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Huaca Soto and the Evolution of Paracas Communities in the Chincha Valley, Peru

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requirements for the degree Doctor of Philosophy

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by

Benjamin Thomas Nigra

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ABSTRACT OF THE DISSERTATION

Huaca Soto and the Evolution of Paracas
Communities in the Chincha Valley, Peru

by

Benjamin Thomas Nigra
Doctor of Philosophy in Archaeology
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Professor Charles S. Stanish, Chair

Paracas was an autochthonous sociocultural tradition that emerged on the south coast of Peru during the early first millennium BCE. Beginning as a constellation of independent villages, by the final centuries BCE Paracas peoples had coalesced into two politically complex, non-state peer-polities with evidence for permanent socioeconomic inequality, dedicated craft industries, and leadership that exercised stable control over non-kin labor. Recent research in the Chincha Valley suggests that intensification of large-scale ritualized events was integral to this transition. Indeed, Chincha contains the largest and most labor-intensive buildings on the Formative south coast. These include more than a dozen massive sunken court structures that form at least five discrete settlement clusters. Excavation in one of these structures, Huaca Soto (PV57-26),

demonstrates that the site was utilized for ritualized processions between the 8th and 5th centuries BCE. Drawing on an analysis of architecture, fineware ceramics, ceremonial offering deposits and comestibles, this dissertation traces the evolution of Huaca Soto from its initial Early Paracas construction episodes through its abandonment at the onset of the Middle Paracas (Cavernas) period. As Paracas complexity reached a regional apogee during Late Paracas (Necropolis/Topará) times, Huaca Soto's sunken courts hosted a series of quotidian domestic occupations. Over the next 1,500 years, the site reemerged as a classic coastal *huaca* that received ritual offerings from local Middle Horizon communities, Late Intermediate Period visitors, and Inca Period contributors. Data from Huaca Soto offer a new perspective on the evolution of Chincha's Paracas communities, the emergence of political complexity on the Formative south coast, and the reuse of sacred space in late antiquity.

The dissertation of Benjamin Thomas Nigra is approved.

Jeanne E. Arnold

Gregson T. Schachner

Stella E. Nair

Charles S. Stanish, Committee Chair

University of California, Los Angeles

2017

This work is dedicated to my grandparents,

Andrew and Mary Nigra

William and Jeanne Csonka

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Curriculum Vitae

EDUCATION

University of California, Los Angeles

C. Phil Archaeology, June 2013

M.A. Archaeology, June 2012

The University of Chicago

A.B. Anthropology, June 2009

GRANTS AND FELLOWSHIPS (abridged):

NSF – Doctoral Dissertation Research Improvement Grant, 2015

NSF – Graduate Research Fellowship Program, 2011-2014

UCLA Vice Chancellor for Research – SEED Grant, 2012

PUBLICATIONS (abridged):

Nigra, B.T., Lozada M.C., Cardona Rosas A., Barnard H. (*in press*). "Reconstructing the Built Environment of the Millo Complex, Vitor Valley, Peru". Submitted to *Nawpa Pacha.*

Weinberg C., **Nigra B**., Lozada M.C., Stanish C., Tantaleán H., Bongers J., Jones T. (2016). "Demographic Analysis of a Looted Late Intermediate Period Tomb, Chincha Valley, Peru". *Andean Past* 12: 133-154.

Nigra B.T., Faull K., Barnard H. (2015). "Analytical Chemistry in Archaeological Research". *Journal of Analytical Chemistry* 87: 3-18.

Arnold, J.E., Sunnel S., **Nigra B**., Bishop K., Jones T., Bongers J. (2015). "Entrenched Disbelief: Complex Hunter-Gatherers and the Case for Inclusive Cultural Evolutionary Thinking" *Journal of Archaeological Method and Theory* 23(2): 448-499.

Barnard H., Wendrich W., **Nigra B**., Simpson B., and Cappers R. (2015). "The Fourth Century CE Expansion of the Graeco-Roman Settlement of Karanis (Kom Aushim) in the Northern Fayum." *Journal of Egyptian Archaeology* 101:51-67.

Nigra B., Jones T., Bongers J., Stanish C., Tantaleán H. (2014) "The Chincha Kingdom: The Archaeology and Ethnohistory of the Late Intermediate Period South Coast, Peru". *Backdirt Annual Review,* December 2014. Cotsen Institute of Archaeology, UCLA.

Stanish C., Tantaleán H., **Nigra B**., Griffin L. (2014). "A 2,300 Year-Old Mound-Geoglyph Complex in the Chincha Valley, Peru". *Proceedings of the National Academy of the Sciences of the United States* 111(20): 7218-7223.

Nigra B.T., Arnold J.E. (2013). "Explaining the monopoly in shell-bead production on the Channel Islands: drilling experiments with four lithic raw materials". *Journal of Archaeological Science* (40): 3647-3659.

Tantaleán H., Stanish C., Zegarra M., Pérez, K., **Nigra B**. (2013). "Paracas en el valle de Chincha: Nuevas Evidencias y Perspectivas". *Boletin de Arqueologia PUCP* 17: 31-57.

PRESENTATIONS OF RESEARCH (abridged):

Society for American Archaeology: April 15-19, 2015: San Francisco, CA
"Excavations at Huaca Soto: 2,000 Years of Ritual Reuse at a Paracas Platform Structure"

Society for American Archaeology: April 23-27, 2014: Austin, TX
"A Full Coverage Survey of the Upper Chincha Valley Corridor, Peru", with Terrah Jones and Jacob Bongers.

Cotsen Institute of Archaeology Director's Council: May 14, 2013: Los Angeles, CA
"Violence and Trade among the Paracas Cultures of the Peruvian South Coast"

Society for American Archaeology: March 3-6, 2013: Honolulu, HI
"Cerro del Gentil: A Paracas Platform Mound in the Chincha Valley, Peru", with Kevin Hill, Chloe Tolman, Camille Weinberg, and Michael Rosales

TEACHING (abridged):

Co-Director – Chincha Valley Archaeological Field School, 2013-2015

Teaching Assistant – UCLA Cotsen Institute of Archaeology, 2016

Teaching Assistant – UCLA Department Of Art History, 2015-2016

POSITIONS AND PROFESSIONAL ACTIVITY (abridged):

Assistant Editor – *Backdirt Annual Review*, Cotsen Institute of Archaeology, UCLA. 2015

Session Chair – General Session: South Coast of Peru. Society for American Archaeology Annual Meeting, Austin, TX. 2014.

Graduate Representative – Cotsen Institute of Archaeology Post-Doc Search and Selection Committee, 2014.

President – Graduate Student Archaeology Association, UCLA, 2012-2014.

Chapter 1: Introduction

Early Complex Society on the South Coast

The discovery of the Paracas Peninsula cemeteries on the south coast of Peru stands among the most remarkable breakthroughs in the history of Peruvian archaeology. Over the course of two and a half years (1925-1928), Julio C. Tello and colleagues identified the remains of two successive mortuary traditions, Paracas 'Cavernas' and Paracas 'Necropolis', from adjacent sites on the arid desert peninsula. The operation culminated in the removal of well over 150 'Cavernas' individuals from deep bottle-shaped tombs at Cerro Colorado, at least 135 'Necropolis' individuals from the Arenas Blancas zone, and another 429 ornately decorated Necropolis mummies packed into abandoned subterranean rooms at Wari Kayan (Tello 1959; Tello and Mejia 1979; Daggett 1994:56, 1991:41-42; Sarmiento ed. 2009:191-205). A bounty of precious metal ornaments, obsidian surgical instruments, feather fans, pyro-engraved gourds, abundant fineware pottery, and hundreds of the finest and most technically sophisticated polychromatic textiles ever produced by pre-Columbian societies accompanied these burials (Tello 1929:142, 1959:209-212). Whereas the older Cavernas tombs each contained multiple individuals representing a lineage or family group, the later Necropolis cemeteries consisted of lavishly bundled individuals that Tello interpreted as an elite class of priests, chiefs, or high dignitaries (Tello 1929:120, 1959:103). He ultimately suggested that Cavernas and Necropolis were distinct but closely related cultural traditions that stemmed from the then-recently discovered highland center of Chavín de Huántar (Kaulicke 2013a:265-266; Tello 1959:92). The

unprecedented wealth of the peninsula cemeteries quickly made Paracas the region's most recognized archaeological culture and a paragon of pre-Columbian artistic achievement[1].

The year 2016 marked the 90th anniversary of Tello's expedition. Today, archaeologists approach Paracas as a constellation of sedentary agriculturalist communities that inhabited the south coast of Peru from the early first millennium BCE into the first centuries of the common era (ca. BCE 800–200 CE) (Fig. 1)[2,3]. Over the course of this period, these communities gradually coalesced into hierarchical settlement systems attached to major politico-ceremonial centers (Cook 1999; DeLeonardis 1997; Bachir Bacha and Llanos 2013; Canziani 2013), began to produce technically advanced and labor-intensive textiles suggestive of a specialized craft industry (Paul 1990, 1991b, 2000; Peters 2000; Dwyer 1979), organized and facilitated the construction of monumental architecture (Canziani 2009:155-175; Echevarría López 2014), and witnessed the appearance of marked social inequality with economic power concentrated in the hands of an incipient elite (Silverman 1996b; Dwyer and Dwyer 1975). Current evidence points to the ascendance of two territorial peer-polities in the final centuries BCE – one centered on the lower Ica Valley and a second covering the Pisco and Chincha drainages (Silverman 1997:456; Peters 2013:96, 1997; Massey 1986). The evolution of Paracas thus exemplifies the ongoing and cyclical process by which permanent leaders with stable control over non-kin labor arise from a landscape composed of many small autonomous communities – a phenomenon familiar to

[1] The discovery of Paracas played a substantial role in promoting Andean archaeology abroad and greatly impacted cultural heritage policies in Peru. Unfortunately, this important history is beyond the scope of this dissertation. Daggett (1991, 1994) provides an entry point for the reader's consideration.

[2] For purposes of this dissertation, I define the south coast as the Cañete, Chincha, Pisco, Ica, Nasca and Acarí Valleys and desert pampa in-between; the Quebrada Topará; and the littoral zones stretching from the Paracas Peninsula to the Bahia de Independencia.

[3] The Formative Period on the south coast of Peru covers the late second and first millennia BCE. Following Lumbreras (1974), I prefer this terminology over a popular alternative, the 'Early Horizon'.

anthropological archaeologists as the emergence of political complexity (Marcus 2008; Flannery 1995; Arnold 1996; Stanish 2009). Though Tello did not recognize it in these terms, his observed shift from group-oriented 'Cavernas' tombs to individualizing 'Necropolis' bundles was a key manifestation of this process.

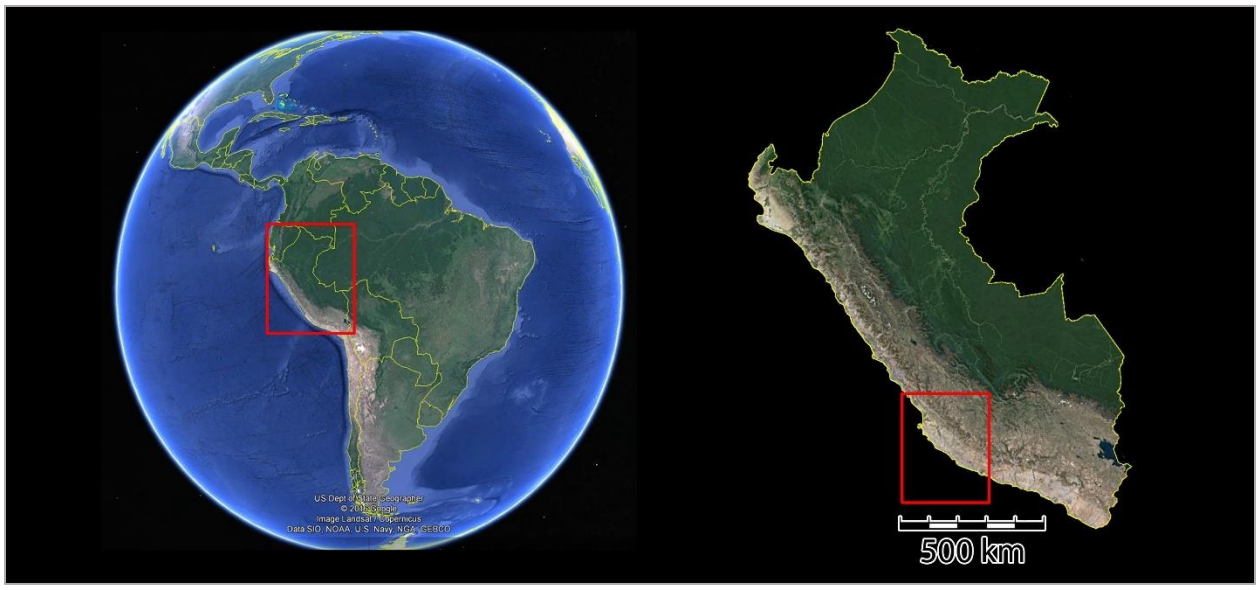


Figure 1: Pacific South America and the south coast of Peru. Images from Google Earth, U.S. Department of State Geographer, © 2016 Google, Data LDEO-Columbia, NSF, NOAA, Image Landsat/Copernicus, Data SIO, NOAA, U.S. Navy, NGA, GEBCO.

We know surprisingly little about the social and material conditions that prompted the emergence of Paracas complexity. Indeed, interest in Paracas political and economic life has only recently overtaken a traditional emphasis on ornate art objects and descriptive culture history (e.g. compare topics covered in Paul ed. 1991 to those from Bachir Bacha and Dulanto eds. 2013). For most of its 20th century, archaeologists approached Paracas first and foremost as a bearer of 'horizon' styles, rather than a set of autochthonous communities with local interests and deep histories. Following Tello, early scholars envisioned Paracas 'Cavernas' as a coastal

offshoot of Chavín de Huántar, the Formative highland pilgrimage center whose iconographic canon first appeared on the south coast during the early first millennia BCE (Carrion Cachot 1949; Tello and Mejia 1979; Kroeber 1953; Bennett 1943). Later research favored Chavín-driven trade networks, branch oracles, and religious migrants to explain the arrival of these objects and their influence on local traditions (Lumbreras 1974:72; Browman 1975; Burger 1988:119-123, 1992:195-198). In the same vein, some archaeologists proposed a hypothetical invasion by a territorial ethnic group called 'Topará' to account for regional-scale stylistic innovations that accompanied the emergence of Necropolis elites in the final centuries BCE (Wallace 1986; Peters 1997:891-904; Engel 1981:11; Proulx 2008:569).

Many of these 20th century frameworks were based on disproportionate fieldwork in areas with established grave mining operations that offered iconographically-rich art objects for study – primarily the Ica Valley and the aforementioned Paracas Peninsula. Decontextualized fineware ceramics and textiles provided abundant raw material for art historical studies and seriation-building at a time when few scientific excavations had yet to take place (e.g. Rowe 1958; Menzel et al. 1964; Sawyer 1961, 1966; Dwyer 1979). Despite vocal warnings to the contrary (Menzel et al. 1964:1), these early seriations went into general use for early surveys across the region. Strapped to non-local chronologies and reported only through surface studies, major Formative settlements in Chincha, Pisco, and Nasca naturally failed to exhibit the 'full' range of Paracas history found in Ica and on the Peninsula (see critiques in Castro-Martínez et al. 2009; Wallace 1985). Caught in this feedback loop, archaeologists spent decades building, critiquing, and defending stylistic and chronological schemata focused on already well-studied areas, at the expense of anthropologically-driven hypothesis testing in neighboring zones. As Elizabeth Isla put it in the early 1990s, "…it would be more appropriate to say that what we

understand best is the ‘history of its ceramics’, of Paracas, rather than information on its social, political, economic or religious factors” (Isla 1992:10, my translation).



Figure 2: Drainages of the south coast discussed in text. Acarí is 120 km south of Nasca and is not shown here. The base map is from Google Earth, © Google 2016. Data LDEO-Columbia, NSF, NOAA, Image Landsat/Copernicus, Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Lack of adequate subsurface data for much of the region remains one of the biggest challenges for modern Paracas archaeology. The natural geography of the south coast consists of half-a-dozen strictly circumscribed alluvial drainages separated by uninhabitable stretches of the northern Atacama Desert (Fig. 2). Reconnaissance surveys demonstrate substantial Paracas settlement in all of these zones – not only in Ica (DeLeonardis 1997; Massey 1986; Cook 1999) and along the Peninsula littoral (Engel 1966), but also in the Nasca drainages (Isla 2010; Isla and Reindel 2005; Silverman 1994a), Pisco (Wallace 1971; Peters 2013; Engel 2010), Chincha (Wallace 1971, 1959; Engel 2010; Canziani 1993), the Bahia de Independencia (Garcia 2010), Cañete (Stumer 1971), Acarí (Ridell and Valdez 1988) and the Quebrada Topará (Wurster 1984; Lanning 1960). As of 2012, settlement pattern studies supported by robust excavation data and modern radiocarbon programs existed for only three of these areas – the Paracas Peninsula, the Ica Valley, and more recently the Palpa branch of the northern Nasca region (NNR). In contrast, no substantial subsurface data were available for Paracas contexts in the Cañete or Acarí Valleys; only a single subsurface dataset existed from the Quebrada Topará (the Jahuay site); early excavations on the Bahia de Independencia remained largely unpublished; and important Paracas sites in the Pisco and Chincha Valleys lacked radiocarbon chronologies entirely.

Now beyond 'Paracas-as-Chavín' donor theories and aware that Ica and Peninsula 'heartland' models misrepresent regional geography, the primary empirical challenge is to reconstruct the long term development of Paracas communities in traditionally understudied zones. These areas contain vast amounts of data on the web of political, economic, and social relationships that constituted the Formative south coast. Understanding how people, objects, and ideas moved around within this network is key to modeling the emergence of political complexity among Paracas peoples during the final centuries BCE.

On Paracas in Chincha

This dissertation examines the evolution of Paracas communities in the Chincha Valley and their role in the emergence of regional-scale political complexity (Fig. 3). It is based on the longstanding suspicion that Chincha was a major hub of Paracas politico-ceremonial activity, the seat of one or more ranked Paracas polities, a progenitor valley of the late Paracas 'Topará' monochrome tradition, and a source of the famed peninsula burials (Lumbreras 2008; Moseley 1992:162; Kroeber 1944:35; Silverman 1996a:13, 1991:398)[4]. These hypotheses stem from the observation that Chincha contains more than a dozen monumental platform structures associated with Paracas finewares and architectural elements (Wallace 1971; Engel 2010; Canziani 1993). Several of these structures exhibit deep, rectilinear sunken courts that are clearly non-vernacular features. This architectural canon, apparently unique to Chincha, includes the largest Formative construction projects south of Lima. Huaca Santa Rosa (PV57-87), for example, measures 425 meters long, 100 meters wide, and 25 meters high (Bendezú 2008:4), an achievement implying coordination of organized non-kin labor, advanced planning, substantial engineering know-how, and unprecedented mobilization of essential resources (Fig. 4). The fact that these platform structures form the nucleus of at least five distinct Paracas settlement clusters (each ca. 50-150 hectares) suggests that they played a central role in the evolution of Chincha's Paracas communities. It is logical to hypothesize that the evolution of these monumental settlements was closely linked to the development of political complexity on the Formative south coast.

[4] A literature review of research in Chincha prior to 2012 is discussed in Chapter 4.



Figure 3: The Chincha Valley with modern locations and waterways mentioned in the text. The basemap is from Google Earth, © Google 2016, Image © 2016 DigitalGlobe, CNES/Astrium, Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Archaeologists understood little about these massive structures until quite recently. Architectural analysis by José Canziani (1992), unpublished salvage excavations at Huaca Santa Rosa by Enye Omar Bendezú De La Cruz (2008), limited test excavations at El Mono (PV57-63) by Elizabeth Isla (1992), and analysis of a surface assemblage at Cerro del Gentil (PV57-59) by Dwight Wallace (1985) confirmed Formative components in near-surface strata. These early investigations concluded that the Chincha monuments were non-vernacular structures linked to politico-ceremonial activity. Both Canziani (1992) and Wallace (1986) reasonably argued that these platform structures were late Paracas 'Necropolis' features built abruptly in the final

centuries BCE. For Canziani, socially differentiated Necropolis elites took advantage of this ideologically charged, proto-urban landscape to legitimate new positions of authority (Canziani 1992:114, 2009:155, 2013). These conclusions were based almost entirely on surface evidence. Researchers lacked the controlled excavation data necessary to address diachronic settlement patterns or change through time, to assess the political and economic ties between the valley's distinct settlement clusters, or to posit a relationship between Paracas communities in Chincha and those from elsewhere in the region. This has made Chincha an 'elephant in the room' for Paracas archaeologists. As Canziani recently mused, "This reality illuminates the paradox of a hole in [archaeological] knowledge right in the place that was an apparent nucleus for the social and cultural articulation of what we define as Paracas" (Canziani 2013:9).



Figure 4: Huaca Santa Rosa (PV57-87) from the south. An entire modern town is built upon a massive Paracas platform structure some 400 meters in length and 25 meters high.

Drs. Charles Stanish (UCLA) and Henry Tantaleán (Escuela Superior Politécnica del Litoral Guayaquil, Ecuador) initiated the Programa Arqueológica Chincha (PACH) in 2012 to further address the evolution of Paracas communities in the valley. Principal objectives included investigation of economic activity linked to monumental politico-ceremonial events, the establishment of a robust radiocarbon sequence for Formative Chincha, and an examination of Chincha's relationship to neighboring south coast settlement zones. As of 2017, PACH research includes extensive excavation in four monumental platform structures, numerous test units in and around additional sites of interest, a battery of survey and surface analyses, and analysis of over 70 radiocarbon dates from secure Paracas contexts. Work undertaken for this dissertation falls within the research framework established by PACH collaborators and is designed to complement existing program objectives.

So far, PACH research demonstrates that Chincha's monumental politico-ceremonial structures formed a dense ritualized landscape unique among Paracas settlement zones (Tantaleán 2016). First seasons of fieldwork (2012-2014) focused on a single settlement cluster located on Chincha's southeastern margin near the modern town of El Carmen (ca. 15 km inland)[5]. The mid-valley cluster is unique for its distance from the littoral and its placement on a steep desert escarpment above the arable valley floor. It contains multiple Paracas sites, three of which have been studied extensively – Cerro del Gentil, El Mono, and Pampa de Gentil (PV57-64) (Velarde 2006; Wallace 1985; Isla 1992). PACH excavations in the sunken court at Cerro del Gentil confirmed that it hosted ritualized, non-quotidian events over multiple distinct architectural phases. Cerro del Gentil was eventually abandoned in a single, massive ceremony that included the deposition of multiple Paracas mummy bundles, ceremonial offerings of craft

[5] Throughout the dissertation I refer to this cluster of sites as the 'mid-valley' cluster.

goods and ritual objects, and some evidence of feasting-style consumption (Tantaleán et al. 2013, 2016; Tantaleán and Stanish eds. in press). Likewise, PACH excavations at the neighboring site of El Mono revealed non-vernacular architecture and evidence for politico-ceremonial activity. Both sites articulate with a landscape of linear geoglyphs on the nearby desert pampa whose orientation suggests that large gatherings took place in reference to a solar calendar (Stanish et al 2014). More recently (2016-2017), investigators began excavations at La Cumbe (PV57-3), a monumental platform structure long suspected of containing a Formative component. La Cumbe is part of a distinct Paracas settlement cluster located in the valley's northwest corner (<1 km from the littoral). Again, this structure contained a large rectilinear court and evidence for sizable non-quotidian events (Henry Tantaleán, *pers. comm.*). All three sites exhibit extensive reutilization in post-Paracas times, ranging from the Early Intermediate Period (EIP) Carmen tradition at Cerro del Gentil (Pérez et al. 2015) to Late Intermediate Period (LIP) Chincha Kingdom architecture at La Cumbe (Lumbreras 2001; Nigra et al. 2014). Not only did these massive structures serve as focal points in a dense Paracas settlement landscape, they survived as major coastal *huacas* over the next two millennia.

Secure radiocarbon dates for Paracas strata at Cerro del Gentil, El Mono, and La Cumbe fall roughly between ca. 400-200 BCE, suggesting that monumental construction and politico-ceremonial events in Formative Chincha reached an apex during this time[6]. Combined with the recovery of Pinta-style finewares[7] from deep strata within each of these sites, it is now clear that all three were initially constructed during the earlier Paracas 'Cavernas' period, rather than the

[6] Evidence and dates from PACH excavation in these structures are discussed in Chapter 5.

[7] Pinta is a post-fire resin-painted and incised polychrome fineware style similar to ceramics found in Tello's 'Cavernas' cemeteries and Middle Paracas finewares elsewhere on the Formative south coast. Local ceramic styles are discussed in Chapter 4.

later ‘Necropolis’ period as suggested by Canziani and Wallace. Courts in these structures were abandoned after 200 BCE, whereupon all three underwent informal reuse in association with ‘Topará’-style monochrome finewares associated with Paracas ‘Necropolis’.

This timeline is extremely significant when viewed from a regional standpoint. The period from 400-200 BCE witnessed the emergence of the first hierarchical settlement systems in lower Ica (Cook 1999; DeLeonardis 1997), the start of new specialist-driven textile traditions (Peters 2000; Paul 1990), and, at the end of this period, the appearance of individualized elite bundles in the nearby Peninsula cemeteries of Wari Kayan and Arenas Blancas (Silverman 1996b). In short, Paracas communities in Chincha were constructing and operating the region’s largest and most labor-intensive ceremonial centers during a crucial period when aspects of incipient political complexity were rapidly developing elsewhere across the south coast.

This raises a host of questions for PACH researchers. First, was this explosion of monumental architecture an endogenous tradition, perhaps a catalyst that helped to drive regional-scale transformations, or was it a secondary response to rising political complexity elsewhere on the south coast? Second, how were these monuments related to the ‘Cavernas’ groups interred in the Peninsula cemeteries? Third, did communities from outside of Chincha participate in the valley’s monumental politico-ceremonial events, compete with these centers for regional influence, or engage in regular economic relationships with Paracas groups in Chincha? Finally, why did Chincha’s politico-ceremonial landscape collapse just as powerful individualizing elites appeared in the Necropolis burials, ca. 200 BCE?

One way to further address these questions is to test whether Chincha’s monumental tradition was present and well-established prior to the 4th century BCE, whether it appeared suddenly around this time, or whether any major structures remained active into the Late Paracas

period. Recovery of Early Paracas (before ca. 500 BCE) high polished brown wares from a single test pit at the Pozuelo site in the 1960s (PV57-52) raises the possibility that there may be similarly early Paracas contexts elsewhere in the valley (Lanning 1960). Other 20th century studies of Paracas monuments in Chincha did not have access to the stratigraphically secure contexts necessary to access deep chronology. If early components were present at massive sites like Huaca Santa Rosa, for example, there are not yet suitably deep excavations to detect them. Nor can we rest purely on conclusions drawn from Cerro del Gentil and El Mono, as these sites appear to be somewhat exceptional cases. Both are many times smaller than typical lower-valley platform structures; they exhibit only single sunken courts (lower-valley structures typically contain multiple tiers and courts); and they articulate with the surrounding landscape in unusual ways (both occupy marginal positions on the desert pampa, while all other centers structures rest in arable lowland).

The next logical step was to investigate one of Chincha's larger, unexplored sunken court monuments in the lower valley; to establish a secure radiocarbon chronology and diachronic activity profile for the site; and to juxtapose these results with the aforementioned PACH case studies. This allowed us to compare the evolution of Paracas politico-ceremonial centers across multiple cases and provided us with a firmer understanding of settlement evolution in Chincha.

Huaca Soto as a Test Case

The principal objective of this dissertation is to report excavation data from Huaca Soto (PV57-26), a monumental sunken court structure located in the center of Chincha's lower-valley alluvial plane. The site is located just south of the Rio Matagente and less than 4 km from the

Pacific littoral[8]. It is the largest and best preserved of three monumental structures that constitute a 50-hectare cluster known as the Soto Complex (Fig. 5). Huaca Soto exhibits a rectilinear East-West ground plan (ca. 150 by 50 meters) with three major platforms ascending to the west. Each platform hosts a deep orthogonal sunken court (Fig. 6). The highest tier reaches more than 14 meters above the surrounding fields, offers an unimpeded view of the Pacific Ocean to the west, the Andean foothills to the east, and neighboring structures spread throughout the surrounding lower valley landscape. Profile cuts along the edge of Huaca Soto reveal a substructure consisting entirely of paraboloid-shaped handmade adobe bricks held together with an adobe mortar. While there are few pre-modern artifacts visible on its surface, this set of architectural features initially led 20th century investigators to place Huaca Soto within the Formative Period.

Huaca Soto presents a fitting case study for reconstructing the evolution of Paracas communities in Chincha. It meets the goals of the controlled comparison outlined above – it is a monumental platform structure; it exhibits architectural features typical of the Paracas canon in Chincha; it is located in a major lower-valley settlement cluster; and it has never been scientifically excavated. The site is relatively well-preserved. Its core architecture and sunken courts are intact, and it lacks major evidence for looting or disturbance. Preservation is aided by a modern farmstead on the structure's lowest tier, which shielded the surface of the site from systematic plundering in the modern era[9]. Finally, photographs and reconstructions by Canziani (1992) make Huaca Soto one of the most recognizable Paracas sites in Chincha, and it is

[8] UTM: 18 L 375174 meters E, 8504350 meters S. Access via Google Earth: Huaca Soto (PV57-26)

[9] Current uses of Soto's sunken courts include a pet cemetery, a garbage dump, a secure place to pen animals, and the foundation for a modern settlement. The structure as a whole serves as a boundary marker for land owners, a windbreak for crop fields, and an elevated platform for water reservoirs. Unfortunately, this dissertation does not provide the space necessary to discuss historic-era contexts or modern material culture. A study on the modern reuse of Paracas platform structures would be a major contribution for a later date.

mentioned in several general descriptions of Paracas culture-history. All prior mention of the site supposes construction in the final centuries BCE based on the long-held hypothesis that this class of structures were Late Paracas 'Necropolis' innovations (Wallace 1986:43, 1972:1-2; Menzel 1971:82; Velarde 1999:68). Thus, investigation of Huaca Soto is relevant for understanding broader regional transformations, the specific evolution of Chincha's Formative settlement patterns, and pre-existing assumptions about the site itself.



