CHAPTER ONE

Introduction

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Of all human histories of the Andes, the initial peopling of the continent and the beginnings of indigenous civilization and food production have proven to be some of the more difficult to master. For most Andean scholars, pre-Hispanic civilization is seen to begin with monumental architecture, public works of art – among other spectacular achievements–at large, permanent settlements such as Chavin de Huantar in the highlands and Caral on the coast of Peru before 3,000 years ago. (All dates in this volume refer to calibrated dates. BP refers to Before Present. Yet, several major social and economic foundations of civilization had already been in existence for several millennia. Archaeologists have always considered the earlier period from ~13,000 to 6,000 years ago to be important in terms of the appearance of domesticated plants and animals, social differentiation, and a sedentary lifeway, but there is more to this period than just these developments. The spread of crop production and other technologies, kinship-based labor projects, and population aggregation, for instance, formed a palimpsest of ever-changing conditions across many different environments of the Andes that created a patchwork of new transformations through time. This book examines these formations and transformations from the late Pleistocene to the middle Holocene in two valleys in northern Peru – Zana and Jequetepeque (Figs. 1.1, 1.2) – through a large body of archaeological evidence, and places them in the context of recent scholarship studying similar processes in other parts of the world. This evidence was gathered by a series of related archaeological projects that were carried out between 1976 and 2008. Synthesized and related here for the first time are both new and previously published data generated by these projects in the analysis of more than 570 Preceramic sites in the study area.

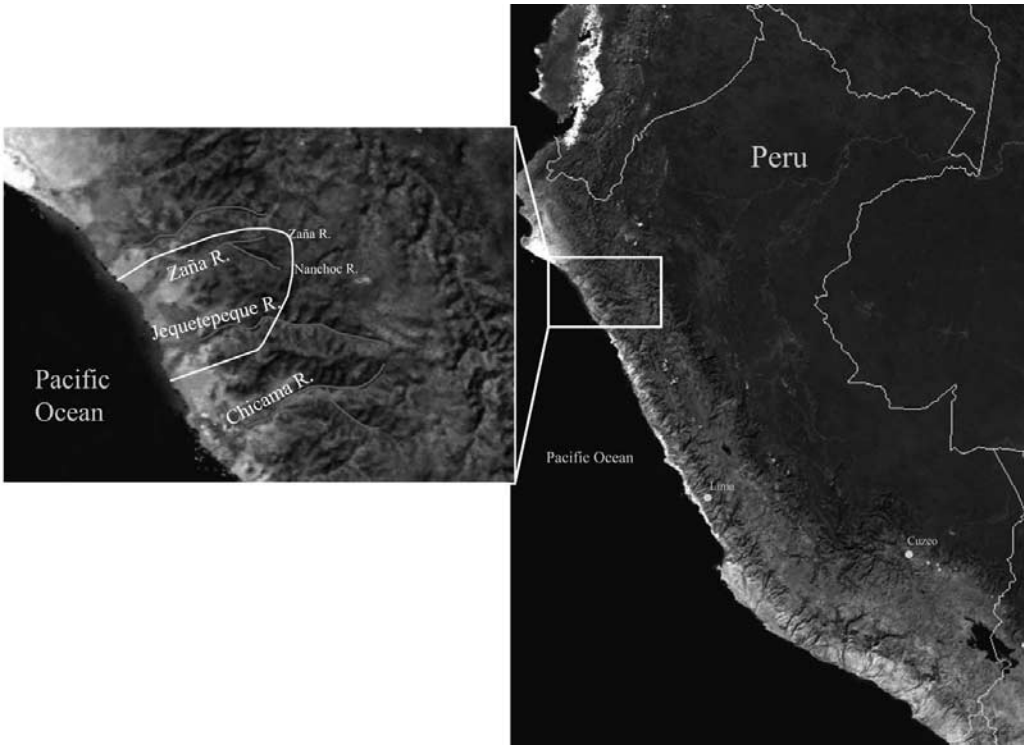

Figure 1.1. Location of the Zaña and Jequetepeque valleys on the north coast of Peru.

