the χ^2 analysis of cranial deformation by site indicate that there are no statistically significant associations in these data (table 6). With the exception of the tabular oblique deformation at Azapa-71, there is no deformation that is found at frequencies greater than 50% at any given site. Indeed, all deformations are found, albeit in varying frequencies, at all four of the sites examined by this study. The annular deformation is found at its highest frequency at the coastal site, Playa Miller-4, whereas a lack of cranial deformations predominates at Azapa-140. Azapa-6 is characterized by relatively high frequencies of the tabular oblique deformation and the absence of cranial deformations (i.e., normal). A possible, albeit weak, pattern in these data may be the predominance of tabular oblique deformations at the Cabuza sites, Azapa-6 and Azapa-71. Possibly a second pattern, although difficult to evaluate given the lack of comparative coastal sites, is the predominance of the annular deformation among crania from Playa Miller-4.

Chi-squared analysis of cranial deformation by culture (i.e., ceramic association) also failed to produce statistically significant results (table 7). Likewise, all deformations are associated among all three of the ceramic traditions examined by this study. There was a predominance of the tabular oblique deformation

among burials associated with Cabuza ceramics, whereas the annular deformation tends to characterize burials associated with San Miguel ceramics. Burials interred with ceramics of the Maitas-Chiribaya tradition were characterized by slightly higher frequencies of non-deformed skulls than of tabular oblique skulls.

IV. Dental Pathologies

None of the statistical analyses of the DM Index by sex produced statistically significant results, so sex was dropped as a variable from subsequent statistical analyses. MANCOVA analysis of site by cranial deformation also produced non-significant results (table 9). Indeed, examination of these data clearly indicates the lack of any clear pattern (figure 6). However, when these data were examined by site alone, statistically significant patterns emerged (figure 7). Specifically, the maritime population represented by the mortuary sample from Playa Miller-4 exhibits the lowest levels of dental pathologies, while the mixed maritime-agropastoral mortuary sample from Azapa-140 also exhibits lower frequencies of dental pathologies when compared to the agropastoral Cabuza mortuary samples from Azapa-6 and Azapa-71. The levels of dental pathologies at Playa Miller-4 and Azapa-140 were significantly lower than those observed for the Azapa-6 and Azapa-71 mortuary samples.

Results of MANCOVA analyses of the DM Index produced statistically significant results when dental pathologies were examined by both culture (i.e., ceramic association) and deformation; however, the interaction among these variables was not significant (table 8). When examined by culture, the DM Index is clearly found at higher levels among the dentitions of individuals associated with Cabuza ceramics (figure 8).

Finally, when the dental pathologies are examined by cranial deformation (figure 9), it is apparent that individuals exhibiting a lack of cranial deformations also exhibit significantly fewer dental pathologies than individuals exhibiting the tabular oblique, annular, or fronto-occipital round deformation. Although individuals exhibiting the tabular erect deformation also exhibit relatively fewer dental pathologies than individuals exhibiting other cranial deformations, too few individuals exhibited the tabular erect deformation for this difference to be significant.

DISCUSSION AND CONCLUSIONS

Based upon the results presented here I tentatively suggest that ethnicity among Late Intermediate period Azapa Valley mortuary populations is, to varying degrees, evident in all the indicators examined by this study. In contrast to studies presented by Blom, and Lozada and Buikstra in this volume, cranial deformations were the least useful among all the classes of data examined by this investigation. While some patterns may exist for some cranial deformations (i.e., possibly tabular oblique and annular deformations), the mortuary populations examined by this study are largely characterized by a lack of ethnically based variation in cranial deformations.

Each of the cranial deformations examined by this study was present at all of the sites. The most conspicuous among the cranial deformations was the tabular oblique. Although not statistically significant, the tabular oblique deformation was most often associated with crania from the agropastoral Cabuza sites Azapa-6 and Azapa-71.

The annular deformation may also be weakly associated with ethnicity. This deformation was found at its highest frequencies among crania from the coastal site Playa Miller-4. While it is difficult to attribute any significance to this finding, given the lack of any clear patterns among the mortuary samples examined here, other studies have also reported a predominance of this cranial deformation among coastal sites (Lozada, Blom, and Buikstra 1996). It is possible that this deformation is associated with ethnically coastal peoples.

When the associations among cranial deformations and dental pathologies are explored, these results also failed to exhibit any clear pattern, save one comparison. The only individuals exhibiting a significant difference from the others in relation to deformations and dental pathologies were those characterized by non-deformed skulls (i.e., those with normal crania). A cursory examination of grave good data for those individuals failing to exhibit cranial deformations suggests that this difference may be a class-based association, rather than an ethnicity-based one. Individuals with non-deformed crania were generally interred with fewer grave goods (Espinoza et al. 1994) and textiles of poorer quality (Cassman, personal communication 1995).

While these results tenuously suggest that cranial deformations may have been used by coastal and Cabuza populations to express group affiliation, they may also have been used to indicate class or some other, as of yet unidentified, relationship among inland populations.

Table 7. Cranial deformation by culture (ceramic association).

Deformation Type	Maitas Chiribaya	San Miguel	Cabuza	Overall
Normal	*34.4% (22)*	25.5% (12)	25.0% (14)	*28.7%*
Tabular Erect	3.1% (2)	4.3% (2)	10.7% (6)	6.0%
Tabular Oblique	29.7% (19)	18.5% (5)	*42.9% (24)*	*28.7%*
Annular	20.3% (13)	*40.4% (19)*	12.5% (7)	23.4%
Fronto-Occipital Rounding	12.5% (8)	19.1% (9)	8.9% (5)	13.2%
TOTAL	64	47	56	167

*Values in italics represent the most common form of cranial deformation for each column.

Table 8. Diseased-Missing Index MANCOVA Analysis: Culture by Deformation.

Source	Sum-of-Squares	DF	Mean-Square	F-Ratio	*p* - Value
Culture	918.57	2	459.29	3.22	*0.04*
Deformation	1805.89	4	451.47	3.16	*0.02*
Culture* Deformation	324.21	8	40.53	0.28	0.97
Covariates					
Age	822.76	1	822.76	5.76	*0.02*
Wear	178.29	1	178.29	1.25	0.27
Error	14989.5	105	142.76		

*Values in italics are statistically significant at the 0.05 level.

Table 9. Diseased-Missing Index MANCOVA Analysis: Site by Deformation.

Source	Sum-of-Squares	DF	Mean-Square	F-Ratio	*p* - Value
Site	293.94	3	97.81	0.69	0.56
Deformation	1545.11	4	386.28	2.71	*0.03*
Site* Deformation	1586.73	12	132.23	0.93	0.52
Covariates					
Age	1165.13	1	1165.13	8.16	*0.01*
Wear	79.22	1	79.22	0.56	0.46
Error	15706.39	110	142.79		

*Values in italics are statistically significant at the 0.05 level.

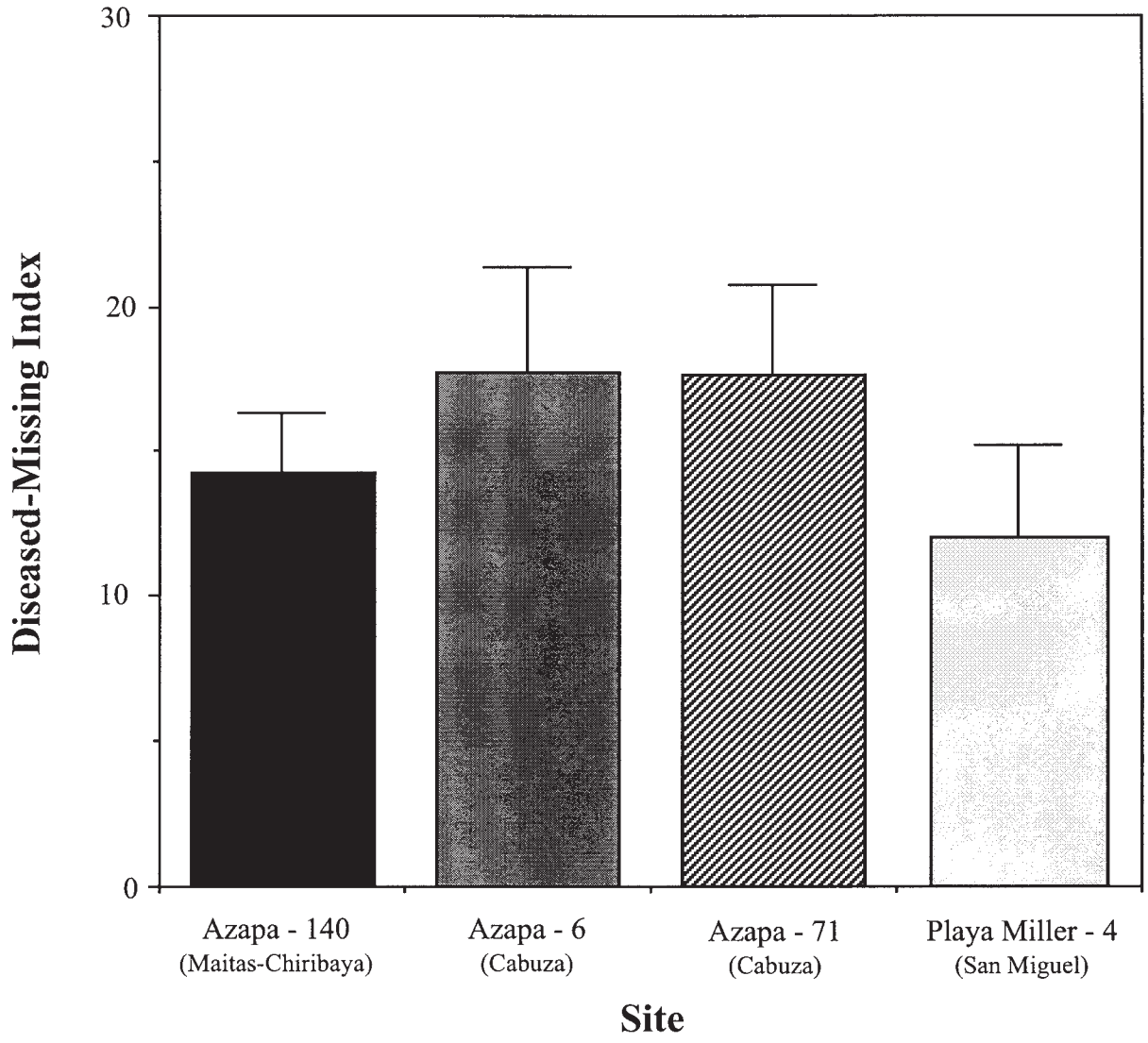

Figure 6: Diseased and missing index (DM Index) by both site and cranial deformation.

The lack of any clear, statistically significant patterns among crania from the coastal Azapa Valley makes any claims regarding the deformations difficult to make. These relationships will require more detailed analyses of deformation practices and grave goods than what has been presented here.

It does not appear that textiles—a potentially highly visible, culturally mediated indicator of ethnicity—were being used to express ethnic distinctions among Late Intermediate period Azapa Valley populations. Cassman (1997) reports that textiles associated with Late Intermediate period burials from Azapa-140, Azapa-71, and Playa Miller shared identical motifs, colors, and manufacturing techniques. The primary differences among these sites were differences in number and quality of associated textiles. Late Intermediate period burials from Playa Miller were interred with more and the highest quality textiles, relative to the other two sites examined by Cassman. Burials from Azapa-71 and Azapa-140 were interred with textiles of lower quality, with textiles from Azapa-71 being only slightly better in quality than those associated with Azapa-140 burials.

The most apparent indications of ethnicity among Late Intermediate period Azapa Valley populations are derived when the associations among ceramic style, biodistance analyses, and shared economic activities as inferred using dental pathologies and grave furniture are considered in light of one another. Both dental and

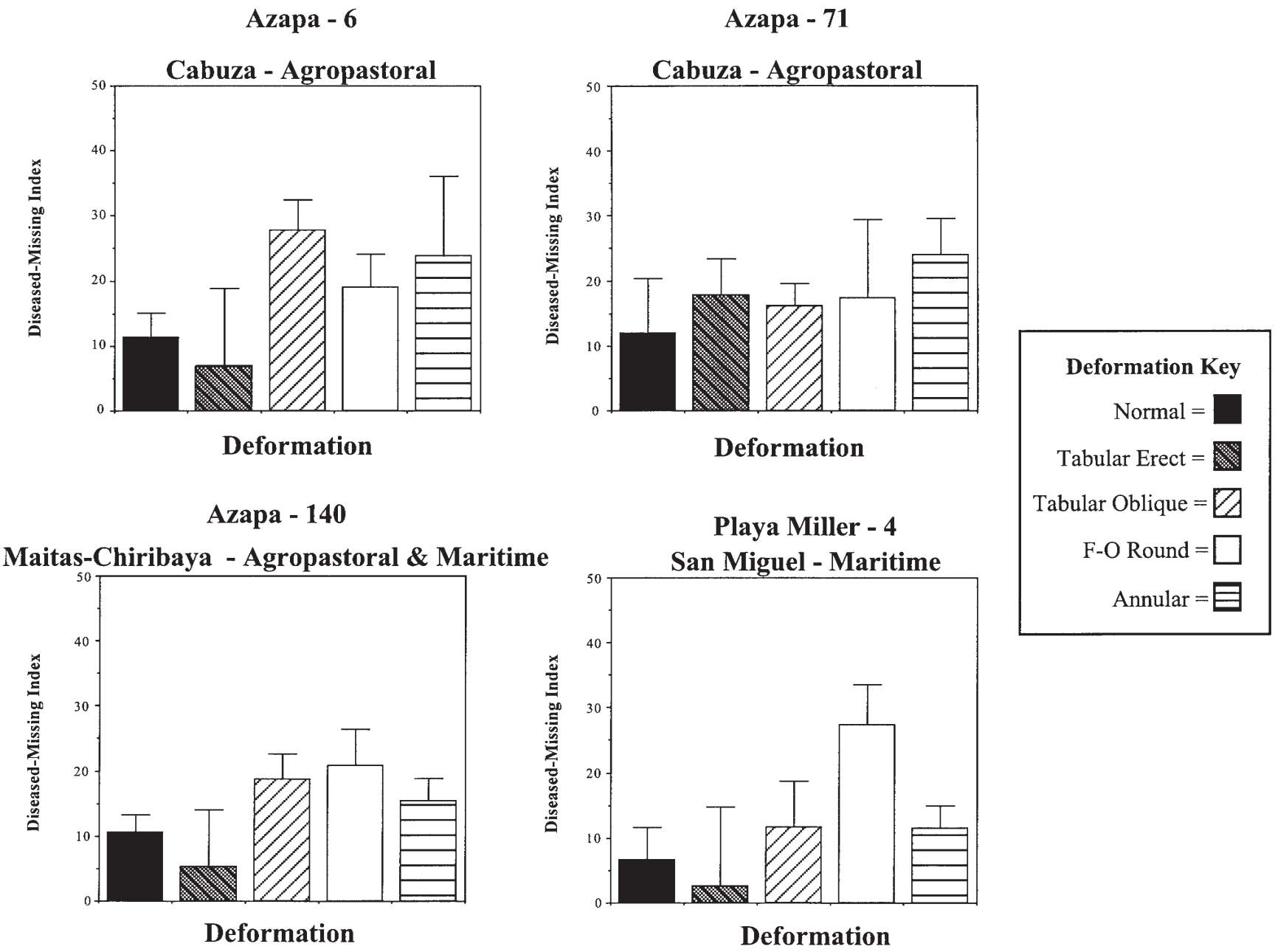

Figure 7: Diseased and missing index (DM Index) by site only.