Figure 5: The Soto Complex, showing Huaca Soto (PV57-26) and neighboring structures PV57-25 and PV57-24. Imagery from Google Earth, © Google 2016, Image © 2016 DigitalGlobe

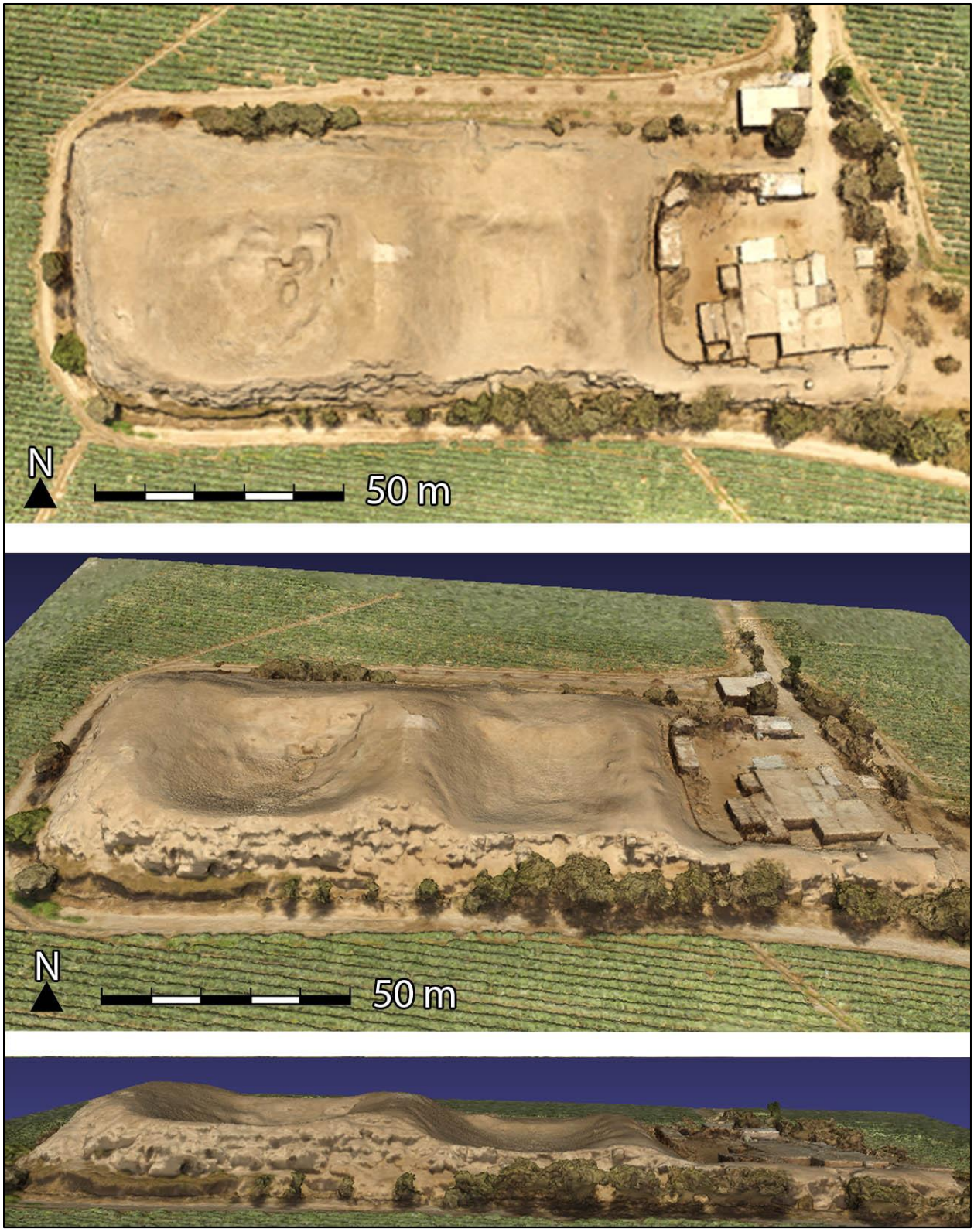


Figure 6: Huaca Soto (PV57-26) from one overhead and two oblique views. Image is an Agisoft Photoscan model based on drone photography developed by Luis Jaime Castillo.

Fieldwork at Huaca Soto pursued site-scale, local-scale, and regional-scale research questions[10]. At the level of the site, we sought to reconstruct Soto's deep chronology on the basis of radiocarbon dating, analysis of fineware ceramics, and the architectural sequence. We explored whether Huaca Soto's sunken courts were the seat of ritualized public events, as was the case at Cerro del Gentil and La Cumbe, or whether they served some alternative purpose – perhaps as funerary structures, workshops, or elite residences. We questioned whether access to these events was highly controlled, exclusive, or open to a broader community, and whether this relationship changed over time. At the valley-scale, we wanted to juxtapose the evolution of Huaca Soto with existing data on Chincha's settlement history. We wanted to know if Huaca Soto's architecture and events evolved in tandem with major inflection points in valley-wide settlement patterns – for example, the explosion of monumental architecture that occurred around 400 BCE, or start of the Necropolis period after 200 BCE. We tested for evidence that might suggest a direct relationship between Huaca Soto other known Paracas sites in Chincha. Finally, we tested for links between Huaca Soto and Paracas communities elsewhere in the region. We asked if Huaca Soto's sunken courts contained evidence for non-local wealth goods, sub-styles of pottery from neighboring valleys, or objects like trophy heads that might suggest direct competition.

Over five months in 2014-2015, I directed excavation of Soto's highest and westernmost sunken court ('Sector A') and its middle saddle-shaped sunken court ('Sector B') with co-director Lic. Kelita Pérez Cubas and with the support of PACH directors. Excavation in multiple courts provided an important horizontal control, allowing our team to juxtapose the use of courts

[10] Formal research questions and hypotheses are presented in Chapter 6.

through time. We designed excavation methodology with two general objectives in mind[11]. First, our team conducted broad horizontal exposures in each court in order to reveal as much standing architecture as possible with minimal disturbance of the architecture itself. This allowed us to determine the spatial layout of Soto's most recent phases – including access points, passage through the structure, and information about the proxemics and performance. It also provided substantial data on post-Paracas phases of use. As a compliment to wide horizontal exposure, we conducted deep-soundings in the corners and centers of both sunken courts. We designed deep units to expose long-term stratigraphic sequences that provide data on architectural development through time, to recover organic samples for radiocarbon dating, and to collect evidence on changing activity patterns in each of the courts.

Excavation at Huaca Soto recovered a diverse array of materials ranging from fineware ceramics, ornaments, and comestibles, to earthen and metal figurines, scattered human remains, and nearly 350 kg of post-Paracas ceramic material. Laboratory analysis of these data took place in parallel with excavation and through 2016. Pulling together these disparate threads into a coherent narrative of Huaca Soto's long term evolution and its relevance for understanding the development of Paracas communities in Chincha is the main challenge of the work.

[11] The specific details of which are outlined in Chapter 6.

Order of the Work

What follows are nine chapters. *Chapter 2* discusses chronological terms that appear throughout this dissertation and provides a brief settlement history of the south coast covering the first millennium BCE. I draw on a three-period system – 'Early' 'Middle', and 'Late' Paracas. While radiocarbon dating is ultimately necessary for comparing disparate Paracas contexts, this simple chronology has recently proven useful for conceptualizing long term development. This chapter provides the regional context against which to model the evolution of Huaca Soto and the development of Chincha's Paracas settlement system.

Chapter 3 provides a theoretical framework for the evolution of political complexity and the role that ritualized public events play in this process. It follows the work of Joyce Marcus and Kent Flannery (2004) and others who observe a close relationship between the development of religious ritual and the evolution of political economy. Drawing on recent research from evolutionary game theory and quantitative biology, Charles Stanish (2004, 2009, 2013) argues that ritual institutions provide an opportunity for persuasive leaders to communicate fairness norms, redistribute surpluses, punish free-riders and reward contributors – ultimately promoting the prosocial behavior necessary to maintain surplus production and economic stability in a competitive environment. Successful operation and manipulation of this 'ritualized economy' provides greater latitude for leaders, who may use these opportunities to increase the scope of their control over non-kin resources. As permanent social inequality emerges, the context and content of ritualized public events will change in patterned and predictable ways. Excavations at Huaca Soto essentially tested for these kind of transformations.

Chapter 4 considers Formative research in Chincha prior to PACH investigations. These expeditions include three independent site-surveys that provide important information on Paracas

settlement distribution, surface assemblages, and architectural data (some of which has since been destroyed by modern development). Early endeavors also included test pits and salvage collections, which provide important chronological and stylistic benchmarks for this dissertation. These data can be collated with recent PACH datasets as a basis of comparison for interpreting evidence from Huaca Soto.

Chapter 5 provides a detailed discussion of PACH research from 2012-2016. This includes excavations at El Mono (PV57-63), Cerro del Gentil (PV57-59), and La Cumbe (PV57-3). Architectural features, fineware styles, evidence for local vs. non-local inputs, and radiocarbon dates can be juxtaposed with results from Huaca Soto. These data suggest that politico-ceremonial activity between the third and fifth centuries BCE was calendrically scheduled and involved few non-local objects. Furthermore, survey of the upper-valley corridor, analysis of surface collections around Cerro del Gentil, and study of associated geoglyph fields provide additional context for understanding the long-term development of Paracas communities in Chincha.

Chapter 6 lays out the research design developed for excavations at Huaca Soto. I outline a set of testable hypotheses and the conditions under which they can be accepted or rejected. Excavation is appropriate for testing these hypotheses for its ability to measure long-term diachronic change along vectors significant to the goals of this dissertation – for example, architectural evidence for inclusive vs. exclusive access to ritualized public events, differential use of Soto's sunken courts, and the presence or absence of non-local wealth goods. This chapter also covers our general excavation methodology.

Chapter 7 discusses architectural data from Huaca Soto. It includes a description of standing architecture, laboratory studies of construction materials, subsurface data pertaining to

court renovations, and evidence for how individuals moved through the structure. This chapter also includes a basic description of the site's stratigraphy, an alternating series of floor and fill layers which are planned architectural features. Together these data demonstrate that the surviving structure is the result of at least four monumental construction episodes. The final section of this chapter pulls these threads together to consider the interplay between engineering techniques, labor, and material choices; performance and movement through the structure in its various phases; and the evolution of Huaca Soto as carefully planned architectural space.

Chapter 8 considers ceramic evidence, which is by far the most abundant material recovered from Huaca Soto's sunken courts. We processed nearly 35,000 ceramic sherds, of which nearly 7,000 are diagnostic for vessel form or design. These include known Early, Middle, and Late Paracas (Topará) finewares recovered *in situ* from secure floor-and-fill layers. Additionally, we recovered a thick deposit of serving-wares associated with a series of massive post-Paracas feasting events. This assemblage is dominated by hundreds of single-serving shallow bowls with pendant-arc designs reminiscent of local Middle Horizon styles elsewhere in the south central Andes (ca. 600-1000 CE). I provide a detailed description of ceramic data for both Paracas and post-Paracas phases and their implications for modeling the use of Huaca Soto over its nearly 2,300-year history.

Non-ceramic materials are the subject of *Chapter 9*. These include vertebrate faunal remains, marine and freshwater shell, macrobotanicals, lithics, figurines, and various metal, stone, and *Spondylus* shell ornaments from both Paracas and post-Paracas contexts. Several of these datasets could easily occupy chapters in their own right and thus are summarized for concision. I also describe spatially-distinct depositional features in this chapter (offerings and stratigraphic anomalies). I provide results of AMS radiocarbon dating on 30 samples recovered

in situ from stratified floor and fill layers, as well as discrete post-Paracas events. The datasets in this chapter are considered on a court-by-court basis to facilitate horizontal comparison between the courts.

Chapter 10 brings these multiple lines of evidence together into a narrative that tracks the development of Huaca Soto from the 8th century BCE through the 15th century CE. Having laid out the site's specific evolution, I reconstruct the development of Paracas communities in Chincha and articulate this model with existing regional data. To finish, I propose a set of priorities for future investigation in the valley that will build upon PACH research and further our model for the emergence of Paracas complexity.

Chapter 2: Regional Settlement History and Chronology

The development of Paracas communities in Chincha must be viewed against an evolving regional backdrop. This chapter offers a review of chronology and settlement history for the Formative south coast, focusing on general synthesis of available data. It is not meant to be an exhaustive or encyclopedic account. The reader should be aware that the specific chronologies of each drainage vary substantially. My intention is to highlight general consensus in the interpretation of existing data, recognizing that there are substantial grey-areas and points of contention that are the subject of ongoing research.

Reconciling Paracas Chronologies

Researchers rely on several relative chronologies to model the evolution of the Formative south coast. These sequences are based principally on ceramic style and iconography, but also include motifs found on non-ceramic objects, technical and aesthetic innovations in textile design, and certain architectural elements. Some of these chronologies are drainage-specific, providing high-resolution markers for interpreting field data within a small geographic area. Others are comprehensive, offering a broad picture of regional-scale development at the expense of local-scale resolution. The first step in synthesizing the culture-history of the Formative south coast is to consider existing relative chronologies and draw out useful equivalencies between them. While absolute dating provides the most suitable means of reconciling these systems, robust radiocarbon sequences are published only for Palpa, the Paracas Peninsula, and parts of Ica (e.g. Unkel et al. 2012; León Canales 2007; DeLeonardis 2005); zones like Pisco, Cañete,

and the Quebrada Topará lack radiocarbon dating entirely. To further complicate matters, many well-cited Paracas radiocarbon dates are now recognized as methodologically problematic and should be considered inadmissible under modern scientific standards (Ziolkowski et al. 1994:10-12, 589-591; Paul 1991a:11-15).

Early 20th century archaeologists conceptualized Paracas as two major periods, 'Cavernas' and 'Necropolis', as originally described by Tello (1959). In a strict sense these are locally-specific terms that index the material, architectural, and bioarchaeological characteristics of two distinct mortuary traditions[12]. However, as Paracas researchers began to look outside of the Paracas Peninsula, 'Cavernas' and 'Necropolis' went into generalized use to describe contexts bearing similar textile and ceramic styles (e.g. Kroeber 1944:31-34, 1953). This terminology remained popular in the northern valleys of the south coast well into the late 20th century, appearing in reconnaissance surveys of Pisco and Chincha (Wallace 1959, 1971; Canziani 1992, 1993; Engel 2010). The Cavernas/Necropolis distinction was later incorporated into wider-ranging chronological systems. For example, an approach by Frédéric Engel and investigators from the Centro de Investigaciones de Zonas Áridas (CIZA) renamed 'Cavernas' and 'Necropolis' as phases '6a' and '6b' (also 'Paracas I' and 'Paracas II') in a 15-phase chronology designed to cover the full pre-Columbian history of the south coast (Engel 1981:39, 2010:14; Velarde 2002/2003:97). CIZA bookended Paracas between a proto-Cavernas 'Chavínoid' phase ('5') and a post-Paracas Nasca phase ('6c'). Engel suggested dates of 800-500 BCE for his Chavín phase ('5'), making it roughly contemporaneous with the earliest

[12] Cavernas and Necropolis burials are cross-cut by an important set of textile seriations derived from mortuary wrappings. As we have little textile evidence from Chincha, for now I forgo textile chronologies in a bid to avoid lengthy and unnecessary confusion. The interested reader can see the following for detailed treatment: Dwyer 1979; Paul 1990, 1991b; Peters 2000.

recognizable Paracas fineware styles such as Ocucaje 3, Pozuelo, and Cerrillos (see below). He suggested that the transition between the 'Cavernas' and 'Necropolis' mortuary tradition took place around 200 BCE (Engel 1987:115; 1976:151). Therefore, his Cavernas phase ('6a') would fall between 500 and 200 BCE, and his Necropolis phase ('6b') from 200 BCE onward. Elsewhere, Engel employed a variation of this system for use specifically around the Peninsula littoral, in which he placed both Cavernas and Necropolis in stage '11c' of a broader 18-phase sequence (Engel 1966:49). The CIZA system had a major impact on later periodization schemas, although it is rarely used today.

Archaeologists in the 1960s proposed independent seriations for finewares associated with the 'Cavernas' and 'Necropolis' cemeteries. 'Necropolis' styles are typified by thin, evenly-fired monochromes that sometimes take the shape of squat gourds with a double-spout and bridge handle. These wares are often referred to as the 'Topará' tradition when recovered outside of the Peninsula. Edward Lanning (1960) seriated Topará wares into five stages (Jahuay 1, 2, 3, Chongos, and Campana) based on excavation of a midden feature at the Jahuay site near the mouth of the Quebrada Topará. He reconstructed this sequence from data originating in multiple profile cuts and test units. It has never been observed in full from a single stratigraphic column. The first two phases, Jahuay 1 and 2, are known only from the original excavation and possibly surface scatters in Cañete (Wallace 1963, 1986:38). The validity of these earliest phases is questionable on the basis of sample size and diagnostic criteria. Likewise, the final phase, Campana, is difficult to operationalize as a diagnostic marker in the field (Peters 2013:80). Only the Jahuay 3 and Chongos phases are commonly reported by fieldworkers. These are found at late Formative sites in Chincha, Pisco, upper Ica, and as far south as Cahuachi in Nasca (Peters 2013; Tinteroff 2004:559; Wallace 1972, 1986; Velarde 1999). They typically appear together.

This suggests that Jahuay 3 and Chongos may be more coetaneous than proposed by the original seriation. Jahuay 3/Chongos styles also best describe the original ceramic finds at the Necropolis cemeteries (Peters 1997:562). For the remainder of this dissertation, I will take Paracas Necropolis (the site-specific burial tradition), Topará (a general descriptor for Necropolis-related material culture outside of the peninsula), and Jahuay 3/Chongos (a specific fineware style) to represent a general chronological period. I will refer to this period as 'Late Paracas'.

The earlier 'Cavernas' tradition presents a more complicated sequence. It is typified by incised, post-fire resin-painted pottery that sometimes incorporates negative-resist techniques. Compared to Topará wares, post-fire painted sherds are ubiquitous across the south coast and cover a wider span of time. They are iconographically rich and express a greater range of design variability. Menzel et al.'s (1964) Ocucaje seriation defined the now-classic ten-phase sequence for Cavernas-style wares from lower Ica based principally on assessment of decontextualized private collections. Each phase was originally conceived of as a hypothetical 100-year period (1000 – 0 BCE)[13]. Observation of post-fire painted wares *in situ* over the past 50 years has led to several modifications of the original sequence. These include the elimination of some phases (typically Ocucaje 1, 2, 4) and a tendency to consolidate the remaining ones into three generalized bins[14]. The earliest post-fire painted wares in Ica (Ocucaje 3) predate the Paracas Peninsula cemeteries based on assessment of associated contexts and radiocarbon dates (DeLeonardis 2005). These wares present strong iconographic and design parallels with contemporary central coast styles that reflect the broader Chavín artistic tradition (Menzel et al.

[13] This was an elaboration of earlier work by Lawrence Dawson (Rowe 1958) that envisioned Cavernas-style pottery in four phases (T1 through T4).

[14] Which original Ocucaje phases are lumped together differs between analysts. I suggest that Cook's (1999) setup – Ocucaje 3, Ocucaje 5-8, and Ocucaje 9-10 – is best supported by field data. Discussion by Silverman (1996a:104-107) gives an idea of how flexible interpretations of Paracas phasing can be.

1964:20-31). Ocucaje 3 features are historically recognized in the early 'Cerrillos' phase ceramics of upper Ica (Wallace 1962; Splitstoser 2009) and in the rare Pozuelo style from lower Chincha (Wallace 1972; Lanning 1960). The second set of phases, anywhere from Ocucaje 5 to Ocucaje 8, are distinguished by growing diversity in technical and design features, an expanded suite of motifs autochthonous to the region (including the so-called 'Occulate Being'), a florescence of regional substyles, and an abrupt departure from Chavínoid iconography. Local post-fire painted styles parallel to Ocucaje 5-8 are recognized within all valleys of the south coast. In my view, finewares recovered from the Cavernas tombs are contemporary with this middle phase based on comparison of radiocarbon samples from Cavernas bundles (León Canales 2007) with radiocarbon samples acquired from sites in Chincha containing an Ocucaje-8 resemblant style called 'Pinta' (Tantaleán *in press*)[15]. The final grouping, Ocucaje phases 9-10, is geographically restricted to Ica and Nasca. These phases are more homogeneous when compared to the earlier Ocucaje 5-8 bin and include several innovative features that lay the foundation for subsequent Nasca finewares (ca. 100-700 CE). Ocucaje 9-10 styles are substituted by coeval Jahuay 3/Chongos wares in Cañete, Chincha, Pisco, and upper Ica. In sum, seriation of post-fire painted pottery in Ica suggests a pre-Cavernas period (Ocucaje 3, Cerrillos, Pozuelo), a Cavernas-parallel period (ca. Ocucaje 5-8) and a Necropolis-parallel period (Ocucaje 9-10, Jahuay 3/Chongos).

Today, there is interest in merging zone-specific systems under an umbrella framework consisting of three generalized periods – 'Early', 'Middle' and 'Late' Paracas (Kaulicke 2013b:292-293). This terminology stems from William Duncan Strong's early exploration of

[15] I discuss aspects of this comparison in later Chapters. Others (Silverman 1996b:6) see the Cavernas burials as closer to Ocucaje 9, which would make them slightly younger.

Formative contexts at Cahuachi in the 1950s, where he described 'Early Paracas' and 'Late Paracas' components (Strong 1954, 1957)[16]. Expansion of this system by Alan Sawyer drew on a broader collection of fineware vessels held in private collections (Sawyer 1961, 1966:67-121)[17]. Sawyer conceived of Early-Middle-Late Paracas phases as sandwiched between an antecedent Chavínoid period and a subsequent proto-Nasca period. Sawyer's 'Early Paracas' covered the first appearance of recognizable post-fire painted wares and retained some elements of earlier Chavínoid iconography. 'Middle Paracas' was equivalent to the 'Cavernas' tradition and the major florescence of post-fire painted wares across the region. 'Late Paracas' articulated with the Necropolis mortuary tradition and the most recent set of post-fire painted wares in Ica (what would be Ocucaje 9-10) (Sawyer 1966:71). The framework proposed by Sawyer, the compressed Ocucaje sequence, and the peninsula-centric Cavernas/Necropolis distinction reconcile well into a general three-phase chronology.

Garcia and Pinilla (1995) proposed a five-phase system that also reduces into an Early-Middle-Late Paracas sequence with little effort. The first two phases – Disco Verde (1000-800 BCE) and Puerto Nuevo (800-600 BCE) – are based on material traditions associated with eponymous proto-Paracas sites near the peninsula[18]. Garcia (2009) argues convincingly that later Cavernas finewares were heavily influenced by these styles. The third phase, Karwas (600-500 BCE), is based on the appearance of Chavínoid motifs on painted textiles from sites near the

[16] Strong's illustrations make clear that this assemblage actually contained later-phase Ocucaje styles (Ocucaje 9-10), semi-contemporary Topará wares (Jahuay 3/Chongos), as well as early Nasca pieces (Strong 1957:17-22, Figure 6-9).

[17] Compared to the popular Ocucaje seriation (Menzel et al. 1964), Sawyer's framework recognized stronger horizontal variability – substyles – and thus could draw chronological parity between Late Paracas polychromes in Ica and Nasca and Necropolis/Topará style monochromes in Chincha and Pisco.

[18] Discussion of proto-Paracas traditions is largely beyond the scope of the present work. For brief descriptions see (Silverman 1996a:110-113; Garcia 2009, Engel 1991; Dulanto 2013; Dulanto and Accinelli 2013).

Bahia de Independencia. Garcia and Pinilla interpret this phase as 'intrusive', disrupting a local sequence of development with roots in Disco Verde and Puerto Nuevo (see also Garcia 2010). They place Ocucaje 3 phase ceramics in parallel to this period based on iconographic similarities. Karwas is followed by the fourth phase, Cavernas (500-100 BCE), for which they devise three sub-phases covering Ocucaje 6-10. The ultimate phase, Necropolis (100 BCE – 300 CE), comprises the Jahuay 3/Chongos styles and the Necropolis mortuary tradition. In short, Garcia and Pinilla's and proposed dates reconcile well with the distinction between proto-Paracas Chavínoid influences (i.e. 'Early Paracas'), Paracas 'Cavernas' (i.e. 'Middle Paracas') and Paracas 'Necropolis'/Topará (i.e. 'Late Paracas').

Recent radiocarbon corroboration of *in situ* finewares from multiple Paracas sites in Palpa provides the most robust absolute anchor for Paracas chronology (Unkel et al. 2012). While Palpa dates should be recognized as zone specific, they are useful for general comparison. 'Early Paracas' contexts, which they associate with Ocucaje 3 wares, returned dates between 840-500 BCE based on four samples from cemeteries at Mollake Chico and Pernil Alto (see discussion below about Palpa Valley). This range of dates is in line with proposed Early Paracas dates from elsewhere on the south coast. 'Middle Paracas' contexts in Palpa, associated with Ocucaje 5-7 wares, returned dates between 500-380 BCE based on 11 samples from the site of Jauranga. If one were to include Ocucaje 8-9 phases within this bin, one would be justified in extending the Middle Paracas period well into the 3rd century BCE. For example, twenty-six samples associated with Ocucaje 8-9 wares returned dates between 380-260 BCE. Unkel et al. (2012) choose to label these as 'Late Paracas', proposing a Nasca transitional period (associated with Ocucaje 10 ceramics) dating between 260 BCE and 80 CE. This transitional phase is less

stylistically-recognizable in the northerly valleys of the south coast (Pisco and northward) where Nasca-style finewares become rare.

For conceptualizing Paracas development in Chincha, I propose an Early-Middle-Late Paracas relative chronology that is in general agreement with the systems described above. 'Early Paracas' in Chincha would represent a proto-Cavernas period marked by high polished brown-wares, the earliest post-fire painting techniques, and incised motifs reminiscent of Chavínoid art styles. This encompasses the rare Pozuelo style reported in the lower valley (Lanning 1960; Wallace 1972)[19]. 'Middle Paracas' in Chincha would be a Cavernas-parallel period marked by a florescence of post-fire painted wares, typified foremost by the 'Pinta' style. 'Late Paracas' in Chincha would be coeval with the Necropolis cemeteries and defined by Jahuay 3/Chongos wares. Because Jahuay 3/Chongos wares follow 'Pinta' directly in the stratigraphy of Cerro del Gentil and El Mono[20] and because Chincha lacks Ocucaje 9-10 equivalent styles, there is no reason to push the Topará tradition into a fourth phase as is proposed for southerly valleys (Kaulicke 2013b; Unkel et al. 2012). Radiocarbon dates recovered during PACH excavations support this provisional chronology for Formative Chincha[21].

A Regional Synthesis for Paracas Development

The following synthesis is meant to provide the reader with a working reference for important sites that will appear throughout this dissertation. It focuses on chronological

[19] The fineware styles known to Chincha are described in Chapter 4

[20] Based on PACH excavations; see Chapter 5.

[21] See Chapters 5 and 9.

positioning, geographical relationships, and political and economic activity patterns. Evidence from Chincha is reserved for Chapters 4-5. While it should be clear that the evolution of Paracas communities was marked by significant geographic and temporal variation, this review demonstrates notable trends in regional-scale development.

'Early Paracas'

Early Paracas sites typically take the form of politically autonomous enclaves that lack clear hierarchical relationships and occupy strategic positions along coast-highland and trans-littoral corridors (Fig. 7). One of the best studied sites from this time period, Cerrillos in upper Ica, sits at a strategic outcrop where the Andean foothills open up to the coastal desert plain (Wallace 1962). The site is a complex of rectilinear room blocks and broad staircases running nearly 100 meters up the slope of a steep escarpment. The site underwent at least five major renovations consisting of alternating fill and compacted floor layers. Notable architectural elements include use of handmade adobe bricks and continual replastering and maintenance of surfaces (Splitstoser et al. 2009:229; Splitstoser 2009:90-97). Excavations by Wallace (1962) identified two ceramic phases, 'Cerrillos' and 'Isla', now recognized as Early and Middle Paracas finewares respectively (Silverman 1996b:121). Additionally, Splitstoser et al. (2009) report a large assemblage of textiles exhibiting Chavínoid themes, reminiscent of well-known pieces recovered from the coastal Karwas site (e.g. Cordy-Collins 1976; Wallace 1991a; Roe 2008; Conklin 2008). Wallace originally suggested a permanent residential population at Cerrillos based on thick accumulations of midden within and between room blocks (Wallace 1962:306). More recent interpretations emphasize ceremonial events, trade-oriented activities, and craft production, based on the presence of non-local high-value faunal remains, ritualized

offering deposits, evidence for gold-working, and possibly corn beer production (Splitstoser 2009:107; Splitstoser et al. 2009:229). Given the low resolution stemming from a first millennium BCE De Vries effect known as the *Halstatt Plateau*, radiocarbon analysis of samples associated with Ocucaje 3 wares at Cerrillos returned a broad range between 1230-440 BCE (as reported in Paul 1991a:12-13; Stuckenrath 1963). These are pre-AMS dates. The mid-5th century BCE terminus of this series, however, does align well with Early Paracas contexts elsewhere on the south coast. Sarah Massey dated a ceramic sherd from Wallace's 'Cerrillos' phase to ca. 438 BCE via thermoluminescence (Massey 1986:32-33).