Previous explanations of these processes are being altered around the globe as new data become available and new ways of thinking about these processes appear. Recent studies have shown that not all Pleistocene peoples were highly mobile, big-game hunters; some were territorial foragers subsisting on a wide variety of local foods (e.g., Dixon 1999; Dillehay 2000a; Meltzer 2009). It is also becoming clear that domestication and food production, social complexity, demographic aggregation, new technologies, and response to environmental stress did not always form a "coherent cultural package of changes driving each other progressively forward" (Marshall n.d.) in the manner envisioned by neo-evolutionary thinking (c.f., Bar-Yosef and Meadow 1995; Gamble 2004; Sassaman 2008). New models now view early societies independently operating at different velocities and directions of change at different places and times around the world. Rather than viewing changes as having occurred rapidly as a consequence of reaction to certain "triggers," we now see that many developed slowly over centuries or millennia. We also realize that some foragers tried new food-producing strategies and then rejected some or all of them and

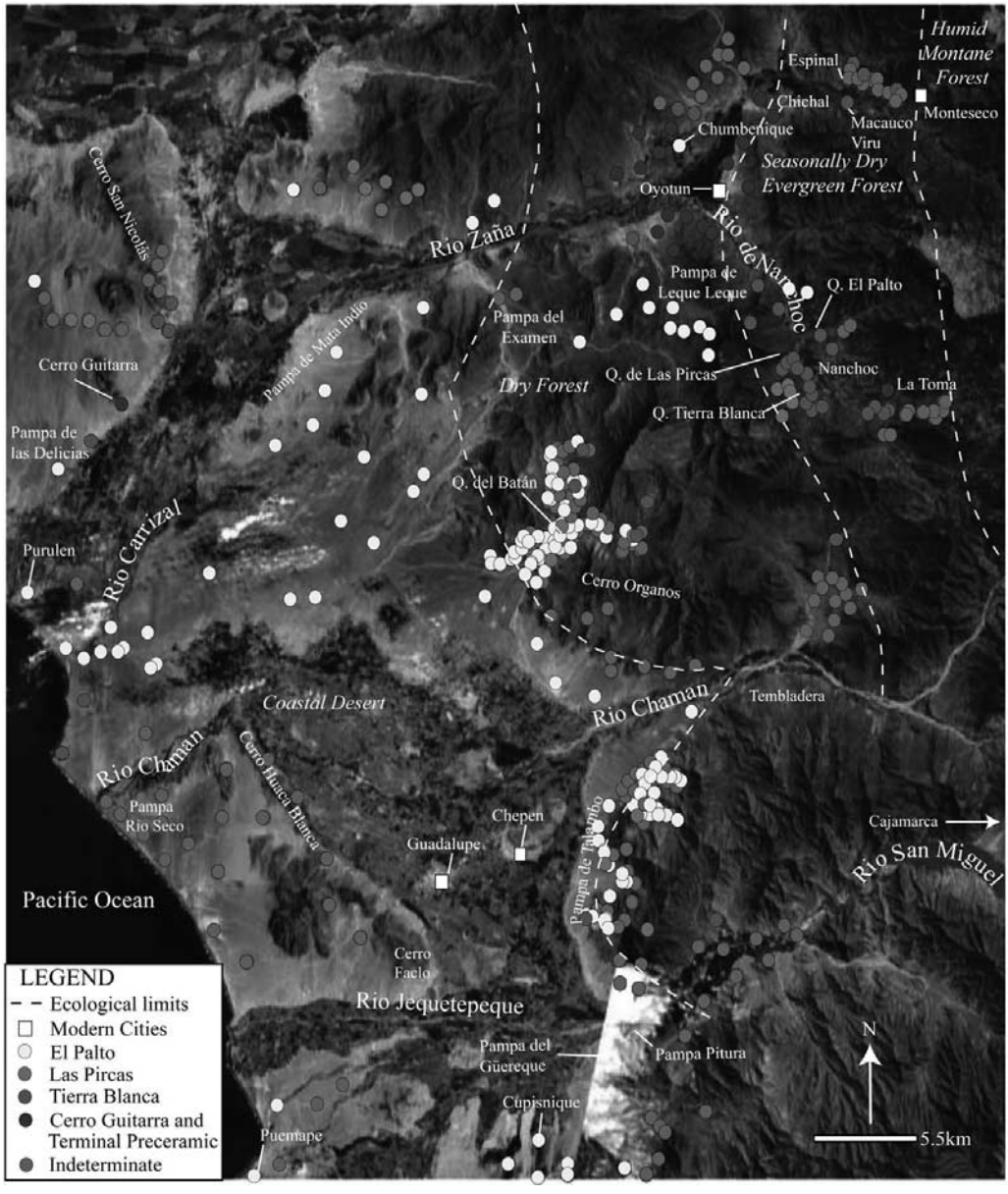

Figure 1.2. Satellite view of the lower Zaña and Jequetepeque valleys showing all Preceramic sites by phases across different ecological zones.

returned to a foraging strategy, or they aggregated and disaggregated in and out of sedentary communities (e.g., Kennett and Winterhalder 2006; Barker 2006; Grove 2009). Some foragers even managed plant and animal resources by fostering environmental conditions that promoted preferred foods, such as palm nuts in the Amazon rainforest and shellfish along

the Pacific coast of South America. And some complex foragers were "domesticated" in the sense that they constructed monumental architecture and residential spaces that mirrored an asserted cultural ethos separate from but intertwined with the "natural" world (e.g., Wilson 1988; Hodder and Cessford 2004; Dillehay et al. 2007; McGovern et al. 2007; Mills 2007).

Taken together, new data and ideas have constituted a fundamental challenge to the way we think about early hunters and gatherers, the beginnings of simple and complex forager societies, plant food production and farming, social relations, and the contributions early societies made to later ones. Complex foraging systems now are thought to have differed from simple ones essentially in the degree and nature of social differentiation and in the content, use, and meaning of material items (Gamble 2004). We now understand that more complex societies institutionalized practices that served additional (and diverse) functions for their individual members and were organized as relatively specific entities in different places (Binford 1980; Ingold 1980; Rowley-Conwy 2001). These practices were ritual orders, social networks, technological traditions, perhaps gender-based units, and others, which were performed in specific private or public places, such as individual huts, charnel houses, and ceremonial centers. These places generated new social roles that were fluid with respect to emerging relations of power, identity, and memory with other groups. These changes generally involved a reduction in mobility and an increase in sedentism, storage, and resource rights associated with collected and harvested resources, and the development of different social values and conditions.