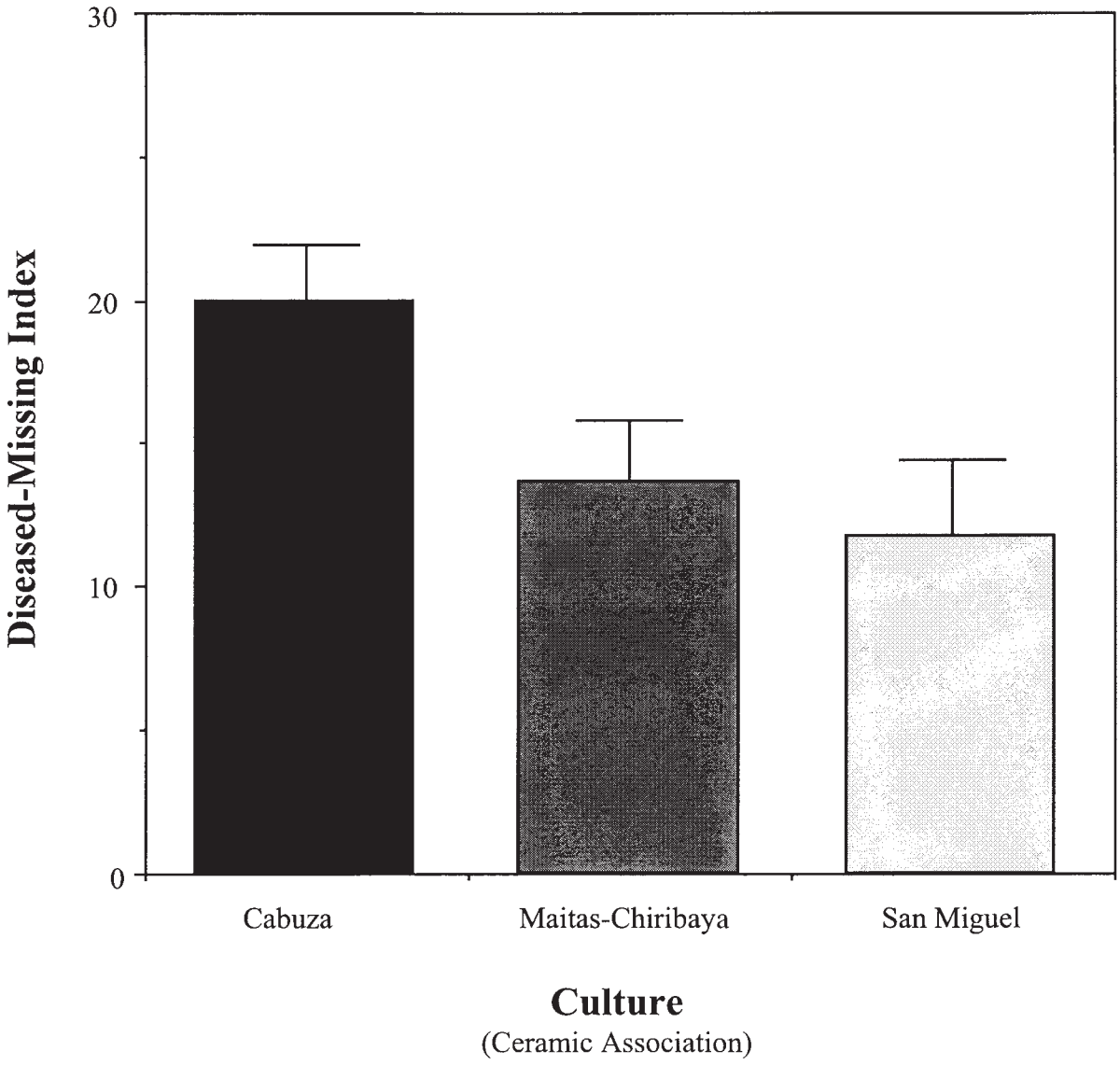

Figure 8: Diseased and missing index (DM Index) by culture (ceramic association) only.

cranial traits indicate that longstanding, albeit statistically insignificant, genetic relations existed among the coastal populations from Playa Miller-4 and earlier coastal people of the Chinchorro and El Laucho (i.e., Playa Miller-7) traditions. Further, the Playa Miller-4 mortuary sample is least similar to contemporaneous samples from the Azapa Valley interior. Conversely, both dental and cranial traits indicate that longstanding, though statistically insignificant, genetic relations existed among the inland populations from Azapa-6, Azapa-71, and Azapa-140 and earlier agropastoral populations represented by the Formative period Alto Ramírez tradition.

Grave lots and dental pathologies from Playa Miller-4 clearly indicate that this population was characterized by a maritime subsistence. Furthermore, individuals interred at this site were almost exclusively associated with San Miguel ceramics. Grave lots and dental pathologies for the mortuary population at Azapa-140 clearly reflect a mixed maritime-agropastoral economy: both agricultural and maritime implements and food offerings were interred as grave offerings in the tombs of individuals interred at the site. Late Intermediate period burials from Azapa-6 and Azapa-71 are clearly associated with both implements and food offerings reflecting that individuals interred at these sites participated in

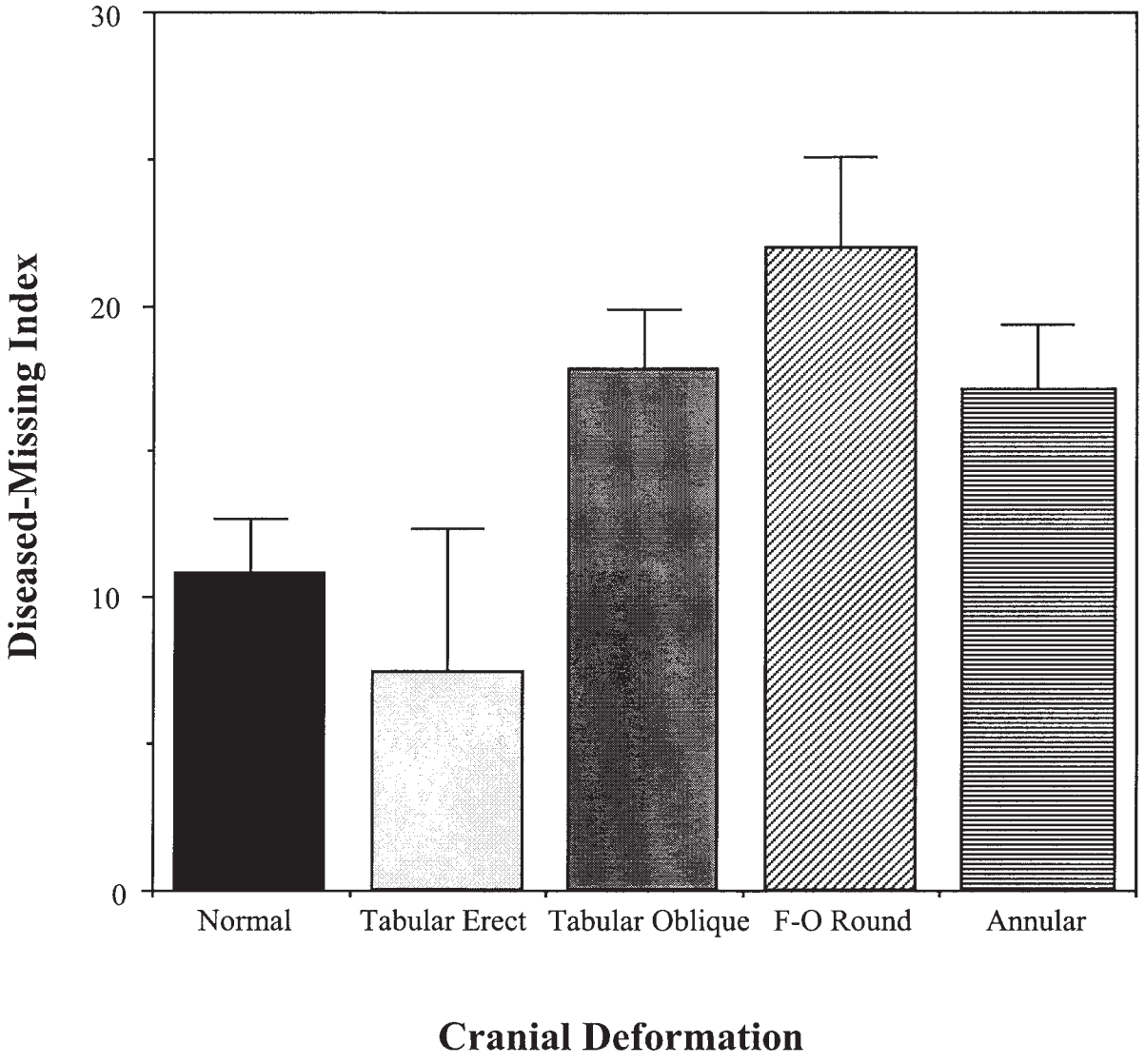

Figure 9: Diseased and missing index (DM Index) by cranial deformation only.

agropastoral activities. The significantly higher incidence of dental pathologies among burials from these sites confirms that individuals at Azapa-6 and Azapa-71 consumed greater quantities of carbohydrates obtained through agricultural goods than did their contemporaries at Playa Miller-4 and Azapa-140.

While a cursory analysis of the associated ceramics from these cemetery sites does not appear to conform to the patterns observed among the genetic and economic activities that characterize each of these sites, a closer inspection reveals that they do. As previously mentioned in the results section, in the few instances when burials from Azapa-140—a cemetery overwhelmingly characterized by Maitas-Chiribaya ceramics—were interred with San Miguel ceramics (n = 8), those burials were *always* those of adult females and juveniles or infants. Similarly, at Azapa-71—a cemetery characterized by an abundance of Late Intermediate period Cabuza ceramics—the few burials (n = 6) interred with either Maitas-Chiribaya or San Miguel ceramics were *always* those of adult females and juveniles or infants. Although this pattern was not as universal at the predominantly Cabuza site Azapa-6, nearly all (with the exception of four) burials from this cemetery that contained non-Cabuza ceramics were also those of adult females and juveniles. Unfortunately, a closer

inspection of those Playa Miller-4 burials associated with Maitas-Chiribaya ceramics will not be possible until the ongoing registry of grave goods is complete.

The patterns in the ceramics associations among each of the sites examined by this study strongly suggest that those burials associated with "non-local" ceramics represent women and their children who were present at these sites as a result of exogamous marriages. Interestingly, Cabuza ceramics were not associated with any of the burials from Playa Miller-4 or Azapa-140. Indeed, despite years of extensive site surveys of the Azapa Valley, Cabuza ceramics have never been found in association with either coastal or predominantly Maitas-Chiribaya sites (Muñoz 1983). Another tantalizing and related aside is that preliminary analyses of dental data in my possession[1] clearly indicate that mortuary populations at Azapa-6, Azapa-71, and Azapa-140 were characterized by patrilocal residence, whereas those interred at Playa Miller-4 were characterized by either matrilocal or avunculocal residence.

When considered in light of this information, Late Intermediate period ceramic styles from the Azapa Valley do appear to signify ethnic affiliations. More specifically, it is likely that Cabuza ceramics are associated with agropastoral populations, whereas Maitas-Chiribaya and San Miguel ceramics are associated with mixed maritime-agropastoralists and coastal fishing villages, respectively. These characterizations will require further investigation, particularly as they relate to the incompletely analyzed Playa Miller-4 site.

The patterns among ceramics, genetic relatedness, and shared economic activities provide tantalizing evidence regarding the factors underlying Late Intermediate period ethnicity in the Azapa Valley, Chile. Results from this investigation suggest to me that associations among the ceramics and the results of epigenetic analyses represent two different forms of ethnic variation, with ceramic traditions representing an overt expression of ethnic affiliation, while the genetic relatedness represents an unintentional byproduct of cultural behaviors (i.e., marriage and residence patterns).

As to why these ethnic differences may have occurred, I am compelled to argue that among Late Intermediate period Azapa Valley populations, both genetic affinities and actively expressed group affiliation are the result of what Carter Bentley (1987:35) has described as "situationally shared elements of a multidimensional habitus." In other words, the underlying cause of ethnicity among Late Intermediate period Azapa Valley groups is derived from commonly shared economic interests and practices. For these coastal valley populations, it was through practice that common perceptions, experiences, and world view emerged. Subsequently, an awareness of group/other evolved to become what is archaeologically perceived to be "ethnic" differences.

Some important lessons can be derived from the results of this investigation. In this case, culturally based expressions of group affiliation among these mortuary populations appear to have been ceramics and economically related grave furniture and food offerings. Apparently, among a constellation of possible culturally based practices and material objects (i.e., textiles, ceramics, cranial deformations, etc.), it appears that ceramics represent the only *unambiguous* consciously chosen correlate (i.e., emblemic style) of ethnicity. It is important to point out that this association is arbitrary and may change from region to region or chronological period to chronological period. The significance of differences among economically related grave furniture and food offerings likely represents an unconscious reflection of group affiliation that was derived from commonly shared activities (i.e., isochrestic variation).

Finally, ethnic differences among Late Intermediate period Azapa Valley populations were not the result of the arrival of nonlocal ethnic colonists, nor the result of political group distinctions—a conclusion that otherwise might not have been reached using an exclusively archaeologically based methodology (Sutter 2000). Conversely, ethnic differences (i.e., actively expressed group affiliations and distinctions) clearly did exist in the Azapa Valley during this period—a conclusion that might not otherwise have been reached using a strictly biologically based methodology.

Within this paper it has been my goal to identify both the material correlates and sources for the formation of ethnic groups using a bioarchaeological approach. Hopefully, this methodology will help future investigators to discriminate when observed variation in material culture and culturally based practices is the result of group identity derived from commonly shared group activities, or the result of the presence of genetically unrelated populations, such as ethnic colonists.

NOTES

1. I am currently working on an unambiguous method of evaluating residence patterns using dental traits.

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CHAPTER 12

Pescadores and *Labradores* among the *Señorío* of Chiribaya in Southern Peru

M. C. LOZADA
AND
JANE E. BUIKSTRA

INTRODUCTION

One of the most debated topics in archaeological theory has been the term "ethnicity." Since the publication of Barth's *Ethnic Groups and Boundaries* in 1969, the concept of ethnicity has gone through many transformations (Aldenderfer and Stanish 1993; Conkey and Hastdorf 1990; Oakland Rodman 1992; Shennan 1989; Wiessner 1983, among others). In a way, these changes reflect the difficulty of creating a universal definition of ethnicity. From the standpoint of the archaeologist it may be more meaningful and accurate to derive ethnicity from the specific context in which it is being applied. Aldenderfer and Stanish state: "rather than focusing upon a potentially sterile definition [of ethnicity], it is more valuable to look for critical features of ethnic groups, and then to make some effort to determinate to what extent ethnicity can be read and interpreted from the archaeological record" (Aldenderfer and Stanish 1993:7).

In the case of prehispanic Peru, we are fortunate to have unprecedented tools to explore the past, including topics such as ethnicity. The archaeological record is extremely rich, in part because the climate throughout much of Peru has helped to preserve many details of human activity not normally accessible in other parts of the world. Of even greater importance, there is an abundance of ethnohistorical accounts written during and after the conquest that shed light on the unique mosaic of social and cultural groups in the Andes, including ethnic groups.

Beginning with one of her first books, *Curacas y Sucesiones*, *Costa Norte* in 1961, the Peruvian ethnohistorian María Rostworowski de Diez Canseco has studied in detail the social, economic, and cultural dynamics of late prehispanic coastal populations in northern and central Peru. After a detailed analysis of judicial and administrative documents, she proposes that coastal populations espoused a "horizontal" system of economic organization, differing in many respects from the vertical systems present in highland societies (Rostworowski de Diez Canseco 1970). Rostworowski states that, in contrast to the highland polities, prehispanic

coastal cultures did not expand into the altiplano to obtain complementary resources from other ecological niches, and that they developed independent of highland influence. Furthermore, these coastal polities, or *señoríos*, were autonomous political and economic groups composed of smaller sociopolitical units or ethnic groups, under the control of their own lords. Detailed descriptions in written accounts also indicate that these ethnic groups, or *parcialidades*, were economically premised on communities of specialists (Rostworowski 1970, 1977, 1989, 1993).

We will focus on two fundamental ethnic groups that, according to Rostworowski, served as the basis of late prehispanic coastal societies: the fishermen, or *pescadores*, and farmers, or *labradores*. The existence of communities of pescadores and labradores was initially documented among the inhabitants of the Chincha Valley in AVISO,[1] one of the first colonial documents that explicitly mentions the presence of occupational specialization within the señorío of Chincha (Rostworowski 1970).

According to the census described in AVISO, the pescadores were responsible for marine-based subsistence activities (Rostworowski 1970):

> There were communities along the coast consisting of ten thousand *pescadores* that everyday went to the sea each with their own boats and fishing nets, and they left and entered designated ports.[2]
>
> (AVISO, Rostworowski 1970:170)

In addition, the pescadores conducted other ancillary activities such as drying and salting of fish for preservation (Rostworowski 1981). The existence of communities of pescadores has been recorded in many other coastal valleys throughout northern and central Peru (Hart 1983; Marcus 1987; Netherly 1977; Ramírez 1982; Rostworowski 1981). Written sources indicate that the pescadores were physically separated from the rest of the señorío (Rostworwoski 1975a:315) and practiced endogamy, such that there was essentially no intermarriage of pescadores with labradores. This practice was severely tested shortly after the Spanish Conquest when disease depopulated large areas of Peru. Women in fishing communities would wait for fishermen to come from other areas instead of marrying members of nonfishing communities (Rostworowski 1970). This physical separation of communities continued well into the eighteenth century in the port of Callao along Peru's central coast, testifying to its lasting influence among indigenous coastal inhabitants (Flores Galindo 1981).

The separation of pescadores from other groups within coastal societies was so fundamental that they even possessed their own dialect, known as *la lengua pescadora*, or fishermen's tongue, which served to distinguish them from the labradores (Netherly 1977; Rabinowitz 1983; Rostworowski 1981). Social distinctions also extended to religious worship, as records show that pescadores prayed to their own *huacas*[3] (sacred places) and gods, usually during times that were determined by maritime activities. They revered the moon in particular since it was known to influence the tides.