Ica contains close to a dozen additional reported sites that are hypothetically contemporaneous with Cerrillos on the basis of associated Ocucaje 3 pottery (Cook 1999). Massey reported two additional Early Paracas sites (what she called Early Horizon Phase 1) from her survey of upper Ica (Massey 1986:166-171). Subsequent studies by Lisa DeLeonardis expand this list of sites to include Huamani, Cordero Bajito, Teojate, and Cerro Yunque in the upper valley; Santa Lucia and Cerro la Cruz in the middle valley; and Chiquerillo and PV62D13 in lower Ica (DeLeonardis 2005:30-31). One of these, PV62D13, was excavated by DeLeonardis (2005). The site presents a low oval mound exhibiting domestic debris on the surface. DeLeonardis suggests that PV62D13 was a residential village with evidence for local pottery production. She hypothesizes the presence of several unranked enclaves throughout Ica during this period. One radiocarbon date from PV62D13 yielded a range ca. 890-457 BCE in association with Ocucaje 3 finewares (DeLeonardis 2005:32).

Two excavated cemeteries in Palpa, Mollake Chico and Pernil Alto, hosted well-established Formative populations during the Early Paracas period (Reindel and Isla 2006; Isla and Reindel 2006). A rectangular tomb with stone-slab walls at Mollake Chico yielded the

remains of multiple individuals, Ocucaje 3 ceramics, and objects associated with ceramic and textile production (Tomasto 2009; Isla and Reindel 2006). Pernil Alto also contains multi-individual burials in association with Ocucaje 3-4 ceramics, and is associated with a residential area composed of hillside terraces (Isla 2010:25). Unkel et al. (2012) present dates spanning cal. 840-550 BCE for Early Paracas at Mollake Chico and Pernil Alto, making them the oldest Paracas-associated mortuary contexts known through controlled excavations. The lower range for these dates is a century older than other Early Paracas contexts elsewhere and perhaps represents a local variation in the development of Palpa communities.

Several Early Paracas sites are reported from the littoral zone along the Paracas Peninsula and the Bahia de Independencia. Initial excavation of Disco Verde in the mid-20th century exposed a continuous occupational sequence bridging the Initial Period through Nasca, including 'Chavínoid' and Paracas elements (see synopsis in Dulanto and Accinelli 2013:135-138; Engel 1991). The site consists of several low mounds covered in shell debris and other refuse. These are well-stratified features containing a complex assemblage of small ignition events, intrusions, midden, and evidence for other daily household activities. Rich and reliable marine resources were clearly advantageous for permanent settlement. Dulanto and Accinelli (2013:140-141) report three radiocarbon dates from the site, the latest of which (post-dating pre-Paracas Disco Verde and Puerto Nuevo-style ceramics, but prior to 'Nasca' contexts) falls between 760-407 BCE. Later phases at the nearby site of Puerto Nuevo also contain Early Paracas stylistic features and return commensurate absolute dates. Puerto Nuevo also contains substantial evidence of interregional exchange taking place during this time. Rather than a series of stylistically discrete phases, recent excavations by Dulanto (2013) suggest that down-the-line trade brought multiple fineware styles to the site. These range from locally recognized wares (such as Disco Verde and

classic Puerto Nuevo; see Garcia 2009) to pieces from the central and north coasts. Movement of items appears to be heavily coastal and limited to finewares – excavators recovered no notable ecofacts from sierra zones, including a surprising absence of evidence for camelid transport (Dulanto 2013:125, 128). Overall, Puerto Nuevo seems to be a self-sufficient fishing village that served as an important node in an existing interregional economic network; it was occupied by Paracas communities as late as the 5th century BCE (Dulanto 2013:114).

Further south, the coastal zone surrounding the Bahia de Independencia provided a rich resource base for Early Paracas settlements. Garcia (2010) reviewed field data collected over the past century from this area, demonstrating the presence of Early Paracas Ocucaje 3 style ceramics, scraps of textile with Chavínoid designs, and painted rocks with related iconographic motifs at sites along the bay. One of these sites, Karwas, is best known as the potential source of painted 'Chavínoid' textiles now held in American museum collections. Others – Chucchio, Morro Quemado 1, and Morro Quemado II – demonstrate first millennium BCE components and general Paracas stylistic features from the Middle and Late Paracas periods (Garcia 2010), but it is unclear if earlier components also exist. Bahia sites clearly hosted substantial settlements, given their size, abundance of household refuse on the surface, and evidence for large built features. For example, Chucchio covers nearly 30 hectares and contains at least 20 monumental windbreaks (50 by 250 meters in plan and 4 meters high) fronted by rounded cobbles. These protect rectilinear roofed structures on their leeward side (Garcia 2010:57). Other sites, like Quemado Morro II, exhibit clear habitation terraces. In all cases, marine shell and other local subsistence products dominate known assemblages. Garcia (2010:65) raises the possibility of strong socioeconomic connections between the Bahia settlements and Paracas communities in

lower Ica. Radiocarbon assays for Bahia contexts are not available, and limited subsurface data prevent researchers from describing the local sequence in more detail.

There are currently no Early Paracas sites reported for Pisco, Cañete, the Quebrada Topará, or Acarí. A small assemblage of polished brownwares indicative of Ocucaje 3 was recovered from the Pozuelo site in Chincha (see Chapter 4). The Pozuelo site lacks corroborating radiocarbon dates.

In sum, Early Paracas sites appear to be politically-independent and self-sufficient enclaves that relied upon locally-available resource bases. While shared iconography speaks to an exchange of information and ideas across the region, there is little evidence for economic dependency or concerted interaction between them. So far there is little to no evidence for inter-group violence or competition. Some of these settlements – for instance Cerrillos – exhibit impressive investments in architecture that suggest occupations or participating groups of substantial size. In a few cases where non-local objects are present, for example Puerto Nuevo, Early Paracas sites appear to be convenient stopping points for down-the-line trade rather than true entrepôts or target destinations. Both Splitstoser (2009) and Dulanto (2013) offer the hypothesis that major settlements at this time were in contact with pre-existing coast-highland and trans-littoral routes, perhaps rising to notability due to these connections. Absolute dates place this Early Paracas period between the late 9th and late 5th centuries BCE.



Figure 7: Major Early Paracas sites described in text. Locations are approximate. The basemap is from Google Earth, © Google 2016. Data LDEO-Columbia, NSF, NOAA, Image Landsat/Copernicus, Data SIO, NOAA, U.S. Navy, NGA, GEBCO

'Middle Paracas'

The Middle Paracas period witnessed the emergence of additional Paracas villages across the south coast, the appearance of the region's first multi-tiered settlement systems, new investments in public architecture, and evidence for sociopolitical organization based on corporate groups (Fig. 8). While this general pattern suggests the emergence of new political and economic relationships during this time, the circumstances that influenced this transition are poorly understood. Even for sites in which multiple periods are present (e.g. the Bahia settlements, or Cerrillos) there is limited discussion on how specific activity patterns changed through time or the social and material conditions that prompted these important developments.

Multi-tiered settlement systems appeared in Ica for the first time during the Middle Paracas period (Massey 1991; Cook 1999; DeLeonardis 1997). Based on survey in the upper valley, Massey suggests continued occupation in several earlier sites in parallel with the emergence of at least six new Paracas villages (Massey 1986:168). To her, this indicates a sizable population increase and evidence for rising political centralization. She suggests that Cerrillos assumed the role of a first-tier regional center during this time. Her hypothesis seems parsimonious given Cerrillos' well-managed ceremonial architecture, its visible size and non-vernacular layout, and its established articulation with non-local coast-highland routes. Distinguishing between Early and Middle Paracas activity patterns at Cerrillos, however, is challenging for field workers due to minimal cultural deposition within well-maintained 'temple' architecture (Splitstoser et al. 2009:211). Assessment of diachronic change is limited to structural renovations and the stylistic attributes of associated fineware ceramics and textiles. Splitstoser et al. (2009) suggest that ceremonial activity at the site reached an apex at the onset of the Middle Paracas period (i.e. ca. 500 BCE), eventually eclipsing between 300-200 BCE (Splitstoser et al.

2009:229). Radiocarbon samples associated with Middle Paracas wares at the site (i.e. Ocucaje 7, the 'Isla' phase) returned dates from the 8th to 1st centuries BCE (Paul 1991a:12-13), a broad range complicated by intrusion and intermingling of stratigraphic levels. Massey (1986:32-33) dated a ceramic sherd belonging to the site's Middle Paracas 'Isla' phase at Cerrillos to ca. 210 BCE via thermoluminescence. Overall, Paracas settlement in upper Ica expanded markedly during the mid-first millennium BCE in parallel with ongoing rejuvenation of temple architecture at Cerrillos and a general transition away from Chavínoid iconography.

Hierarchical settlement clusters also appeared in lower Ica during the Middle Paracas period. Anita Cook (1999:84-85) notes at least 20 sites with Ocucaje 5-8 phase ceramics from the Callango basin, the Ocucaje basin, and the valley's southernmost reaches. These sites sit on low rises well-above the flood plain and typically exhibit evidence for domestic activities. Cook argues that dual settlement systems appeared in Callango during this time, focusing on two counterpoised politico-ceremonial centers. The first center (called D-12), located in northwest Callango, exhibits an architectural core composed of a large rectilinear structure surrounded by multiple room-blocks. This and two nearby village sites investigated by DeLeonardis (PV62D13, and PV62D24) yielded Middle Paracas fineware styles. These were permanent settlements that featured an assortment of daily activities, including production of household tools and small ritualized deposits (DeLeonardis 1997, 2013). The second politico-ceremonial center in lower Ica, Animas Bajas, consists of at least 6 major mound-structures covering a zone of some 60 hectares (Cook 1999:72). Bachir Bacha and Llanos (2013) interpret Animas Bajas as an early ceremonial precinct that eventually developed into one of two complementary components that make up the later Animas Altas/Bajas site complex. The so-called 'Temple of the Dunes' at Animas Bajas exhibits clear evidence for ceremonial architecture and sizable offering deposits

(Bachir Bacha and Llanos 2013:178). Unfortunately, no radiocarbon dates are available for these important politico-ceremonial centers. Considered as a whole, Ica appears to have contained at least three multi-tier settlement systems during Middle Paracas times – one centered on Cerrillos, the second on D-12 in northwest Callango, and the third on the emerging Animas Altas/Bajas complex in southeast Callango. Each site cluster exhibits innovative politico-ceremonial architecture at its core and was flanked by smaller villages in both the immediate area and within a day's walk.

Whereas Early Paracas settlements in Palpa typically sat on margin escarpments, Middle Paracas domestic zones now took full advantage of fertile valley bottomland. The number and size of these settlements increased markedly during this period. Isla and Reindel conducted extensive excavations at the site of Jauranga, a large village settlement with at least five superimposed construction phases. Each phase consisted of rectilinear earthen-walled structures associated with Ocucaje 5-8 style finewares (Isla 2010:27-29). Evidence for artisanal ceramic production is abundant in some of these structures, including production tools, large circular kilns, and debris (Reindel and Isla 2013:249, 256). Six Middle Paracas burials were discovered in the spaces between buildings (Isla et al. 2003). These are simple pit tombs in which the body is extended or only slightly flexed (Isla 2009:126), overall more similar to Early Paracas style interments at Mollake Chico and Pernil Alto than contemporary Middle Paracas bundles in the Cavernas cemeteries on the Paracas Peninsula. This suggests that communities at Jauranga maintained aspects of a local sociocultural identity that contrasted with the broader Paracas world, despite clear evidence for enduring coastal and highland connections and widely shared iconographic trends. Altogether, Reindel and Isla (2013) suggest that Jauranga was a large permanent settlement in the Middle Paracas period, the main artisanal center for Paracas ceramic

production in Palpa, and a significant political center for the Palpa region (Reindel and Isla 2013:256-7). In terms of absolute chronology, samples from Jauranga return dates between 500-260 BCE for contexts associated with Ocucaje 5-9, a period bridging the Middle and Late Paracas periods (Unkel et al. 2012).

Donald Proulx (1998) reports at least thirteen Middle Paracas cemeteries and six small habitation areas along the lower Río Grande de Nasca, part of the Southern Nasca Region (SNR). These sites date to the terminal Middle Paracas period based on Ocucaje 8-9 style wares (Proulx 1998:6). Further east, Helaine Silverman's (1994a:366-371) survey of the Ingenio branch identified 24 sites associated with the Early Horizon, virtually all of which exhibited surface pottery cross-dating to Ocucaje 8-10. These appear to be small decentralized villages near arable land. This suggests a fluorescence of new Paracas settlements in the SNR at the end of the Middle Paracas era. Hendrik Van Gijseghem (2006) argues that this expansion was driven by new political centralization and social competition taking place in lower Ica (Van Gijseghem 2006). However, with the exception of limited Paracas contexts uncovered at Cahuachi (Strong 1957; Tinteroff 2004), subsurface exploration of Paracas sites in the SNR is limited. Van Gijseghem reported two radiocarbon dates for secure Paracas contexts at the site of La Puntilla (associated with Ocucaje 8-10 through Nasca 1 analogs), returning dates in the first century BCE (Van Gijseghem 2004:515, 2006:444). These would therefore to be more closely associated with Nasca 1 contexts at the site, rather than older Middle Paracas features.

The first substantial Paracas settlements in Pisco appeared during the Middle Paracas period. Reconnaissance surveys by Ann Peters (1997:142) and Wallace (1971) do not report Early Paracas materials, though these may be obscured by alluvium or later occupations. Peters (2013) lists five Pisco sites with pre-Topará (thus, Middle Paracas) components. This includes

three sites with mature post-fire wares *in situ* at Tambo Colorado, Chongos, and Pachinga (Peters 2013:85). Extensive excavation data exist for these three sites. Tambo Colorado contains a series of domestic terraces and cemeteries associated with Paracas material, located on the steep escarpment to the rear of the well-known Inka waystation. 'Cavernas' style post-fire painted polychromes, grater bowls, and pre-fire painted Nasca contemporary painted wares are abundant (Engel 1957). Engel suggested that terracing was partly agricultural, and identified areas for obsidian working and storage of foodstuffs (Engel 1957:40). He excavated stone-lined pit-tombs containing multiple individuals with frontal-occipital cranial deformation. Grave goods included Middle Paracas finewares, obsidian points resembling those found in the peninsula burials, and some fragments of 'Cavernas'-style textiles (Engel 1957:40-41). This Tambo Colorado post-fire painted style is akin to the Pinta style in Chincha, and similar to the Ocucaje 8 style in Ica (see Lanning 1960; Wallace 1985).

Middle Paracas architectural components at Chongos form the foundation for a major Late Paracas (Topará) occupation in the subsequent phase (Peters 1987/88, 1997). Construction techniques are typical of coeval Middle Paracas contexts found in Chincha (Wallace 1971). Rectilinear room-units at Chongos consist of thick adobe walls made from 'maize-grain' shaped adobe clods. Walls are plaster-finished and sometimes include coursings of river cobbles (Peters 1987/88:31, 1997:193). These form room-complexes attached to large open plaza areas; several of these blocks make up the site (Peters 1997:217-218). Likewise, Pachinga (or Alto del Molino) consists of several mound-like architectural complexes spread out over several square kilometers (Silverman 1997). Little is reported about Middle Paracas activity patterns at the site, apart from their presence below better-studied Late Paracas (Topará) contexts. Available evidence suggests that both Chongos and Pachinga probably hosted permanent occupations with some evidence for

year-round residence, production activities, and dedicated open spaces suitable for public events. Unfortunately, there is little information available on the political and economic activities that took place during the Middle Paracas period, as current research focuses heavily on later phases. Both Chongos and Pachinga were clearly large centers, well-above the scale of small villages. They were almost certainly first-tier centers of political and economic activity.

Unfortunately, there are no absolute dates available for Paracas contexts in Pisco. Dating of Paracas contexts is based entirely on stylistic analysis. In this regard, Lucía Balbuena Cotlear's (2013) recent rescue excavation of mummy bundles from a road cut at the site of Pariahuana in upper Pisco, each associated with Ocucaje 5 style finewares and elaborate burial textiles, provides an important new reference point for dating the Middle Paracas occupation of that valley.

The Cerro Colorado 'Cavernas' tombs provide a unique snapshot of Middle Paracas social and political organization (Silverman 1996b; Dwyer and Dwyer 1975). Each tomb contained the remains of multiple individuals, including members of both sexes and all ages (Carrion Cachot 1949:17-18). Evidence suggests that Cavernas tombs were reentered regularly, whether to add individuals, perform ceremonies, or remove objects. For example, intact bundles were accompanied by scattered skeletal elements; there is a deficit of crania for the minimum number of interred; and tombs have clear 'steps' built into the sides of shafts (Yacovleff and Muelle 1932:47-48; Sarmiento ed. 2009). Grave goods in Cavernas bundles were modest and well-distributed, and there was no obvious ranking between individuals. Non-local wealth was limited in comparison to later Necropolis burials (Tello 1959; Tell and Mejia 1979). Cavernas groups exhibit several types of cranial deformation (dominated by frontal-occipital and annular styles), which indicate the existence of cross-cutting social identities within the cemetery

population (DeLeonardis 2012; Pozo Flores 1988; Weiss 1932). These factors raise the possibility that each Cavernas tomb contains a specific family, lineage, or other social segment within a broader group. This could be described as a group-oriented or corporate form of social organization, which may explain why individual aggregation of wealth appears to be deemphasized (i.e. Blanton et al. 1996; Renfrew 1974; Moseley 1992:160). Radiocarbon dating of select bundles places this Middle Paracas mortuary tradition between the early 4th and late 2nd centuries BCE (León Canales 2007:44). On the Bahia de Independencia, Middle Paracas ceramics (Ocucaje 8) indicate that Karwas remained active, while Chucchio and Morro Quemado entered their major occupation phases at this time.

There are no dedicated excavations of Paracas contexts in the Quebrada Topará apart from the coastal Jahuay site, for which Lanning reports no pre-Topará (that is, no Middle Paracas) elements (Lanning 1960:390). Drainage-wide survey of the Quebrada by Wurster reports only two sites with 'Paracas' ceramics on the surface. He mentions that these sites resemble those recorded by Wallace (1963) in Cañete in terms of surface scatters and position with regards to the local landscape, but provides no further description (Wurster 1984:14). Subsequent excavation of LIP mortuary contexts in the Quebrada Topará revealed no underlying Formative elements (Wurster 1989).

Middle Paracas ceramics are reported from a few locations in Cañete, but dedicated excavation of these contexts is minimal. Following Stumer (1971), Wallace reports that 'Paracas' sites begin in the mid-valley, some 15-20 km from the coast, occupying steep escarpments along the valley margins (e.g. PV54-47, 48, 49, 51). Only one of these sites, Los Patos (PV54-48), contains substantial architecture (Wallace 1963:35). Wallace conducted a brief seriation based on excavation at the nearby site of La Quebrada, but reported no information beyond assay of

fineware styles (Wallace 1963). He concludes that Los Patos wares were intermediate between post-fire painted wares (Middle Paracas) and Topará monochromes (Late Paracas). No radiocarbon dates are available from Formative contexts in the Quebrada Topará or Cañete to back up this hypothesis. We know little about the early communities that inhabited these drainages.

In sum, the Middle Paracas period provides the first glimpse of political and economic organization above the level of isolated village enclaves. In some cases this manifests as multi-tiered settlement systems centered on non-vernacular politico-ceremonial centers. These sites contain large public architecture that permitted aggregation of large groups and probably required labor to construction and maintain. Rising political centers may have been key contexts for the production of new regional art styles which expanded during this period, as exemplified by dedicated fineware production zones at sites like Jauranga. However, it appears that individual drainages maintained significant cultural and political autonomy during this period. Middle Paracas politico-ceremonial centers exhibit distinct and independent approaches to the organization of public space (for example, compare non-vernacular architecture at Animas Bajas, Cerrillos, Jauranga, and Chongos). Mortuary traditions likewise remained geographically diverse, with bundling practices rising to the fore in northern valleys and on the peninsula, while endogenous semi-flexed practices continuing in Palpa to the south. The most well-studied of these cases, the Cerro Colorado group tombs, suggest that Middle Paracas communities consisted of unranked, complimentary segments, perhaps composed of lineages or corporate groups that made up a larger Paracas sociocultural tradition. There is not yet strong evidence for strict social inequality, permanent leadership, or disparate access to resources during Middle Paracas times.



Figure 8: Major Middle Paracas sites described in text. Locations are approximate. The basemap is from Google Earth, © Google 2016. Data LDEO-Columbia, NSF, NOAA, Image Landsat/Copernicus, Data SIO, NOAA, U.S. Navy, NGA, GEBCO.

'Late Paracas'

The Late Paracas period is characterized by a bifurcation of the south coast into two distinct socio-stylistic spheres, advancing population growth and settlement expansion, new formats for politico-ceremonial events, the emergence of a standout elite, and a surge in specialized artisanal production (Fig. 9). Communities from Cañete through Pisco abandoned post-fire painted finewares in favor of the monochrome Topará (Jahuay/Chongos) tradition, while communities in lower Ica and Nasca continued to refine classic Middle Paracas styles (i.e. Ocucaje 9-10 and transitioning to initial Nasca wares). Most Middle Paracas sites and settlements in the northerly sphere saw ongoing if modified use during Late Paracas times, including the Peninsula cemetery zone and political centers like Chongos and Pachinga in Pisco. Meanwhile settlement centralization in the southerly sphere reached an apogee, giving rise to a dense, 'urban'-like zone in the Callango Basin (Bachir Bacha and Llanos 2013). This was accompanied by evidence of rising internecine competition, as Late Paracas settlements in Ica, Palpa, and Nasca began to invest in defensible locales. These shifts may be linked to the emergence of new forms of political leadership accompanied by marked social inequality, a factor most evident in the Late Paracas (Necropolis) burials at Wari Kayan and Cabezas Largas (Tello and Mejia 1979; Silverman 1996b; Dwyer and Dwyer 1975). During this period craft specialization reached new heights in terms of labor inputs and specialist skillsets, as evident in the elaborate embroidered textiles recovered from Necropolis bundles (Paul 1990; Peters 2000) and new thin-walled Topará monochromes produced under new well-controlled firing environments. Overall, the growing distinction between northern and southern realms of the south coast can be interpreted as the advancing consolidation of two independent but interacting

political spheres (e.g. Silverman 1997:456; Peters 2013:96, 1997; Massey 1986), each governed through a new set of elite power strategies.

Upper Ica became a transitional zone between these two rapidly developing polities. The number of Late Paracas villages in upper Ica tripled, suggesting massive population growth. Massey observed that incidence of marine shell at these sites declined towards the end of the Late Paracas era while camelid remains became more common (Massey 1986:252-254)[22]. Similarly, she observed an increase in non-local fineware pottery (Massey 1986:272-273). She suggests that these changes represent a new preference for foreign finewares and consumables as markers of elite status (Massey 1986:274). At the same time, the long popular politico-ceremonial center at Cerrillos was replaced by a new first-tier center at Cordero Alto (Massey 1985, 1986:173-176). These shifts point to a general disruption of the prior political landscape, perhaps as upper Ica began to experience strong influence from major centers in lower Ica and Pisco. Massey provides two thermoluminescence dates for Late Paracas contexts in upper Ica based on association with Ocucaje 10 and EIP 1 pottery, returning a range from BCE 42-42 CE.

Political centralization in lower Ica reached an apex during the Late Paracas period, as major centers in the Ocucaje and Callango Basins became focal points for elite activity in the southern Paracas sphere. Cook (1999:74) reports the rise of a first-tier settlement at Peña de Ocucaje, a site exhibiting a combination of open public spaces, residential zones, and mortuary contexts. Overall settlement density in the surrounding zone increased in parallel with the emergence of this center (Cook 1999:82-83). She also notes that contemporary Late Paracas settlements in mid-valley Ica now exhibit habitation terraces on desert margin escarpments with

[22] Massey uses an altogether different chronological system for upper Ica, for which Late Paracas falls within her 'Early Horizon 4' and 'Early Intermediate Period 1' phases (see Massey 1986:35).

dedicated cemeteries lying closer to the valley floor (Cook 1999:75), a pattern that perhaps suggests an increase in intra-valley competition (Cook 1999:82-83).

While the total number of settlements in the Callango Basin remained relatively stable, Animas Altas rose to prominence as an extraordinary Late Paracas politico-ceremonial center (Massey 1991). The site contains several dozen monumental mound structures, attached open plazas for public congregation, dedicated production zones for textiles and ceramics, and clear domestic areas. This is a permanent, multifunctional Paracas settlement at a scale rivaled only by larger and more labor-intensive settlement clusters in Chincha. Mound structures at Animas Altas form carefully oriented and preplanned complexes that clearly relied upon organized non-kin labor for construction. Construction is based on locally available clay cut into large masonry blocks (Bachir Bacha and Llanos 2013:178), a departure from smaller adobe-unit techniques used in non-vernacular Paracas structures in the northern valleys.

Several of these platforms were used as tombs. This leads Bachir Bacha and Llanos to suggest that the site was a nexus for an ideological legitimation of elite power via ancestor worship and veneration of important dead (Bachir Bacha and Llanos 2013: 191-192; see also DeLeonardis and Lau 2004). Their hypothesis is supported by a preponderance of ideologically-charged art and architecture throughout the site, including decorated textiles, adobe friezes, and copious fineware ceramics bearing Late Paracas motifs (Bachir Bacha and Llanos Jacinto 2011). Furthermore, Bachir Bacha and Llanos emphasize stylistic heterogeneity among craft goods recovered at the site, suggesting that politico-ceremonial activities at Animas Altas attracted diverse communities from throughout the region and beyond (Bachir Bacha and Llanos 2013:200-201). All in all, they imply that Animas Altas became a popular pilgrimage center during Late Paracas times. The authors cite external references to place the Animas complex

between 400-100 BCE (Bachir Bacha and Llanos 2013:172). Unfortunately, there are no published radiocarbon dates for this important site.

In Palpa, Late Paracas communities underwent a major population increase as evidenced by more than 120 reported sites and a major increase in burial populations (Isla 2010:29; Reindel and Isla 2013). It seems that these communities continued to maintain a local cultural identity distinct from lowland areas. For example, Late Paracas mortuary practices at Jauranga and Pinchango Viejo (typified by simple pit tombs, chamber tombs, and urn burials) stand in stark contrast to the bundling traditions found on the Peninsula, Pisco, and Chincha. Excavators also observed new inequalities in grave wealth at Jauranga during the Late Paracas period, with some individuals receiving numerous high-quality ceramic offerings while others received none (Tomasto-Cagigao et al. 2015:84-85). This suggests the emergence of new social distinctions within Palpa populations. Rapid settlement and population expansion in Palpa may have strained local relationships. Defensive walls and trenches appeared for the first time at strategic sites like Pinchango Viejo, possibly due to competition over water sources or nearby mines (Isla 2010:30). Thus, rising conflict in the southern valleys appears to be a common feature in Late Paracas times. Combined with population pressure, this may explain the appearance of new frontier settlements in the southern Nasca region during this period (Van Gijseghem 2006; Van Gijseghem and Vaughn 2008).

Burgeoning populations may have helped support specialist industries that relied upon resources found far from traditional Paracas population centers. Several new Late Paracas settlements in Palpa were established at significant altitudes. For example, the site of Cutamalla was a unique architectural complex composed of circular sunken patios surrounded by what can only be described as D-shaped storage structures. It lies some 50 km northeast of Jauranga at ca.

3300 meters above sea level, covers more than 100 hectares, and contains an extensive terrace system suitable for intensive agriculture (Reindel and Schaich 2013:5). Reindel and Isla offer the hypothesis that Cutamalla was a specialized production center, storage area, or waypoint for highland agriculture or pastoral resources (Reindel and Isla 2013b:92-93). This raises the possibility that emerging coastal elites began to generate a greater demand for highland products during the Late Paracas period. Radiocarbon dates reported in Unkel et al. (2012) date Late and Terminal Paracas occupation in Palpa between BCE 380 – 80 CE.

Late Paracas communities in Chincha, Pisco, Cañete, and the Quebrada Topará adopted the new Topará monochrome tradition, placing these zones in sharp contrast to southerly groups. While some interpreted this abrupt stylistic change as evidence for an 'invasion' by a non-Paracas ethnic groups (Wallace 1986; Peters 1997:891-904; Engel 1981:11; 1987:114-116; Proulx 2008:569), so far there is no empirical evidence to suggest major conflict, sizable population replacement, or anything other than a shift in fineware preferences. In fact, these valleys exhibit high levels settlement continuity – most known Late Paracas (Topará) sites and monumental structures in Chincha and Pisco were already well-established in Middle Paracas times. The largest 'pure' Late Paracas settlements in the northerly zone are medium-sized villages and irrigation infrastructure that appear around the margins of upper Chincha (Velarde 1999, 2006; Canziani 1993)[23]. Overall, the transition from Middle to Late Paracas in Cañete, Chincha, and Pisco remains poorly understood compared to Ica, Nasca, and the Peninsula. The thorniest problem facing archaeologists in these zones is a near-complete lack of radiocarbon

[23] See Chapter 4

dating for Late Paracas sites, with the exception of select Necropolis bundles from the Peninsula cemeteries (León Canales 2007).