As a result of this new thinking, the firm boundaries that once defined early farmers and fishers apart from broad-spectrum foragers are being reconsidered (cf. Bar-Yosef and Meadow 1995; Dillehay et al. 2004; Scarre 2002). We now realize that complex foraging and farming societies oscillated through time and space in many parts of the world and that there was no inevitable progression from one stage to another for all societies. We also know that much variability existed in forager subsistence, demography, social structure, and ideology, with many transformations occurring at the community level defined by a mosaic of different contemporary economies and social structures. These findings, in turn, have encouraged a reexamination of the co-existing relationships between some early farmers and foragers, why some foragers built monuments and farmed part-time, how incipient mound building reflects the structure and organization of groups, and how the interrelationships between groups and various

"external" influences shaped local adaptations and historical trajectories (Fall et al. 2004; Fitzhugh and Habu 2002; Moore 1998).

Within this context, more emphasis has recently been placed on built landscapes, domestic architecture, special public places and symbols, plant domestication, and community patterning (e.g., Hodder 1990; Joyce and Gillespie 2000; Yaeger and Canuto 2003) and on the organizational implications of these elements within oscillating and transitioning societies. As Wilson has noted, "Domesticated society is founded on and dominated by the elementary and original structure, the building, which serves not just as shelter but as a diagram and, more generally as the source for metaphors of structure that make the social construction and reconstruction of reality possible" (Wilson 1988:153). The threshold between the domesticated and the nondomesticated was constantly negotiated and symbolized in such things as the treatment of the dead, the size and location of houses, the separation of public and private spaces, and people's "desire" to become less mobile (cf. Goody 1977). We now view the relations between people and their domesticated and nondomesticated environments in terms of a wide variety of concepts, such as "landscape" (Crumley 1993), "inscribed landscapes" (Thomas 1991), "contingent landscapes" (Barton et al. 2004), "landscape management" (Balée 1994), and "socionatural systems" (McGlade 1995), among others. These concepts imply, to various degrees, that landscapes were negotiated and constructed by interdependent social and natural processes that became the specific materialized settings defined by human actions (Bradley 2000; McGhee 1997).