Labradores, on the other hand, were responsible for cultivating the señoríos lands. Furthermore, written accounts indicate the labradores had the responsibility of defending the lands situated at the head of the coastal valleys and guarding the water used for the irrigation of their cultivated fields on the coast (Rostworowski 1990, 1995). In coastal groups, the labradores were not only more numerous than the pescadores, but generally possessed greater influence within the señorío as a whole. Rostworowski (1981) states that the pescadores depended on the labradores, and, ultimately, the lord of the pescadores was subject to that of the labradores. The same relationship was observed by Hart among the inhabitants of the Moche Valley in northern Peru: "In general, specialist groups seem to have been subordinate to a *cacique principal* whose close affiliation was with agriculturalists" (Hart 1983:253–254). According to the historical accounts, each parcialidad had its own elites, and these lords ultimately were under the authority of a single paramount lord who was affiliated with the labradores.

These documents clearly suggest that parcialidades of specialists were the building blocks of coastal societies and represented discrete ethnic groups (Netherly 1977). Archaeology represents an invaluable tool to evaluate the social, political, and economic implications of this ethnohistoric model. The use of biological data derived from archaeological materials, however, has not figured as prominently in attempts to apply these models to specific contexts. Human remains, in particular, possess a series of physical and chemical attributes that yield unique data on the lifestyle and biological identity of both individuals and populations as a whole (Buikstra and Cook 1980; Cohen and Armelagos 1984; Iscan and Kennedy 1989; Larsen 1997). Such biological data derived from human remains permit one to analyze and comment on a broad range of questions regarding ancient human behavior. Migrational patterns, the local impact of colonization, and the biological interaction between populations can be detected through studies of genetic biodistance

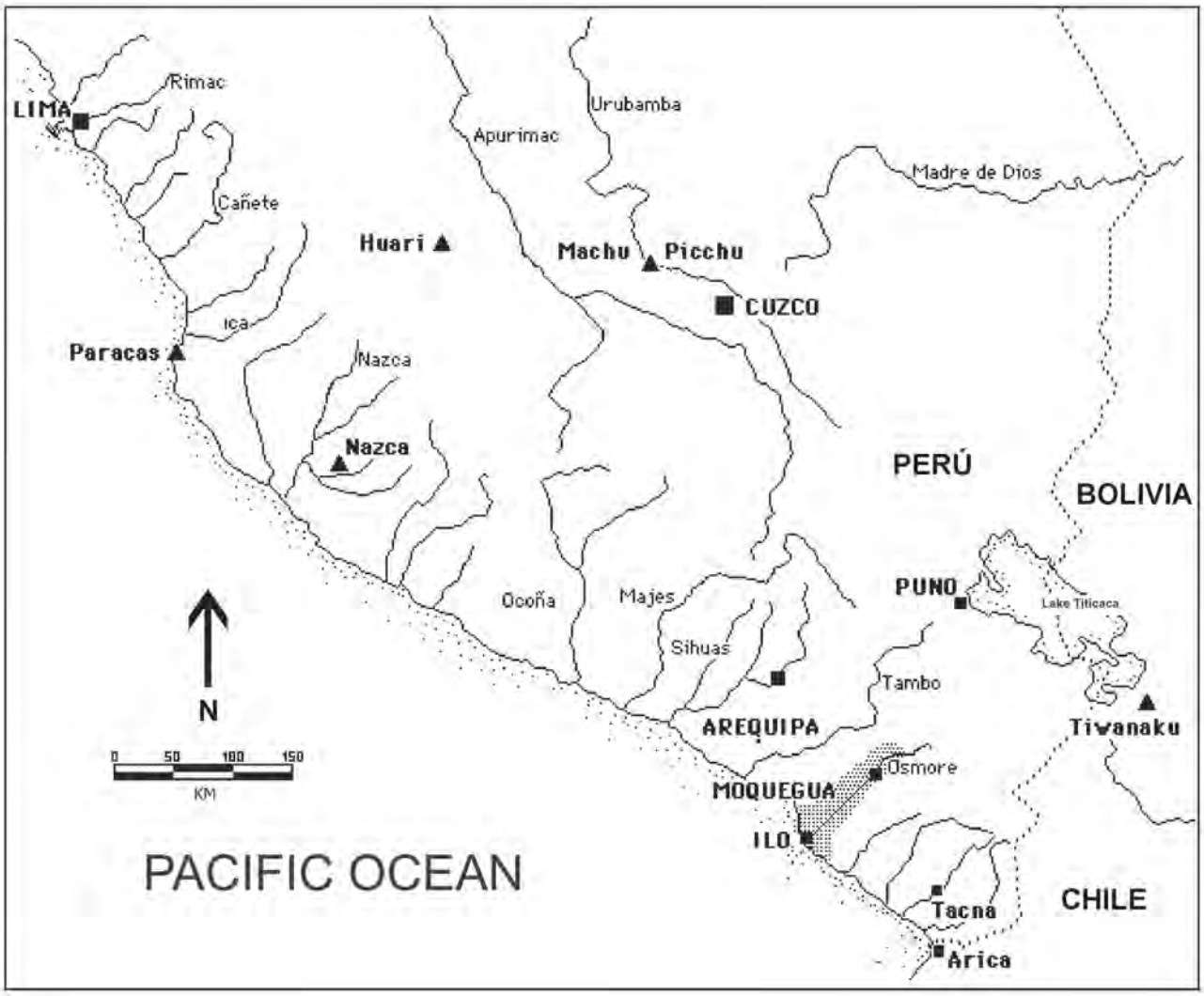


Figure 1. South-central Andes.

based on cranial metric and non-metric traits and ancient DNA. The study of intentional cranial deformation, which served as a lifelong symbol of group membership, is also useful to identify important social and ethnic groups, as well as to study factors that determined their residence behaviors and marriage practices (Hoshower et al. 1995). Finally the reconstruction of ancient diets based on an analysis of trace elements and stable isotopes from human bone provides invaluable data concerning subsistence patterns and resource utilization (Gilbert and Mielke 1985; Sanford 1993).

This study addresses the implications of Rostworowski's coastal model as it applies to the Chiribaya population of southern Peru (figure 1). The Chiribaya, initially defined on the basis of ceramics, flourished between AD 772 and 1350, centralizing their power in the coastal region of the Osmore Valley, which is known today as Ilo (Buikstra et al. 1997). This region represents an ideal forum in which to evaluate this model for several reasons. First, the archaeological record of the coast of Ilo demonstrates no evidence of highland colonization, even during periods when the Tiwanaku state and the Inka Empire controlled the Osmore midvalley (Bawden 1989; Owen 1993; Stanish 1992). In this respect the populations that inhabited the coast of Ilo, such as Chiribaya, are more likely to represent purely coastal societies, similar to those described by Rostworowski along the northern coasts of Peru (Bawden 1989; Buikstra 1995). Second, the Ilo region has a long history of occupation, with evidence of human habitations as early as 10,575 +/-105 BP (Sandweiss et al. 1989). This research integrates both biological and cultural data from the coastal polity of Chiribaya and addresses the following questions:

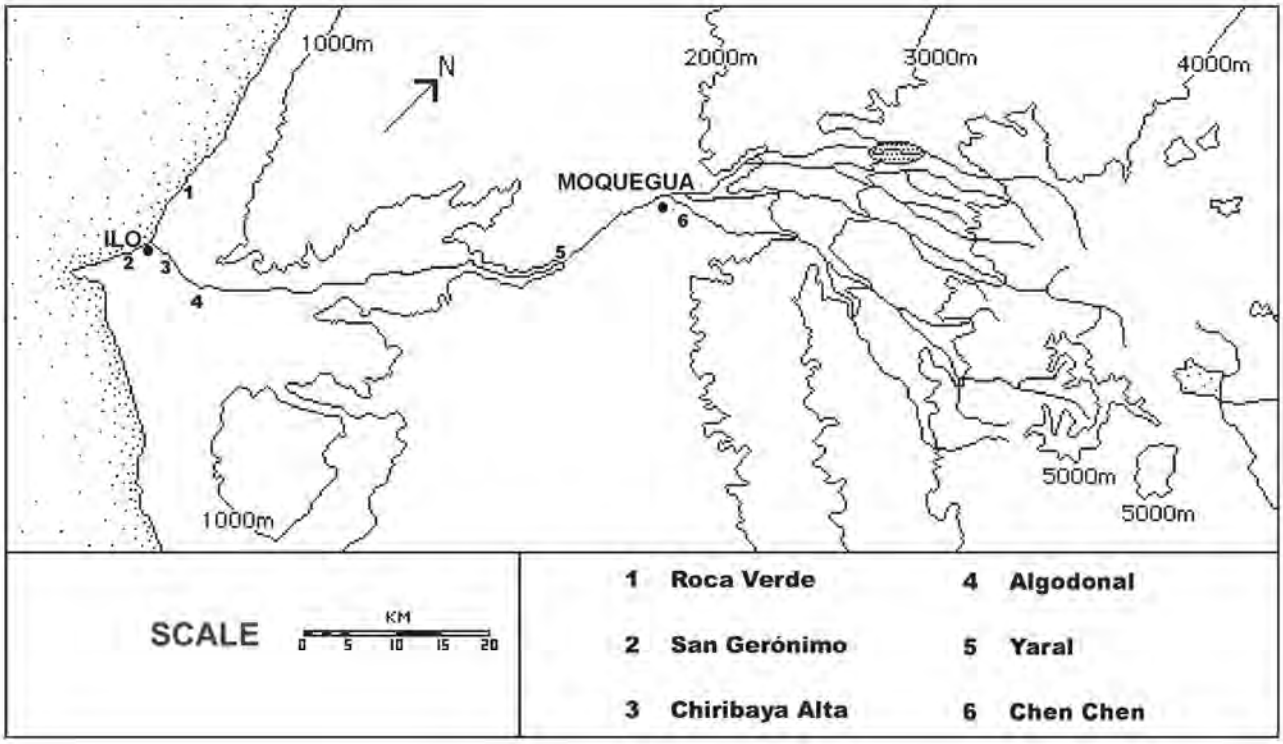


Figure 2. Map of the Osmore Drainage and site location.

1. Were the Chiribaya biologically independent of highland traditions?
2. Was Chiribaya made up of endogamous communities of economic specialists?
3. Did Chiribaya represent a señorío, a confederacy of economically specialized parcialidades, integrated under the authority of a single paramount lord?

In order to evaluate these hypotheses, two types of bioarchaeological analysis will be used: biological distances through non-metric cranial traits and intentional cranial deformation styles. The estimation of genetic relationships in skeletal populations has been used frequently to evaluate ancient migrational and/or residential patterns. In particular, the study of epigenetic traits has been the most commonly used method to measure genetic differences in the Andes (Blom et al. 1998; Chakraborty et al. 1976; Cocilovo and Rothhammer 1984, 1990; Cocilovo et al. 1982; Guillén 1992; Lozada, Haydon, and Buikstra 1993; Rivera and Rothhammer 1986; Rothhammer et al. 1981; Rothhammer et al. 1982, 1984, 1989; Rothhammer et al. 1983; Rothhammer et al. 1986; Rothhammer and Silva 1989, 1990; Soto and Rothhammer 1975; Soto et al. 1975; Sutter 1997, 2000).

As the name implies, epigenetic traits are not direct measurements of genotype, but instead, phenotypic traits with high heritability (Hauser and De Stefano 1989). These traits largely represent minor variations in bony development (Berry and Berry 1963). To the extent that such traits are determined by genetic as opposed to environmental factors, they represent an accurate way to estimate genetic relatedness (Buikstra 1976).

Bioanthropologists have selected those traits with a high degree of heritability, representing the best reflection of genotype (Cheverud and Buikstra 1981a, 1981b; Ishida and Dodo 1997; Hauser and De Stefano 1989; Johnson, Gorlin, and Anderson 1965; Pietrusewsky and Douglas 1993; Saunders and Popovich 1978; Susuki and Sakai 1960; Torgersen 1951). These traits have been classified into four groups based on their etiology: 1) hyperostotic traits: ossification of soft tissue structures such as ligaments/tendons; 2) hypo-ostotic traits: areas of incomplete ossification; 3) foramina (osseous tunnels)/grooves: variations in the osseous channel for neurovascular bundles; and 4) supernumerary vault sutures and ossicles. Approximately 200 such variations have been identified in the skull, and another 200 in the postcranial skeleton (Saunders 1989).

Samples included in this study come from San Gerónimo, El Yaral, and Chiribaya Alta (figure 2). Radiocarbon dates have been obtained from each of these sites (Buikstra et al. 1997) and indicate that there was substantial chronological overlap between all three

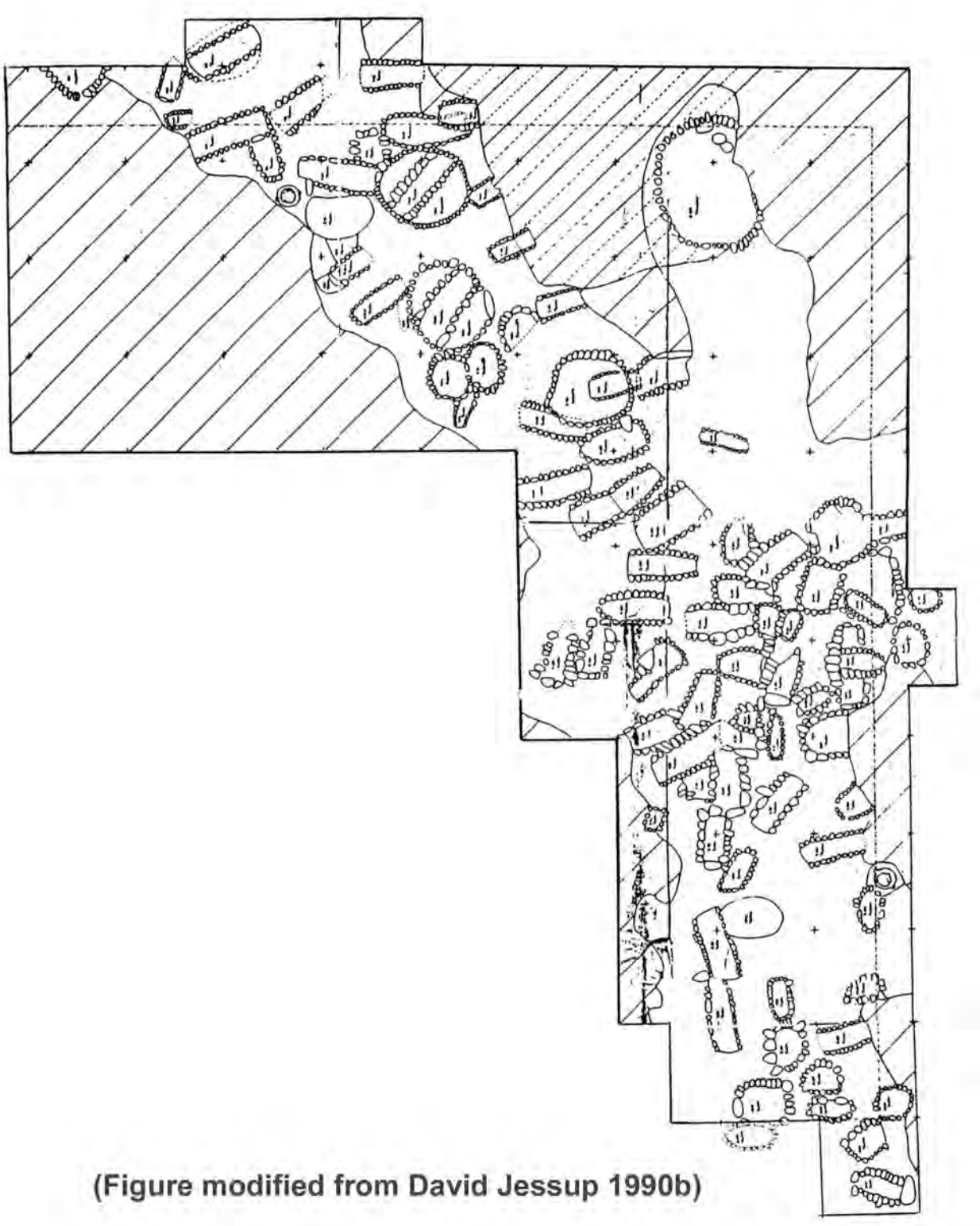


Figure 3. Map of the mortuary component of San Gerónimo.

sites, although dates from San Gerónimo begin slightly later than Yaral and Chiribaya Alta. San Gerónimo is the most extensive Chiribaya site on the Ilo coast, located only a hundred meters from the sea (figure 3). The individuals recovered from this site have been characterized as the pescadores of Chiribaya (Buikstra 1995). As such, they were buried with their tools of production such as fish hooks, harpoons, weights, nets, ropes, floats, and miniature boats (Jessup 1990a, 1990b). Large deposits containing anchovy were also excavated, as well as middens with large quantities of shells, algae, and sea mammal bones, reflecting the importance of marine resources in the subsistence base of San Gerónimo (Jessup 1990b). This dependence on marine exploitation is further corroborated by analyses of stable isotopes and trace elements from San Gerónimo. On the basis of these analyses, Tomczak (1995) states that the inhabitants of San Gerónimo subsisted on a diet high in marine consumption.