Research on the Late Paracas period in Cañete focuses primarily on surface contexts (Wallace 1963; Stumer 1971). We can say little about Late Paracas communities in that valley beyond Wallace's (1963:35) general recognition that 'Paracas' sites are limited to upper valley margins (ca. 20 km from the coast). Reports from his Los Patos type-site and Quebrada site test excavations are limited to stylistic data on finewares – it is unclear what, if any, non-ceramic objects were observed at these sites. No absolute dates are available for Late Paracas contexts in Cañete. Further south, the Jahuay site at the mouth of the Quebrada Topará contains a major Late Paracas component (Lanning 1960). Lanning reports the remains of at least one semi-subterranean house among domestic refuse and shell midden at the site (Lanning 1960:395). This structure exhibits evidence of a clear hearth area, and post-holes suggest a roof made of perishable materials. He reports large deposits of hearth ash, utilitarian ceramic, lithic debitage, shell debris, and a pelican-ulna flute. Taken together this evidence suggests a residential function, perhaps as part of a coastal fishing village. No additional excavations exist for the Quebrada Topará. At best, we can say that Paracas communities utilizing Late Paracas-style monochromes existed in Cañete and the Quebrada Topará during this time. There is no evidence to suggest dedicated politico-ceremonial zones, production centers, or hierarchical settlement systems. There are no radiocarbon dates available for Late Paracas contexts in Cañete or the Quebrada Topará.

In Pisco, sprawling settlements at Chongos and Alto de Molino reached their height during Late Paracas times. These sites were clearly planned settlements that included major residential zones, production-oriented areas, and spaces for public gathering. They are larger

than other reported Late Paracas (Topará) settlements, and can easily be described as multifunctional political centers to rival those of lower Ica. At Chongos, Peters interprets open plazas to be gathering spaces for seasonal events, while denser room block areas were spaces for more permanent quotidian activity (Peters 2013:90). At Alto del Molino, Silverman (1997:453) notes a prevalence of intrusive burials in mounded structures that seems analogous to mound-burial and ancestor worship practices taking place at Animas Altas. Others have noted similarities between cranial deformation styles, burial textiles, and other mortuary features of interments at Chongos and those of the Paracas Necropolis cemeteries (see Silverman 1997:544; Peters 2013:92). This raises the possibility that the peninsula dead were directly related to these large Pisco settlements. Apart from these centers, at least ten smaller sites appear across Pisco in association with Late Paracas Chongos-style finewares (Peters 2013:83-85). At present these sites mostly exist as unexcavated surface scatters. Both Silverman (1997) and Peters (2013) argue that Pisco's first-tier settlements represent the core of a Late Paracas peer-polity that ran parallel to counterparts in lower Ica. Peters interprets the available evidence to suggest that Late Paracas communities in Pisco were segmented, non-state societies in which fluid leadership shifted though combat and kin relationships (Peters 2013:98). There are no radiocarbon dates reported for Late Paracas contexts in Pisco.

Finally, the Necropolis mortuary tradition on the Paracas Peninsula provides the most straightforward evidence for the emergence of Late Paracas elites with disproportionate access to wealth and distinguished socioeconomic status. Unlike Cavernas group tombs, Necropolis bundles are highly individualized. Bundles are packed together into abandoned subterranean room structures that were originally used in Cavernas (Middle Paracas) times. Necropolis individuals appear to 'compete' with one another in terms of bundle size (a measure for the

number of high-value textiles included in each) and placement within subterranean rooms. Smaller bundles were packed around larger ones. The interred are reported as mostly older adult males (Peters 2000:252; Proulx 2008:569), though female bundles also exist. Cranial modification styles are more heterogeneous in Necropolis bundles than their Cavernas counterparts (Pozo Flores 1988), a fact that is sometimes viewed as a proxy for intensified interaction among diverse regional communities (DeLeonardis 2012:208).

Funerary goods found in and alongside Necropolis bundles are the most extravagant reported on the pre-Columbian south coast. Notable grave wealth included non-local *Spondylus* shell and tropical bird feathers, pyro-engraved gourds, precious metal objects, fineware Topará-style monochromes, and extraordinarily labor-intensive mantles and burial wrappings (Tello 1959: 209-212; Dwyer and Dwyer 1975; Tello and Mejia 1979; Sarmiento ed. 2012; DeLeonardis 2012). The bulk of bundles, many of which exceed 1.5 meters in diameter, are made up almost entirely of textiles. Production of funerary textiles almost certainly involved dedicated specialists supported by nascent elites (Paul 1990; Peters 2000). Taken together, this evidence points to an exclusionary system of sociopolitical organization in which aggrandizing individuals secured status based on privileged access to long distance social and economic networks (i.e. Blanton et al. 1996). In terms of absolute chronology, Necropolis bundles present a complex range of radiocarbon measurements anywhere from the late 4th century BCE through the 3rd century CE (León Canales 2007), suggesting an overlap with the final years of the Cavernas tradition. It seems most logical that these Late Paracas elites were transported to the Peninsula from an external zone.



Figure 9: Major Late Paracas sites described in text. Locations are approximate. The basemap is from Google Earth, © Google 2016. Data LDEO-Columbia, NSF, NOAA, Image Landsat/Copernicus, Data SIO, NOAA, U.S. Navy, NGA, GEBCO.

Paracas Development from a Regional Perspective

This review of Paracas regional development is far from comprehensive. I have focused first and foremost on settlement pattern data and evidence for political and economic activity, leaving aside for the moment much research regarding style, aesthetics, and iconography. I suggested that regional trends in settlement data can be represented in three overlapping phases – Early, Middle, and Late Paracas. This system is now in general use for Paracas archaeology, and I have defended my own interpretation of it here by synthesizing available relative chronologies and citing radiocarbon dates for sites when available. For sites with substantial diachronic data, I have tried to provide excavators' interpretations of the processes that impacted major social change. The overarching goal was to provide a regional backdrop for understanding the parallel development of Paracas communities in the Chincha Valley.

These data demonstrate that political complexity first emerged on the south coast during the final centuries BCE. Over the course of the millennium, Paracas communities gradually transitioned from a constellation of politically autonomous village enclaves into at least two hierarchical settlement systems – one focused on Animas Altas in lower Ica, and one focused on Chongos and Pachinga in Pisco. These developments were accompanied by the emergence of nascent elites with elevated access to wealth goods, new labor-intensive craft industries, and a new availability of non-local products. The well-studied Peninsula cemeteries have long provided the clearest evidence for this shift. Segmented corporate groups typical of the Cavernas burials (Middle Paracas) gave way to individualizing Necropolis bundles (Late Paracas). Strategic veneration of revered ancestors and redistribution of non-local high-value objects and craft goods may have undergirded these new authority structures. Such activities would have taken place during 'ritual' or 'ceremonial' public events. Indeed, throughout Paracas social

history, non-vernacular politico-ceremonial architecture occupied prime positions at the center of incipient settlement hierarchies. Likewise, the lavish Necropolis elites have typically been interpreted as a class of advanced ritual specialists. Before examining Huaca Soto and other monumental platform structures in Chincha, we must first consider the relationship between social evolution and 'ritualized' public events like the ones that were common throughout Paracas history.

Chapter 3: The Evolution of Political Complexity

In Chapter 2, I offered a diachronic settlement reconstruction of the Formative south coast. Current research demonstrates that the earliest recognizable Paracas communities (ca. 9th century BCE) were autochthonous, politically independent groups that inhabited small, undifferentiated villages. While the most substantial of these early settlements benefitted from strategic access to coast-highland and trans-littoral trade corridors, there is little evidence to suggest that they exercised political or economic influence beyond their immediate environment. By the end of the first millennium BCE, however, Paracas communities comprised two hierarchical sociopolitical entities with strong evidence for socioeconomic inequality. These entities are characterized by multi-tiered settlement systems, politico-ceremonial centers that drew participation from across the region, specialized craft production industries, and elite tombs containing non-local high-value objects.

In short, available evidence suggests that Paracas communities became *politically complex* – defined here as the phenomenon in which wealth and decision-making power become disproportionately allocated in the hands of an elite that exercise sustained control over non-kin labor (Arnold 1996, 1993). A core argument of this dissertation is that ritualized public events, associated with massive sunken court structures like Huaca Soto, played an integral role in this transition.

This chapter provides a theoretical framework for modeling this transformation. My argument approaches political and economic change as an outcome of processual social evolution (Marcus 2008; Spencer and Redmond 2001; Flannery 1995). Within this paradigm,

theories for the emergence of social inequality typically take one of two approaches – 'managerial' models that view promotion of elites as a communal strategy for risk management, and 'political' models that focus on how would-be leaders deploy economic, ideological, and martial strategies to attract followers and achieve sustainable social power (e.g. Drennan 1996; Earle 1987, 1997; Blanton et al. 1996; Hayden 1995). Taking the position that both approaches are underpinned by the more fundamental issue of aggregate interests and collective decision-making, I turn to recent research in economic anthropology that examines political complexity through the lens of cooperation and coordinated action (Carballo ed. 2013; Carballo et al. 2014). Insights from evolutionary game theory and quantitative biology suggest that pro-social economic behavior can emerge and remain stable through several mechanisms – including reciprocal exchange, indirect reciprocity (reputation), and altruistic reward and punishment (Bowles and Gintis 2011; Salgado et al. 2014; Henrich et al. 2001, 2010; Novak 2006; Gintis et al. 2003; Ostrom 2000). These mechanisms bind multiple smaller social components – such as a collection of households – into larger economic communities whose competitive success is based on their ability to produce per-capita surpluses (Stanish 2004; Roscoe 2009). A very effective way of achieving this is through incipient divisions of labor. However, such specialization is fragile in societies where cooperation is based entirely on persuasion and voluntary acquiescence. This risk is mitigated by the development of ritual institutions, wherein nascent leaders (ritual specialists) publicly guarantee fair redistribution of surpluses, communicate expected social norms, and negotiate, contest, and mediate visible status relationships (Stanish 2013; Bell 1992). It is unsurprising, then, that archaeological case studies from across the pre-Columbian Andes demonstrate a strong coevolution of ritual institutions and emergent political complexity (Rick 2005, 2008; Kantner and Vaughn 2012; Chicoine 2010; Hastorf 2007; Klarich

2005; Beck 2004; Stanish 2003). Because ritual architecture and events index major changes in political and economic structure, these are powerful contexts for investigating long term changes in social organization (Moore 2005, 1996a).

Political Complexity and Evolutionary Process

Anthropological archaeologists use evolutionary models to explain why the organization of human societies changes through time into forms that are different than their predecessors (White 1959; Sahlins 1960; Parsons 1966; Flannery 1972; Richerson and Boyd 1978; Dunnell 1980; Spencer 1997; Blanton and Fargher 2008; Carballo ed. 2013). Organizational change is envisioned as an adaptive response to fluctuating social and material conditions within a circumscribed landscape composed of limited resources and competing groups. There is ongoing and healthy debate over the extent to which the processes of biological and sociocultural evolution are comparable, whether sociocultural evolution can (or should) follow strictly Darwinian paradigms, and whether modern evolutionary approaches are compatible with traditional processual archaeology (e.g. O'Brien and Lyman 2007; Shennan 2008; Mesoudi et al. 2006; Boone and Smith 1998). I argue that evolutionary models provide a practical framework for interpreting political and economic change in archaeological cultures that lack detailed written histories.

Modern theories on sociocultural evolution are derived from Enlightenment-era political philosophies that originally proposed fundamental 'states of nature' upon which social inequality, law, and the state were founded (e.g. Rousseau 1987[1754]; Hobbes 1985[1651]). Nineteenth century treatises by Herbert Spencer (1972 [1857]), Lewis Henry Morgan (1877),

E.B. Tylor (1871) and others prescribed unilinear and progressive models of social change in which societies passed through a series of predetermined stages. These early approaches featured an ontological teleology that measured social development as a progression from simplistic to mature forms, mimicking the growth of an organism. Typological stages were taken to be all-encompassing, explaining not only variation in political or economic organization, but also the way that societies rendered knowledge, value, and meaning (e.g. Comte (1896 [1853], Frazer 1890). Proponents viewed technology as a heritable and deterministic trait that impacted the physical human organism, family structure, and ultimately social organization (Spencer 1972 [1857]:48-49; Morgan 1977:36-37). Concerning archaeological materials, the notion that technology reflected the relative maturity of civilization is reflected in Lubbock's (1913 [1865]) designation of historical 'Paleolithic' and 'Neolithic' periods, Thomsen's categorical 'Bronze' and 'Iron' ages (Daniel 2013 [1943]), and later in Childe's 'Neolithic' and 'Urban' revolutions (Childe 1936). This Spencerian view of organizational change remained central to evolutionary archaeology well into the late 20th century (Freeman 1974:214-215).

Modern evolutionary paradigms stand in stark contrast to these 19th century models. To begin, they consider only particular aspects of sociocultural change. For example, Flannery and Marcus separate 'cultural' evolution (beliefs, values, and norms), ethnogenesis, styles of art and architecture, language, and kinship terminology from 'social evolution' – the process by which the sociopolitical organization of a given community changes through time (Flannery 1995:3-4; Marcus 2008:252). Stanish (2003:18-19) further distinguishes social evolution to mean the evolution of political economy – defined for purposes of this dissertation as the measurable production, exchange, and distribution of wealth as it relates to the allocation of decision-making power. In this view, 'complexity' is a feature of political and economic organization.

Second, comparison of field data from around the world demonstrates that political complexity emerges through multiple intersecting 'pathways', rather than a unilinear process (e.g. Drennan and Petersen 2006; Hayden 1995; Earle 1987). Classic 'prime-mover' models are long recognized as shallow and context-specific explanations for political and economic change (Flannery 1972). It follows that technological innovation alone is no longer an adequate mechanism for the emergence of political complexity. For example, decades of research on complex hunter-gatherer societies overturn the long-embedded notion that agriculture is an absolute pre-requisite for heritable social inequality (see Arnold et al. 2016; Hayden 2005; Marquardt 1985; Prentiss and Kujit eds. 2004). This and other specific technologies can indeed be instrumental to the rise of incipient elites, but only because would-be leaders are able monopolize or manipulate these technologies in ways that are useful or desirable to followers (Arnold 2007; Eerkens 2009). Because the relationship between would-be leaders and aggregate interests can play out in numerous ways under different social and material contexts, modern anthropological archaeology defines social evolution as a *multilinear* phenomenon. This is not only vital for explaining the emergence of political complexity, but also the enormous amount of horizontal variability observed between early complex societies.

Third, political complexity is neither inevitable nor progressive. Complex societies invariably fragment into demographically smaller and comparatively de-centralized entities. In 'collapse' scenarios, elite lineages fail, hierarchical relationships are dismantled or rearranged, and economies of scale diminish (Masson 2012; Schwartz and Nichols eds. 2010; Butzer 2012; Tainter 1988). This notion that societies undergo iterations of political centralization and de-centralization, referred to as *cycling*, is now recognized as a key tenet of social evolution (Gavrilets et al. 2010; FMarcus 1992). In some cases – such Guatemala's Mirador Basin during

the Mayan Preclassic – polities may fluctuate between state-like systems with a coercive tribute base, to ranked societies in which leadership is more fluid (Marcus 2012). In others, for example, southern Indiana (USA) during Late Mississippian collapse (ca. 1500 CE), vertical hierarchies may disappear entirely for a time, only to reappear later among the same populations (Pollack 2004). Cycling may take place over long timeframes recognizable only in the archaeological record (e.g. Marcus 1998), or at regular and rapid intervals. Take for example the Kachin of highland Myanmar, for whom alternating hereditary and achievement-based leadership systems cycled frequently enough to be remembered by community members and the process itself observed by ethnographers (Leach 2004 [1959]; Flannery and Marcus 2012:191-199). Cycling makes clear that political complexity is not a 'goal' of social evolution, but rather one outcome in an ongoing and active process of change.

Finally, rather than 'stages' of social evolution, modern processualists view typology as an imperfect heuristic device. Given that archaeology is an inductive science that relies on comparison to illuminate general social processes (Stanish 2008:1361-1363; e.g. Smith ed. 2012), those who defend the use of social typologies point out the need to carefully select appropriate analogs when juxtaposing archaeological or ethnographic cases (e.g. Marcus 2008:252-253; Flannery 1995; Service 1962, Fried 1967). From the perspective of proponents, it is no more problematic to lean on artificial heuristics as short-hand for describing degree of political centralization (e.g. 'bands', 'autonomous villages', 'chiefdoms', 'empires', etc.) than it is to use artificial heuristics to compartmentalize horizontal variability – for example, in describing leadership strategies as 'martial', ideological', or 'economic' (i.e. Earle 1997). Counter arguments, however, suggest that vertical typologies compress meaningful differences between societies, posit unsupported similitude between cases, and relegate some societies to

unfounded 'transitional' status (Feinman and Nietzel 1984; Pauketat 2007; Peregrine 2012:166-167; Eerkens 2009:74). Regardless which position one takes, I argue that the processes underlying political and economic change are ultimately the same.

Drivers of Organizational Change

Given that social evolution is neither unilineal nor progressive, a theory for the emergence of political complexity must include a mechanism through which *variability* is generated. This includes vertical variability (degrees of political and economic centralization) as well as horizontal dimensions (organizational diversity between any two societies with similar degrees of political and economic centralization). In the late 20th century, archaeologists entered into a debate concerning the degree to which this variation is *directed* or *undirected*. One group, characterized as 'selectionists', favored a direct application of Darwinian paradigms to explain sociocultural change. They argued that individual behaviors (cultural 'traits') are constantly produced in an *undirected* fashion and are selected against based on fitness within a competitive environment (Dunnell 1980; Broughton and O'Connell 1999; Cardoso 2003). It follows that political and economic organization is a higher-order function that shifts through time as particular traits rise or fall within a population. In contrast, a more commonly held approach takes biological evolution as an approximate but imperfect analogy for sociocultural change (Spencer 1997). These models suggest that variation is strongly directed by individual decision-making rather than immutable behavioral traits. Human actors promote their own interests, create innovative solutions to social and material problems, and use available opportunities to negotiate status and standing. In doing so, they constantly and actively experiment with novel forms of

organization and contribute to the survival, modification, and rejection of existing ones. This processual perspective is summed up by Charles Spencer and Elsa Redmond (2001):

> Processual evolutionists prefer to see culture not as a collection of traits but as a system occupied by human actors who group themselves into nested sets of organizational levels and pursue conscious, purposive strategies intended to further their own interests. The processual perspective attributes great importance to human *agency*, the capacity of human beings to take an active role in shaping many of the variant forms of their individual and group behaviors… Although processualists recognize that undirected behaviors are far from rare, they nonetheless insist that the ability of humans to design and carry out novel strategies is a major feature that distinguishes cultural evolution from its biological counterpart (Spencer and Redmond 2001: 196-197).

In short, human agents actively design organizational change in response to the conditions that affect their lives and livelihoods.

Recognizing that human agents drive organizational change, the challenge for evolutionary archaeologists is to explain how patterned inequality could emerge out of a relatively small pool of actors who are reluctant to surrender individual autonomy. While there are no truly 'egalitarian' communities (e.g. Flanagan 1989) it is generally accepted that small-scale societies favor social norms that prevent acute disparities in wealth or decision-making power (Angelbeck and Grier 2012; Boehm 1993; Woodburn 1982; Cashdan 1980). Anthropologists in the late 20th century proposed two avenues by which societies could overcome this hurdle. The first suggests that community members actively raise leaders to power for a shared benefit ('managerial' models). The second suggests that ambitious individuals promote themselves through a variety of strategies in order to capture and sustain social power ('political' models) (see comparison in Roscoe 2013:57-58; Drennan 1996:31; Eerkens et al. 2009:8-9; Earle 1987:291-298; Smith 1992; Gilman 1981). A third set of perspectives combines common-benefit and aggrandizer approaches or allows them to be deployed under different circumstances. For example, 'dual-processual' models posit alternating 'corporate' vs. 'network'

modes of social integration (i.e. Blanton et al. 1996; Renfrew 1974) that essentially place managerial and political models at two end of a continuum. The overwhelming majority of processual models for the emergence of political complexity fall into one of these three camps.

'Managerial' or 'voluntaristic' approaches focus on the promotion of leaders as an active, communal strategy for managing risk or coordinating a net collective gain. While subjects cede some degree of autonomy, they reserve the ability to dismiss ineffective or overreaching managers. Take this summary description from a major volume on the evolution of leadership:

> Thus, for non-leaders, the organizing skills of leaders and the benefits that come from group-level coordination (for example, communal hunting, trading, socializing opportunities at organized social events, or increased efficiency in craft production) may justify some loss in equal distribution of resources and decision-making power. At the same time, in most societies, non-leaders often maintain the means to sanction and/or remove leaders who overextend or abuse their powers, by voting them out of office, using magic or witchcraft to rein them in, or even banishing or executing those with despotic predilections (Eerkens et al. 2009:8).

A managerial approach is useful for modeling emergent complexity under stress conditions that pose a general threat to many group members and therefore strongly galvanize collective interests – for example resource scarcity, geographical circumscription, and rising inter-group competition (i.e. Carneiro 1970; Keeley 1988). One example is the broad allocation of authority to martial leaders under conditions of perpetual conflict (Gibson 2011; Dye 2009; Arkush 2008). This relationship between warfare and emergent leadership is managerial specifically with regards to defensive coordination. For Paul Roscoe, only defensive warfare brings together total community interests and bridges internal factionalism:

> Among the Yangoru Boiken [East Sepik, PPNG], subjects of my own fieldwork, the warriors of a village *never* combined to mount an attack: offensive actions were the precinct of a clan – or, more commonly yet, a sub-clan – if only because terrain and vegetation restricted the viable size of ambush parties and because the interests motivating attacks were never shared be every village member. Defensive actions, by contrast, *always* brought forth united village

> action: in the event of an attack, every capable village male rushed to defend those in jeopardy, while every available woman snatched up children and valuables and sought safety (Roscoe 2013:63, emphasis in original).

Under favorable conditions communities may cede additional powers to defensive leaders. Leaders may gradually accumulate power, but always at the behest of the communities they serve.

Managerial models are also typically invoked in cases where long-term maintenance of crucial subsistence infrastructure is vital to group survival (Earle 1980; Peebles and Kus 1977; Service 1975). Early shades of this theory stem from Wittfogel's (1956) 'hydraulic hypothesis'. Today, rather than despotic control, administration of irrigation-related tasks is envisioned as a bottom-up affair in which managers serve at the behest of the wider community. For instance, Matthew Davies (2009) suggests that water management in early Mesopotamia indeed promoted new power structures, but under the strict control of 'corporate' institutions rather than aggrandizing authoritarians:

> Agricultural intensification would, however, have necessitated complex decision-making and corporate assemblies or councils may have been established. While individuals may have risen to temporary prominence within this system… social inequality may have remained relatively informal and fluid (Davies 2009:30)
>
> I argue that what [Wittfogel] got wrong was not that the requirements of irrigation management lead to new forms of authority… Rather, what he misunderstood was that these forms of authority should be, in any way, hierarchical or, to use his own term, 'despotic' (Davies 2009:30-31).

Rather than seizing control over a populace as fully-developed warlords or water despots, managerial elites serve the interests of corporate communities. Over time and under the right conditions, the accumulation of management roles by effective leaders could lead to stable decision-making hierarchies that were costly to dislodge.

The second set of approaches, called 'political' or 'control' theories, suggest that self-interested aggrandizers exploit favorable circumstances in order to establish sustainable power over community members who are otherwise unwilling to cede individual autonomy. Unlike managerial models, control theories focus on the cost that would-be leaders must overcome in order to bypass egalitarian leveling mechanisms. In these scenarios, aggrandizers make themselves a viable, attractive, or necessary leadership option by manipulating the economy to taking advantage of the wants and needs of fellow members:

> The alternative theories used to explain the evolution of chiefdoms emphasize the way elites emerge by controlling the economy. Control derives from differential access to productive resources… and/or to exchanged wealth, both of which permit the channeling of energy flows… and control over labor… In this light, the evolution of social complexity is seen as dependent on the mobilization and use of surpluses to finance the emerging elites and their associated institutions. Emerging leadership, limited to a small fraction of the population, carries advantages of respect, reproductive success, and increased living standards. Competition for the positions of leadership requires a maximizing economic ethic; the coming to and retention of leadership require the careful marshalling of support derived from prestige and the implied differential access on which it is based… (Earle 1987:294).

In addition to conditions of scarcity or circumscription that threaten group survival, political models operate under surplus conditions that are *favorable* to community survival. Hayden (1996) points out that resource abundance allows would-be leaders to create debt obligations among followers through the coordination of feasts, time-sensitive 'loans', and heavy gifting. For him, stress conditions alone are insufficient to explain the first appearance of social inequality:

> Thus, I am convinced that initially, the recognition of ownership claims, restricted access, and unequal wealth must be based on normal subsistence conditions in which surpluses can be reliably generated. I have gone on to argue that these surpluses can most profitably be employed to control the wealth and labor of others via competitive feasts… however, other simpler means of using surpluses also exist, including individual loans, direct exchange, and the pursuit of economically profitable social goals such as multiple marriages (Hayden 1996:55-56).

This perspective is rooted in the assumption that exchange relations both actively serve individual self-interests and, in the long run, aid community solidarity by weaving together group members through debt obligations – a paradigm formalized by Marcel Mauss (1990 [1950]). However, what is 'exchanged' between leaders and followers is not simply limited to physical commodities, but can also be described as an exchange of 'risk' – for instance, participation or leadership of martial activity, or by making oneself responsible for cosmological and natural phenomena as an ideological leader. Because political models can unfold through a variety of 'pathways' – martial, economic, or ideological being three key distinctions (Earle 1997) – they are useful for describing the great degree of horizontal variability observed among early complex societies.

Economic Anthropology and Individual Interests

Almost all processual models for the emergence of political complexity are based on managerial or political approaches. Both explanations depend on the notion that individuals have *interests*, and that the alignment of these interests is the basis of stable social cooperation. On one hand, managerial models tend to assume that the interests of community members align spontaneously, that compliance is uniform, and that individuals passively perceive the payoffs of acquiescence to be worth the risks (Roscoe 2013:57; Earle 1987:293-294). On the other hand, political models tend to over-emphasize the self-interested actions of aggrandizers. Despite jockeying for status, plying followers with gifts, and creating debt obligations, the ascendance of elites still rests on voluntarily cessation of autonomy, not wresting of it by force. That is to say, political power in non-state societies is universally *persuasive* (Stanish 2004:15, 2009:97).

Therefore, processual models of social evolution ultimately require a corresponding behavioral theory that describes how interests are communicated, negotiated, and stabilized to form successful economic communities. Economic anthropologists approach this complex process as the evolution of cooperation and coordinated action.

Cooperation and coordinated action theories draw on recent research in microeconomics and quantitative biology that focus on aggregate human decision-making and the formation of stable communities. Carballo et al. (2014) define cooperation as "actions that require individuals to incur some cost or risk associated with other individuals receiving a benefit", and coordinated action as "those in which the optimal strategy from the perspective of an individual differs from the optimal strategy viewed from the perspective of a group" (Carballo et al. 2014:100). This view holds that individuals are not automatons that react mechanically to external change, nor do they simply acquiesce in the face of aggrandizers. Rather, they compete and cooperate with one another at "multiple, overlapping, and occasionally conflicting scales of social interaction, and they often do so in ways that are inconsistent with canonical models of rationality and self-interest" (Carballo 2013:5). Modern cooperation approaches reject the notion of *homo economicus* – the idea that humans are optimizing agents driven by narrow self-interest (Papadopoulos and Urton 2012:12-14). Instead, humans are 'conditional cooperators' – they will make pro-social or pro-self decisions based on the changing material and social circumstances that confront them. One way to state this is that individuals will readily engage in altruistic acts that provide benefits to others at a real cost to themselves, what is referred to in game theory as 'irrational' pro-social behavior (Stanish 2013:86-87). This behavior is key to producing economic surpluses that allow groups to prosper in a competitive environment composed of limited resources.

Cooperation and coordinated action models suppose that a 'community' consists of individuals who may either make pro-social (altruistic) contributions to the group at a personal cost, or defect (free-ride) by paying no cost but continuing to receive group benefits. While defection always provides the largest payoff to individuals in the short term, the greatest long-term payoff is for all community members to make pro-social contributions. The challenge is to demonstrate how costly cooperation can survive and proliferate *within* a group despite the fact that defection is a better immediate strategy:

> A cooperator is someone who pays a cost, c, for another individual to receive a benefit, b. A defector has no cost and does not deal out benefits. Cost and benefit are measured in terms of fitness. Reproduction can be genetic or cultural. In any mixed population, defectors have a higher average fitness than cooperators… Therefore, selection acts to increase the relative abundance of defectors. After some time, cooperators vanish from the population. Remarkably, however, a population of only cooperators has the highest average fitness, whereas a population of only defectors has the lowest. Thus, natural selection constantly reduces the average fitness of the population… *We see that natural selection in well-mixed populations needs help for establishing cooperation* (Novak 2006:1560, my emphasis).

Evolutionary biologists, political scientists, and game theorists have identified several co-occurring mechanisms that allow cooperation to emerge and persist within a population. These mechanisms are sometimes described as a set of '*R's*' – 'relatedness', 'reciprocity', 'reputation', and 'retribution/rewards' – but may also be expanded to include a host of others, including network reciprocity, costly signaling, and parochial altruism (Novak 2011, 2006; Salgado et al. 2014; Bowles and Gintis 2011). Certain mechanisms, such as inclusive fitness or direct reciprocity, are useful for explaining pro-social behavior in contexts where all individuals are closely acquainted (i.e. households or small settlements). Other mechanisms act through the longer-term development of social norms and institutions (i.e. rewarding of altruists, punishment of free riders, public sharing of reputational information and fairness norms, costly signaling), and thus are more useful for explaining pro-social behavior among members of larger and more

diverse groups where most people will not interact regularly (e.g. Henrich et al. 2010). These mechanisms underpin trading partnerships, feasts, gift exchanges, wealth redistribution, and other forms of political and economic transaction that are traditionally the subject of classic case studies in economic anthropology.