This book considers not only the social and natural environments created through the actions of populations living in the Zana and Jequetepeque valleys in northwest Peru from the late Pleistocene to the middle Holocene period, but also the consequences of recurrent cycles of climatic and environmental change on the settlement, technological, and subsistence history of these populations. While at the outset of human history in this area, people may have been passive and adapting to existing environmental conditions, they eventually became active, creative social agents practicing a form of landscape management initially through broad-spectrum foraging and the beginnings of food production and later through community irrigation farming in selected areas. These processes eventually produced a "net environmental diversity [and economic potential] greater than that of the so-called pristine conditions with no human presence" (Balée 1994:116) and communities that created new social and economic venues that took some of the initial steps toward Andean civilization (Dillehay et al. 2008).

THE CENTRAL ANDEAN COASTAL PLAINS AND FOOTHILLS

Although much recent archaeological research has focused on the past cultural and environmental relations that led to complex societies in various parts of the world, little is still known about the specific intertwined social and natural systems that resulted in these changes in the Central Andes. Understanding these relations is important, because the Central Andes is one of the few areas in the world where the coalescence of maritime and inland foraging economies set in motion long-term biological and cultural processes that fostered social complexity and food production, and later the development of preindustrial states and urbanism (e.g., Bonavia 1991; Dillehay et al. 2004; Lanning 1963, 1967; Lavallee 2000; Moseley 1992).

Human society in northwestern Peru began more than 13,000 years ago, as evidenced by several early archaeological sites located on the dry coastal plains and the lower western slopes of the Andes. At this early date, it is difficult to speak about the type of society that existed. Different forms of social organization surely existed, as inferred from site location, size, and internal features. The fundamental data provide insights into the technology and economy of these people and how they interacted with the local environments (e.g., Briceño 2004; Dillehay et al. 2003, 2007; Maggard 2010; Richardson 1978). The key data were first provided by a long-term project directed by Claude Chauchat (1982, 1988; Chauchat et al. 1998, 2006), which focused on the Paiján culture in the Quebrada Cupisnique and the Chicama Valley and its early stone tool technologies and subsistence and settlement patterns. We can surmise that the Paiján people were generalized hunters and gatherers whose mobility allowed them to adapt to changing environmental challenges at the end of the Pleistocene period around 11000 BP. Between ~10500 and 8500 BP, early Holocene foragers continued many of the patterns that characterized the earlier period, although there were changes in the environment and in the technological, social, and economic organization (Dillehay et al. 2004, 2007; Maggard 2010). The first cultigens and household gardening also appeared during this period (Dillehay et al. 2008; Piperno and Dillehay 2008; Rossen 1991). Later, between ~8500 and 5000 BP, there is evidence for more complex foragers practicing a broad-spectrum economy in most parts of the study area, though farming, living in permanent houses, and building public works such as small mounds and irrigation canals developed in the dry montane forests of the Nanchoc Valley, a side branch of the larger Zaña Valley (Dillehay et al. 1989, 2007). Although mixed foraging and gardening economies existed from at least 9500 BP, intensified farming

was added after the innovation of canal irrigation around 6000 BP. This was not a revolution but a gradual transition or evolution. These changes and others from other regions of the Andes, especially the highlands, provided the foundations for the subsequent development of early Central Andean civilization (cf. Aldenderfer 2004; Bonavia 1991; Dillehay et al. 2004; Lavallee 2000; Stothert 1985, 1992).