In contrast, the site of El Yaral is located fifty kilometers away from the sea at 1,000 masl (meters above sea level) and associated with irrigation canals and agricultural terraces (Buikstra 1988; Jessup 1987; Rice 1993; Stanish 1992) (figure 4). Virtually no artifacts associated with fishing activities or marine consumption have been detected in this community. Economic activities inferred from domestic and mortuary excavations suggest a heavy reliance on terrestrial resources, especially agricultural ones, and attest to the agricultural specialization by individuals buried at El Yaral. Tomczak's dietary studies confirm that the subsistence base of the labradores at this site relied much more heavily on terrestrial agricultural products than did that of coastal Chiribaya communities.

Finally, the site of Chiribaya Alta, located seven kilometers from the coast on a promontory known as the Pampa del Descanso, represents the most extensive and complex Chiribaya site in southern Peru (figure 5). The site covers approximately thirty-six hectares and is formed by a large mortuary component that includes at least nine bounded cemeteries and limited residential areas. The complex organization of Chiribaya Alta, as well as its role within the Chiribaya polity, is incompletely understood. Considerable overlap occurred between the usage of cemeteries at Chiribaya Alta, indicating that many cemeteries were in use at the same time; however, there are noticeable differences in mortuary assemblages between cemeteries, raising the possibility that they were used by different ethnic groups (Lozada, Blom, and Buikstra 1997). Given the lack of a large residential component, and the relatively opulent burial offerings associated with tombs from Chiribaya Alta, Lozada and colleagues (1997) suggested that Chiribaya Alta served as a center for ceremonial activity and political power, in much the same way as Pachacamac (Shimada 1991) in the central coast and Pacatnamú in the north coast (Donnan 1997).

A high degree of variability in mortuary patterns, ceramic styles, as well as dietary staples are present at this site, reflecting its role as the crossroads of Chiribaya. Furthermore, the different cemeteries of Chiribaya Alta demonstrate close affiliations with specific satellite communities. Individuals buried in cemetery 4, for example, exhibit close ties with the pescadores of San Gerónimo. In contrast, cemeteries 1, 2, 7, and 9 are more similar to inland Chiribaya sites associated with agricultural activities, both in material culture and dietary patterns. Additional data were collected from three other sites for comparison: 1) the Chen Chen site of the Osmore mid-valley, associated with the Tiwanaku V phase, currently hypothesized as the biological precursor of Chiribaya; 2) the contemporaneous Tumilaca site of El Algodonal; and 3) the Formative site of Roca Verde, located on the coast of Ilo, dated to approximately 500 BC to AD 200.

CHIRIBAYA BIODISTANCE ANALYSIS

Non-metric traits were scored and analyzed using standard methodologies in physical anthropology (Buikstra and Ubelaker 1994) and used by Blom in her analysis of Chen Chen (Blom et al. 1998). In this study, the biodistance between samples was determined statistically by using the mean difference of the trait frequencies: where D is biodistance, $f1i$ and $f2i$ are frequencies on the ith trait for populations 1 and 2, and n is the number of traits. To calculate the probability that each distance was obtained by chance in samples drawn from a homogeneous population, a bootstrap method was used (Manly 1991). In this method, the data set was subjected to a series of 500–1,000 randomizations in which each variable was independently sorted according to random numbers. This had the effect of randomizing the assignment of values to individuals while maintaining the probability distribution of trait values for the whole sample, and thus simulates the null hypothesis that the samples were drawn from the same population. Dendograms were then constructed using parsimony analysis. In this method, we compared the parsimony of the reasonable alternatives that were obtained by

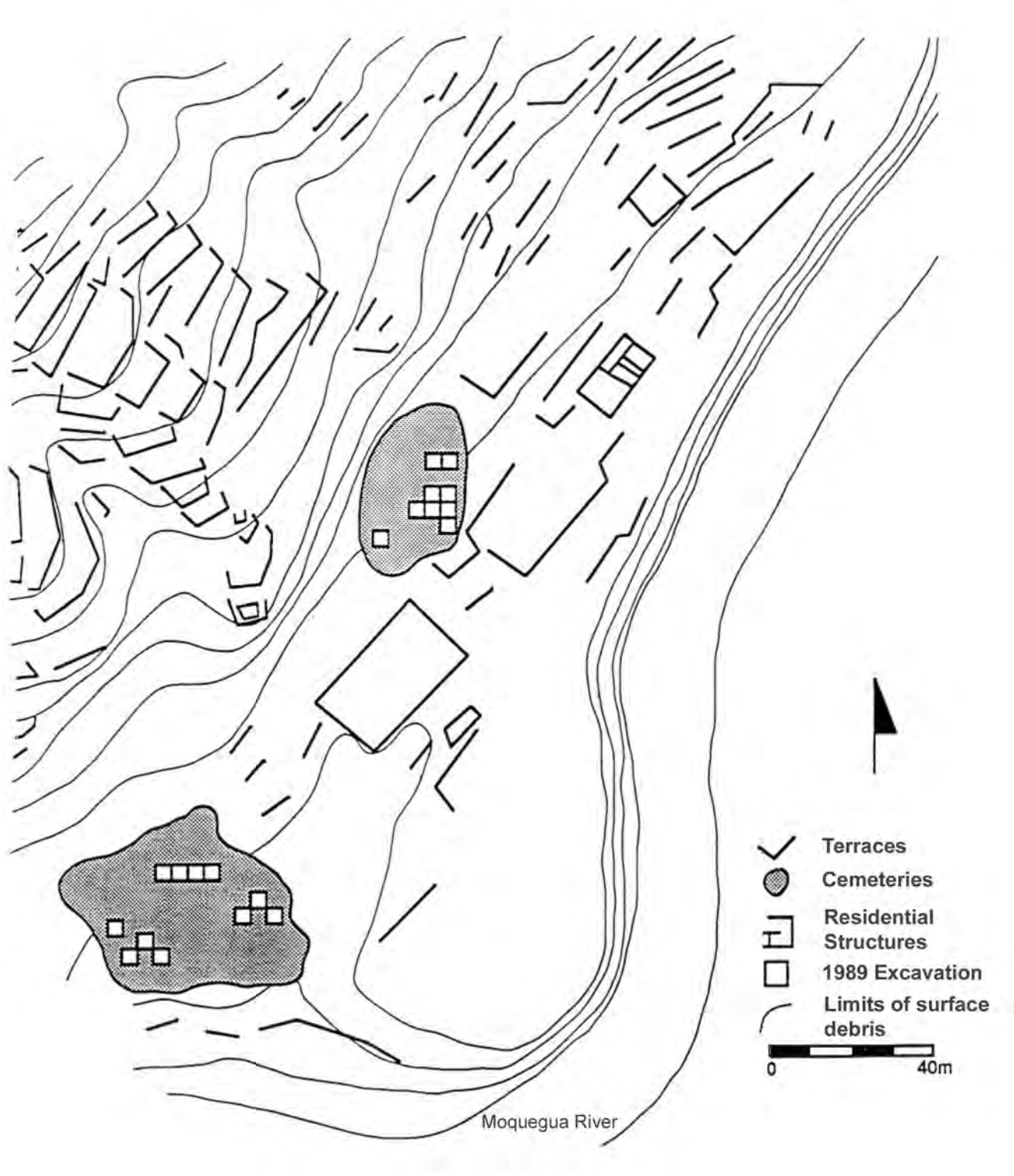


Figure 4. Site of El Yaral.

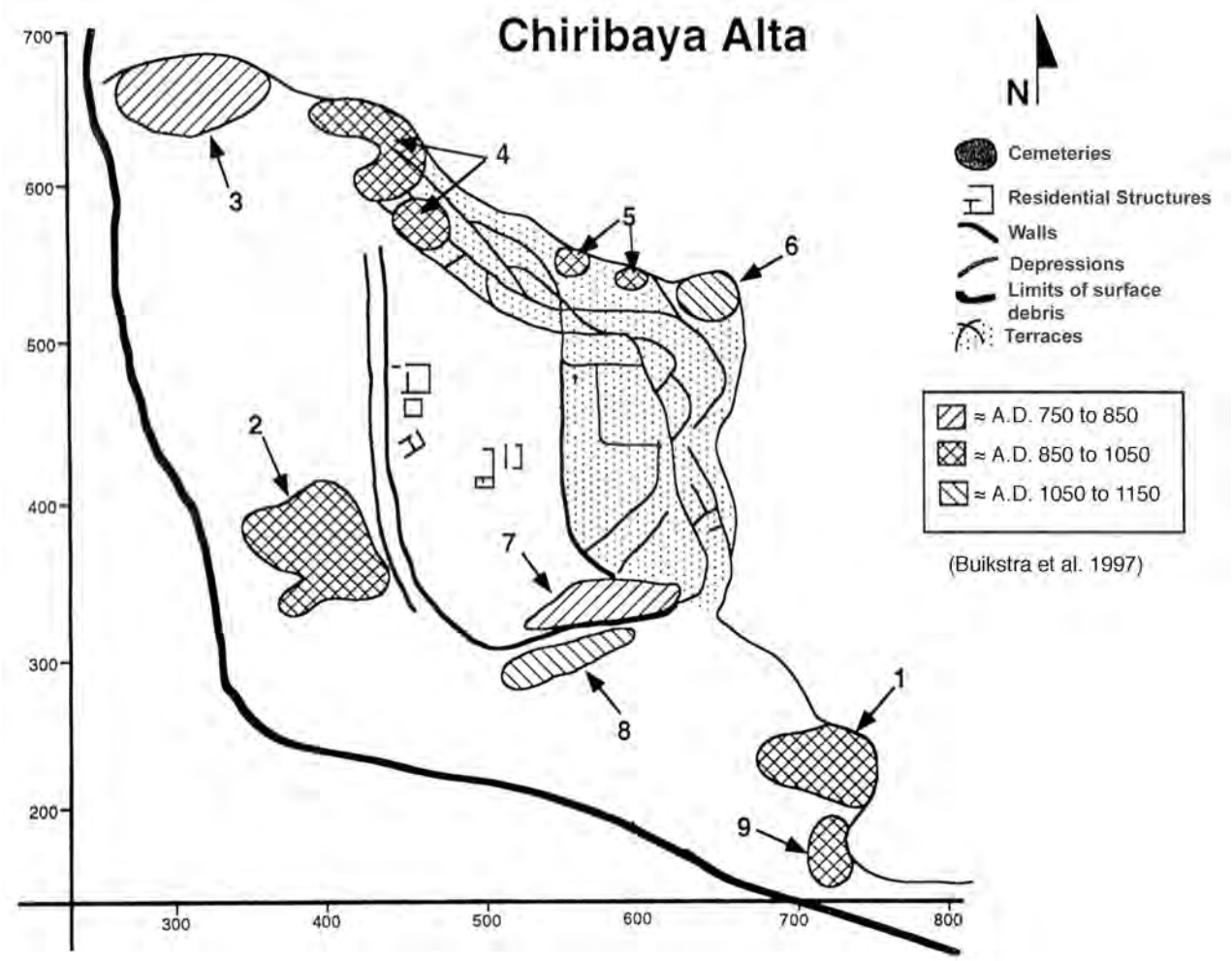


Figure 5. Site of Chiribaya Alta.

pairing samples with their closest neighbor. The set of distances was thereby successively decomposed into the closest pairs until all groups had been assigned to a clade. In the case of several reasonable alternatives, the route of least additive distance was selected.

The results of the biodistance analysis between Chen Chen, different Chiribaya cemeteries, El Algodonal, and Roca Verde are recorded in table 1. The matrix of biological distance reveals a clear pattern among the samples analyzed. Specifically, the largest distances occurred between the Chen Chen and Chiribaya samples, and between Chen Chen and El Algodonal. There were no statistically significant differences between individual Chiribaya cemeteries linked with pescadores such as San Gerónimo and the labradores in Yaral. In fact they appear to be biologically homogeneous and not genetically isolated as has been postulated by Rostworowski ethnohistorically. Interestingly, the values between the Chiribaya and Tumilaca exhibit no distinguishable differences.

In table 1 one can observe the distance matrix after all Chiribaya samples were pooled and compared to El Algodonal, Chen Chen, and Roca Verde. Once again, a statistically significant biological distance occurs between Chen Chen and Chiribaya, as well as between Chen Chen and El Algodonal. Comparisons between Chen Chen and Roca Verde yielded a "*p*" value of 0.063, which is on the cusp of the 0.05 level of probability. Given the relatively small sample sizes in Roca Verde, this probability may be a reflection of sampling, and therefore should be tested upon a larger sample. Overall, the data suggest a relatively distant biological relationship between the coastal populations that inhabited the coast of Ilo and the Tiwanaku colonists at Chen Chen. In contrast, the Roca Verde and the Chiribaya samples are genetically indistinguishable, reflecting biological continuity between these

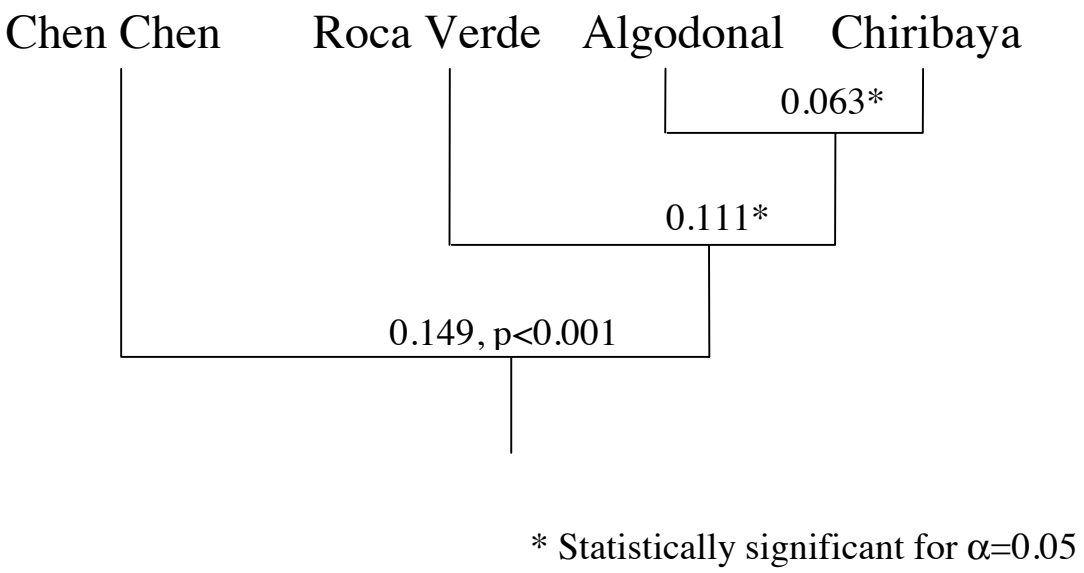


Figure 6. Dendogram of biological distances by sites.

two coastal samples. These results are presented in the form of a dendogram in figure 6. Here, the biological relationships among these various samples are further illustrated. When each individual was grouped according to ceramic association, a similar distance matrix was observed (see table 1). Larger genetic distances were found between Chiribaya, Ilo/Tumilaca, and Chen Chen samples. However, there are no major differences between Chiribaya, Tumilaca, and Roca Verde.

In summary, the Chen Chen skeletal sample is biologically different from the Chiribaya, Ilo-Tumilaca/Cabuza, and Roca Verde samples. In this sense, Chiribaya does not appear to be biologically continuous with Tiwanaku colonies in the Osmore Drainage in southern Peru. On the contrary, there is closer biological affinity between Chiribaya and the coastal Formative site of Roca Verde. In addition, no internal biological patterning was detected among the Chiribaya samples, underscoring the lack of genetic isolation (i.e. endogamy) between the pescadores and labradores. It remains unclear whether epigenetic traits are sensitive enough to detect endogamy within small populations; however, the lack of measurable genetic differences between Chiribaya cemeteries echoes similar results found by Haydon (1993) on the basis of microsatellite ancient DNA. This remarkable degree of phenotypic and genotypic homogeneity across Chiribaya communities indicates that complete genetic isolation was unlikely; however it does not completely disprove the practice of endogamy among the Chiribaya. Additional ethnohistoric accounts may help to explain this pattern. Although marriages between groups of specialists have not been documented, there are instances in which lords would marry the daughter of another lord, even though they were members of different groups, as part of marriage alliances (Hart 1983). This practice probably served important political functions in that it helped to promote integration between parcialidades.