Mechanisms for Pro-Social Economic Behavior

The most straightforward mechanism for non-kin cooperation, called *reciprocal altruism* (direct reciprocity), suggests that stable cooperation can emerge in face-to-face interactions between individuals when the likelihood of meeting again is sufficiently high (Trivers 1971). Individuals will help a partner at a cost to themselves under the expectation that the favor will be returned. Robert Axelrod famously modeled direct reciprocity as mechanism for group stability using an Iterated Prisoner's Dilemma game (Axelrod 1980; Axelrod and Hamilton 1981). Through a series of computer simulation tournaments in which participants were invited to submit strategies designed to maximize payoffs (Axelrod 1984), Axelrod determined that a group of pro-social players could establish itself, successfully resist intrusion by defectors, and thrive in a hostile landscape. Thus, for Axelrod and Dion (1988), direct reciprocity forms a self-supporting foothold:

> Axelrod… showed that even a small cluster of players who used cooperation based upon reciprocity could establish themselves in a population of non-cooperative players, and even take over such a population. Moreover, once established, the reciprocating cooperative players would be immune from re-invasion by a similar cluster of non-cooperating players. Thus, the evolution of cooperation contains a ratchet (Axelrod and Dion 1988:1386).

Reciprocal altruism is commonly observed to be a major pillar of community solidarity among small-scale societies. Ernst Fehr and Joseph Henrich (2003) summarize a constellation of cases,

ranging from !Kung *hxaro* trading partnerships that directly reduce subsistence risk, to examples of how strangers establish productive ententes during long-distance expeditions (Fehr and Henrich 2003). Direct reciprocity also can give shape to factionalism within larger communities. For example, John Patton (2000) demonstrates that Achuar men who support one another regularly in armed conflicts tend to share political alliances within the home village. One of the classic ethnographic cases for reciprocal altruism as a mechanism for structuring both inter- and intra-community political relationships is the Trobriand Kula ring, a ritualized set of exchange relationships that underpins more practical political and economic partnerships (Malinowski 1984 [1922]). Archaeologically, reciprocal altruism is commonly visible in the redistribution of wealth during feasting events, in tit-for-tat raiding behavior, through mutual contributions of labor by non-kin ('barn-raising'), and other forms of back-and-forth partnership.

Indirect reciprocity considers the role of third-party information in stabilizing pro-social behavior (Novak et al. 2000; Novak and Sigmund 2005; Pfeiffer et al. 2012). Cooperation becomes stable as the probability of knowing a potential partner's reputation increases. This mechanism is important in larger societies where individuals readily interact with many strangers and the practical limits of direct reciprocity are stretched thin:

> …often the interactions among humans are asymmetric and fleeting. One person is in a position to help another, but there is no possibility for a direct reciprocation. We help strangers who are in need. We donate to charities that do not donate to us. Direct reciprocity is like a barter economy based on the immediate exchange of goods, whereas indirect reciprocity resembles the invention of money. The money that fuels the engines of indirect reciprocity is reputation (Novak 2006:1561).

In an ideal scenario, individuals will recognize one another as having good 'standing' through the knowledge that both parties engage in productive relationships with an established third party (Bowles and Gintis 2011:68). An individual may communicate a propensity to cooperate by

adhering to a commonly held set of *social norms* (Chalub et al. 2006; Ohtsuki and Isawa 2006). Norms functions as a 'choreographer' for indirect reciprocity by buttressing against incomplete information or misinformation (Bowles and Gintis 2011:90). Trusting a potential partner because they express a set of 'morals' or 'principles' is indirect reciprocity (Brandt and Sigmund 2005).

Indirect reciprocity can be manipulated by controlling, promoting, or modifying the dissemination of social information. For instance, certain individuals may choose to make the reputations of others public as a means to discourage free-riding or promote additional contributions. This can be very straightforward, for instance in the well-known practice of 'Big Men' publicly haranguing and chastising participants over insufficient social contributions (Sahlins 1963:290; Smith 1982:511). It can also take on a positive character in the form of public praise, boasting, or grand-standing. For example, costly-signaling takes advantage of indirect reciprocity by using third-party signals to communicate adherence to a set of socially desirable principles – a form of self-promotion (Carballo et al. 2014:107). In literate societies, recordkeeping systems that extend social memory beyond the capacity of any given individual are a form of indirect reciprocity that holds free-riders publicly accountable for debts (Basu et al. 2009). Defining what counts as 'fair' behavior is crucial for indirect reciprocity to successfully promote cooperation. Public communication of fairness norms provides a standard of comparison against which actors can measure the histories of potential partners (Bicchieri and Chavez 2010). While the evolution of social norms and costly signaling can each be addressed as distinct mechanisms in laboratory or fieldwork settings (Ostrom 2000; Smith and Bird 2005; Kantner and Vaughn 2012), both ultimately act through the manipulation of reputational information.

Pro-social punishment (*retribution*) is essential for discouraging free-riding behaviors and enforcing norms that favor cooperation (Fehr and Fischbacher 2004; Boyd et al. 2003; Fehr and Gächter 2002). This is demonstrated through Ultimatum Game experiments. Given a sum, Player One chooses an amount to keep and an amount to give away to Player Two. Player Two may either accept that amount, in which case both parties keep their allocated shares, or reject it, in which case neither receives any amount. Rejecting any amount greater than zero constitutes costly punishment, as a 'rational' actor should always accept a free payoff of any amount. Anthropologists have now played this game among a variety of social groups, from citizens of nation-states, to pastoralists, small-scale horticulturalists, and modern hunter-gatherers (Henrich et al. 2006; Henrich 2000; Chen and Tang 2009; Chuah et al. 2009). These experiments conclude that while *fairness* may be defined differently depending on cultural expectations (for instance, members of some small-scale societies reject hyper-fair offers greater than 50%), all participants are willing to punish partners at a cost to themselves if they deem that partners broke norms:

> …many ultimatum game responders from advanced societies, when facing a low offer, experience an emotional impulse to hurt the proposer for being unfair, just as the subject might in a real-life bargaining situation. Similarly, the New Guinea responders who rejected hyper-fair offers in the UG may have experienced the same anxiety that emerges when somebody gives them an unsolicited gift in everyday life (Henrich et al. 2001:77).

An extreme version of reciprocal altruism, referred to as *strong reciprocity*, holds that some individuals are inherently disposed to undertake pro-social punishment even if they expect no return (Bowles and Gintis 2011:20-22, 2004; Gintis et al. 2003; Gintis 2000). This seems to work well at small-scales, but the individual costs of strong reciprocity become unsustainable in very large groups; politically complex societies typically institutionalize punishment functions (Dubreuil 2008). Opposite of punishment are *rewards* strategies. These ultimately work in the same fashion, except that cooperators receive a material gain for exceptional pro-social behavior.

Pro-social punishment and reward mechanisms are most effective when carried out publicly. Like indirect reciprocity, both depend on adequate information regarding the contributions of individuals. This is demonstrated through Public Goods games in which participants attempt to maximize payoffs in a 'tragedy of the commons' scenario (Hardin 1968). Configurations that openly reveal the identities of players and provide an option for pro-social punishment achieve greater average contributions per round than blind tests (Gintis et al. 2003:159-161, Figure 2). Such public goods scenarios have been modeled against archaeological datasets, particularly when labor for public projects is considered a 'good' subject to the game. Looking at the central Mesa Verde region between 600-1300 CE, Kohler et al. (2012) suggest that increased investment in labor-demanding projects (roads, reservoirs, defensive walls, and great Kivas), population growth, and the emergence of hierarchical elites were made possible by leaders' ability to monitor the contributions of individuals. In another example, Sarah Mathew and Robert Boyd (2011) demonstrate that Turkana cattle raiders are able to sustain pro-social participation in armed conflicts through hefty punishments for deserters or cowards. This case demonstrates how altruistic punishment permits large-scale warfare is non-state societies. Similarly, Luke Glowacki and Richard Wrangham (2013) compared data from raiding practices among ten small-scale societies and concluded that higher mortality risks among warriors were correlated with higher possibility of material rewards upon return – including livestock, slaves, wives, trophies, rights to special dress or ornamentation, and other objects. In cases of both retribution and rewards, pro-social behavior is reinforced through direct material consequences.

Scaling Up Cooperation

The mechanisms described above demonstrate how successful economic cooperation can emerge and be sustained in small groups. These models are now well established by experimental data from microeconomics and quantitative biology. One goal of economic anthropology is to determine how this basic blueprint can produce societies in which political power and decision-making become allocated in the hands of a nascent elite. Recent research by Charles Stanish (2017) and collaborators suggests that the emergence of political complexity requires several additional components, including a sufficiently competitive environment in which communities survive or fail based on their ability to create economic surpluses, rudimentary economies of scale that make surplus production more efficient, and the appearance of social institutions that bolster and maintain specialized economic roles.

Communities that secure high levels of in-group cooperation gain fitness advantages against groups plagued by free-riding. 'Fitness' is defined by the community's ability to produce a per capita *surplus*. Surpluses provide net payoffs to members and ultimately contribute to their survival and fecundity. Individuals that prosper continue to generate surplus production for the group. This process by which communities qua collections of individuals survive or fail is referred to as *group selection*. It is based on the notion that selective processes occur on multiple levels – including a genetic level, between individuals, and among communities (e.g. Wilson 1997; Wilson and Sober 1994; Spencer 2013). While individual free-riding is never entirely eliminated from a population, communities bound together through effective cooperation quickly push out less fit groups:

> A simple model of group selection works as follows… A population is subdivided into groups. Cooperators help others in their own group. Defectors do not help. Individuals reproduce proportional to their payoff. Offspring are added to the same group. If a group

> reaches a certain size, it can split into two. In this case, another group becomes extinct in order to constrain the total population size. Note that only individuals reproduce, but selection emerges on two levels. There is competition between groups because some groups grow faster and split more often. In particular, pure cooperator groups grow faster than pure defector groups, whereas in any mixed group, defectors reproduce faster than cooperators. Therefore, selection on the lower level (within groups) favors defectors, whereas selection on the higher level (between groups) favors cooperators. This model is based on "group fecundity selection," which means that groups of cooperators have a higher rate of splitting in two (Novak 2006:1561).

Stanish refers to this process as 'economic selection' and suggests that it is a core driving process behind social evolution (Stanish 2013:85). This is intuitive – communities in which members engage in greater sharing of resources, help neighbors with labor-intensive tasks, or secure effective coordination in warfare directly contribute to the survival and proliferation of fellow members and the competitive advantage of the group as a whole. This builds on the classic processualist notion that some sort of competitive circumscription is fundamental to political complexity, as otherwise people will simply disperse geographically rather than engage in more costly forms of cooperation (Carneiro 1970). In short, group selection in human communities is an arms race to develop new and more effective ways of creating economic surpluses.

In order to increase surpluses groups may simply grow larger (entrain more cooperators) or ask individuals to give 'more' for the sake of the community. However, strategies based on raw quantity of work alone eventually hit a ceiling as cooperation becomes too costly in comparison to the payoffs that individuals receive. As Stanish suggests, this problem is resolved when members commit themselves to specialized production roles that support rudimentary economies of scale (Stanish 2004). By dividing tasks, the costs of production decrease due to operational efficiencies and the total output of the community increases relative to the inputs of individual workers (Ricardo 2004[1817]:18-24; Smith 1976[1776]:8-9). Stanish points out that specialization also makes novel forms of production possible that would otherwise be too costly,

expanding the universe of economic problems that can be solved through a new ability to coordinate *en masse* (Stanish 2009:106-107). This includes labor-intensive or time-sensitive tasks, for example large-scale seasonal harvesting, construction of monumental architecture, or intensive craft production involving a rigid sequence of tasks (Stanish 2013).

However, while task specialization works well in theory, it is difficult to coordinate and maintain in practice. Individual actors have plenty of reason to be skeptical of narrow economic roles. First, they must commit themselves to a comparatively risky lifestyle (performing a limited set of tasks, rather than the full complement necessary for independent life). If the system should fail, individuals are less able to weather immediate consequences. Second, individual contributions are no longer directly comparable – for example, by what metric should a fisherman value their labor against that of a farmer, a weaver, or a shepard? Third, as communities grow large enough to benefit from a division of labor, members can no longer personally account for hundreds of reputations, interactions, and histories of fellow members (Dunbar 2011). They cannot directly observe whether all collaborators are held to similar standards, or whether surplus production is fairly distributed. In the real world, rudimentary economies of scale are only possible if members are assured that they produce fair outcomes. Compliance in this regard cannot be forced on individuals in non-state societies – people must agree to participate.

The evolution of social *institutions* helps to maintain functioning economies of scale by defining concrete behavioral expectations, maintaining a flow of assessable social information, and centralizing important management tasks (Gürerk et al. 2006; Henrich 2006). According to the Stanford Encyclopedia of Philosophy citing sociologist Jonathan Turner (1997:6), social institutions are "a complex of positions, roles, norms and values lodged in particular types of

social structures and organizing relatively stable patterns of human activity with respect to fundamental problems in producing life-sustaining resources, in reproducing individuals, and in sustaining viable societal structures within a given environment" (Miller 2014). Institutions provide codified rule-sets and time-frames that mediate individual choices to promote a collective gain. They may guide economic behavior in overt ways – such as market events that designate a specific time and place for exchanges, or scheduled feasts that serve to redistribute surpluses. They may also do so indirectly – for example, through educational or religious institutions which promote certain behavioral and economic norms (Atran and Henrich 2010; Henrich et al. 2010; Norenzayan and Shariff 2008; Weber 1991[1905]). Evolutionary and microeconomic theory suggests that such institutions can emerge in circumscribed, competitive environments when they contribute to high levels of in-group cooperation (Blyth et al. 2011; Power and Lehmann 2013). That is, they can emerge and become stable through the same bottom-up evolutionary processes that produce small-scale cooperation.

In archaeological contexts around the world, *ritual institutions* are typically the first visible social institutions to appear above the level of the household. The very early appearance of these institutions are now best known from pre-pottery Neolithic 'A' politico-ceremonial centers like Göbekli Tepe in Turkey (10^{th}-8^{th} millennia BCE) (Dietrich et al. 2012). While the specific practices and content of ritual varies widely between cultures, their role in promoting economies of scale is generalizable – ritualized public events reduce the costs of effective cooperation by providing a guaranteed 'calendar' for surplus payoffs, a tribunal and warning for cheaters, a pedestal for exceptional contributors, and a roadmap for productive economic behaviors. Stanish puts it succinctly:

> Ritual provides the framework to keep people working together consistent with game theoretic understandings of group cooperation. Ritual provides a series of benchmarks by which a cooperative group fully understands when they will receive their payoff for laboring in a specialized organization, and ritual and taboo reinforce norms of fairness and reciprocity. Ritual provides guarantees to all members of the labor organization that they will receive a fair share of their production. It furthermore provides sanctions against non-cooperators, and prescribes the social rewards individuals receive for cooperating over a long period of time. Ideology and its concomitant ritual is the social means by which a group is guaranteed the exchange of surplus wealth. This helps keep the organization viable and is an essential component of the evolution of complexity" (Stanish 2013:91).

In Stanish's model, the 'ritualized economy' operates through select individuals who oversee certain kinds of decision-making. From an economic perspective, ritual specialists are simply another form of labor specialization. Centralization of certain activities – surplus redistribution, public communication of fairness norms, execution of punishment functions, and rewarding of extraordinary contributors – is crucial because these tasks are exceptionally costly when spread across an entire population. It is much more efficient for community members to surrender some control over their labor to 'managerial elites' and hold them accountable for fair redistribution of payoffs than it is for members to coordinate complex economic tasks as a group (Stanish 2009). In turn, emergent leaders benefit from this process by gaining the ability to manipulate surpluses in ways that allow them to accumulate real wealth, augment their personal status, and establish new economic ties.

At this point, aggrandizing behaviors may help to maintain authority positions or expand leadership roles over time, but only so far as it provides the group with a competitive advantage and is perceived as fair. This is the secure foothold for would-be leaders to begin amassing greater decision-making power and economic advantage as described in classic political models. From this perspective, the move from ad-hoc leadership to permanent elites is an organizational innovation that proves successful in certain social and material environments.

Ritual Institutions and Political Complexity

'Ritual' invokes a wider set of questions in the social sciences and humanities regarding what ritual *is* and what it *does*, the relationship between ritual practice and social change, and how individuals experience ritual, use it as an arena to negotiate status, and communicate within it (for comprehensive treatments see Bell 1992, 1997; Fogelin 2007)[24]. This body of work extends well beyond the scope of this dissertation, and my engagement with it is limited to archaeological applications that address the development of ritual institutions in relation to the emergence of political complexity (e.g. Marcus and Flannery 2004). I am interested in what may be termed 'public' or 'political' ritual, which for purposes of this argument I define as a *group-oriented, non-quotidian event that is defined in opposition to vernacular experiences of time, place, and social membership*.

There are clear epistemological limitations to interpreting ritual practice in non-literate archaeological cultures like Paracas. To start, certain metaphysical principles and phenomenological experiences associated with religious ritual will always be beyond our reach:

> 'Thick description' is to be desired and striven for as much as possible but the true answer is that we need to recognize the existence of numinous and irreducible elements as well. In doing so this is essentially providing the necessary recognition that elements of the archaeology of religion are metaphysical by definition. Unfortunately, with much of the archaeology of religions we will never get at its essence, no matter how long we boil the pot, because it is in the mind, it defies rationality, and the best-meant assertions of cognitive processualism aside, it will remain elusive (Insoll 2004:150).

[24] Catherine Bell's spectacular comparative work on ritual practice and her concept of *ritualization* are fruitful ground for theorizing the relationship between ritual and social structure through the lens of practice theory (Bell 1992). A fair treatment of Bell's thinking and its role in the wider body of ritual studies would merit a chapter in its own right. For now, suffice to say that ritualization as a social process does not counter or contradict Stanish's 'ritualized economy' model.

Second, unlike ethnographic case studies that yield outstanding personal narratives and explanations of ritual behavior (e.g. Geertz 1957, 1973; Turner 1966), historical approaches that expose the cosmologies underpinning religious and practical rituals in ancient states and empires (e.g. Muhlestein 2008; Riggs 2010; Porter 2004), and ethnohistoric accounts that allow for a close reading of ritual contexts from late antiquity (e.g. from the late pre-Columbian Andes: Bray 2009; Bauer 1992), Paracas is knowable exclusively through the material record. Nonetheless, the material aspects of ritual practice can expose important economic and political developments in very direct ways – for example, new forms of ceremonial architecture that indicate coordinated labor pools above the level of the household, the appearance of non-local high-value ritual paraphernalia in ceremonial events that suggest stable trade relationships with distant areas, redistribution of goods at ritualized public events, or the appearance of new craft goods that bear the image of ritual specialists. With this in mind I follow Marcus and Flannery (2004), drawing on the work of Roy Rappaport (1971), who distinguish 'ritual' as a materially-assessable object of analysis separate from the 'ultimate sacred propositions' and 'religious experiences' that intertwine with it.

Understanding the relationship between the evolution of Paracas ritualized public events and wider changes in political and economic organization is made possible by comparison with other archaeological case studies. These cases must be carefully selected. Specifically, we should avoid juxtaposing the Paracas case with historical world religions. In the first place, not all ritual is 'religious' (Renfrew 2007:110; contra McCauley and Lawson 2007). Indeed, non-religious events can have ritual-like features that indeed influence political and economic life – for instance political rallies, professional sporting matches, or academic conferences (Bell 1997:164-165; 2007:287). In the second place, proselytizing or state-oriented religious institutions

articulate with political and economic structure in markedly different ways than so-called 'religion' in small-scale non-state societies. American Southwestern archaeologist Severin Fowles suggests that comparing ritual to religion in this sense is an apples-to-oranges scenario, and calls for an anthropological 'separation of church and kiva' (Fowles 2013:237). Within the Andes, this means avoiding generalizing comparisons between Paracas and the late Inca Empire and its contemporaries (ca. 1,500 – 2,000 years later) (Moore 2005:5). Trying to interpret Paracas ritualized public events through the lens of Inca ethnohistory would be akin to using Protestantism as a basis for understanding ritual practices in late Bronze Age Europe, or using Islam to interpret the public ceremonialism among the Achaemenids. Instead, appropriate comparisons will come from other small-scale, non-state, and non-literate societies. When possible these cases should come from the Formative Andes (e.g. Moore 1996a)

Next, it is vital to approach Paracas ritual practice as an *event*, marked by a distinct time and place, rather than something constant or omnipresent. For Rappaport, rituals are "performed in specific contexts, that is, they are regularly repeated at times established by clock, calendar, biological rhythm… or defined social circumstance, and often they occur in special places as well" (Rappaport 1999:33). Although the phasing of events may vary significantly – they may occur in ad-hoc circumstances such as when non-sedentary groups band together in periods of abundance (Marcus and Flannery 2004:18257), at seasonal or 'calendrical' intervals such as harvest feasts or in accordance with astronomical phenomena (VanDerwarker 1999; Stanish et al. 2014), or over fairly long term time-frames such as pilgrimages (Kantner and Vaughn 2012; Silverman 1994b) – all events involve some aspect of specific timing that sets ritual apart from everyday temporality (Marcus 2007:44-48). Similarly, ritual involves some sort of distinct geographic setting. While this also varies widely – from natural landscape features, to dance

grounds, entire processional routes, and dedicated 'temples' – the fact that ritual evokes place "whether understood as sacred, dangerous, timeless, polluting, socially domesticated or organically animate" is key to its identification in the archaeological record (Swenson 2015:338). That ritual institutions produce a sequence of discrete, materially observable moments in time and space allows for an 'eventful archaeology' – the use of events as the basic unit of analysis for investigating long-term change in social structures (Beck et al. 2007; Sewell 2005).

Next, I approach Paracas sunken court events as both *public* and *non-quotidian.* These qualifiers are closely linked. By non-quotidian I mean that ritual stands apart from daily practice, precisely because it involves the congregation of a large group of people that otherwise may not interact at regular intervals. This provides a formal distinction between the daily experience of living in a household or among a smaller group of associates, and the social reality of living in a larger community (Handelman 1990:11-12)[25]. Public events confront people with the fact that they inhabit a much broader social world upon whom they might call upon or be accountable to. From the perspective of evolutionary game theory, the public nature of ritual is necessary for the transparent redistribution of wealth, successful communication of fairness norms, and social punishment/rewards functions that underpin rudimentary economies of scale in non-state societies (Stanish 2013). Availability of public information, as conceived in public goods games, is the most effective way to maximize pro-social contributions and minimize free-riding tendencies (Gintis et al. 2003:159-161). One clear example of this principle in action are feasting events in which information, staple goods, and wealth objects are distributed by managerial elites as a means to broker political consensus (Pauketat et al. 2002; Dietler and Hayden 2001). Feasts

[25] While there is a robust literature concerning domestic rituals and household commensality in the archaeological record, this phenomenon has different implications for cooperation and is beyond the purview of this dissertation.

are powerful political and economic tools precisely because they are special occasions open to broad participation – there can be no guaranteed fairness if all redistributive activities are conducted behind closed doors.

The key for archaeologists is that the design logic of public events will reflect the changing political and economic structures of specific communities (Handelman 1990:7). By 'design logic' I mean the specific organization of space, timing, and material exchange that reflect the how participants interact with one another during the event. We can explore design logic by using descriptive fields for ritual activity defined by Catherine Bell (1997). These fields are: 1) *formalism,* 2) *traditionalism,* 3) *invariance,* 4) *rule-governance,* 5) *sacral symbolism,* and 6) *performance* (Bell 1997:138-169). Amanda Cohen (2010) and Jerry Moore (2005:129-131) have operationalized these variants for use in the archaeological record, specifically to explore the evolution of ritual architecture in the Formative Andes. A brief discussion of some of these factors demonstrates how each may index social change. These are thoroughly intertwined, and there is substantial overlap between them.

Formalism distinguishes ritualized activity from daily life via a restricted set of social and material codes (Bell 1997:139-140; Moore 2005:129; Cohen 2010:25-36). At its most fundamental, formalism is evident in the separation of ritual architecture from daily realms of community life, the cleaning and careful maintenance of these structures, and in certain non-quotidian activities that distinguish ritualized places from households. As political centralization and social inequality increases, new formalized distinctions will appear regarding the role of ritual specialists and non-elite participants. This is archaeologically visible when access to certain parts of ritual architecture becomes *exclusionary*. For Marcus and Flannery (2004), the long term evolution of public ritualized events in Oaxaca, Mexico (over ca. 5,000 years)

demonstrates this process. In the Archaic Period (8000-2000 BCE), nomadic family bands converged at sites like Gheo-Shih at prosperous times of year, where they held ad-hoc ritual events in open 'dance grounds'. In the Formative Period (3100-2450 BCE), with the appearance of ranked societies and an emerging elite at sites like San José Mogote, ritual events took place within raised and enclosed temples that clearly raised the visual profile of the structure but limited the actual number of attendants at any one time. Finally, the rise of the early Zapotec state witnessed the construction of two-roomed temples that gave permanent priests exclusive access to inner sanctums. In this very long-view (ca. 5,000 years) the intensification of permanent leadership is paralleled by the rise of spatial exclusion in ritual places.

Formal organization of space also points to the specific roles of ritual specialists. Moore (2005) codifies the relationship between ritual architecture and authority in a dozen small-scale South American ethnographic cases. He demonstrates that 'shamans' – ritual specialists whose authority is based on an individual ecstatic experience – typically operate in less formalized structures (community plazas, men's houses, or homes) that allow for personal consultation and high visibility of the shaman's ecstatic performance. On the other hand, canonists – permanent leaders trained to draw on an established body of specialized knowledge – are associated with permanent, highly visible, and often monumental structures that stand apart from the settlement. Moore then applies this distinction to fifteen ritualized structures from the Formative Andes. He concludes that structures emphasizing axial procession and an increasing distance between ritual specialists and participants indicates management by canonical specialists (e.g. Cerro Sechin, Pampa de las Llamas Moxeke, Cardal, and Garagay) (Moore 2005:116). While Moore interprets this distinction as different 'perceptions of religious authority', he also makes clear that the presence of canonical specialists implies some sort of specialized political roles (Moore

2005:118-122). The further work of Stanish and Haley (2005) suggests that large corporate architecture capable of communicating a shared set of norms (Moore's 'canonical' form) is indicative of larger scales of economic cooperation.

Traditionalism is the tendency for ritual events to "call on past practice to make present acts consistent with cultural precedence" (Moore 2005:129). Communities can structure ritual space and practice to reflect strict continuity from a real or imagined past, but they can also promote a new order by overhauling existing structures. Andean archaeologists are familiar with the former practice from the perspective of expanding states like Wari and Inka, who tapped into established regional centers like Pachacamac, or the Islands of the Sun and Moon in Lake Titicaca, to legitimate power among a local populace (e.g. Kaulicke 2000; Bauer and Stanish 2001). For non-state societies, Cohen (2010:36-37) suggests that we can observe traditionalism in the conservation of specific architectural styles over many reconstruction events, particularly if this can be contrasted against changes in vernacular architecture. This is already clear in the Paracas case of upper Ica, for example in the long-term reconstructions at Cerrillos that preserve an original staircase-and-room layout over centuries while outlying villages vary geographically through time (Wallace 1962; Massey 1986). Purposeful continuity is also notable for major Initial Period sites on the central coast, for example Cardal, where core architecture was faithfully reproduced for centuries (Burger and Salazar-Burger 1991). Even with the addition of new flanking structures, central sunken courts remained the chief features of processional events. This indicates strong ideological continuity that at the very least preserved the relationship between participants and ritual authorities through time (Burger and Salazar-Burger 1991:292).

While traditionalism can project continuity as a means to strengthen existing authority systems, it can also be purposefully undermined as a means to counteract a dominant social

order. For example, Edward Swenson (2008) suggests that the non-standardized and heterogeneous arrangement of ritual space in rural Moche V communities in the Jequetepeque Valley indicates purposeful 'disjunctive' behavior as an active strategy by local communities to differentiate themselves from the state elite. For processual archaeologists, this may be useful for approaching post-collapse scenarios where a settlement landscape quickly becomes filled with a host of newly competing small-scale groups.

Sacral symbolism is the notion that rituals "connect participants to larger cultural themes generally considered to be outside or greater than an individual's corporeal or commonplace existence" (Moore 2005:130). This is a matter of communicating broader culture-scapes through symbolic media. Cohen (2010) recognizes this connection in the layout of ritual structures to specific cardinal orientations, the articulation of structures to a wider ritualized landscape, or more complex or abstract references to cosmological principles like dualism (Cohen 2010:37-38). I would argue that exposing participants to non-local high-value goods that index relationships with far off locations is another way to do this. One of the most common vectors for communicating sacred symbolism is through the creation and disbursal of iconography that depicts and naturalizes newly minted leadership positions. For example, John Rick (2005) considers the depiction of ritual specialists in the architecture and art of Chavín de Huántar and how the manipulation of these images may have been used to modify the experience of visiting pilgrims. He suggests that several relief carvings of ritual specialists at Chavín are indicative of shamans in ecstatic states, reflecting a direct connection between current leaders and earlier traditional ritual practices that preceded the major Chavín cult. Combined with a finely-tuned ritual event involving "landscape, architecture, decoration, light, sound, [and] drugs", these images promoted "a world of differentiated humans of intrinsically different qualities, among

them authority" (Rick 2005:87). In short, the appearance of imagery that naturalizes the positions of elites is evidence that those elites are gaining greater and more permanent authority over economic contributions. In the case of Paracas generally, the appearance of half-person half-animal beings in Late Paracas (Necropolis) textiles accompanies rising political complexity.

Finally, ritual architecture offers a context for *performance*, the "public, self-aware, and deliberate acting out of symbolic behaviors" (Moore 2005:130). This involves defined roles for performers and audiences, which is accessible archaeologically by considering the proxemics of ritualized space (Moore 1996b) – where are the performers in relation to the audience, and what kind of information does this allow them to convey? This may involve concealing certain aspects of ritual practice from all or part of an audience, utilizing specialized paraphernalia for emphasizing sensory performances (such as instruments, hallucinogens, or other sensory manipulations), or emphasizing performance as something that is experienced through movement – for example, by processing through a structure (Cohen 2010:40). We can trace the relationship between performance and rising political complexity by looking for evidence that certain vital paraphernalia become closely linked to ritual specialists. In the case of southern California's Chumash communities, ritual specialists (who served as permanent elites) had near exclusive access to both specialized ritual paraphernalia (deer tibia whistles) in restricted access spaces (*siliyik* or *naxayilkis* ceremonial enclosures) (Hollimon 2004). These relationships between exclusive paraphernalia and space may be archaeologically detectible, and thus could be used to trace the emergence of intensifying permanent authority over time.