More specifically for the Peruvian coast and adjacent Andean foothills, it was Lanning (1963, 1967), Patterson (1971), and Moseley (1975, 1992, 2005) who developed some of the first models to explain middle Holocene societies by focusing on socioeconomic changes among Preceramic populations on the central coast of Peru. Each of these models involved occupation of *lomas* (seasonally vegetated) formations, located some 3–5 km from the present-day coastline. Later Preceramic populations abandoned the *lomas* and shifted settlement to the littoral zone, increasing the intensity of maritime resource exploitation. This shift to maritime resources was thought to have resulted in the development of sedentism and later monumental architecture.

Though these general trends are part of each model, there are differences in the relevant mechanisms of change for each. For instance, Lanning (1963, 1967) suggested that environmental changes led to the disappearance of *lomas* plant species that were important to hunter-gatherer seasonal subsistence practices. Patterson (1971) argued that increasing population pressures led to the overexploitation of *lomas* during the Encanto phase (6800–5500 BP), thus forcing a shift in settlement and subsistence patterns. Moseley (1975) thought that Preceramic populations were drawn to the coast by the richness of the marine resources rather than being pushed there by environmental or demographic factors.

Lanning (1963, 1967) also suggested that labor organization was important for understanding early social complexity. Multiple, large nucleated centers (e.g., El Paraiso, La Florida) began to appear along the coast during the late Cotton Preceramic period. Lanning proposed that the architecture of these sites provides evidence of organized labor and planned supervised construction. Patterson (1971) later presented a four-factor model regarding the transition from a hunter-gatherer economic system to agriculture on the central coast: population changes, changes in the intensity of land use, movement of people and/or goods from place to place, and the location and permanency of settlement. By the end of the Encanto phase, coastal hunter-gatherers had shifted their settlements to incorporate marine resources, ultimately occupying lower valleys on a year-round basis. With sedentism, floodplain farming began to increase; the combination of

agriculture and maritime resources gradually led to the exclusion of wild resources in the diet. The increased intensity of cultivation and marine resource use was both the cause and consequence of population increases and changing settlement patterns of the late Cotton Preceramic.

Moseley (1975, 1992, 2005) placed greater emphasis on the role of maritime resources in the development of complexity. He suggested that rather than gradual inclusion of marine resources, rapid adoption of marine foods occurred during the late Cotton Preceramic, with only minimal inclusion of cultivated plants. Although he later downplayed the role of agriculture, Moseley (1975, 1992) recognized the growing interdependence of the two economies during the final Preceramic phase. He also suggested that the technological simplicity of maritime subsistence permitted more free time, which facilitated the development of social evolution (i.e., religion) and refinement of crafts and skills, ultimately resulting in social stratification. As the coastal population eventually increased, the limits of maritime subsistence were reached, resulting in the need to intensify agricultural practices, a change that was achieved through the development of irrigation agriculture farther inland. Recently, Moseley (2005) included new data in his model, particularly those relating to Preceramic sites with monumental architecture of the Supe Valley – most notably the Caral site (Shady 1997, 2005; Shady and Leyva 2003). He now recognizes the contribution of agriculture among late Preceramic populations of the coast, emphasizing that early plant husbandry was geared primarily toward the production of industrial species, such as cotton and gourd, from which fishing technologies (e.g., nets and floats) were produced. According to this view, crop production for sustenance was of secondary importance – thus maintaining the primacy of maritime economy as the basis for civilization. Moseley further noted that most cultigens among coastal dwellers were fruit trees, cotton shrubs, squash, and beans, which did not require constant care, thus permitting fisherfolk to devote most of their time to maritime endeavors while still pursuing minimal agricultural practices. Moseley envisioned two separate, symbiotic economic systems – maritime and agriculture–that were linked through co-dependent relations of exchange (Moseley 2005).