Another potential cause of gene flow, in spite of the practice of endogamy, may be found in the ancient practice of *tinkuys*, an annual ritual battle between different moieties within a community:

> Annual intergroup duels between men, and occasionally between women, are commonplace throughout the Andes. Their generic Quechua name is *tinkuy*, meaning an encounter between two like entities or a combination of two substances. They vary in their ferocity, but in many of them deaths are not unusual. Some also involve the capture and rape of women. The span of the participating groups varies from case to case. They may be two sections of a single village or town, or of an ethnic group, or they may be coalitions of communities in a locality or region. . . . Women attended to animate the men and to rouse them to feats of bravery, but risked abduction, being regarded as potential brides of their captors.
>
> (Sallnow 1991:298–299)

Table 1. Matrix of biological distance between individual cemeteries.

	Yar	Yar	S	CHA1	CHA	CHA3	CHA4	CHA7	Chen Chen	RV
Algodonal	D=0.13	D=0.10	D=0.07	D=0.08	D=0.13	D=0.08	D=0.09	D=0.10	**D=0.15**	D=0.11
	p=0.33	p=0.69	p=0.89	p=0.88	p=0.23	p=0.88	p=0.86	p=0.68	**p<0.00**	p=0.66
Yaral		D=0.10	D=0.09	D=0.11	D=0.12	D=0.11	D=0.08	D=0.12	**D=0.20**	D=0.15
		p=0.86	p=0.78	p=0.67	p=0.51	p=0.52	p=0.96	p=0.56	**p<0.00**	p=0.34
Yaral			D=0.10	D=0.11	D=0.14	D=0.12	D=0.07	D=0.12	**D=0.16**	D=0.11
			p=0.65	p=0.57	p=0.22	p=0.35	p=0.98	p=0.48	**p<0.00**	p=0.85
San				D=0.10	D=0.10	D=0.10	D=0.08	D=0.09	**D=0.15**	D=0.13
				p=0.47	p=0.61	p=0.39	p=0.88	p=0.68	**p<0.00**	p=0.33
CHA1					D=0.13	D=0.11	D=0.11	D=0.12	**D=0.14**	D=0.13
					p=0.32	p=0.43	p=0.65	p=0.34	**p<0.00**	p=0.43
CHA2						D=0.12	D=0.16	D=0.11	**D=0.19**	D=0.15
						p=0.2	p=0.04	p=0.55	**p<0.00**	p=0.33
CHA3							D=0.11	D=0.13	**D=0.14**	D=0.10
							p=0.47	p=0.09	**p<0.00**	p=0.84
CHA4								D=0.10	**D=0.13**	D=0.12
								p=0.84	**p=0.02**	p=0.71
CHA7									**D=0.17**	D=0.16
									p<0.00	p=0.14
Chen										D=0.14
										p=0.06

In this respect, the ritual conflict between social moieties often resulted in abduction and rape of women, possibly from other communities. Therefore, even though endogamy may have been an ideal marriage pattern, there existed within Andean customs various means of circumventing it. If such rituals were also practiced among the Chiribaya, this custom may have been responsible for significant amounts of gene flow that would have largely eliminated genetic differences between communities.

CRANIAL DEFORMATION PATTERNS WITHIN CHIRIBAYA

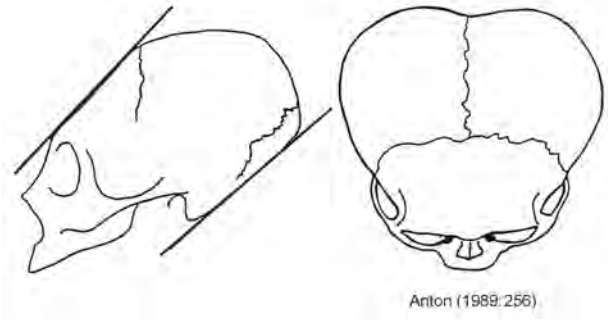
The evaluation of cranial deformation among the Chiribaya dovetails nicely with the genetic data to provide much needed insight into the internal composition and structure of Chiribaya. Because cranial deformation is performed when a person is born, it served as a life-long symbol of group membership. It often required several years of dedicated effort to produce a certain head form, and therefore, represented an important investment of labor from the community. Chroniclers such as Bartolomé de las Casas (1892 [ca. 1560]), Bernabé Cobo (1956 [1653]), and Garcilaso de la Vega (1991 [1609]) indicate that cranial deformation was used principally to create visual cues regarding an individual's ethnic or status affiliation. This practice accompanied other means of differentiating oneself from other groups such as clothing, bodily adornments, and other material accessories; however, an important distinction must be made between the use of cranial deformation and material culture as symbols of an individual's social personae. Cranial deformation was imposed on an individual at birth, and could not be altered despite subsequent changes in an individual's life. As such, cranial deformation represents a symbol of ascribed identity. In contrast, ceramics, textiles, and other items that incorporate stylistic symbols of group differences were subject to personal preferences and day-to-day variation, and therefore more likely reflected achieved identity. The study of both achieved and ascribed components of an individual's social personae is important in analyses of social structure, and as such, cranial deformation will help to complement contextual data derived from other forms of material culture.

The classification and description of cranial deformation styles among the Chiribaya was done using methodologies developed by Hoshower et al. (1995) and Blom, Yeatts, and Buikstra (1995) for the Omo and Chen Chen collections, respectively. This consisted of scoring each skull according to criteria related to their shape and deformation techniques. Throughout this investigation, forms designed by Blom and colleagues (1995) were used. They include specific information about cranial morphology, areas affected by the deformation apparatus, and impressions left by the elements used to achieve the deformation, such as pads, tablets, and straps.

In this analysis, two broad deformation groups were distinguished. The first type was the *tabula obliqua*, described by Dembo and Imbellioni (1938), characterized by fronto-occipital compression (figure 7). On the basis of this study, this category was further divided into three types: 1) fronto-occipital flat, 2) fronto-occipital round, and 3) fronto-occipital slight (figure 8). The second group consists of the circumferential (Hrdlicka 1912), or *annular obliqua*, type (Dembo and Imbellioni 1938), characterized by an elongated and tubular vault (figure 9). In both groups, the orientation of the vault, as reflected by the angulation of the frontal bone, is oblique and not vertical or erect, as has been documented in other pre-Columbian populations (Allison et al. 1981).

As can be seen in figure 10, 40% of the sample was not intentionally deformed. The remaining 60% of skulls were deformed, and were divided into 20% annular, 23% fronto-occipital/flat, 9% fronto-occipital/round, and 8% fronto-occipital/slight, respectively. Based on these results, the fronto-occipital types of cranial deformation were twice as common as the annular forms. In order to interpret more specifically the patterning of these deformation types, the correlation between these types and other biological and cultural variables such as biological sex, burial location, and ceramic association was conducted.

No associations can be seen between cranial deformation styles and skeletal sex. Therefore, cranial deformation was not used to display or symbolize gender identity. Furthermore, cranial deformation does not appear to have been used to symbolize status, even though it was more common among elite burials. By far the most important determinant of cranial deformation styles was economic specialization, as reflected in their distribution by cemetery. The fronto-occipital styles of deformation demonstrate clear association with the inland site of El Yaral, as well as with those cemeteries at Chiribaya Alta, which were closely affiliated with the labradores (figure 11). Conversely, the annular style was closely linked to the pescadores at San Gerónimo and



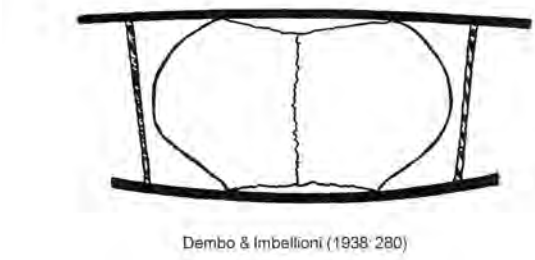


Figure 7. Fronto-occipital, or *tabula obliqua*, type.

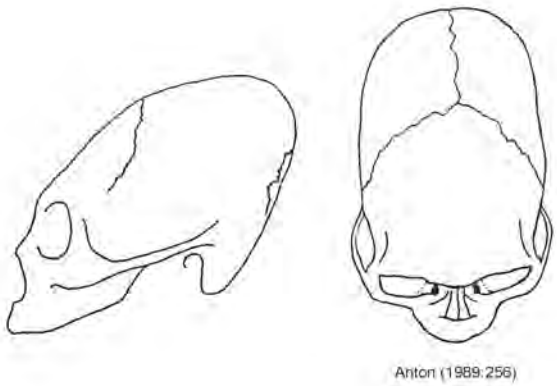


Figure 9. Circumferential, or annular, type.

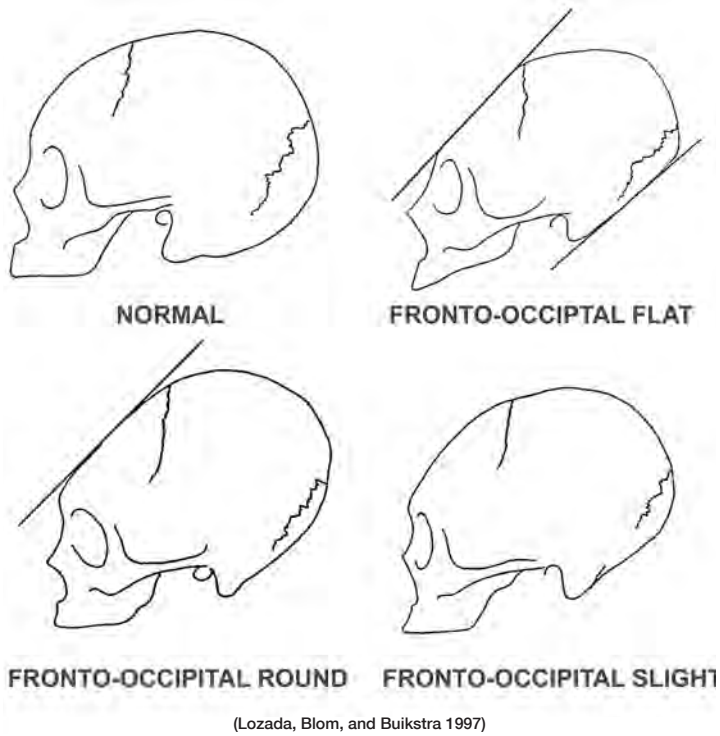


Figure 8. Cranial deformation types.

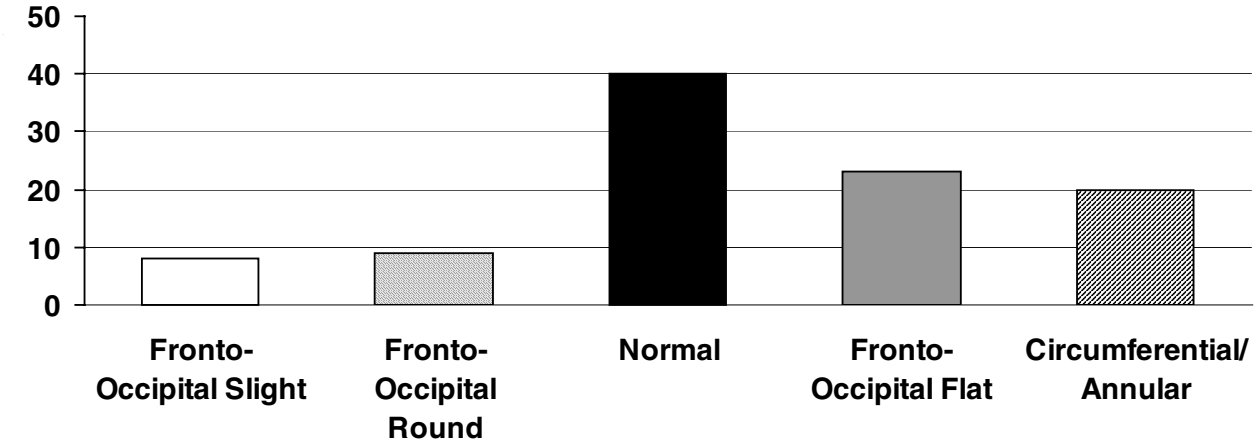


Figure 10. Frequency of cranial deformation types.

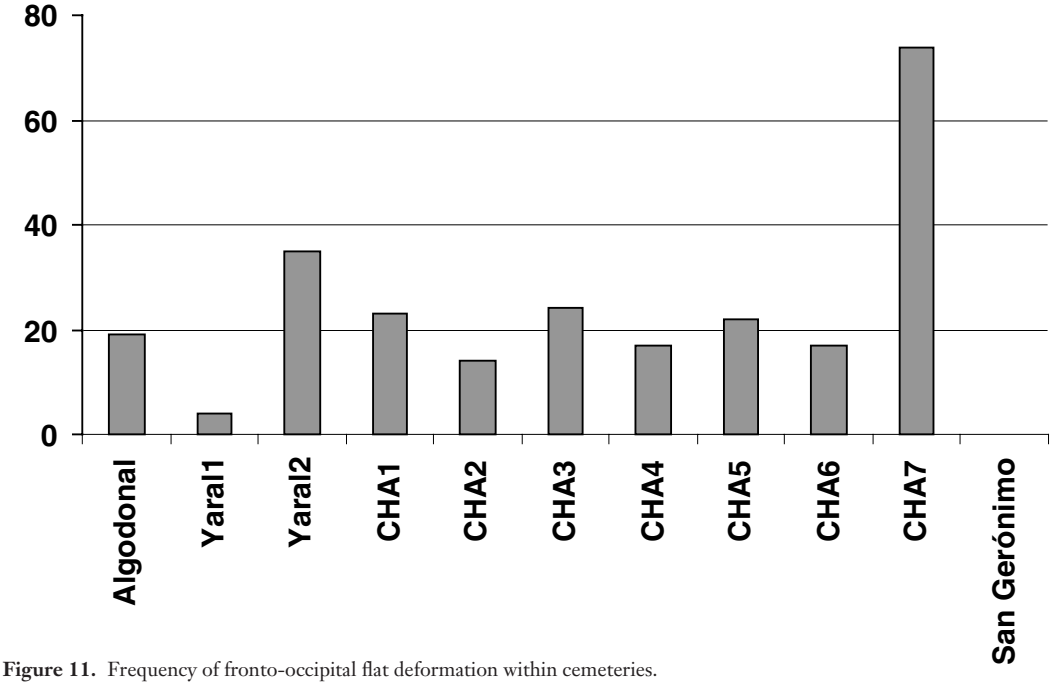


Figure 11. Frequency of fronto-occipital flat deformation within cemeteries.

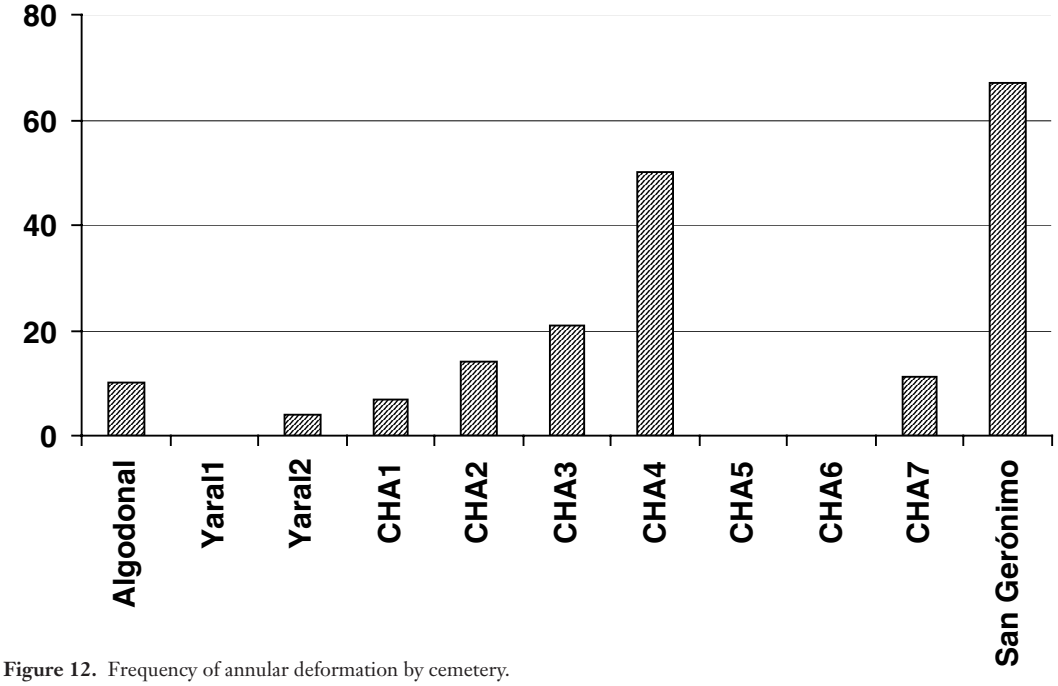


Figure 12. Frequency of annular deformation by cemetery.

Chiribaya Alta 4 (CHA-4) (figure 12). The temporal overlap between sites, as indicated by previous radiocarbon dating, indicates that differences in the practice of cranial deformation were not due to changes over time. Using cranial deformation styles, therefore, one can identify ethnically distinct groups within Chiribaya, which correspond to groups of economic specialists such as pescadores and labradores. Furthermore, cranial deformation styles can be shown to correlate well to other cultural practices such as ceramic decoration (figure 13) and tomb location (figure 14). In this respect, the Chiribaya had a clear sense of their own identity, and this was manifested in various cultural mediums such as cranial deformation.