In Summary

In this chapter I have summarized a current approach to social evolution that structures the discussion in this work. Within this paradigm, 'managerial' and 'political' models provide proximate explanations for the emergence of political complexity. Recent research demonstrates that these are ultimately underpinned by more fundamental microeconomic processes. In this regard, several interacting mechanisms are crucial for securing stable economic cooperation among non-kin groups, including r*eciprocity*, *redistribution, retribution* and *rewards* (Carballo 2013). These mechanisms can be manipulated to entrain larger amounts of pro-social behavior and provide for stable economic cooperation within a competitive environment. Following the work of Stanish, the scale of cooperation can be increased through the development of incipient divisions of labor. The evolution of ritual institutions and 'managerial' elites stabilizes these economies of scale. Ritualized public events provide an opportunity for participants to demand and observe that fairness norms are upheld, to share information on the reputations of potential economic partners and the suitability of would-be leaders, to identify free-riders and altruistic contributors, and to ultimately measure whether they stand to benefit from continued investment and cooperation. Thus for archaeologists, public ritual is a dynamic event that indexes political and economic change.

As the co-evolution of ritual institutions and political complexity is clear, it is reasonable to hypothesize that the appearance and evolution of massive sunken court structures in Chincha is integral to the emergence of Paracas political complexity. Excavation of Chincha's monumental sunken court structures – including 20th century expeditions (Chapter 4), PACH work at Cerro del Gentil and El Mono (Chapter 5) and the author's research at Huaca Soto (Chapters 7-9) – allow us to test this hypothesis.

Chapter 4: 20th Century Research on Paracas in Chincha

Twentieth century researchers identified more than a dozen Formative Period sites with monumental structures in Chincha and proposed that the valley played a key role in the development of the Formative south coast. Prior studies include chronology-building and survey programs that visited Chincha as part of regional-scale projects (i.e. Lanning 1960, Wallace 1971, Engel 2010; Canziani 1993), architectural assay and investigation of visible surface features (Canziani 1992; Wallace 1985, 1986), and studies that excavated in Paracas sites (i.e. Isla 1992, Velarde 2006; Bendezú 2008). Data generated from these projects provided a foundation for PACH investigations and remain crucial for understanding the local-scale evolution of Chincha's Paracas communities.

Chincha and the Peninsula Cemeteries

Chincha's role in the Paracas phenomenon was brought to the fore immediately upon discovery of the Peninsula cemeteries. Tello first raised the question of whether Cavernas and Necropolis populations inhabited the Peninsula zone, or were brought in from elsewhere. He took the former view, basing his theory on what he interpreted as domestic refuse scattered throughout the Wari Kayan burial zone, as well as lack of known Paracas settlements elsewhere at the time (Tello and Mejia 1979:77-78; Carrion Cachot 1949:58). Likewise, Engel (1966) estimated that thousands of Paracas residents occupied a permanent settlement at Arenas Blancas, an area adjacent to the Necropolis cemeteries. This hypothesis reflected his interest in the lives of littoral communities from the peninsula zone.

Taking an opposing view, many scholars suggested that Chincha and Pisco were the sources of the Peninsula dead. Eugenio Yacovleff and Jorge C. Muelle argued that the Necropolis burials were residents of vast Paracas communities in these valleys (Yacovleff and Muelle 1934:65-67). They based their theory on the peninsula's inability to support a permanent settlement large enough to furnish the lavish Necropolis burials, and they suggested that the peninsula's arid desert environment did not offer freshwater and agricultural resources suitable for anything beyond small beachside fishing villages. They also suggested that the peninsula's relentless southwestern simooms made it uninhabitable for large parts of the year. Kroeber found this hypothesis reasonable after visiting monumental structures in the valley and grave-mining operations in Ica. His argument was based on geographic proximity, the fact that monumental structures clearly stand out from all other known Paracas sites, and surprising lack of known Paracas mortuary contexts in Chincha compared to Ica:

> … the Paracas-Cavernas culture may be discoverable in Chincha also. The distance is all in its favor. From Paracas to Ocucaje, where Cavernas remains also occur, it is about 90 kilometers on the map; to the Huaca Alvarado in Chincha [PV57-10], barely 40; to the Rosa [Huaca Santa Rosa], at most 35. Chincha and Pisco valleys are separated by a narrow pampa, and irrigation seepage from the Pisco is the nearest water to Paracas. In fact, one might fantasy that the abodes of those who became the Paracas mummies were around the early period pyramids in the Chincha Valley. It would be, for natives, only about one day's march to the Paracas cemeteries, even with loads. Possibly this is why no very ancient graves have been found in Chincha (Kroeber 1944:35)

Kroeber was one of the first archaeologists to recognize Chincha's monumental platform structures as Paracas sites, a departure from earlier writing that focused on the valley's massive structures as features associated with the LIP Chincha Kingdom (i.e. Middendorf 1973 [1894]; Uhle 1914, 1924 [1901]; Krober and Strong 1924). His observation that Chincha lacked notable Paracas cemeteries was taken up by archaeologists working in neighboring zones. Based on evidence of Paracas domestic contexts at Cahuachi (SNR), Strong suggested that Paracas

communities in Nasca exported the dead for burial elsewhere (Strong 1954:217). And Silverman (1991:398) argues that Pisco and Chincha were the source of the peninsula burials in their final phase (Necropolis) and cites vague support for this idea from later work by Tello and Mejia (1979:261). Others draw a more direct link between Chincha and the Peninsula. Lumbreras (2008) states in no uncertain terms that Chincha was the source of the individuals buried on the peninsula and that these mortuary rituals perhaps provided a central focus for annual pilgrimages:

> Therefore, those dignitaries that Tello exhumed in Paracas would be persons originating in Chincha, residents of this valley alone, without authority over other territories, but in contact with lands as far away as Lima […] The distance between Chincha and Paracas can be covered in little time, both by land and by sea. The abundance of cotton necessary for fabricating textiles, and the ability to obtain the rare products for dying them, in addition to gold objects and non-local shells, etc., provides an explicable economic and social foundation. If we suppose that the inhabitants of Chincha celebrated their funerary rites in Paracas, in ceremonies involving a hundred or two hundred people once a year or every so many years, we would have an explanation for the impressive accumulation of domestic waste around the tombs, without the need for permanent residential structures in the vicinity (Lumbreras 2008:3, my translation).

Likewise, Moseley (1992) unites the sumptuous and image-laden peninsula textiles, the high-status persons buried in the peninsula cemeteries, and the performative opportunities offered by ritual platform architecture in Chincha to suggest that the valley was a political and ideological center of Paracas society:

> Embroidered mantles, cloaks, tunics, and headgear depict mythical creatures as well as ornately garbed humans wearing gold nose ornaments that look like cat whiskers, and carrying trophy heads as well as staves that were probably emblems of status and office. Indeed, [we] may assume that rituals based in myth were regularly acted out by Paracas elites bedecked in rich garb and ostentatious costumes that accompanied the actors to their graves… The stages for such rituals were not the necropolis, but at civic-ceremonial centers of a highly distinctive form that Lumbreras and colleagues have identified in the Chincha Valley. (Moseley 1992:162)

The cumulative logic cited by the scholars above – a unique canon of monumental architecture, dense settlement systems, high availability of raw materials, a rich subsistence base, short geographical distance to the peninsula, and lack of local elite cemeteries – makes a strong case that Chincha was a major source of the Peninsula burials. This growing assumption about the valley's relationship to the broader region drove several important projects in the valley during the mid and late 20th century. These intermittent expeditions provided the first scientifically-collected data on the evolution of Paracas communities in Chincha.

Fineware Seriation and Relative Chronology for Formative Chincha

During the late 1950s, Lanning, Wallace and John Rowe conducted a formal seriation of Paracas pottery from the Pozuelo site in the southwest corner of lower-valley Chincha (PV57-52). Pozuelo presents a series of low earthen structures, now badly destroyed, from which Wallace reported 'Chavínoid', 'Paracas' and 'Chungos' (Chongos) wares during reconnaissance survey (Wallace 1971:42). A 3 by 2-meter test unit excavated 245 cm to sterile revealed a well-stratified deposit within one of the mounds, including multiple clay floors and low wall foundations. They identified three stratified fineware phases ('Pozuelo', 'San Pablo', and 'Jahuay 3') as well as transitional strata between the Pozuelo and San Pablo layers that contained a mixture of both styles. The final phase (Jahuay 3) was intermixed with modern trash (Menzel 1971:59). Rim forms and rough photographs these wares were published in low detail (Lanning 1960: Plates XIV, XV). Menzel (1971) later provided additional descriptions for each phase and attempted to correlate the seriation with Dawson's initial four-phase Paracas sequence from Ica (T-1 through T-4) (see Rowe 1958).

The Pozuelo Style

The earliest phase, called Pozuelo, is characterized by highly burnished or polished serving wares ranging from black to brown and fired in a low-oxygen, reducing environment, as well as some burnished orangeware flaring bowls with beveled rims (Lanning 1960:413-414). Bowls are unburnished on the interior except for a small band around the rim. Design techniques include dentate rocker stamping, incised concentric circles, and broad parallel and diagonal incisions covering the exterior of open vessels below the rim. A single Pozuelo-style sherd showed evidence for post-fire resin painting in red, yellow and white (Menzel 1971:60). Brown-ware neckless ollas with thickened rims typify utilitarian wares that accompanied the Pozuelo style (Lanning 1960:415, 655). Lanning thought that the Pozuelo style shared strong decorative and technical elements with the central coast Curayacu styles; others argue for clear local antecedents in ceramics recovered from Puerto Nuevo near the Paracas peninsula (Garcia 2009). Menzel (1971:59) states that Frédéric Engel also recovered Pozuelo specimens in Formative strata at the Disco Verde site.

As described by Lanning and others, Pozuelo finewares are an 'Early Paracas' style. They share features with the Ocucaje 3 phase of the Ica sequence (Menzel et al. 1964), the 'Cerrillos' style in Ica (Wallace 1962), and finewares from Mollake Chico and Pernil Alto in Palpa (Isla 2009). A chronological parallel exists in a 'Chavínoid' textile fragment recovered "in a deep tomb (3 meters) near Chincha in the hills some 15 kilometers inland from the Paracas peninsula" (Conklin 1971:13). Conklin seems to describe something akin to the Karwas painted textiles from the Bahia de Independencia that show clear Chavínoid stylistic influence (Cordy-Collins 1976; Garcia 2009:198; Garcia and Pinilla 1995:56; Velarde 1999:65; Silverman

1996a:121), though original provenience information for this supposed Chincha fragment is vague at best. As other have pointed out (Velarde 1999:64-65), the fact that Pozuelo style ceramics have only been rigorously identified at this single site (PV57-52) remains a problem for broader interpretations on the roots of Paracas stylistic traditions in Chincha.

The San Pablo Style

The second phase in the Pozuelo sequence, San Pablo, was the most common style at PV57-52. It occurred in nearly all levels and overlapped stratigraphically with the Pozuelo style that preceded it and the Topará wares that followed it. Wallace (1972) argues that San Pablo was a local substyle specific to lower-valley Chincha, showing mixed Middle Paracas and Late Paracas (Topará) influences. 'Paracas' features include incised design elements in geometric patterns, incised spotted feline motifs, grater bowl fragments with red-slipped rims, and incision designs parallel to the exterior rim of open bowls (Lanning 1960:656, Plate XV). However, San Pablo lacks the polychrome post-fire painting common to Middle Paracas phases elsewhere. Negative decoration is scarce (Menzel 1971:62). Topará features on San Pablo style pottery include occasional white-slipping of exterior rims and some black-ware reduction firing of bowl interiors (Lanning 1960:420-423). Common forms include bowls with slightly curving bases, grater bowls, tall jars, and neckless ollas (Menzel 1971:62-63)

Both Lanning and Menzel suggested that San Pablo was contemporary with the T-3 phase of the Dawson system for Paracas in Ica, based on incised designs and vessel forms (see Rowe 1958; Lanning 1960:420). It is difficult to compare San Pablo directly with other Paracas styles given that Dawson's T-3 phase contained important typological errors, specifically the inclusion of earlier Ocucaje 3 features (Sawyer 1967), and the fact that San Pablo style ceramics

are rare outside of PV57-52. Garcia and Pinilla (1995) suggest that San Pablo is contemporary with the Cavernas tradition on the peninsula, Ocucaje 8-9 in the MRD sequence, the Paracas occupation of Tambo Colorado, and the beginning phases of the Topará sequence (Jahuay 1 and 2). San Pablo also appears to be contemporary with the Los Patos style described by Wallace in Cañete, which some argue includes a mix of Paracas and Topará elements (Wallace 1963:37-38; Lanning 1960; Menzel 1971:63). These stylistic comparisons, if verified with absolute dates, would make San Pablo a transitional style between the Middle and Late Paracas periods. The co-occurrence of Paracas Cavernas and Topará design elements on San Pablo style sherds supports this hypothesis.

The Jahuay 3 Style

The final phase of the Pozuelo seriation was identified as Jahuay 3, a style previously isolated as part of Lanning's Topará seriation. As noted in Chapter 2, this is the third phase in the Topará seriation and is followed by the Chongos style, to which it is diagnostically similar and regularly recovered from the same contexts (Lanning 1960:426). Jahuay 3 is characterized by black-wares with pattern burnished designs on the interior, as well as very thin, finely-made orange wares. All specimens are monochromes. Forms common to this style include open bowls, collared ollas, jars with anthropomorphic figures. Grater bowls and incised decoration are rare in this phase at Pozuelo, but Velarde (1999:68) suggests that Jahuay 3/Chongos grater bowls are present elsewhere in Chincha. This may be due to the fact that the overall sample size of the Jahuay 3 phase at Pozuelo was quite small (Lanning 1960:404-405). Jahuay 3/Chongos wares are most closely related to the ceramic recovered from Necropolis burials at Wari Kayan (Peters 1997:562; Tello and Mejia 1979) and the transitional period bridging Ocucaje 10 and Nasca 1 to

the south (Garcia and Pinilla 1995). Altogether this is the final Formative ceramic phase in Chincha and diagnostic of the Late Paracas period.

Pinta and Tambo Colorado

Although Lanning reports no discontinuity in the stratigraphy of PV57-52, he argues that two additional fineware styles fell between the Pozuelo and San Pablo phases; these would be parallel to 'Middle Paracas' (Cavernas) wares. The first of these, called Pinta, was identified by Wallace at the sites of El Mono (PV57-63) and Cerro del Gentil (PV57-59) in the mid-valley cluster (Wallace 1985). Pinta vessels combine zone-incision, polychromatic post-fire resin-painting, and negative resist techniques; design usually occurs on the exterior of bowls but sometimes on the interior (Lanning 1960:417; Menzel 1971:61). Both geometric and iconographic motifs are common. Bowls commonly exhibit post-fire painted bands below the external rim, with negative red 'dot' motifs covering the remainder of the external body. Bowl interiors are often red-slipped. Common forms include straight-sided bowls with curved bases, grater bowls with red-slipped interior rims, jars and neckless ollas. In terms of technical elements, Pinta specimens are extremely thin, evenly fired and completely oxidized in cross section (Menzel 1971:61). For Menzel, the Pinta style was a peripheral version of Paracas styles in Ica and Nasca (1971:62). Wallace (1985), however, demonstrates that Pinta wares have a higher density and variety of motifs in comparison to Ocucaje 7-8 wares elsewhere, ultimately suggesting a Chincha-southward flow of stylistic influence during Middle Paracas times.

Lanning also considered the post-fire painted polychromes recovered at Tambo Colorado by Engel (1957) to also be a stylistic intermediary between Pozuelo and San Pablo (Lanning 1960:423-426). The Tambo Colorado style shares a set of geometric motifs with Pinta, including

a ‘twisted cord’ design and isolated rhomboid shapes (Menzel 1971:63). Like Pinta, Tambo Colorado sometimes exhibits negative resist painting. The two share a basic color palette. Menzel argues that Tambo Colorado was contemporary with San Pablo based on the absence of certain Pinta traits, but this is easily explained by the small sample size of known Pinta and Tambo Colorado assemblages. It is entirely possible that Pinta and Tambo Colorado are the same general Middle Paracas post-fire painted styles, reported in two distinct locations.

Settlement Survey in Formative Chincha

Chincha was formally surveyed three times in latter half of the 20th century. In the late 1950s Wallace (1959, 1971) conducted the first settlement pattern study as part of a broader project focused on the northern valleys of the south coast. His dataset serves as a chief reference point in later regional syntheses (e.g. Menzel 1971; Silverman 1996a). Second, a recent compendium of Frédéric Engel’s unpublished works (2010) includes settlement data for Chincha collected by CIZA researchers and supported by site maps and photographs. Finally, members of the Instituto Andino de Estudios Arqueológicas project (INDEA) surveyed Chincha in the mid-1980s and reevaluated prior results, producing several publications on Formative and LIP settlement systems (Canziani 1993; Lumbreras 2001). While together these surveys demonstrate a density of monumental architecture unlike anywhere else on the Formative south coast, chronological phasing of these settlements was low resolution – typically only marking them as ‘Formative’ or at best ‘Paracas’ sites. Therefore, while they provide an important accounting of non-vernacular architecture, they are largely mute on diachronic development.

The Fulbright Commission Survey

Dwight Wallace surveyed Chincha and Pisco between October 1957 and March 1958 as part of a Fulbright Commission project. He gave Chincha sites the valley designation 'PV57' following the system developed by Rowe (Menzel et al. 1964:8). Chronological control relied on a set of working observations compiled from surface ceramics and irrigation cuts (Wallace 1959:32-34; 1985:69), as the Pozuelo and Ocucaje seriations did not take place until after Wallace's survey. However, in later discussion of this survey data (Wallace 1972, 1986) he reconsiders results in light of these chronologies.

Wallace initially reported 108 pre-Columbian sites in Chincha (Wallace 1959:40), later raising that number to 112 (Wallace 1971). The map included in the 1971 translated publication of his raw survey data displays site numbers up to PV57-116. Menzel (1971) states that Wallace collected additional data from his expeditions in Chincha, including aerial photographs and detailed maps, which he provided to the Fulbright Commission in the form of field reports (Menzel 1971:57), although these were not available for this review. Apart from 'Chavínoid' (i.e. Early Paracas) sherds observed at Pozuelo (the Pozuelo style), Wallace's descriptions suggest that the earliest ceramic styles in Chincha resembled vessels recovered in the Paracas Cavernas tombs at Cerro Colorado – a combination of post-fire resin painting and negative resist techniques that we recognize today as Pinta (Wallace 1959:32-33). This was followed by thin, monochrome orangewares and pattern-burnished black-wares simply labeled 'Necropolis' that we now recognize as Late Paracas Jahuay 3/Chongos wares (Wallace 1959:33). Wallace also reported post-Formative styles now recognized as Carmen ('Early Nasca'), two Estrella phases ('EIP 3-4' or 'Middle Nasca' followed by 'EIP 7', 'Nasca B', or 'Late Nasca'), Loro ('Nasca Y'), Wari ('Tiahuanacoide'), and Chincha phases I and II (Wallace 1971:2). He used an informal

typology of adobe bricks as a secondary chronological marker, linking 'maize-kernel'-shaped conical adobes to Cavernas (Middle Paracas), semi-hemispherical adobes to EIP groups, *tapial*[26] architecture to the LIP Chincha Kingdom, and rectangular adobes to Inca construction (Wallace 1970:15-16).

In all, Wallace described 20 sites with Formative components. He phased these sites in two very different ways following the original survey. Initially, he described three sites with post-fire resin-painted pottery on the surface akin to Cavernas wares, and only a single site with Jahuay 3/Chongos monochromes (the Pozuelo site) (Wallace 1971:42). He labeled the remainder simply as 'Paracas', or described them as having conical adobe architecture and a characteristic East-West orientation that we now know to be Formative features[27]. In this first interpretation, Wallace reported five large adobe 'mounds' and argued that these were Paracas Cavernas (Middle Paracas) constructions that survived into the first millennium CE (Wallace 1959:38). He did not name these monuments in his 1959 publication, but described them as ceremonial centers with a rectilinear plan, composed of three ascending platforms and aligned to an East-West axis. Wallace observed habitation debris in the area immediately surrounding some of these structures and suggested that this compact settlement type was typical of the earliest Formative phases in Chincha (Wallace 1959:38). In his initial interpretation, Paracas Cavernas 'mounds' formed at

[26] Elsewhere called 'rammed earth', *tapia* is an architectural technique whereby a mud slurry is slowly poured into a wooden mold and tamped, resulting in large solid earthen blocks. These blocks are usually poured in place.

[27] From Wallace (1971) – clearly describing Paracas Cavernas ceramics: PV57-51 (Huaca La Campana), PV57-52 (Pozuelo), PV57-63 (El Mono), PV57-103 (Huaca Limay); with Jahuay3/Chongos (Necropolis/Topará) ceramic: PV57-52 (Pozuelo); labeled simply 'Paracas': 57-8 (San Jose), 57-10 (Huaca Alvarado), PV57-21 (Monticulos), PV57-32 (Lurinchincha 17), PV57-44 (Blas Herrera), PV57-59 (Cerro del Gentil), PV57-60 (San Jose 5); describing conical adobe construction, East-West sunken court tiered platforms now know to be Formative Period architecture: PV57-9 (Huaca Partida), PV57-17 (Lurinchincha 2), PV57-25 (Huaca Soto 1), PV57-26 (Huaca Soto 2), PV57-50 (Huaca Menzies), PV57-73 (Santo Domingo), PV57-84 (San Antonio), PV57-87 (Huaca Santa Rosa), PV57-110 (Huaca Las Hoyas).

least one cluster south of the Rio Chico, within a few kilometers of the ocean. Wallace suggested that subsequent phases (his 'Necropolis' and 'Early Nasca' periods) involved new construction of large agglutinated villages on the margins of the mid-valley. He suggested that monumental coastal complexes continued to serve as major centers during this later period (Wallace 1959:39).

Wallace later reinterpreted this settlement data to suggest that Chincha was invaded by peoples from the north, thus ending the Cavernas (Middle Paracas) era and inaugurating the Necropolis/Topará (Late Paracas) tradition (Wallace 1986). Contrary to his earlier reports, he suggested that at least eight monumental lower-valley platform mounds (PV57-9, 10, 24, 26, 50, 51, 87, 103) were Late Paracas (Topará) constructions rather than Cavernas ones (Wallace 1972; 1986:42)[28]. Thus, Wallace posits two counterpoised hypotheses – the first assuming that monumental architecture is a Middle Paracas-oriented canon, and the second arguing that these same structures are invasive Late Paracas constructions. At the time of these interpretations, there was not substantial subsurface data to prove either hypothesis.

The CIZA Database

Survey notes on Chincha by Frédéric Engel (2010) corroborate Wallace's findings and add additional insight into Formative settlement in the valley. It is clear that Engel referenced some of the data in his descriptions from maps or prior works (Engel 2010:122-123). He reported 134 sites in Chincha containing 162 distinct occupations. He located 113 of the 116 sites

[28] In the second accounting, Wallace (1972) listed the following sites as part of the 'Topará' tradition: PV57-9 (Huaca Partida), PV57-10 (Huaca Alvarado), PV57-24 (La Valencia), PV57-26 (Huaca Soto II), PV57-50 (Huaca Menzies), PV57-51 (Huaca La Campana), PV57-87 (Huaca Santa Rosa), PV57-103 (Huaca Limay). PV57-52 (Pozuelo) is recorded as having both a Cavernas and Necropolis occupation. Phasing of other sites previously designated as Formative is not discussed.

reported on Wallace's map (1971), including all 112 sites for which Wallace gave detailed descriptions. He compressed Wallace's results into 108 sites overall and recorded an additional 26 sites, mostly from the upper valley above where the Rio San Juan splits into the Chico and Matagente branches. Taking into account all sites designated as Cavernas (6a, or Paracas I), Necropolis (6b, or Paracas II), or generic Formative ('6'), Engel identified 20 settlements that fall within the Paracas period. Of these he shares 16 in common with Wallace. Three of Engel's four outliers were recorded by Wallace, but not as having Formative components; one these is located near the Huaca Centinela cluster in the northwest corner of the valley (PV57-4), one near the littoral south of the Rio Chico (PV57-15, Laguna Lurinchincha I) and one in the mid-valley between the rivers (PV57-39, Ronceros). The fourth, San Vincente I (13b-X-455), is located near the Centinela cluster and was not recorded by Wallace.

Engel reported a single Cavernas (6a) occupation at Pozuelo and eight sites with Necropolis (6b) occupations. He gave no direct designation for the remaining 11 sites beyond describing Formative architecture or labeling as phase '6'[29]. It is clear that Engel's overall view of this data follows Wallace's second interpretation, wherein monumental lower-valley platform structures were Topará constructions appearing no earlier than the Late Paracas (Topará) period. Jahuay 3. His notes do not offer an analysis or discussion regarding these settlements or their development through time.

[29] Engel provided the following associations – Distinctly 'Cavernas': PV57-52 (Pozuelo); Distinctly 'Necropolis': PV57-4 (San Vincente II), PV57-8 (San Pedro), PV57-21 (Monticulos), PV57-32 (Lurinchincha XVII), PV57-44 (Blas Herrera), PV57-59 (Cerro del Gentil), PV57-110 (Huaca Las Hoyas), and San Vincente 1 (no PV designation); Indeterminate Paracas or multi-phase designation: PV57-9 (Huaca Partida), PV57-10 (Huaca Alvarado), PV57-15 (Laguna Lurinchincha I), PV57-24 (La Valencia), PV57-25 (Huaca Soto I), PV57-39 (Ronceros), PV57-50 (Huaca Menzies), PV57-51 (Huaca La Campana), PV57-73 (Santo Domingo), PV57-87 (Huaca Santa Rosa), PV57-103 (Huaca Limay).

The INDEA Surveys

Luis Lumbreras directed the most recent full-coverage survey of Chincha as part of the INDEA project. The objective was to explore the emergence of political complexity in the valley from the Archaic Period forward by testing for the first appearance of hierarchical settlement patterns, special purpose architecture, agricultural intensification, and regional territoriality (Canziani 1993:94). INDEA favored the general chronological system developed for the Central Andes by Lumbreras (1981), placing Chincha's earliest Paracas phases in the Middle-to-Upper Formative Period (1800-500 BCE) and later Paracas phases in the Early Regional Development Period (500 BCE-700 CE). Survey results subdivide Paracas simply as Cavernas and Necropolis.

Canziani (1993:94) reported a total of 177 sites recorded by INDEA survey. These include the identification and reassessment of 110 sites described earlier by Wallace (1971) as well as sites originally cataloged by CIZA. The majority of sites recorded for the first time by INDEA are located in upper-valley Chincha, east of the modern town of El Carmen in the district of Viña Vieja (see Canziani 2009:159, 293, 411). Lumbreras (2008:1) suggested that 27 of the INDEA sites display Formative components, several of which were later reoccupied during the Late Intermediate Period. (Lumbreras 2001). Canziani (2009) suggested an additional 10 Paracas settlements based on assessment of architectural techniques and design, bringing the total to 37 Formative sites. INDEA did not provide a comprehensive list of recorded sites in its published works, and thus my accounting is based on Canziani and Lumbreras' published maps and descriptions (see Canziani 2009:159; 1992, 1993; Lumbreras 2001)[30].

[30] They list these sites simply as 'Formative': PV57-3 (La Cumbe), PV57-8 (San Pedro), PV57-9 (Huaca Partida), PV57-10 (Huaca Alvarado), PV57-16 (Lurin Chincha VIII), PV57-18 (Lurinchincha IX), PV57-24 (La Valencia), PV57-25 (Huaca Soto I), PV57-26 (Huaca Soto II), PV57-37 (Huaca Partida II), PV57-44 (Blas Herrera), PV57-50 (Huaca Menzies), PV57-51 (Huaca La Campana), PV57-52 (Pozuelo), PV57-59 (Cerro del Gentil), PV57-63 (El Mono), PV57-64 (Pampa de Gentil), PV57-80 (Litardo Bajo), PV57-87 (Huaca Santa Rosa), PV57-88 (Fundo Cespedes), PV57-103

Canziani argued that monumental architecture formed the focal point of several large settlement clusters with sizable permanent occupations. Domestic areas surrounding politico-ceremonial centers would now be buried by alluvium or destroyed by modern development (Canziani 1992:114-115). Three lower-valley clusters are apparent in his descriptions: one north of the Rio Chico, West of modern day Chincha Alta; a second between the Rios Chico and Matagente, centered on Huaca Santa Rosa; and a third south of the Rio Matagente containing the Soto and San Pedro complexes (Canziani 1992:99). The latter may be interpreted as at least two smaller clusters. The mid-valley neck also contains two small mound clusters – the Portachuelo cluster, now destroyed (PV57-118 and 119) and the mid-valley cluster composed of Cerro de Gentil (PV57-59), El Mono (also called Chococota, PV57-63), and Pampa de Gentil (PV57-64). Sites in the upper-valley above the Cerro del Gentil and Portachuelo clusters display surface evidence for irrigation canals and runoff zone involved in farming the arid portions of the valley.