In summary, Lanning, Patterson, and Moseley argued the presence of aspects of social and economic complexity among Preceramic hunter-gatherers, fishers, and agriculturalists along the central coast of Peru. Their respective contributions guided other researchers to recognize the early roots of civilization that predated Chavín, which had long been considered the first complex society of the Central Andes (Tello 1930). Subsequent researchers (e.g., Benfer 1984, 1999; Bonavia 1982b; Dillehay et al. 1989;

Fung 1988; Kaulicke 1994, 1997; Lavallée et al. 1985; Pozorski and Pozorski 1987; Sandweiss et al. 1989, 1998b; Stothert 1985, 1992) expanded on these and other studies (e.g., Bird et al. 1985; Engel 1957; Kaulicke and Dillehay 1999a,b; Richardson 1969, 1973, 1978) – ultimately revealing new and different degrees of variability and antiquity in the transformative processes that led to early social complexity and food production.

This volume reviews the archaeological evidence that demonstrates these transformations in the Zaña and neighboring Jequetepeque valleys in northwest Peru from ~12000 to 5000 BP. Preceramic occupation of these valleys is represented by the development of different mobile to sedentary forager-fisher-farmer societies that saw major and minor environmental changes and the creation or adoption of a myriad of technological, social, subsistence, and settlement strategies. Social changes in behavioral and material traits occurred gradually, either having been invented or introduced, intensified, implemented, refined, and worked into local cultural systems over many generations. Although the beginnings of food production and sedentism took place earlier, the commitment to intensified crop production did not occur until ~6500 BP when agricultural fields and irrigation canals were constructed (Dillehay et al. 2004, 2007; Piperno and Dillehay 2008). However, a social commitment to cultivation and semisedentary to sedentary households occurred as early as 8500 to 8000 BP in the form of reorganized settlements and ritual systems (Dillehay et al. 1989; Rossen 1991). This commitment was the product of a set of decisions and responses that resulted in fundamental organization changes in society, increased risks, and uncertainties. Further, this commitment did not occur everywhere, and when it did, it was gradual and intermittent. Yet, in certain environmentally rich ecological zones, such as the seasonally dry forests on the lower western slopes of the Nanchoc Valley in the study area, these changes involved low-risk intensification (Rossen 1991). In other areas, such as the more arid lower elevated foothills and coastal plains to the west, higher risks were likely involved, which called for different social and economic strategies.

There were also major shifts in social and ritual roles that developed in coordination with sedentary communities and new agricultural technologies (Dillehay et al. 2007). These shifts are reflected in the change from circular to rectangular domestic structures and from individual household gardening to multi-household irrigation agriculture and in the appearance of public gatherings at small mounds. With public works expressed in the form of mounds and irrigation canals, there was an emphasis on increased community interaction. Investigating these developments in the

Zaña and Jequetepeque valleys is crucial to understanding the early origins and history of Andean civilization in one region. Themes arising from this history that are of wider comparative interest include but are not limited to these:

1. The first entry and dispersion of humans in northwest Peru, the appearance of a generalized foraging economy and domestic structures, and the establishment of a semisedentary lifeway.
2. The emergence of mixed foragers and gardeners and later farmers in the dry forests, and the adoption or invention of new technologies, such as plant domestication (e.g., coca, cotton) and irrigation farming on the way to becoming permanent farmers.
3. The different kinds of relationships that played out between hunter-gatherers and food producers (e.g., foragers, farmers, fishers).
4. The interplay between private and public places and their social meanings.
5. The appearance of settlement aggregation, communal architecture, intensive food production, and community development long before evidence for a village lifeway.
6. Crop intensification less tied to demographic pressure than to strategic development by a local community.
7. The unevenness of these developments across time and space.

These themes are studied from the perspectives of paleoenvironmental reconstructions, archaeological site excavation and survey results, models of socioculture change and adaptations, and information gained and exchanged among participating researchers over many decades. As discussed in later chapters, the overall conceptual approach is drawn from differing aspects of cultural ecology and interaction theory and from previous research in the region.

ENVIRONMENT AND BOUNDARY OF THE STUDY AREA

Today as in the prehistoric past, northwest Peru exists as a land of remarkable environmental and social contrasts. The area is often conceptualized as three regions: the Pacific littoral zone, the desert coastal plains, and the western slopes of the Andes (Fig. 1.2). From an archaeological and ethnographic standpoint, this modern geographical separation is largely meaningless because the indigenous cultural context cross-cuts all environmental zones. The arid coastal environment, for example, stretches from