Ethnohistorically, pescadores symbolized their separation from other communities in a variety of ways such as language and religious ideology (Netherly 1977; Rabinowitz 1983; Rostworowski 1975a, 1981), and we would propose that cranial deformation was yet another means by which they visibly distinguished themselves from other groups. Cranial deformation was, therefore, part of a cluster of distinct cultural practices including subsistence base, ceramic decoration, and burial program that served to reinforce and symbolize clear social and cultural differences. In a similar fashion, the fronto-occipital/flat style of cranial deformation symbolized the labradores of Chiribaya. Fronto-occipital flat skulls are noticeably absent from the site of San Gerónimo, and become more common as one moves up the valley, the reverse of the pattern found with the annular style. They are most prevalent within cemetery 7 at Chiribaya Alta and cemetery 2 at El Yaral. Burials associated with this type of cranial deformation were also highly associated with Algarrobal ceramics and burial offerings of camelid remains. These features contrast with those identified with the pescadores summarized above, and appear to indicate that a very different set of symbols was utilized by the labradores to identify themselves. The remaining deformation styles such as fronto-occipital/slight represent relatively subtle modifications of skull shape and are found principally in inland communities, whose subsistence base was increasingly from nonmarine resources. In this respect, the technique of fronto-occipital compression is closely linked with labradores.

This pattern is consistent with the descriptions of Rostworowski for northern and central coastal populations. She described groups of loosely integrated communities that maintained very separate identities, and were relatively equivalent units within the larger political landscape. These parcialidades served as the building blocks of coastal señoríos, and this appears to have been equally true among the Chiribaya.

It is also possible on the basis of archaeological data and cranial deformation styles to postulate the existence of a paramount lord among the Chiribaya. In particular, burial 419 at Chiribaya Alta is highly distinct from other tombs, reflecting the unique position of its occupants. For example, it is the only instance in which three individuals were buried together in the same tomb. In this case, two women and a single male. The investment of labor in this burial was truly monumental by Chiribaya standards. Of even greater interest, however, is the fact that the male has a cranial deformation style similar to those of the labradores, while the two females had the annular type associated with the pescadores. Given that the paramount lord was entrusted with the duty of integrating the disparate communities within the señorío, this highly visible association between groups of economic specialists must have served as a powerful symbol of intergroup solidarity. Furthermore, the placement of burial 419 close to the center of Chiribaya Alta, which can be viewed as a microcosm of the señorío as a whole, helps to reinforce the central role of this lord within the sociopolitical consciousness of Chiribaya.

In light of these data, the perception of coastal environments as less conducive to the development of complex societies, therefore, must be challenged. Owen (1993) and Stanish (1992) postulated that Chiribaya developed from the remnants of Tiwanaku: however, we would argue that they originated from prior coastal populations at the height of Tiwanaku's power in the Osmore mid-valley. In this respect, the Chiribaya were not merely the cultural beneficiaries of highland societies, but rather independent foci of cultural development that remained buffered from mid-valley colonies and eventually outlived Tiwanaku's presence. Furthermore, their social organization along ethnic lines closely follows the ethnohistorical model proposed by Rostworowski for coastal communities in northern and central Peru. Thus definitions of ethnicity and the identification of ethnic groups in archaeological contexts are greatly strengthened by the use of ethnohistorical analysis in conjunction with human biological and archaeological data.

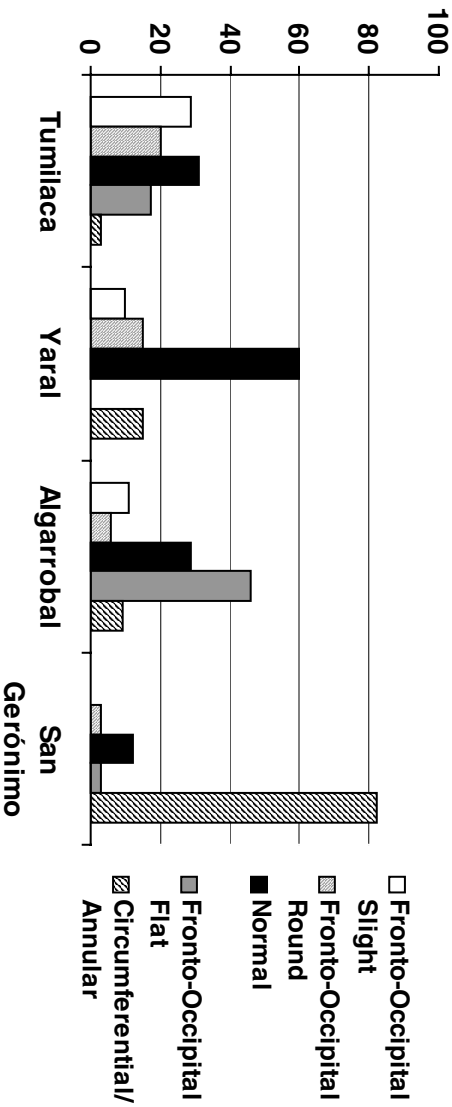


Figure 13. Frequency of deformation type by ceramic style.

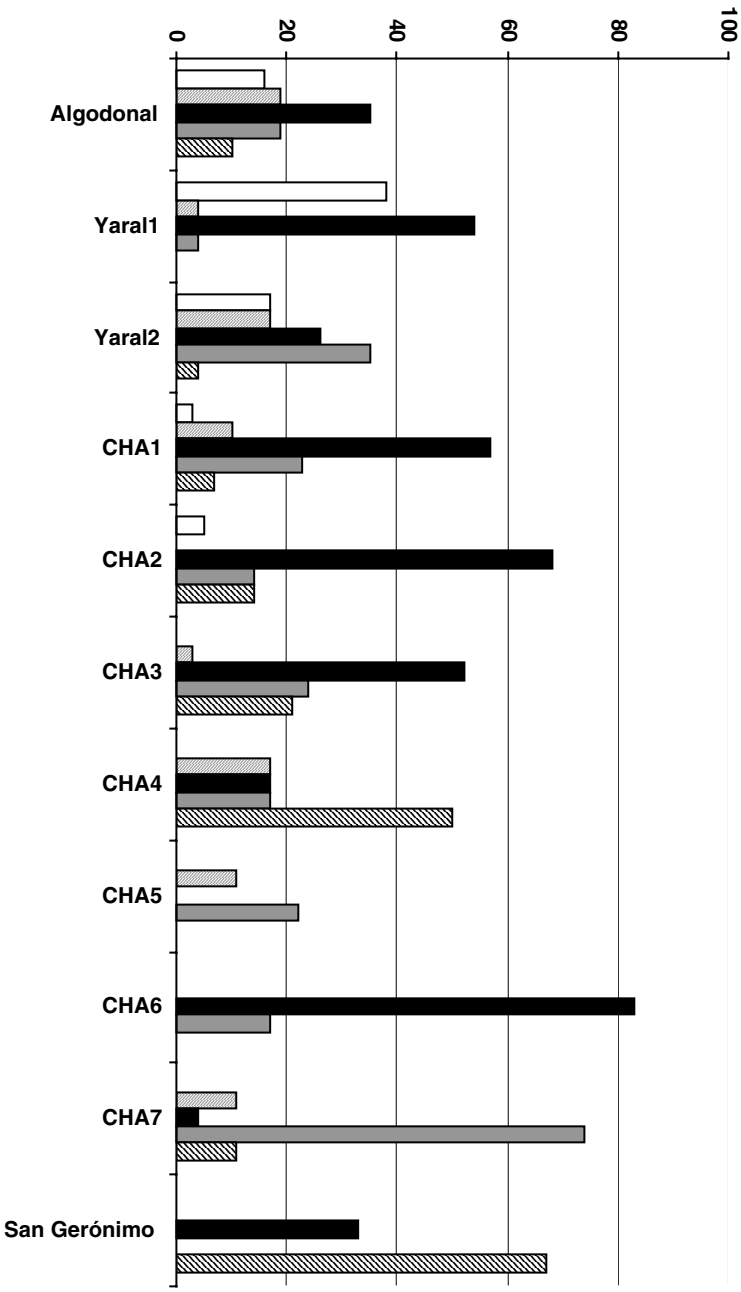


Figure 14. Frequency of deformation types by cemetery.

NOTES

1. The author and date of this colonial document are unknown. However, Rostworowski (1970) suggests that AVISO was written after 1570 by Fray Pablo de Castro.

2. Avía poblados por la costa de la mar diez mil pescadores, que cada día o los más de la semana entravan en la mar, cada uno con su balsa y redes y salían y entraban en sus puertos señalados.

3. *Huaca* is a word for a place, person, or object considered to be sacred. In coastal areas, islands were important huacas. According to *yunga* (people who inhabit either the coast or mid-valley regions) origin myths, ancient lords were transformed into islands by the mythical hero Vichama (Rostworwoski 1997:35).

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CHAPTER 13

Discussion:

MIGRATION, COLONIES, AND ETHNICITY IN THE SOUTH-CENTRAL ANDES

CHARLES STANISH

In the early 1980s, a number of archaeologists working in the south-central Andes focused on a major methodological question in Andean economic anthropology. That question surrounded the nature of colonization in zonal complementarity models as articulated by John V. Murra and several other scholars in the 1960s, 1970s, and early 1980s. Murra had convincingly demonstrated that late prehispanic and early Colonial peoples in the central Andes had colonized different ecological zones to complement their economic base. These zones were defined largely by altitude; hence the synonym "verticality" was applied to these models to reflect the stratification of ecological regions in the Andes. In this model, these resource zones were colonized by groups over great distances. Unique to this model was the fact that the colonies remained ethnically identical to each other. Unlike colonies known from history and ethnography in other parts of the world, the colonists coexisted with others to form a highly complex political geography. Ethnically similar groups of people were separated by huge distances, and they lived next to people who were not of their ethnic group who had also colonized the region.

The means by which resources moved over the landscape in verticality models was therefore quite novel in economic anthropology. Unlike contemporary Western macroeconomic theory where individual people exchange goods and labor as autonomous agents, the economic relationships between colonists in verticality models were defined by ethnicity. That is, colonists were bound by traditional relationships of kinship and community. Given the importance of ethnicity in the zonal complementarity literature, defining ethnicity in archaeological contexts is an essential methodological issue. Migration, colonization, and ethnicity have therefore been the focus of much theoretical, methodological, and empirical research in the Andes for decades.

The chapters in this volume represent the state-of-the-art of the archaeology of zonal complementarity. In this paper, I try to contextualize the contributions of this paper in historical and theoretical context. From

biological anthropological data to textiles, this collection of essays describes the means by which we can address complex models of exchange in the archaeological record by defining ethnic affiliations, migrations, and colonization.

ZONAL COMPLEMENTARITY

In 1964, Waldemar Espinoza S. published a transcription of the *Visita* of Garci Diez de San Miguel that was conducted in 1567 (Garci Diez de San Miguel 1964 [1567]). Appended to the *Visita* was an article by Murra (1964). In this article, Murra first suggested his model of verticality. In two critical publications in 1968 and 1972, Murra restated the model of zonal complementarity, establishing it as the principal theoretical framework for analyzing Andean political economy for decades. The basic principle behind this model is that the "vertical" stratification of ecological zones in the Andes has profoundly affected the political and economic strategies of prehispanic populations. The traditional model is characterized by the direct control of colonial lands by polities outside of their core region or home territory (Stanish 1992:3). Populations strategically locate their colonies to control a diverse set of ecological zones. This geographical pattern allows the various, "complementary" ecozones to be exploited by a single polity. Hypothetically, the resulting distribution of colonies creates an "archipelago" of landholdings over various ecological zones. The overlap of archipelagos resulted in a complex patchwork of different ethnic groups and political units.

As early as the seventeenth century, Bernabé Cobo, perhaps the first Andean scholar to recognize verticality, described the relationship between the Andean environment and the political economy:

> It is necessary to presuppose the existence of an ancient custom of these people, and it is that when some province did not produce certain foods, especially none of their bread, which was *maize*, but was suitable for other uses, special arrangements were made. For example, due to the extreme cold, the provinces of Collao do not produce maize or other seeds or fruits of temperate lands, but they are very abundant in pasture lands and most appropriate for raising livestock and producing *papas* [potatoes], from which *chuño*, their substitute for bread, is made, as well as some other roots. For the inhabitants of these provinces, the Inca had picked out lands which lie in the hot valleys of the seacoast on one side and on the other side of the mountains toward the Andes; in these temperate valleys they plant the crops that they lack in their own lands . . .
>
> (Cobo 1979 [1653]:192)

In zonal complementarity models, the home community would send out relatives to distant ecological zones to exploit the ecological differences. The links between the colony and home territory were very strong. In fact, the principal cultural linkages between distant territories consisted of nonmarket economic exchange mediated through kinship. In this sense, the archipelago distribution of colonies all tied together by kinship resulted in a discontinuous distribution of the same ethnic group. An example that Murra used was the Lupaqa kingdom of the western Titicaca basin. The Lupaqa were a sixteenth-century Aymara-speaking polity who had maintained a degree of autonomy in both the Spanish and Inka states (Stanish 2000).

The *Visita* of Garci Diez de San Miguel of 1567 explicitly mentioned instances where the Lupaqa sent out colonies to the western and eastern slopes to exploit the lower altitude resources. A typical reference in the Diez de San Miguel *Visita* is: "each year the majority of indians go to Sama, Moquegua, Capinota and Cuzco . . . for maize, *aji* and other staples that do not grow in this province and from which they barter cattle, cloth, wool and charqui." (Garci Diez de San Miguel 1964 [1567]: 208). Valleys to the east such as Larecaja were included with references to valleys in the west such as Sama, Lluta, and Moquegua. The *Visita* even noted the number of people that lived in the enclaves. The suggestion by both the Lupaqa witnesses in the *Visita* as well as by Murra was that zonal complementarity patterns were even more prevalent during the Inka and pre-Inka periods.

The verticality model as presented by Murra is consistent with the observation that central Andean economies did not have any developed market mechanisms. In Murra's model, the relationship between the home territories and their colonies was mediated through mechanisms of redistribution and reciprocity (Murra 1985:16). In the case of the Lupaqa, the relationship between the elite of the home territory and their colonies appears to have been dominated by a redistributive relationship, characterized by the Spanish historians as the payment of tribute. We also can surmise that alongside this colonial relationship were family-level reciprocal ones, with the lowland colonies exchanging foodstuffs from the lowlands for wool, freeze-dried meat (*charqui*), freeze-dried potatoes (*chuño*), lake fish, and other commodities from the Titicaca region.

ETHNICITY AND ZONAL COMPLEMENTARITY

As described above, ethnicity is a central concept in zonal complementarity models. This is because 1) Murra viewed the home territory and the enclaves as being ethnically identical, and 2) in a non-market economy, exchange *had* to be mediated through sociological mechanisms, particularly kinship. Unlike anything documented on any scale in the ethnographic record before, Andean peoples were purported to have developed this unique adaptation to a unique environment. Each home territory and colony was linked through sociological ties. Markets did not exist prior to the Spanish conquest, and therefore all trade was through reciprocal and redistributive mechanisms as outlined by the theoretical work of Karl Polanyi. The work of Polanyi permeates the theoretical framework of Murra and the zonal complementarity theorists throughout the 1970s and 1980s. While Polanyi was ambiguous as to whether redistribution, reciprocity, market exchange, and so forth were simple mechanisms or entire economic systems, Murra and his colleagues utilized these theoretical tools well to embed the Andean data into a viable, nonformalist economic framework.

In the early 1980s, archaeologists started to seriously test verticality models. I, along with others who began work on the late prehispanic periods of the western slopes of the south-central Andes, was confronted with discriminating between colonial enclaves and sites that engaged in economic exchange mediated by kinship. In the colonial enclave case, the home territory and the colony would be ethnically similar. In the case of simple exchange relationships between different ethnic groups located in different zones, we expected to see some kind of ethnic differentiation between the sites in the archaeological record.

The methodological problem facing us was how to discriminate between different ethnic groups in the archaeological record, as predicted by zonal complementarity models. As any anthropologist knows, and as the papers in this volume indicate, defining ethnicity even in living people is an immensely difficult task. Ethnicity is highly fluid. Language, dress, food, and many other customs define ethnic affiliations. At the group level, intermarriage and in-migration confound any attempt at creating tidy ethnic categories. Many of the indicators of ethnicity do not survive in the archaeological record. Finally, ethnicity changes over generations as people adopt and reject some or most attributes of their former ethnic group.