INDEA concluded that the large, lower-valley monumental platform mounds were evidence for incipient urbanism, social differentiation, productive specialization, a massive organized labor force, and abundant surplus production. They proposed that these structures served a non-quotidian function and abided by a united architectural canon (Canziani 1992:99). While INDEA surveyors did not strictly define sites as 'Cavernas' vs. 'Necropolis', they favored a diachronic model in which greater political consolidation emerged as part of the Necropolis phase (Late Paracas) (Lumbreras 2008; Canziani 1992:115; 1993:120; 2009:158-159). Canziani suggested that irrigation works associated with monochrome finewares in the upper valley were manifestations of a complex Paracas political organization capable of engineering and

(Huaca Limay), PV57-110 (Huaca Las Hoyas), PV57-118 (Portachuelo I), PV57-119 (Portachuelo II), PV57-121 (Condorillo Alto), PV57-134, PV57-136, PV57-137, PV57-140, PV57-142, PV57-149, PV57-161, PV57-163, PV57-165, PV57-167, PV57-171, PV57-172

maintaining public infrastructure (Canziani 1992:108-110). INDEA rejected the idea of a Late Paracas 'invasion', however, in favor of a locally-driven model for political and economic development. Lumbreras hypothesized that this process of early urbanism and multi-settlement economic cooperation began in parallel with the emergence of Pinta-style finewares across Chincha (Isla 1992:21), which puts its roots in the Middle Paracas phase. From a regional perspective, INDEA researchers used Chincha settlement data to argue that the valley was a source location for the peninsula dead (Lumbreras 2008:1; Canziani 1992:100, 2009:155).

Taken together, the Fulbright, CIZA, and INDEA surveys agree on 13 sites with Formative components (Table 4.1, Fig. 10). This is a general accounting of 'Paracas' associated sites, with less agreement on finer chronological designations. Their observations make clear that Early Paracas components are present at Pozuelo, probably in reference to Lanning, Wallace and Rowe's ceramic seriation at the site. All clearly acknowledge the presence of Middle Paracas (Cavernas) settlements, but there is little agreement on whether monumental platform structures belong to this phase, or the subsequent Late Paracas (Necropolis) phase. There tends to be agreement that agglutinated villages in the mid and upper-valley were Late Paracas features (i.e. PV57-64, PV57-140).

TABLE 4.1: FORMATIVE SETTLEMENT IN CHINCHA

Site Designation – PV#	1st Wallace (1959, 1971)	2nd Wallace (1972, 1986)	CIZA	INDEA – Canziani (1992, 1993, 2009)
57-3 (La Cumbe)	-	-	-	'Formativo' - Monumental
57-4 (San Vincente 2)	-	-	6b - Necropolis	-
57-8 (San Jose)	Paracas		6b - Necropolis	'Formativo' – Monumental
57-9 (H. Partida)	Formative Architecture	Necropolis/Topará	6 - Formative	'Formativo' – Monumental
57-10 (H. Alvarado)	Paracas	Necropolis/Topará	6 - Formative	'Formativo' – Monumental
57-15 (Lurinchincha 1)	-	-	6 - Formative	-
57-16 (Lurinchincha 8)	-	-	-	'Formativo' – Monumental
57-17 (Lurinchincha 2)	Formative Architecture	-	-	
57-18 (Lurinchincha 9)	-	-	-	'Formativo' – Monumental
57-21 (Monticulos)	Paracas	-	6b - Necropolis	-
57-24 (La Valencia)	-	Necropolis/Topará	6 - Formative	'Formativo' – Monumental
57-25 (H. Soto 1)	Formative Architecture	-	6 - Formative	'Formativo' – Monumental
57-26 (H. Soto 2)	Formative Architecture	Necropolis/Topará	-	'Formativo' – Monumental
57-32 (Lurinchincha 17)	Paracas	-	6b - Necropolis	-
57-37 (H. Partida 2)	-	-	-	'Formativo' - Monumental
57-39 (Ronceros)	-	-	6 - Formative	-
57-44 (Blas Herrera)	Paracas	-	6b - Necropolis	'Formativo' - Monumental
57-50 (H. Menzies)	Formative Architecture	Necropolis/Topará	6 - Formative	'Formativo' - Monumental
57-51 (La Campana)	Paracas Cavernas	Necropolis/Topará	6 - Formative	'Formativo' - Monumental
57-52 (Pozuelo)	Chavínoid, Cavernas Necropolis/Topará	Chavínoid, Cavernas Necropolis/Topará	6a – Cavernas	'Formativo' - Monumental
57-59 (C. del Gentil)	Paracas	-	6b - Necropolis	'Formativo' - Monumental
57-60 (San Jose 5)	Paracas	-	-	-

57-63 (El Mono)	Paracas Cavernas	-	-	'Formativo' - Monumental
57-64 (P. de Gentil)	-	-	-	'Formativo' - Occupation
57-73 (S. Domingo)	Formative Architecture	-	6 - Formative	-
57-80 (Litardo Bajo)	-	-	-	'Formativo' - Monumental
57-84 (San Antonio)	Formative Architecture	-	-	-
57-87 (H. Santa Rosa)	Formative Architecture	Necropolis/Topará	6 - Formative	'Formativo' - Monumental
57-88 (Cespedes)	-	-	-	'Formativo' - Monumental
57-103 (H. Limay)	Paracas Cavernas	Necropolis/Topará	6 - Formative	'Formativo' - Monumental
57-110 (H. las Hoyas)	Formative Architecture	-	6b - Necropolis	'Formativo' - Monumental
57-118 (Portachuelo 1)	-	-	-	'Formativo' - Monumental
57-119 (Portachuelo 2)	-	-	-	'Formativo' – Occupation, Monumental, Cemetery
57-121 (C. Alto)	-	-	-	'Formativo' – Occupation, Monumental
57-134	-	-	-	'Formativo' - Monumental
57-136	-	-	-	'Formativo' – Occupation
57-137	-	-	-	'Formativo' – Occupation
57-140	-	-	-	'Formativo' - Occupation
57-142	-	-	-	'Formativo' - Occupation
57-149	-	-	-	'Formativo' - Occupation
57-161	-	-	-	'Formativo' - Occupation
57-163	-	-	-	'Formativo' - Occupation
57-165	-	-	-	'Formativo' - Occupation
57-167	-	-	-	'Formativo' - Occupation
57-171	-	-	-	'Formativo' - Occupation
57-172	-	-	-	'Formativo' - Occupation
San Vincente 1 (no PV)	-	-	6b - Necropolis	-

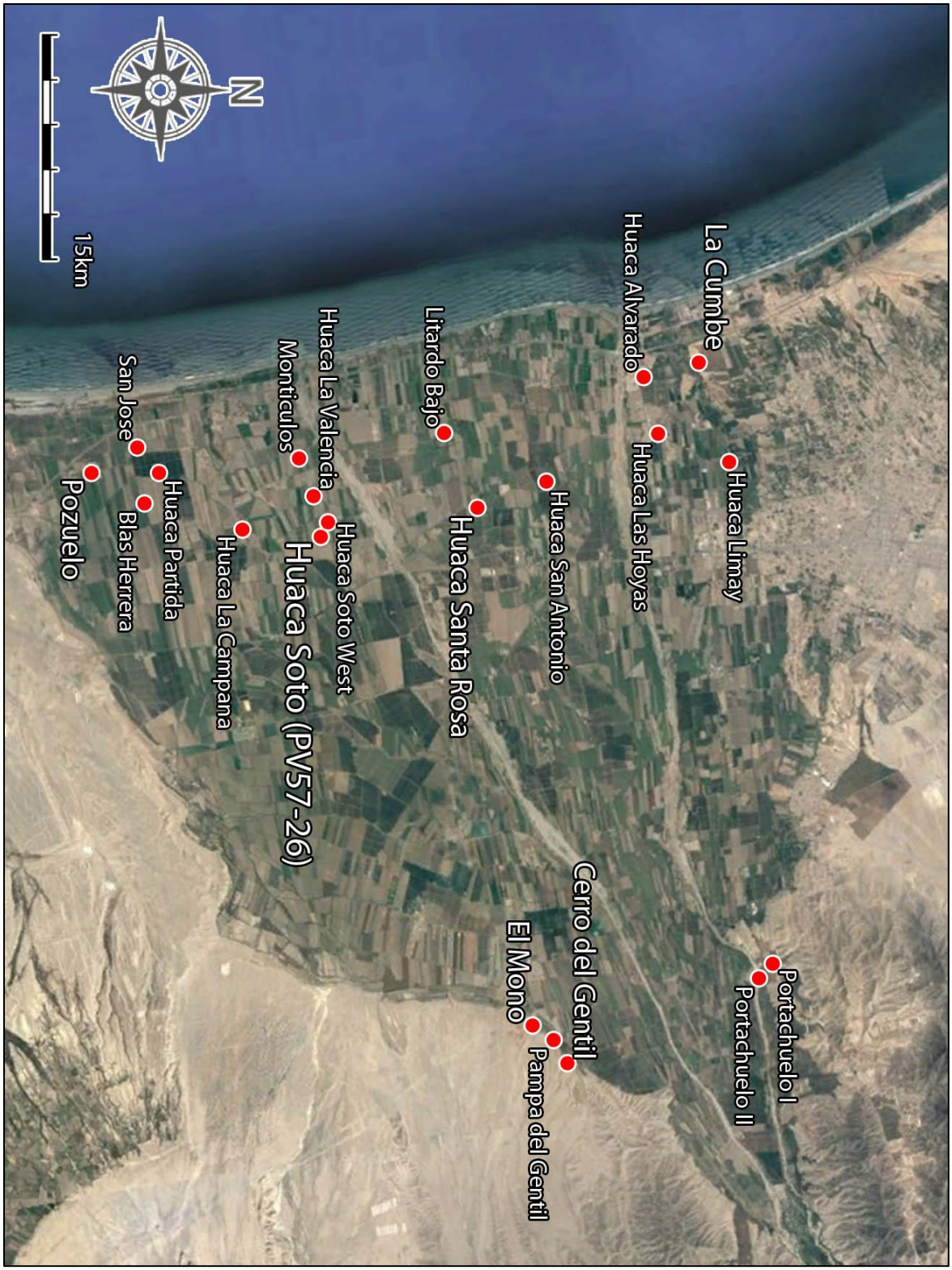


Figure 10: Major Paracas site clusters reported in Chincha, emphasizing structures discussed in this dissertation. Locations are approximate. Base map from Google Earth © 2016 Google. Image © 2016 DigitalGlobe, Image © 2016 CNES/Astrium, Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Formative Architecture in Chincha

Analysis of visible architecture by Canziani (1992) suggests that Chincha's monumental Formative structures were non-vernacular buildings that express a shared tradition of technical and design features. The vast majority are rectilinear in plan with the structure's long axis oriented to an East-West bearing. Most feature two or more ascending tiers (platforms) with the highest tier to the West. Each tier typically contains a rectilinear sunken court. Construction materials consist almost exclusively of locally-made adobes laid in regular coursings. In addition, Canziani suggests that rounded fieldstones and globular adobe clods were used as fill material beneath the courts of some structures. Floors, walls, and other surfaces were finished with a well-prepared mud plaster. Together, this body of evidence led Canziani to suggest that this monumental tradition represents a true canon that followed a pre-established design common engineering and finishing techniques. Thus, he suggests that they likely fulfilled a similar role across Chincha's Paracas settlement clusters.

Canziani first noted that the substructures of these monuments consist of cone-shaped adobe units resting on flattened ellipsoid bases (Fig. 11). The long axes of each adobe base are laid parallel to one another. A thick layer of mud slurry is then applied as a 'cap' between layers to seal gaps in the coursing below and provide a flat surface for the coursing above. Canziani notes that this rough capping technique could result in sizable interstitial spaces within coursings (Canziani 1992:101), which could weaken the structure's load-bearing capacity substantially. Thus it is possible that spaces were once filled with a loose material, perhaps locally available sand. Adobes are clearly hand-made; these is no evidence for molds, and bricks were placed into coursings rather than sculpted in-place. Canziani suggests that there is relative consistency in the form and size of adobes within a given structure. In a brief metric comparison of conical adobes

from El Mono (PV57-63) and two platform mounds from the Soto Complex (PV57-25 and 26), he demonstrates that bricks from two distinct structures express relatively similar dimensions (Canziani 1992:102). This same analysis demonstrates that average brick dimensions (base length, base width, and height) could vary anywhere from 1-4 inches within a given structure.



Figure 11: Exposed substructure at PV57-25 (Huaca Soto West) showing conical adobe units laid into coursings and sealed with mud-slurry caps.

Echevarría López (2014) further examined consistency in adobe form by comparing examples from 31 sites throughout the valley. The stated goal was to determine whether brick shapes mark specific chronological periods or can be linked to particular cultural traditions. Investigators relied on informal, non-quantified observation of adobes observed in cuts from standing architecture. Their study suggests that there was little standardization of brick volume

or geometric shape of bricks within a given site, thus mirroring Canziani's initial analysis (see Echevarría López 2014:116). High intra-site variation washed out notable differences in brick form between sites. In general, they described handmade adobes in Chincha's Formative architecture as 'parabolic' in shape. Following Canziani, Echevarría López uses this data to argue that Paracas adobe construction in Chincha represents a united architectural tradition, albeit one with low standardization in the production of brick units. Both Echevarría López and Canziani suggest that not enough work has been done to adequately differentiate between specific Paracas phases based on brick form alone (Canziani 1992:102).

It is clear that many of these structures were continuously renovated over time, a process causing sunken courts to gradually 'fill-in' with each reconstruction event (Canziani 2009:166). Canziani suggested that these renovations maintained the general layout of the older architecture. However, given the lack of excavation data at the time of his analyses, it was unclear how additions over time might affect access to sunken courts, the capacity for large events within them, or spatial relationships that might affect performances. The location of entrances, corridors, and passage from tier-to-tier was entirely unresolved. There was little idea of whether courts represented highly restricted (exclusive) space, open inclusive spaces, or whether this relationship changed through time. With the exception of court renovations, it was unclear whether Paracas monumental structures were built all at once, on a tier-by-tier basis, or gradually over decades of casual deposition.

Uhle on Huaca Alvarado and Other Early 20th Century Observations

In addition to dedicated site surveys and formal analysis of standing architecture, several projects throughout the 20th century report observations of surface assemblages associated with what we now know to be Formative structures. Additionally, a few projects collected limited amounts of subsurface data from these sites. This evidence provides crucial support for reconstructing the valley's Paracas settlement systems.

Max Uhle provided the first scientific descriptions of Paracas material culture (then unnamed) from *in situ* contexts as part of his early investigations in Chincha (Uhle 1924 [1901]). His observations focused on Paracas artifacts and architecture at Huaca Alvarado (PV57-10) and sites adjacent to La Cumbe (PV57-3, PV57-6). Uhle observed that Alvarado lacked the *tapia* architecture found at nearby sites like Huaca Centinela (PV57-1)[31], instead consisting of smaller adobe units and the use of irregular-shaped adobe clods as fill (Uhle 1924 [1901]:82). He correctly surmised that the burials he discovered at Huaca Alvarado were intrusive, while the core of the structure itself dated to an older period. Uhle noted that visible construction features at the site were identical to those observed at Huaca Santa Rosa (PV57-87), thus placing both sites in the same early period (Uhle 1924 [1901]:86). By comparing architectural and ceramic evidence at Huaca Alvarado with that of Paracas cemeteries in Ica, Uhle first defined Paracas as a regional-scale archaeological culture:

> "This significance which [adobe brick work at Huaca Alvarado] has as a criterion of an older period of coast civilization than those commonly found, I subsequently realized at Ocucaje, when I discovered the curious finely painted vessels which form the most interesting part of my collection in the Ica area. These vessels were met with in close association with lumpy adobe like that which mainly composes the Huaca de Alvarado. Without insisting unduly that the people who built this huaca must have possessed absolutely the same civilization as the

[31] A core Late Intermediate Period site associated with the Chincha Kingdom.

> one associated with the same building material at Ocucaje, I must maintain that the period of construction of this huaca must have been about equally remote… (Uhle 1924 [1901]:82).

Kroeber and Strong (1924) later analyzed Uhle's collections and illustrated ceramic sherds now recognizable as Formative wares. For example, their drawing of a sherd from Uhle's 'Site B' (PV57-6), adjacent to La Cumbe (PV57-3) is clearly part of a Middle Paracas grater bowl (Kroeber and Strong 1924:26). The same holds true for the Huaca Alvarado collections ('Site D'), which also included grater bowl sherds (Kroeber and Strong 1924: plate 20). Following Uhle, Kroeber and Strong suggested an 'Early or proto-Chincha' period that featured polychrome pottery and elongated skulls similar to the 'proto-Nasca' styles found in Ica (Kroeber and Strong 1924:53). Kroeber later made notes on Huaca Santa Rosa (PV57-87) and photographed the site, but did not excavate or make collections (Kroeber 1944: Plate 17; Appendix D).

In a later review of South American Archaeology, Uhle (1912) again described the 'proto-Nasca' style that he observed in Ica, Pisco and Chincha, including drawings of textiles and ceramics recovered from his south coast expeditions (Uhle 1912: 414-415, Figs. 1-3: Uhle 1914). The exact provenience of these textiles is unclear from Uhle's writing. Paul (1991b:2-4) suggests that Uhle was referring to Necropolis-style textiles recovered in Chincha and Pisco, though the ambiguity of Uhle's text makes Ocucaje an equally probable, if not more likely source (Uhle 1914:11-12). Conklin (1971) also describes Formative textiles from Chincha, this time with Chavínoid designs, but again the specific provenience of these objects is unknown.

Wallace on Cerro del Gentil (PV57-59)

Wallace (1971) identified Formative ceramic and architectural elements on the surface of Cerro del Gentil, a modest-sized Paracas monument in the mid-valley cluster. He later published an analysis of 302 fineware sherds from a looted crater on the structure's uppermost tier (Wallace 1985). This assemblage forms the basis for the Middle Paracas Pinta style. He describes the Pinta lot as "an excellent ware – thin, well-polished and evenly fired, with black smudging and small evenly formed and spaced negative spots, equal to the upper range of Ocucaje pottery" and notes its overall similarly to collections from Tambo Colorado in Pisco (Engel 1957), the later phases of the Ocucaje sequence in Ica (Ocucaje 7-9), and the Cavernas collections from the peninsula. Wallace does not mention other archaeological materials observed during this investigation.

Wallace conducted a modal analysis that compared the density of certain design motifs in the Pinta tradition to finewares from Pisco, the Peninsula burials, and Ica. Based on an index of similarity between these collections, he concluded that stylistic 'borrowing' most likely proceeded from north to south (that is, Chincha to Ica), rather than the inverse. He tentatively suggested that Pinta wares in Chincha appeared earlier than their Middle Paracas counterparts in upper Pisco and the Cavernas assemblages (Wallace 1985:71), though this claim would require radiocarbon dates or other evidence apart from only assessment of iconography. Overall, Wallace directly confronted the longstanding hypothesis that Ica was a standalone heartland of Paracas art styles, while at the same time raising the profile of Chincha as a major center of Formative activity. Extensive PACH excavations at Cerro del Gentil are discussed in Chapter 5.

Isla on El Mono (Chococota, PV57-63)

Elizabeth Isla conducted the first excavations at El Mono (PV57-63, also known as Chococota), a site on the mid-valley desert margin adjacent to Cerro del Gentil. Luis Lumbreras conducted prior investigations at the site in 1985, the results of which exist as unpublished government reports. Isla references these reports in her thesis and provides Lumbreras's description of the site as a "large complex formed from 6 to 7 mounds separated into sectors… Sector A consists of 2 platforms and 2 complexes built of rammed earth and stone, respectively; Sector B of an isolated mound; Sector C of 2 mounds situated to the east …" (Isla 1992:4, my translation). Isla suggests that Lumbreras's team excavated in structures A3 and B. She cites Lumbreras's reports to suggest that Pinta-style Paracas wares were the earliest ceramics found at El Mono (Isla 1992:4). These excavations at El Mono were the first subsurface exploration of Paracas contexts in Chincha since the creation of the Pozuelo seriation, and the first to report data on non-ceramic objects.

Sector A, the westernmost area, contained a large non-vernacular structure (A1). The building measured some 30 by 40 meters in plan, 3-4 meters high and was laid out along an East-West axis (Isla 1992:25). A second structure to the west (A2) also exhibited an East-West axis but was too poorly preserved to describe in further detail. Investigators excavated in a third structure to the south of A2 (sub-sector A3), which oriented to the cardinal directions and consisted of an enclosed court-like space with interior divisions. Isla noted that A3 contained an occupation associated with Topará (Late Paracas) monochromes and quoted a 1987 excavation report suggesting that the area displayed evidence for textile production (Isla 1992:25).

Lumbreras's team excavated the single structure in Sector B. It consisted of a large enclosure (30 by 30 meters) associated with Pinta (Middle Paracas) finewares and Topará (Late Paracas) monochromes. Topará-associated architecture consisted of fieldstones set in mud-straw mortar with some evidence for ovoid-shaped adobes. Quoting Lumbreras's unpublished field reports, Isla suggested that the interior area was used for storing vegetal products.

Sector C contained three mounds. Mound C1 was the subject of Isla's excavations. The remaining two mounds, all but destroyed, existed only as slight depressions in the pampa surface with no surface materials or visible architecture (Isla 1992:28). Isla excavated building C1 (33 by 22 meters in plan and 3 meters high), which she described as a multi-tiered platform structure containing multiple plastered sunken courts (Isla 1992:5). Her site map suggested that the layout of component tiers at building C1 was not progressively ascending, as is the case for lower-valley platform structures, but rather pyramidal with wide lateral tiers (Isla 1995:30). The structure also lacked a strict East-West orientation. The western portion of C1 was a rectangular platform containing a small, diamond-shaped sunken chamber (6 by 4 meters in plan and 0.5 meters deep) supported by two retaining walls. The structure's central area contained a second, elongated chamber (13 by 4 meters) delimited by low earthen walls. Isla suggested that the platform structure was built in at least two phases (Isla 1992:44).

Isla placed excavation units in each of C1's sunken chambers, as well as transverse series of units fanning out into the supporting North and South terraces. The uppermost layers of structure C1 were composed of architectural fill (up to 1.8 meters thick) containing extensive vegetal debris, ceramics sherds, shell and shell beads, animal bone (camelid sp.) and coprolites, spindle whorls, textile fragments and cordage (Isla 1992:33-34). Edible taxa dominated the botanical assemblage, including maize, gourd, aji peppers, jackbeans, guava, and pacae, in

addition to cotton and cane (Isla 1992:34-40). A layer of large hearth deposits beneath debris layers and above a prepared sand substrate abutted the north wall of the western court.

Isla described six 'offerings' recovered from these sunken chambers. These deposits were spatially segregated in individual pits. They included dense deposits of vegetal remains (including gourds), woven packets of hair, shellfish, coca leaves, and textile fragments (Isla 1992:42). Finewares recovered in these offering features may once have served as containers for other objects. Isla interpreted these as ritual offerings (Isla 1992:42).

Pinta style ceramics were present throughout the excavated deposits and the majority of diagnostic ceramics recovered were fine serving-wares. These included small bowls with red slipped interior rims, post-fire resin painting, and negative designs. Also present were closed globular bowls with punctuate designs around rim exterior. Other forms included neckless ollas, jars, and bottle-necked vessels. Grater bowl fragments were rare. Isla did not radiocarbon date these contexts; she placed the site contemporary to Ocucaje 8 in the MRD sequence and suggested a date of ca. 300 BCE (Isla 1992:5). Overall she interpreted El Mono as a set of ceremonial spaces for making offerings, rather than domestic or habitation areas. Lumbreras initially suggested that El Mono was a series of temples with ritual functions that may also have served as a storage facility (Isla 1992:31).

Leonid Velarde on Pampa de Gentil (PV57-64)

Pampa de Gentil (PV57-64) forms a third part of the mid-valley cluster. It is located between Cerro del Gentil and El Mono on a desert margin ridge overlooking the valley

floodplain. In his survey, Wallace (1971) described Pampa de Gentil as a multifunctional site composed of room blocks, plazas, and mortuary contexts covering several hectares. Structures are densely packed but similar in size and orientation, lending the site a planned, orthogonal appearance. Wallace reported 'proto-Nasca' ceramics, as well as a red-and-white on black ceramic tradition now recognized as the 'Carmen' style (Wallace 1971:51; Velarde 1998). Intrusive tapia 'chullpas' identified at the site match recent descriptions for LIP burial practices in upper-valley Chincha (Weinberg et al. 2016; Bongers 2014). Canziani (2009:169) describes Pampa de Gentil as a domestic area of substantial density and suggests that it once housed agriculturalists taking advantage of nearby land and water sources. He suggested that the site, along with PV57-140, were large villages occupied during the Late Paracas (Necropolis/Topará) phase (Canziani 1992).

Pampa de Gentil was excavated by Leonid Velarde at the turn of the 21st century (Velarde 2006). Velarde divided the into six sectors based on distinctions in architectural layout. Excavation in room blocks in the northern and southern sectors of the site confirmed that small enclosures were remnants of domestic structures associated with Late Paracas (Necropolis) and Carmen (EIP) contexts. Here, Velarde observed a series of finely prepared floors containing domestic debris, hearth features, cooking ollas, and serving wares. Excavations in the western sector of the site likewise revealed basic domestic functions; one structure in this sector also included the burial of an adult wrapped in a camelid skin (Velarde 2006:175). Units placed in a large open area in the site's eastern sector, presumed to be a public patio space, likewise turned up domestic debris and Chongos style Topará wares. This area also contained large, inverted ollas, one of which held the unidentified body of a small to medium sized animal (Velarde 2006:175).

Pampa de Gentil includes a small earthen mound in its northernmost sector. Velarde describes the mound as entirely artificial and approximately two meters high. Excavations revealed a series of large offering vessels containing beans and maize, placed in a narrow passageway on the upper part of the structure (Velarde 2006:176-178). These vessels were covered with basketry and weighed down with stones. The surrounding fill included fragments of figurines and portions of red plaster. At the base of the mound's southern side, excavators uncovered plastered pits containing vegetal debris, *cuy* offerings, and part of a figurine. Velarde suggests that occupants stored foodstuffs in the small mound structure and used the area surrounding it as a space for public activities (Velarde 2006:179).

Structures at Pampa de Gentil generally consisted of semi-hemispherical adobes. Velarde compared these to Late Paracas (Necropolis/Topará) architectural techniques described in Tello's excavations on the peninsula and published photographs of Dos Palmas in Pisco. Rounded river cobbles were sometimes incorporated into architecture; white plaster was used to finishing wall surfaces. The majority of visible architecture, in his view, was built atop of an older settlement (Velarde 2006:180). He argues that the orderly arrangement of small rooms were later constructions built over what were previously large open plazas (Velarde 2006:172). He reports no Cavernas-style ceramics or other Early/Middle Paracas contexts.

Eyne Omar Bendezú del la Cruz on Huaca Santa Rosa (PV57-87)

In 2008, Bendezú del la Cruz conducted rescue excavations in five areas on and around Huaca Santa Rosa, the largest reported Formative structure south of Lima (Bendezú del la Cruz 2008). The site is immense – measuring some 425 meters in length and reaching 25 meters high

– and is currently covered by a sizable town. The goal was to assess damage caused by modern development, and thus excavations focused on understanding the site's boundaries and architecture.

Wallace (1971) originally cited the size of Huaca Santa Rosa to suggest that it took advantage of a natural promontory in the landscape, but this has never been demonstrated and seems unlikely given that it rests in an active floodplain. Indeed, as far as Bendezú del la Cruz's excavations demonstrated, Huaca Santa Rosa is an entirely artificial, pre-planned structure featuring regular coursings of adobe masonry, massive clod and fieldstone fills, battered retaining walls, and a multiple tiers laid out on an East-West axis. Large earthen ramps allowed for ascension and movement through the structure (Bendezú del la Cruz 2008:7-8, 14, 26). The structure consists entirely of exterior space, as is the case with other Paracas non-vernacular architecture in Chincha. Bendezú del la Cruz observed at least three major renovation episodes at Huaca Santa Rosa, each involving the addition of new walls and floors on top of older architecture and replastering of exposed surfaces (Bendezú del la Cruz 2008:12-14, Fig.13). Thus, renovations gradually increased the overall size of the structure, but maintained the general layout of prior architecture.

Excavators recovered incised post-fire resin-painted fineware sherds, which they likened to Ocucaje 8 styles from Ica. They also depict grater bowl fragments and closed vessels with punctuate designs around the rim. Bendezú del la Cruz's description and figures demonstrate that this collection of sherds is similar to the local Pinta style (Bendezú del la Cruz 2008:15-16), thus it appears that several of Santa Rosa's major renovations took place during Middle Paracas times. Bendezú del la Cruz's report does not depict later Topará monochromes, but he suggests that these were observed on site during earlier INDEA visits (Bendezú del la Cruz 2008:4).

There are no absolute dates available for Huaca Santa Rosa. It appears that excavators did not reach sterile soil, and thus we only have information on the site's latest phases; it may yet contain earlier components. Bendezú del la Cruz concludes that additional excavations will be necessary to assess the specific activities that took place at Huaca Santa Rosa.

Chincha as the "Elephant in the Room"

The early studies discussed in this chapter established the prevalence and significance of Paracas communities in Chincha. Not only do abundant Pinta and Topará fineware sherds demonstrate that was the valley a major settlement zone during Middle and Late Paracas times, but the Pozuelo test units raise the possibility of substantial Early Paracas activity. Multiple surveys noted that Paracas settlements cluster into 5-6 large groups, suggesting a set of autonomous communities that may have cooperated or competed with one another throughout their lifetimes. Early research at these sites focused on their monumental character and unique architectural canon that distinguish them from Paracas constructions elsewhere on the south coast. Huacas Santa Rosa, Alvarado, Soto, Partida, and others dwarf the largest Formative construction projects in Ica (e.g. Cerrillos, or Animas Altas), and exhibit a three-tiered rising layout, deep rectilinear sunken courts, a strict East-West orientation, and similar hand-made adobe construction techniques. Adherence to this strict architectural canon demonstrates a shared aesthetic and design tradition, a common approach to labor organization and structural engineering, and perhaps a set of unified social norms and expectations associated with events at Chincha monuments.