In spite of these difficulties, we felt it absolutely necessary to develop some methodological means to test verticality models. We were fortunate to work in a physical environment ideally suited to test such subtle anthropological concepts. One of the great advantages of the western slopes of the Pacific watershed is the extreme aridity. Archaeological preservation is excellent, and there is little natural soil formation. Since the western valleys are deserts, village life away from the coastline is only possible with some form of irrigation. Since irrigated land is so precious, people throughout prehistory and history tended to build their habitation sites away from the bottomlands and on the dry slopes above the rivers and canals. When the irrigation systems collapsed, former habitations were often left stranded in a virtually rainless, economically useless environment. As a result, archaeological settlements were easily visible on the surface. These settlements had intact structure foundation walls, looted tombs, and substantial organic remains on or near the surface.

HOUSEHOLD ARCHAEOLOGY AND THE DEFINITION OF ETHNIC GROUPS

The ability to easily discern the walls of structures on archaeological sites was a major factor in deciding to use some of the concepts and techniques of household archaeology to test models of zonal complementarity. The dry environment of the western valleys preserves virtually the entire architectural layouts of the sites. Clusters of structures are visible, as are cemetery areas and other functionally specific structures.

In one publication on the subject (Stanish 1992:34–41), I defined the household in methodological terms as "the basic coresidential economic unit" in the settlement. This term was intended to distinguish between the household as a sociological unit represented by the biological family and the household as an archaeological unit represented by coresidential work units. In most cases, the coresidents are biological family members, but the converse is not true. It is likely that some biological family members live elsewhere on the settlement or in other structures in neighboring areas.

I argued that the archaeological household can be used to identify ethnic affiliation in settlements. The theoretical underpinning of this proposition is that household layout is largely culturally contingent and conservative. Other aspects of the household construction and form respond to local environmental conditions, such as rainfall, temperature, altitude, and building resources.

However, the actual spatial distribution of functionally distinct rooms and activity areas, as well as structure shape, are largely culturally determined.

Numerous historical examples support this proposition, ranging from the Viking colony on Newfoundland to English houses in Iquique on the coast of Peru. Throughout the ethnographic and historical record, there is good evidence demonstrating how migrant populations will maintain the cultural principles manifest in domestic architecture while using local materials to build those structures and adapting to local circumstances where necessary. Adobe or sod may replace wood, as in the case of European migrants to the American West, but the spatial layout of houses tends to reproduce the ethnic customs of migrants.

There are of course numerous counter examples of migrant populations adopting new domestic architecture. In particular, forced migrations into hostile areas, or migrations to cities where the complex processes of ethnogenesis occur, would not be appropriate analogs for zonal complementarity models.

Zonal complementarity models, as articulated by Murra and others, remain ambiguous about the nature of colonies. I identified three potential colonial configurations as suggested by the verticality literature (Stanish 1992:43–45). The first kind of colonization would be a phenomenon in which an entire region, perhaps a valley or section of a river valley, would be occupied by one ethnic group. A second kind would be a case where ethnically distinct sites share a region with other ethnically distinct sites. The third case would be one in which a single settlement was multiethnic, with perhaps distinct barrios in a large village or small town. The historical documents were not clear on this, and Murra and his colleagues were never explicit as to the precise nature of the vertical settlement in their models.

Archaeological research in Moquegua demonstrated that the first two kinds of configurations were possible. Whole regions were colonized by groups such as the Tiwanaku in mid-Moquegua region (Goldstein 1993). Likewise, during the Otora period in an upper Moquegua tributary of the same name, we found two very distinct architectural types living side by side in the same valley, ostensibly at the same time (Stanish 1989a, 1989b, 1992). However, we never discovered a multiethnic settlement in the upper reaches of the Moquegua area, although Richard Reycraft discusses a possible multiethnic settlement at Carizzal. It is likely that such multiethnic settlements are extremely rare due to the complex processes of ethnic negotiation that occur in such contexts. As anthropologists and comparative sociologists have noted, it is precisely in such cultural environments that new ethnic identities emerge. This process of ethnogenesis is a hallmark of urban environments and is decidedly not a characteristic of zonal complementarity models.

This observation is reinforced by Garth Bawden's, John Janusek's, and Steve Bourget's contributions to this volume. Bawden notes how the dominant ideology of a political elite in an urban setting will be expressed in markers of ethnicity. Bourget discusses elite iconography. At Moche, much of the iconography was involved with elite reinforcement of their status. In contrast, Janusek identified distinctive areas at Tiwanaku where groups maintained their earlier identities while adapting to a new urban environment. In all three cases, the urban context is profoundly different than that hypothesized in zonal complementarity models at the village level.

DOMESTIC AND NONDOMESTIC CONTEXTS AND THE DEFINITION OF ETHNICITY

Prior to our work in Moquegua, it was typical for archaeologists to define colonies based almost exclusively on stylistic comparisons of artifacts, usually pottery, between different sites in different areas. This "artifact-based" approach was problematic for several reasons. The most critical drawback, in my opinion, was a reliance on stylistic comparisons between grave goods. I argued that artifacts in tombs were not a good context to define the ethnic affiliation of a settlement. This was due to the fact that exotic goods of high value tended to be buried with individuals in far greater numbers than in other contexts. In support of this proposition, I described results from Cigliano and his colleagues (1973) and Pollard (1984) at the Late Intermediate period site of Tastil in Argentina. In this case almost 66% of the whole pottery vessels discovered in the tombs were exotic, whereas only 15% of the whole pottery found in the residential structures were exotic. Even more dramatic results were obtained when all potsherds were used. In this case, only 2% of all pottery found in domestic contexts were exotic. Similar patterns were found in my own excavations in the Otora Valley (Stanish 1985), at the site of Playa Miller in Chile, and in other sites where we had controlled excavations of both habitation and cemetery areas.

In short, the only factor that explained this patterning was the context in which the artifacts were found. Domestic contexts produced far fewer exotic goods than

did funerary contexts. Imagine a model of interregional relationships and exchange developed from only one of these contexts. Using only the funerary data, one would argue for a multiethnic colony. Using only domestic data, one would argue for an isolated settlement with minimal interregional exchange.

I therefore proposed that as part of the methodology to define ethnically distinct colonies, we had to go beyond household layout and control for the context in which artifacts were found. In short, domestic contexts (that included structure layout) tend to be more "conservative" in preserving ethnic markers than nondomestic contexts, particularly cemeteries or tombs. This "contextual approach" was used to analyze settlements in the Otora Valley. Based upon this methodology, I identified a fluid cultural historical landscape beginning with an initial colonization by people ethnically linked to the final Tiwanaku occupation of the region. Subsequent periods were characterized by multiethnic colonization of the Otora Valley followed by a process of ethnogenesis. By AD 1300 or so, the ethnic affiliation of the inhabitants had transformed over time and resulted in a new group that was named Estuquiña by Michael Moseley.

Kevin Vaughn's contribution in this volume has expanded and improved on this methodological suggestion in an admirable manner. He defined the round structure, house-patio pattern in the Ica-Grande region, while also recognizing a degree of variability around this normative pattern. It is quite intriguing that he is able to detect differences in settlement patterns from valley to valley in the region. These valleys are ecologically similar; as Vaughn points out, the differences could reflect some kind of ethnic differentiation, but much more work must be conducted before we can draw such conclusions.

In this light, the chapter by Richard Sutter challenges some of these assumptions that funerary contexts are poor markers of ethnicity. His work suggests, to the contrary, that pottery in tombs is the best indicator in his work. This is a fascinating pattern deserving of more research. Perhaps the fact that his sample derives from a coastal population may account for some of this variation. Certainly, his data serve to support the use of ceramic style for defining ethnic affiliation and challenge some of my ideas on this methodological approach.

In short, the archaeological evidence supports two kinds of migration or colonization models in the late prehispanic periods in the south-central Andes. As defined above, these are either characterized by the control of a region or the control of individual sites within a region. Multiethnic settlements were not discovered. Over time, ethnicity shifted. The regional political and economic relationships were fluid as well. Acquiring necessary ecologically specific goods was achieved through a mixture of colonization and exchange.

"LO ANDINO" VERSUS COMPARATIVE ANTHROPOLOGY

The model of zonal complementarity has been a powerful theoretical tool used to understand Andean societies. If one analyzes the historical context in which it was created, one can see that Murra and others were struggling to develop a viable "Andean mode of production" that both conformed to general Marxist theory and emphasized the uniqueness of Andean peoples' exploitation of their natural environment. The degree to which verticality is different from other areas of the world where resource zones shift due to altitude remains problematic.

After two decades of research, I must reject this central tenet of zonal complementarity theory—i.e., that it is a pattern and/or process unique to the Andes. I argue instead that the cultural processes in the Andes can be modeled like other areas of the world. In this sense, I take a comparative approach and focus on the processes of the development of political and economic complexity and do not see zonal complementarity as a uniquely Andean mode of production. Clearly, the geographical characteristics of the central Andes identified by Murra profoundly affected the development of complex society. However, by rejecting the uniqueness of the verticality "ideal" (see Forman 1978; Van Buren 1996), we redirect our attention away from defining a unique Andean mode of production to modeling the anthropological processes that undergird the origins and evolution of complex society in the central Andes.

I would also go so far as to suggest that the whole concept of the Andes as a single cultural area is a result of Inka and Spanish imperial policy (Stanish 2001). Prior to the Inka Empire, there were three major linguistic, ecological, and cultural zones in the central Andes: a central and north coastal zone where Mochica and related languages were spoken, a north-central and central Andean zone where Quechua and related languages were spoken, and the south-central Andes where Aymara and Puquina predominated. Each of these areas had a relatively insular cultural history,

with Moche, Wari, and Tiwanaku emerging in the first millennium AD as "pristine" states. Obviously, there is some borrowing of cultural elements between Wari and Tiwanaku and Wari and Moche. But, this level of borrowing appears to be no greater than that between the Nile Valley and Mesopotamia in the late fourth millennium BC. Few would argue that these two areas were one cultural zone. Yet, Andean scholars combine into one cultural area a region that, in the Old World, would stretch from Cairo to the Indus Valley.

One could reasonably argue that the notion of a transcendent Andean "ethnicity" that incorporated many disparate languages and cultures was a product of Inka and Spanish imperial needs. Such a process is common in most empires around the world. The need to create ideologies of power that unite disparate regions of the world is common in all expansive state systems. It is certainly true that the Inka state consciously sought to make people mark their ethnicity with appropriate dress. But, at the "official" level of state ideology, as detected in their theologies of origin, one can see an attempt to unite their realm under a common sense of unity. Of course, the Spanish Empire had very similar needs, and this ideology of Andeaness, from Quito to Santiago de Chile, was preserved in Spanish state strategies.

There are numerous features of the many Andean cultures that are truly unique. In fact, most aspects of all cultures are to a great degree historically contingent, such as language, dress, feasting styles, kinship systems, and so forth. But economic production and exchange, and the kinds of political organizations that order the economy, are subject to strict selective pressures. There is substantially less variation in political economy around the world than there is in other aspects of culture. The use of colonies and complex exchange relationships to acquire access to nonlocal resources is common around the world in both space and time. Zonal complementarity as an economic strategy can be understood as one example of the processes of political evolution seen throughout the archaeological and ethnographic record.

ETHNICITY IN THE ARCHAEOLOGICAL RECORD

When we first started our research in Moquegua in the 1980s, biological anthropology was just beginning to develop the potentials of DNA analysis. I recall thinking at the end of the decade, when I had finished my first book draft on zonal complementarity, that DNA analysis would make most of the methodological advances that we had achieved irrelevant in short order. In fact, ancient DNA has not developed as quickly as we would like. As Deborah Blom's fine paper demonstrates, bioarchaeological approaches will not be replaced by ancient DNA either. Her work with cranial deformation, a quintessential social modification of the human body, shows that this classic marker of ethnicity in the Andes can be effectively used to identify group identity. As she also points out, ethnic identity is fluid whereas the deformation of the cranium at birth is permanent. Cranial deformation data, combined with other kinds of information, provides a very powerful means of defining social complexities in the archaeological record.

The contributions of Amy Oakland Rodman, Gioconda Fernandez Lopez, and Andrea Heckman emphasize the role of textiles in marking ethnicity. Unlike cranial deformation, textiles are a much more fluid form of ethnic identification. As a kind of "social skin," dress can be changed to suit the ethnic moment as described by Oakland Rodman and Fernandez Lopez. Heckman takes this logic a step further and sees modern weavers actually place ethnically specific metaphors in their products.

The definition of ethnicity in the archaeological record still requires the intensive analysis of objects and the context where those objects were found. The papers in this volume nicely illustrate this observation. Reycraft, for instance, suggests that textiles, domestic architecture, tomb styles, and ceramic finewares used in ritual contexts provide good markers of ethnicity. He tests these variables with data from Chiribaya contexts and demonstrates how a multifactor approach can provide unexpected, but exciting results. We still use pottery styles in domestic contexts, iconography, skeletal and other nongenetic biological information (particularly cranial deformation), clothing, and tomb design. Sloan Williams's paper illustrates the potentials of ancient DNA, but also emphasizes how much basic genetic work has to be completed before we can use it effectively in assessing ethnicity in the archaeological record. M. C. Lozada and Jane Buikstra's paper elegantly shows how non-metric cranial traits and cranial deformation data can be used to sort out groups among the archaeological populations of the Chiribaya. Biological data will provide an additional source of independent evidence to evaluate these models. After looking at the rich data and meticulous interpretations in this volume, I now realize that ancient DNA is not a panacea, but one more tool in our archaeological kit that will help us define this complex phenomenon.

This volume brings together the whole range of approaches that we can use to define ethnic differences in the archeological record. Of course, the very definition of ethnicity will change as we develop new theoretical concepts. However, the work presented in this volume stands as a model for integrated, multidimensional methodologies in contemporary anthropological archaeology.

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CHAPTER 14

Discussion:

ETHNOGENESIS AND ETHNICITY IN THE ANDES

JANE E. BUIKSTRA

INTRODUCTION

As the papers in this volume attest, the Andean past, with its complex histories and rich archaeological record, is an ideal context for the study of ethnicity. Yet, the archaeological study of ethnicity is itself a complex and contested arena. The papers presented here reflect numerous definitions of ethnicity, ranging from Kevin Vaughn's social/psychological construct, through Richard Sutter's contextual emphasis, to Garth Bawden's explicit linkage of self-identification with social reproduction. Some authors eschew explicit foci upon ethnicity, preferring to distinguish "us and them" in terms of social identity (Janusek) or to include ethnicity within a more broadly based consideration of biocultural groups (Sutter). Emphasis upon context is pervasive, with some authors including ethnohistoric models (Lozada and Buikstra, Blom), while others focus upon iconography (Bourget) and the potential that textiles hold for the study of ethnicity in Andean contexts (Oakland Rodman and Fernandez Lopez, Heckman). The material symbols chosen to represent ethnicity range from those common to residential contexts (Vaughn) to combinations of household and public monuments (Bawden). And as a cautionary tale, Sloan Williams emphasizes the importance of evaluating ancient kinship models against empirical data derived from small-scale societies.

As described in the following section, recent archaeological approaches to ethnicity are commonly grounded in a variety of social theories that permit "us" to be distinguished from "them." The lack of theoretical and methodological consensus among the authors of these chapters thus parallels the multiplicity of approaches common to the field today. This volume is, however, somewhat unusual in its attempt to meld inherited and culturally defined physical attributes, such as cranial deformation, with variation in material culture. Just as these authors argue for grounding ethnicity in historical traditions, the following section will briefly sketch historical developments in social and archaeological theories that help contextualize their current contributions. This is followed by an overview of key themes developed in individual chapters.

APPROACHES TO ETHNICITY: A HISTORICAL SKETCH

In his classic ethnography of the Kachins of northern Burma (1954), Leach emphasized the need for analytical distinctions between cultural traits and social groups (Bentley 1987). Subsequent ethnological discussion further questioned the meaning of material culture in relationship to ethnicity, focusing instead upon processes of group formation and boundary maintenance. Self-ascription of similarities and differences assumed prominence in studies of ethnogenesis, e.g., Barth 1969. The latter portion of the twentieth century saw extensive debate between those who saw ethnic construction as a product of powerful, emotion-laden primordial symbols ("primordialists") and those for whom action is rational and circumstantial ("instrumentalists"). In his attempt to reconcile "the fragmented field of the study of ethnicity," Bentley (1987) has invoked Bourdieu's (1977) theory of practice. Bourdieu's concept of *habitus* is central to Bentley's construct. "According to the practice theory of ethnicity, sensations of ethnic affinity are founded on common life experiences that generate similar habitual dispositions" (Bentley 1987:32). Deeply ingrained, preconscious habitus "weaves the veil of enchantment which allows differentiated social formations to reproduce themselves" (Bentley 1987:42). Bentley (1987:49) also emphasizes the need for a historical perspective in explaining ethnic identity transformation.

The contemporary emphasis in Americanist archaeology upon ethnicity is grounded in "new" archaeological concern for distinctions between style and function (Binford 1962). Though Binford suggested an association between style and ethnicity, it was not until the 1970s that style was explicitly linked to ethnicity, e.g., Sackett 1977, who used the term "isochrestic variation" to denote stylistic similarities and differences that could serve as ethnic markers (see also Jones 1997). Ethnoarchaeological studies during the 1980s, e.g., Wiessner 1983 and 1984, Hodder 1986, underscored the complex relationship between style variation in material culture and ethnicity. However intractable, ethnicity continues to be a concept actively pursued by students of past histories, as the papers in this volume demonstrate.

Just as Bentley has explicitly adapted Bourdieu's concept of habitus to ethnographic analyses of ethnicity, Jones (1997) has argued that habitus is also useful in archaeological definitions. Defined simply as "cultural dispositions that both structure and are structured by social relations," habitus is said to avoid the limitations of other approaches. Whether this construct will endure in studies of archaeological ethnicity requires the test of time. Jones's treatment of ethnicity does, however, provide an explicit theoretical base against which to compare the formulations of ethnicity presented in this volume.

For Jones (1997:120), the relationship between habitus and ethnicity is not direct: "The construction of ethnicity, and the objectification of cultural difference that this entails, is a product of the intersection of people's habitual dispositions with concrete social conditions characterizing any given historical situation." Thus, while symbols may vary arbitrarily across cultures, variation within specific contexts is not random. Within a diachronic framework, the researcher may gain insight concerning the manner in which habitual material variation is transformed into active self-conscious ethnic symbolism, and vice versa, based on stylistic information. Jones also emphasizes that meanings may change over time and that "rarely is there a one-to-one relationship between representations of ethnicity and the entire range of cultural practices and social conditions associated with a particular ethnic group" (Jones 1997:128). Fine temporal control is important for teasing out variation that may hold ethnic meaning. Thus, context is essential, including both temporal and spatial factors. No single attribute is necessarily an ethnic marker, nor is meaning constant over time. Stylistic variation is active in communicating and mediating social relationships, though ethnic variation may be communicated by only a limited set of symbols. There is no simple relationship between differences and similarities in material culture and degree of interaction. The archaeological construction of ethnic groups would thus seem very challenging indeed.

ETHNICITY: THIS VOLUME

In his consideration of both biological and cultural attributes across four Late Intermediate mortuary sites from the Azapa Valley, Sutter emphasizes the contextuality of ethnicity; he also argues that bioarchaeological methodology has the advantage of exploring the interface between biological kinship and culturally expressed group identity. The degree of congruence between such attributes further enriches the study of cultural identities. Sutter's operationalization involves the concept of biocultural groups, "groups that demonstrate ethnic affiliation as defined by culturally based behavior, genetic relatedness, and shared economic activities and interests." He argues that each of these factors should be influenced by culturally defined group iden-

tification. Conscious expressions of group identity are inferred through the analysis of grave goods and cranial deformation, while genetic relatedness is measured through dental and cranial non-metric traits. Economic behaviors are read from dental pathologies and grave offerings. Sutter's stated goal is to determine which attributes track ethnic variation and to identify the basis of ethnic variation among these Late Intermediate sites. A related goal is assessing the degree to which either genetic or cultural markers support affinities with altiplano groups.

Sutter has painstakingly (here and in other work) established the contemporaneity of the mortuary sites under investigation, even though distinctive ceramic traditions are represented. This contribution represents a significant departure from the normative, ceramic-based chronologies that have dominated Andean studies.

Using sites as the basic unit of analysis, Sutter observes that both economic production (occupation-specific grave goods) and consumption (dental health) vary across sites, as do ceramic styles. Inherited features, cranial deformation forms, and textile styles do not, however, segregate the skeletal sample into site-specific units. Sutter concludes that ceramics are the only identifiable conscious ("emblemic," *sensu* Wiessner) marker of identity considered in this study. Site-specific differences in dental health and economically specialized grave furniture are considered unconscious reflections of group affiliation ("isochrestic," *sensu* Sackett) due to commonly shared activities. The absence of definable distinctions in cranial deformation and inherited features may have resulted from exogamous marriage patterns, due to the fact that these attributes reflect cultural and biological factors associated with natal groups rather than adult residence. The absence of interpretable patterning among the textile assemblage is somewhat enigmatic, given its potential for signaling group identities, as emphasized by Andrea Heckman and by Amy Oakland Rodman and Gioconda Fernandez Lopez (this volume). Perhaps patterning would emerge if stylistic variation was partitioned by apparel type, as done by Richard Reycraft in this volume. Sutter's study underscores the fact that ethnicity is not signaled equally in all forms of material culture. The absence of barriers to gene flow, the co-occurrence of multiple skull shapes within each cemetery, and the lack of textile stylistic patterning reinforce the flexibility and situational nature of ethnic boundaries. Ethnic distinctions apparently emerged largely through shared economic interests and practices, though they took material form in ceramic stylistic variation as well. Each community thus signaled its identity, as opposed to the "other." Yet, as evidenced by inherited attributes and cranial deformation, the "other" could become "us," underscoring the permeable nature of ethnic boundaries. There is no support here for direct altiplano connections of either a cultural or biological nature.

Cultural and physical data are also melded in the contributions by Deborah Blom and by M. C. Lozada and Jane Buikstra. Both papers emphasize the contextual nature of ethnicity. Lozada and Buikstra have examined inherited non-metric skeletal features and cranial deformation in a test of competing horizontality (Rostworowski) and verticality (Murra) models in characterizing the Osmore Valley Chiribaya culture (Late Intermediate). Archaeological and bioarchaeological evidence, including chemical signals of diet and material culture inventories, had previously reflected between-community economic specialization. To fully support Rostworowski's horizontality model of occupationally specialized coastal settlements, however, the communities would have to have been endogamous, genetically isolated. This was not the case, although very little gene flow would be necessary to mask the effect of genetic drift. Distinctive cranial deformation forms are, however, associated with markers of occupational and dietary specialization: annular deformation characterized the coastal *pescadores*; fronto-occipital, the *labradores*. (Although Sutter did not explicitly address associations between deformation form and grave assemblages, it would appear that the same pattern may be found in his data.) The presence of distinctive cranial deformation forms within single cemeteries, however, is an important line of evidence confirming the lack of social and reproductive isolation between economically specialized Chiribaya communities. Lozada and Buikstra, adapting an ethnohistoric model, propose that the Chiribaya culture represents a *señorío*, with an internal social hierarchy of fishers and farmers united under a single paramount lord. Lozada and Buikstra also echo Sutter in emphasizing continuity in coastal traditions, both biologically and culturally.

Blom also uses cranial deformation to present convincing evidence for Tiwanaku colonists at the middle Osmore Valley site of Chen Chen. Following a nuanced discussion of the "cultural body," she argues convincingly against earlier generalizations that locate annular deformation in the altiplano and tabular forms on the coast. Both types are found in the altiplano and appear to sort spatially in a manner reminiscent of historically

documented Aymara divisions, *urcosuyu* and *umasuyu*. The former refers to cold, dry lands of the altiplano and the western slopes and is symbolically male. The latter is located further to the east, including the wet *yungas* (subtropical forests flanking the eastern slopes and central valleys of the Andes) and the Amazon basin, and is gendered female. Within the Titicaca region, outlying sites to the east present tabular deformation; the west, fronto-occipital. If these are indeed ethnic signals, then the diversity of forms found at the site of Tiwanaku itself reflects the pluralistic nature of the capital.

The final paper that explicitly treats biological data is a contribution by Williams. She has investigated the utility of nuclear DNA (nDNA) and mitchondrial DNA (mtDNA) in discriminating between closely related endogamous divisions within the Yanomamö. Williams finds that nDNA—especially microsatellites—performed as expected, and that mtDNA did not reflect the fission history for these groups. Unfortunately, when contemplating archaeological samples, anticipated yield of mtDNA far exceeds nDNA recovery. Williams notes that one ethnically Yanomamö village is genetically Makiritare, apparently due to gene flow. Thus, she cautions, a single historical event can influence heritage in ways that contradict ethnic identity. Heritage is not an effective proxy for ethnicity, although the tensions between the two can be enlightening. The genetic permeability of ethnic boundaries, explicitly identified here, is also reflected in each of the previously discussed studies that combine cultural and biological data.

Two papers in this collection focus upon textiles and the communication of ethnicity. Heckman, in her investigation of Quechua weavers from Ausangate, Peru, considers ethnic identity to reflect a shared group sense of belonging (De Vos 1975). This belonging, she emphasizes, is frequently reflected in how individuals and groups are clothed. She then proceeds to link Quechua metaphorical symbols, woven into textiles, to the communication of cosmological concepts, such as the fundamental importance of lakes (*qocha*) and water. Body metaphors are also discussed, as are continuities of men's and women's clothing forms from the Inka period to today. Not surprisingly, given Spanish mandates against traditional clothing at haciendas and in cities, fewer items of traditional male attire appear to have maintained, when compared to those of women. This change underscores the gendered nature of ethnic identity and the gendered differences in situations of culture contact.

Oakland Rodman and Fernandez Lopez also focus upon clothing as a communicative medium, emphasizing that at one level, stylistic variation may express ethnicity, gender, or social status. At another level, and as emphasized ethnographically and ethnohistorically by Heckman, deeper symbolic meaning is carried in design elements and garment composition. This presentation well illustrates the impoverishment of decontextualized artifact-based methodologies (*sensu* Stanish 1989), emphasizing the need to contextualize textiles in terms of the archaeological record. Funerary garb is not necessarily that worn in daily life but rather is chosen by the living, not the dead. As the authors note, information is contained in the fiber, the warping of threads on specific loom types, and the structures created within specific garment types. The Andes is one place in which garment preservation in contexts of casual disposal can be contrasted with funerary garb. In closing, the authors propose that the clothing styles can reflect local identities, but that larger affiliations may also be signaled. This appears to have been the case for the garments from the post-Moche site of Huaca Cao Viejo. Though textiles are among the most visually impressive and variable items of material culture that are recovered from Andean sites, they encode far more information than simple ethnic identity, and these messages are challenging to read. Oakland Rodman and Fernandez Lopez's contribution well illustrates the potential and the problems posed by textiles from the Andean archaeological record.

Steve Bourget also emphasizes problems inherent in the interpretation of archaeological identities, based upon his study of sacrificial victims from Huaca de la Luna (north coast) and painted iconography. He argues that both the victors and the victims were culturally Moche, and that the impressive sacrificial context resulted from battles of largely symbolic, ritual significance rather than secular conquest. Especially intriguing is his discussion of Moche ritual practitioners and their relationship to both the living and the dead. That the living elites enter a liminal state when they assume their priestly status, thus becoming "a little bit dead" as they move closer to the ancestors, must have been profoundly significant for Moche cosmology. Perhaps the practitioners' liminal status helps explain the interment of ritual paraphernalia in their graves, when corporeal death overtook them. Liminal beings, and by extension their badges of liminality, became increasingly potent over time and were therefore dangerous to the living. Burial would have removed this threat. New emblems and new priests would only accrue negative energy in the course of future events, thus beginning the cycle anew.

In his discussion of ethnogenesis in Late Moche contexts at the site we call Galindo, Bawden emphasizes the significance of historical context and the importance of both self-ascription and social reproduction. Ancestors may or may not function to reaffirm ethnic identities. As does John Janusek (this volume), Bawden links ethnogenesis to complex social formations and inequalities of power relations. This departs from models of ethnogenesis considered here for the south coast, where formations develop in the context of occupational specialization, e.g., Lozada and Buikstra, Sutter (this volume). Bawden argues that ritual is inherently a conservative force, although signals from funerary contexts have been used on the south coast to identify distinctive ethnic identities, e.g., Reycraft (this volume). Clearly the question of scale and power is fundamentally important in the manner in which ethnogenesis is characterized across the Andes.

Following calamitous cultural disruptions occurring during the sixth century AD, Moche elites abandoned their monumental pasts, relocated peoples from dispersed communities to Galindo, and adopted new, foreign symbols of power and cultural authority. Ethnogenesis is clearly reflected in non-elite households where the ancestors were interred within domestic space. As Bawden emphasizes, location, intimacy, and probably funerary ritual signaled the return to an ancestor cult that symbolized ethnic affiliations. The house thus became part of the sacred landscape for the non-elite at Galindo, a function served by peripheral community cemeteries prior to the sixth-century relocation. As the ancestor cult developed within households, relationships between the dead and the living undoubtedly changed. Perhaps rather than the living, elite ritual practitioners becoming "a little bit dead," as in Bourget's Moche example, the Galindo domestic interments were somewhat "more alive" than previously.

Vaughn, in his treatment of Early Nasca society, focuses exclusively upon attributes of domestic architecture and artifact assemblages to identify ethnically distinct local groups. His definition of ethnicity derives from Jones (1997): "all those social and psychological phenomena associated with a culturally constructed group identity." Following Stanish's emphasis upon household archaeology in the Andes, Vaughn argues that household data are more conservative and representative of day-to-day activity. Finding similarities in house form and material culture across the region, he argues for the presence of a distinct ethnic group. Vaughn's exclusive focus upon households, to the exclusion of items that may reflect ritual, including funerary rituals, may have yielded a narrow perspective on ethnic formation. More satisfying are those approaches that combine elements of ceremonial contexts with those from the household, e.g., Reycraft (this volume). In this effort, Vaughn verges upon a traditional trait list approach to the identification of social groups, an unsatisfying definition of "we," without a "they" in opposition.

The urban centers of Tiwanaku and Lukurmata serve to anchor Janusek's study of style and social identity in the Tiwanaku state. Janusek contextualizes his interpretation of ceramics in relationship to other aspects of residential life, including spatial organization, craft production, diet, and burial patterns. Rather that focusing upon ethnicity or ethnogenesis, Janusek centers his interpretations upon "social identities," which he considers a more flexible construct than ethnicity, as currently used in relationship to nation-states. His definition of social identity is "subjective affiliation with certain groups of people in relation to others based on perceived common history, manner of actions, or cultural expressions." While some would argue that this is but one useful definition of ethnicity, Janusek emphasizes the fact that individuals can maintain multiple social identities that may change quickly, depending upon context, which makes social identity a more useful inferential tool. Diversity in material forms between compounds at Tiwanaku signals to Janusek the presence of kin-based groups that differed "not only in production and status, but also in social identity." By contrast, the community at Lukurmata reflected social identities tied more closely to ceremonial cycles, perhaps reflecting an ethnic group.

Reycraft, working with assemblages from the Osmore Valley, develops an explicit definition of ethnic identity: the mechanism by which groups of individuals, sharing a common identity, use culture to symbolize within-group solidarity in contrast to, and in competition with, other social-identity groups. Three kinds of stylistic variation are recognized: 1) emblemic, or conscious (*sensu* Wiessner); 2) assertive, or individual (*sensu* Wiessner); and 3) isochrestic, or "generally unconscious stylistic variation set by enculturation/historical traditions" (*sensu* Sackett). Emblemic and isochrestic variation carry ethnic information while assertive differences may obscure it. Reycraft operationalizes his approach by examining stylistic variation in the following attributes: 1) hats and exterior garments; 2) ritually used ceramics; 3) vernacular domestic architecture; and 4) tomb design. He examines the changing landscape of lower valley Chiribaya ethnicity before and after an AD

1360 El Niño event, in comparison to the Estuquiña culture from the middle Osmore Drainage. He finds post-Classic (post-Niño) Chiribaya to reflect Estuquiña styles in textiles, especially hats (*gorros*) and ritually used ceramics. Tomb forms and vernacular architecture, however, most closely resemble those common to earlier Classic Chiribaya communities. Reycraft argues that while there is no evidence for population replacement following the El Niño event, the strong evidence of Estuquiña forms in emblemic style suggests that there was a change in ethnic identity. Were the postdisaster coastal folk ethnically Chiribaya or Estuquiña? Probably neither. Surviving such a major destructive and socially disruptive event likely stimulated a new identity, forged and tempered by the calamitous experience. This new ethnicity created and displayed material markers that did not break entirely with tradition but also integrated elements from afar. These "exotic" elements were but symbols of the crucial alliances that served to sustain the coastal Chiribaya during tragic stressful times. As with Bawden's Late Moche example from the north coast, ethnogenesis was stimulated by a natural disaster.

CONCLUDING STATEMENT

As noted in the introduction, the varied approaches to ethnicity presented in this volume reflect the diversity found in contemporary archaeological treatments. Some authors envision ethnogenesis in the context of state-mediated power inequalities (Bawden, Janusek), while others note ethnic distinctions between more humble fishers and farmers from the south coast (Sutter, Lozada, and Buikstra). The use of stylistic variables to identify ethnic formations varies, but most contributors would agree with Jones's emphasis upon embedding studies of ethnicity in historical and archaeological contexts, eschewing simple "artifact-based" investigations. The complexity of textile analysis and its potential have been illustrated, as have promising new approaches that combine ethnohistoric models with archaeological and human biological data. The use of culturally defined physical markers of natal ethnicity, such as cranial deformation, has proved enlightening, while the investigation of inherited skeletal traits has underscored the genetic permeability of ethnic boundaries.

The variety of approaches illustrated here reflects both the vitality and context-specific nature of ethnic studies. Multivariate and contextually rich, these investigations herald a bright future for the study of ethnogenesis and ethnic identity among ancient Andeans.

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