Twentieth century researchers hypothesized that these platform structures were non-vernacular buildings that served non-quotidian functions. Courts were renovated and maintained at significant cost over time. They exhibit little evidence for domestic trash, sheltering components like roofs, basic tools, or contexts for food preparation that might indicate quotidian functions. Moreover, it was clear that these monuments were not long-term aggregations of earthen vernacular architecture – unlike Near Eastern 'tells' – but rather were carefully and intentionally shaped public spaces. Investigators from Wallace to Canziani suggested that these structures served as the core for sizable domestic villages that occupied the surrounding floodplain – these areas would now be covered by several meters of irrigation alluvium. Thus, these massive structures may only be the 'tip' of a dense, proto-urban settlement landscape in the lush lower valley.

Reconstructing diachronic change among Chincha's Paracas settlements was a major challenge for early investigations. Initial surveys struggled to phase sites, vacillating between 'Cavernas' and 'Necropolis' based solely on surface data. Later surveys deferred, simply recognizing Paracas monumental architecture as 'Formative'. Small-scale excavations and test units at a handful of these sites concluded that Chincha's monumental clusters began in the mid-millennium Middle Paracas period at the latest, reaching major 'proto-urban' form during Late Paracas times. The social processes and material conditions that underpinned this transformation remained subject to speculation, and little was understood about the nature of politico-ceremonial events apart from what could be observed from surface architecture.

Chapter 5: Investigations of the Programa Arqueológica Chincha

In 2012, researchers from the Programa Arqueológica Chincha (PACH) began a series of major excavations to further explore the evolution of Paracas communities in Chincha. These investigations revealed that non-vernacular platform structures in the mid-valley, Cerro del Gentil (PV57-59) and El Mono (PV57-63), hosted regularly-scheduled public events involving ritualized deposition of high-value goods, ideologically-charged paraphernalia, and intensifying relationships with Paracas communities in neighboring settlement zones. Following the theoretical framework outlined in Chapter 3, one hypothesis is that ritualized public events in sunken courts promoted effective economic cooperation that allowed certain Paracas communities in the valley to grow and maintain an advantage over their neighbors and potential competitors.

PACH investigations significantly alter the timeline offered by earlier investigations in the valley. Radiocarbon dates and assessment of stylistic data from secure contexts make clear that the intensification of Chincha's ritualized landscape was in full swing between the 4th and 2nd centuries BCE (the Middle Paracas phase). Moreover, this research revealed that the mid-valley platform structures underwent an unexpected abandonment with the onset of the Late Paracas period – the supposed pinnacle of Paracas political complexity in Chincha, according to prior work by Canziani and Wallace. Thus, initial PACH excavations raised new questions regarding the nature of Paracas politico-ceremonial events in Chincha, the relationship of these events to the political and economic structure of local Paracas communities, and Chincha's role in the broader evolution of the Formative south coast.

PACH Investigations at Cerro del Gentil (PV57-59)

Cerro del Gentil occupies a low sandy ridge at the edge of modern planting, about two kilometers east of the modern town of El Carmen. It is part of the mid-valley settlement cluster that also includes PV57-60, 63, 64, and 136 (Fig. 12). The site consists of two platform structures forming the northern and western boundaries of a flat, open plaza measuring approximately 70 by 50 meters. The northerly structure is best-preserved and was the subject of PACH excavations; I refer to this as the 'principal structure'. It appears as a low mound on the desert margin when viewed from afar. The second structure is almost entirely reduced to ground level and bears evidence of bulldozing by modern machinery. Little can be said about the second structure's architecture, orientation, or use, save for its general location and the limited presence of late Formative and Early Intermediate ceramics in decontextualized rubble. The site area lacks vegetation almost entirely, being well above the floodplain and without a local water source. Apart from its Formative and EIP contexts Cerro del Gentil contains a set of Late Intermediate Period tombs, nestled in between the two platform structures, exhibiting mortuary features typical of the LIP Chincha Kingdom (Bongers 2014; Weinberg et al. 2015; Nigra et al. 2014).

The principal structure is a typical example of the Paracas monumental canon in Chincha (Fig. 13). It measures 35 by 80 meters in plan and consists of multiple ascending tiers. Unlike lower-valley structures that ascend westward towards the Pacific Ocean, Gentil's highest point faces the foothills of the Andes to the East. The uppermost tier is approximately 6 meters above modern ground level and is relatively small (ca. 5 by 5 meters). The second tier measures roughly 15 by 15 meters and contained the site's only rectilinear sunken court. The third tier is nearly double the size of the second, but apparently did not host a court or other substantial

architecture. PACH investigations included a study of surface contexts around the site, salvage excavation on the uppermost tier (from where Wallace made the original Pinta collection), excavation in the open area East of the principle structure (2012), and two years of excavation in the sunken court (2013-2014). The results of these studies have been recently compiled in a monograph edited by Tantaleán and Stanish (Tantaleán and Stanish *in press*). I cite additional material from an unpublished earlier manuscript that served as a field report for the Cerro del Gentil excavations (Tantaleán and Stanish *ms*).

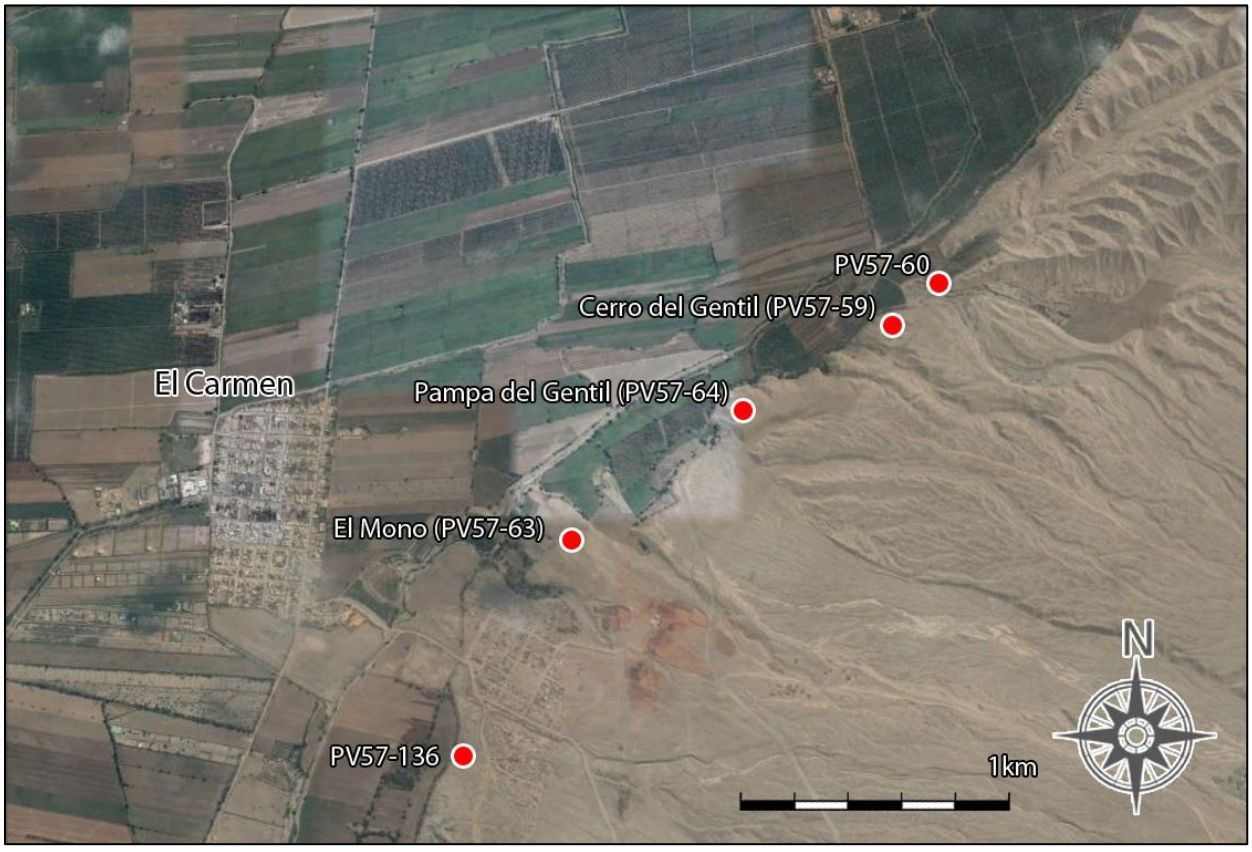


Figure 12: The mid-valley cluster containing the sites of Cerro del Gentil, El Mono, and Pampa del Gentil. Basemap is from Google Earth, © 2016 Google, Image © 2016 Digital Globe.



Figure 13: A view of the principal structure at Cerro del Gentil (PV57-59) from the southwest, with people on top and adjacent to the structure for scale. The structure's multi-tiered layout is evident.

Surface Contexts around the Principal Structure

More than a dozen deep pits, the result of looting with heavy machinery, surround the principal structure at Cerro del Gentil. Large piles of backdirt associated with these areas contain a dense assemblage of ceramic and shell debris. Though unsuitable for a formal diachronic analysis, these commingled contexts provided a 'snapshot' of use-activity in the area adjacent to the structure (Nigra et al. 2013). Surveyors analyzed the distribution of diagnostic sherds from eight spatially distinct locations (LT1-LT8) lying at different orientations and distances from the principal structure (Fig. 14). Four of these contexts lie on an East-West line at the southern base of the platform structure. Two are located in the flat open area 30 meters to the south of the structure, and two occupy the site's northern and northeastern margins. All intrusions were relatively equal in depth (between 1 and 1.5 meters).

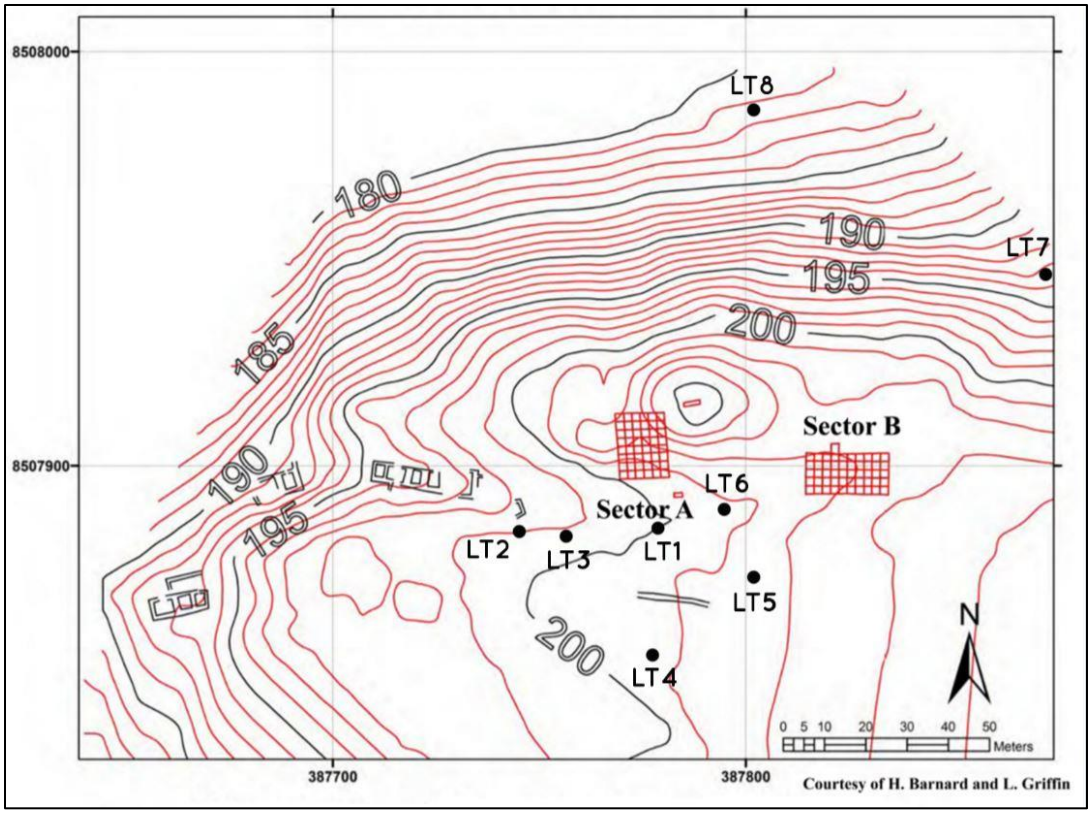


Figure 14: Topographic map of Cerro del Gentil showing location of surface collection units. The Sector A grid lies on the platform structure itself, while the Sector B grid is on the pampa to the east. Map courtesy of Hans Barnard and Laura Griffin.

We sampled approximately 680 liters of refuse from each of the eight contexts, using one cm mesh sifters to isolate diagnostic sherds, shells, lithic material, animal bone and other objects. We analyzed twenty-five attributes for each sherd related to paste, temper characteristics, form measurements, use-wear and production techniques. The total sample yielded 1710 diagnostic sherds. Sample sizes for the eight collection lots vary widely, with LT 1, 3, 6, and 8 containing the largest samples (n= 718, 327, 119, and 512 respectively). LT 4, 5, and 7 showed small samples (n= 26, 5, and 3 respectively) and we recovered no diagnostic sherds from LT 2.

Of 114 sherds with painted decoration, we recovered the majority from LT8 (n=88, 77.19% of decorated specimens) and LT1 (n=14, 12.28% of decorated specimens). Sherds

associated with the post-Formative Carmen tradition characterized the majority of the overall sample (n=92, 80.7% of decorated specimens), with the vast majority recovered from LT 8 (n=81, 88.04% of all Carmen samples). Pattern-burnished monochrome blackwares typical of the Late Paracas (Topará) ceramic tradition are the second most common style recovered (n=20, 17.54% of decorated specimens), with the majority from LT 1 and LT 8. There were few post-fire painted sherds in the assemblage (n=2, 1.75% of decorated specimens). These data confirm that the area was used heavily during Late Paracas (Topará) and post-Paracas (EIP Carmen) times (Fig. 15).

We recovered 1034 sherds with features diagnostic of vessel form. Contexts LT1, 3, 6, and 8 provided adequate sample sizes for comparison (n=479, 176, 91, 270 respectively). The distribution of vessel forms within each of these contexts mirrors the overall assemblage. Open bowls are the dominant vessel type across the total assemblage (n=406, 39.26%), followed by neckless ollas (n=326, 31.53%). We noted smaller but significant abundances of flat-bottomed plates (n=79, 7.64%) and bottle-necked vessels (n=56, 5.42%). Straight-sided open bowls, small cups, jugs, and ollas with necks represent minority finds (3.97%, 2.61%, 2.13%. 2.03%, respectively). We also recovered significant quantities of *antara* (panpipe) fragments (n=45, 4.35% of the assemblage diagnostic for vessel form), with a relatively high concentration in LT 3 (n=16, 35.56% of all panpipe fragments). Some panpipe fragments are decorated with Carmen motifs, suggesting events involving accompanying musical performance during this time.

Preparation and consumption activities clearly took place in the area around the principle structure during Late Paracas and Carmen times. We found evidence for post-fire burning on a high percentage of neckless olla sherds (n=150, 46.01% of the neckless olla sample). This contrasts strongly with next-highest incidence of burning – open bowls, where only 9.8% of the

sample exhibits charring. Nearly all decorated sherds were from open bowls – suggesting that these vessels were the serving wares associated with consumption events. Lower percentages of utilitarian ware jars, bottle-necked vessels, and other forms probably also served culinary or serving functions.



Figure 15: Diagnostic finewares recovered from surface collection around Cerro del Gentil. The upper panel shows Late Paracas Topará-style Chongos blackware monochromes with pattern burnished decoration. The lower panel shows Early Intermediate Period Carmen finewares with characteristic red and white on black painted designs. Photos taken by J.C. Fasano.

This investigation also collected a remarkable quantity of shell. Jones (2014) conducted an analysis of invertebrate remains salvaged from these looted areas. Out of more than 12,000 specimens, she concluded that marine species dominate the assemblage. The edible bean clam (*Donax peruvianus*), the giant mussel (*Choromytilus chorus*) and the Peruvian scallop (*Argopecten purpuratus*) were especially prevalent, together comprising 88% of the total assemblage (Jones 2014:21). Jones notes a lack of evidence for shell-bead or shell-tool making in the Gentil sample. She also notes a general correlation between areas with high quantities of diagnostic ceramics and high quantities of shell, thereby supporting the hypothesis that certain zones to the north and south of the principal structure (LT1 and LT8) were particularly dense activity areas. Overall, these data suggest that the area immediately surrounding the principal structure at Cerro del Gentil was an active space for food preparation, consumption, and sizable gatherings of people during Late Paracas and post-Paracas times. Perhaps these areas were staging grounds or overflow for events taking place within the principal structure itself.

Excavations in 'Sector B'

PACH refers to the open area immediately to east of the principal platform structure (ca. 100 x 50 meters) as 'Sector B'. This area abuts the structure and is distinguished from the surrounding pampa by a high density of irregular fieldstone visible on its surface. This debris led us to hypothesize that the area might contain extensive architectural features below the surface (Fig. 16). Excavation in this area included 25 two by-two meter units forming a ten-by-ten meter area. This area is linked to the Late Paracas and post-Paracas surface assemblages described above, but unlike these areas is not heavily disturbed.



Figure 16: Excavation in the Sector B quadrant of Cerro del Gentil, looking towards the west. The platform mound is clearly visible in the background.

We encountered a series of thin ash lenses (<0.5 – 1 cm thick) in most Sector B units immediately below the surface. Ash lenses show irregular sizes and margins – they are not formally contained in hearths or used over long periods of time. We interpreted these features to be small ignition events typical of short-term campfires. A basic suite of domestic trash was association with these events. Most Sector B loci contained only a few odd ceramic fragments, mostly utilitarian wares with few diagnostic features, some of which were burned in fires. Other finds include small quantities of botanical remains, animal bone, shell, charcoal, lithic fragments, and small textile scraps. This material occurred in very small quantities, was quite fragmented and charred, and seems to be incidental debris and refuse incinerated as trash. Not far below, we

reached an extremely compact gravel and caliche mixture that heralded sterile soil. The entire deposit in Sector B was quite shallow – in some places no more than 25 cm thick.

Ceramic sherds are the most common type of material culture recovered from Sector B. We collected 138 sherds associated with the EIP Carmen style. This style is typified by white and red diagonal lines over a black field, usually found on the exterior of serving vessels (see illustrations in Fernández et al. *in press*). Carmen wares in Sector B take the shape of open bowls (n=72, 52% of the Carmen sample) and ollas (n=48, 35% of the Carmen sample) with smaller numbers of plate and cántaro sherds (each n=3, 3% of the Carmen sample). We also recovered a few sherds with incised designs typical of Middle Paracas decoration styles, as well as a few Late Paracas (Topará) black-fired monochrome specimens. These Middle and Late Paracas wares, though scant in comparison to post-Paracas sherds, demonstrate that the overall occupation at Sector B parallels that of Cerro del Gentil's platform structures (Pérez et al. 2015).

In one Sector B unit, excavators recovered a poorly preserved offering of a gourd containing cranial fragments from a human neonate. This deposit contained a relatively high amount of organic material, perhaps suggesting that other products once accompanied this offering. It is comparable to the gourd-vessel offerings interred during the closing events of the principal structure's Gray Phase court (see below).

Among the fieldstone debris found throughout Sector B, there is evidence for several semi-circular structures, partially enclosed, and each no more than 1.5 meters in diameter. The quantity of fieldstone in Sector B is not enough to suggest high walls suggestive of a larger investment in construction. These structures constrained the shallow ignition events, small midden features, and deposits described above. These appear to be the remains of temporary shelters, windbreaks, or short-term encampments that were built quickly and informally. Our

overall interpretation is that Sector B hosted temporary encampments in Late Paracas and post-Paracas times, perhaps associated with ongoing activity on the principal structure itself.

Excavations in 'Sector A' and the Uppermost Tier (2012)

In 2012, PACH investigators excavated a broad exposure on the principal structure's southern flank ('Sector A') and a test unit on the badly disturbed uppermost tier. These two areas are closely linked, as debris from the tier was disturbed and redeposited on the side of the structure by modern looting activity. The goal was to characterize sub-surface architecture, to identify chronological markers for site phasing, and to expose activities taking place in this area.

Investigators exposed and cleaned the structure's southern profile in 13 two-by-two meter units (Rodríguez and Zapata *ms*: 117-123; PACH 2012). This area once contained a set of external corridors and open room-units that have since collapsed downhill. This is evidenced by high amounts of adobe debris in surface layers and portions of tamped earthen floors protruding from the side of the structure. Multiple overlaid floor surfaces suggest regular remodeling of external architecture. Excavators also identified portions of mud-plaster walls running north-south, the most recent of which consisted of semi-hemispherical adobes resting on a base of rounded fieldstone. Comparable features at Pampa de Gentil suggest that these construction techniques are associated with EIP Carmen reuse (PACH 2012:56; Velarde 2006). Builders placed rounded fieldstones at wall corners, presumably at weak points prone to wind and water damage. Cane and reed features recovered in association with these contexts may represent the remains of light roofs or perishable walls. Recovery of red plaster on surviving portions of wall suggests that exposed earthen architecture was decorated in antiquity.

Non-architectural features associated with EIP levels include Carmen-style ceramic sherds, intrusive pits containing burnt stones, shell, and charcoal, and small amounts of plant remains, textile shreds, feathers, fragmented bone, animal soft tissue, and lithic debris. Pits are similar to features described in Sector B and may represent small ignition events. Some contained thicker layers of ash, burnt maize cobs and burnt ceramic sherds, perhaps indicating areas for food preparation or incinerating trash. In one unit, excavators uncovered what appeared to be human hair (PACH 2012:74). Middle Paracas post-fire painted sherds (Pinta) sherds did appear in surface levels, but these were clearly cast downhill from disturbance on the upper tier. There was little clear evidence for Middle or Late Paracas architecture in these units, though excavators did not remove standing architecture and thus did not expose deeper contexts.

The uppermost tier contains a large crater left over from modern looting (spanning 2 meters in diameter and approximately 2 meters deep) (Fig. 17). Excavation revealed a narrow wall composed of stacked, unworked fieldstones set in a mud mortar. The use of stone as construction material is not emphasized in Canziani's analysis of Paracas architecture in Chincha (1992), but construction techniques using rock cobbles and clay mortar are reported for Middle-to-Late Paracas structures at the Chongos site in Pisco (Peters 1997:208) as well as the nearby El Mono site in Chincha (PV57-63) (see below). Both Paracas post-fire painted sherds and Carmen sherds appeared near the surface of this unit, and excavators recovered botanical remains, shell, and fragments of bone. None of these materials appeared to be *in situ*. Deeper levels yielded post-fire painted wares (Pinta) small quantities of marine shell, bone, botanicals, animal hair, small fragments of textile, and a Middle Paracas incision-decorated spindle whorl similar to those depicted by Tello and Mejia from the Cerro Colorado tombs (Tello and Mejia 1979:144). No post-Formative material appeared below the surface level. The nature of activities taking

place on the uppermost tier remains unclear, although we can hypothesize that this area once contained a small annex, perhaps connected via a passageway to the major sunken court.



Figure 17: Salvage excavation of a disturbed crater at the summit of Cerro del Gentil in July 2012, looking northeast.

Sunken Court Architecture

Excavation of the sunken court at Cerro del Gentil took place in 2013 and 2014 (Fig. 18). The court was a deep but confined space that underwent numerous architectural renovations throughout its history, including partial removal of earlier phases, rebuilding directly upon prior architecture, construction of partition walls, intentional and unintentional backfilling, and intrusive placement of ritual offerings. The court itself is badly damaged by looting events, including deep pitting, decontextualized adobe clods and fieldstone from destroyed architecture,

and scatterings of human remains, abundant pottery sherds, and other artifacts on the surface. The resulting stratigraphy is quite irregular and complex, presenting major challenges for investigators. Overall, excavation revealed multiple 'stacked' courts dating to the Middle Paracas (Cavernas) phase. Public ritualized events included the careful deposition of high-value offerings and some evidence for feasting activity. Most notable was the site's final Middle Paracas event, wherein celebrants interred at least six funerary bundles alongside a cache of ornate goods and numerous Pinta style finewares (Tantaleán et al. 2016). Late Paracas times saw low-intensity reuse of the court in associated with Topará monochromes. Tantaleán (*in press*) provides the authoritative work on the architecture of Cerro del Gentil; my discussion reflects his argument.



Figure 18: Cerro del Gentil's second tier, facing the upper-most tier to the west. Courtesy H. Tantaleán.

Excavators identified three major architectural phases in the sunken court area, each separated by loose deposits of silty earth. The earliest two, the 'Yellow' and 'Gray' phases, each

represent the construction of a distinct four-walled sunken court. The third 'Brown' phase includes new construction and a partial reuse of Gray phase architecture as a mortuary area. Each phase is embedded within its predecessor - as a result, later phases are smaller in area and volume, shallower in depth, and located towards the center of the tier. Excavators also described 11 major 'caps' (Capas A-K) nested within the 4 major architectural phases (Rodríguez and Zapata *ms:*130-137). These are non-uniform strata that were laid down during court events, for example midden or debris deposits. Caps contain more than 150 individual loci, which are typically discrete deposits like ritual offerings, burials, disturbances, etc.

The *Yellow Phase* court is the oldest structural element identified at the site. It is the largest, deepest, and best preserved court, measuring approximately 12 by 12 meters in plan and at least 2.5 meters in depth (Tantaleán *in press:*83-84). The court is rectilinear and aligns to the cardinal directions. Architecture consists of five wall segments, a finished floor, and a small exposure of associated floor outside of the court on the platform's northern exterior; the eastern wall is hidden beneath Late Paracas architecture and is not visible (Rodríguez and Zapata *ms*). The cores of Yellow Phase walls combine conical adobe units with large, semi-rounded fieldstones. Walls are finished with a fine yellow-grey mud slurry from which the phase derives its name. Only low concentrations of material culture were recovered from the Yellow Phase court, probably due to cleaning out and leveling in preparation for the construction of the subsequent Gray Phase. These included a concentration of maize husks, seeds, carbon, pieces of wood, small stones, ceramic fragments, and portions of woven reed matting. The court was exclusively associated with Middle Paracas (Pinta) ceramics. Tantaleán suggests a radiocarbon range of 550-400 BCE for the Yellow Phase based on three dates (Tantaleán *in press*:89).

The *Gray Phase* court measures approximately 7-by-7 meters and reaches a depth of 2.4 meters (Tantaleán *in press*:84). This is a significant reduction of the total court size. The construction of a new atrium, a rectangular room approximately 30 square meters in area, provided access to the court from the south. The court and atrium partially reutilize Yellow Phase architecture but include new wall and floor additions. The atrium floor rests several meters above the floor of the court itself – perhaps providing entrants with a view of activities taking below. Excavators identified evidence of a passage granting access to the atrium through its eastern side. A single Gray Phase deposit contained twelve camelid bones bound together with vegetal cord and associated with basketry and ceramic fragments. This appears to be a ritualized offering. Like its predecessor, the Gray Phase is associated exclusively with Middle Paracas (Pinta) style ceramics. Tantaleán places the Gray Phase between 400-300 BCE based on three radiocarbon dates (Tantaleán *in press*:88).

The *Brown Phase* is defined by a new use of the court as a cemetery and the structure's final period of use by Middle Paracas communities (see Tantaleán et al. 2016). Architecture includes four new walls plastered in a brown mud slurry, reuse of some older Gray Phase wall components, and a new prepared earthen floor covering the area (Rodríguez and Zapata *ms*:139). The result is a very narrow sunken court (7 by 2 meters) of shallow depth (0.9 meters) with its long axis running north-south (Tantaleán *in press*: 85). The Gray Phase atrium remained unmodified and in use during this time, and was intentionally destroyed and thrown into the court at the terminus of the Brown phase (Tantaleán *in press*: 86). Deposits in the court bear witness to consumption-related activities accompanying burial events. For example, *Capa D* consisted of dense guinea pig droppings and organic matter, interpreted as the refuse from a holding pen; *Capa E* was a midden deposit composed mostly of organic material (botanicals and

animal bone), dense quantities of shell, and limited amounts of undecorated ceramic; and *Capa C* provides direct evidence for large amounts of feasting, including large quantities of shell, bone, maize husks, other botanical remains, portions of textile (Zapata and Rodríguez *ms*:161). Excavators identified at least six funerary bundles and 17 non-subsistence related ritual offerings (Rodríguez and Zapata *in press*: 148). Superficial levels of the sepulcher contained textile material, fragmented bone, and branches of the pacae tree (*Inga feuilleei*). The court clearly became a dedicated cemetery space during this time, involving modest architectural renovation, interment of mummy bundles, rich feasting, and deposition of high-value offerings (see below). Tantaleán places the Brown Phase between 300-250 BCE based on nine radiocarbon dates (Tantaleán *in press*:88) though the dates themselves suggest a wider range, perhaps 350-200 BCE.

Rodríguez and Zapata (*in press*) describe the ceramic assemblage recovered from Middle Paracas layers of the sunken court. This includes 1003 ceramic sherds diagnostic for vessel form. Post-fire resin-painted Middle Paracas sherds (n=258) and negative-resist sherds of the specific Pinta substyle (n=269) are associated with the Yellow, Gray, and Brown phases (Fig. 19), with Late Paracas (Topará) styles appearing in post-abandonment layers. That is, about half of the sample consisted of finewares. The Brown Phase events contained the majority of the ceramic assemblage (ca. 93%) (Rodríguez and Zapata *in press*:109-111). Middle Paracas forms included two varieties of escudilla, five varieties of tazón, two varieties of vaso, botellas, platos, cántaros, seven varieties of neckless olla, and a few ceramic tools (spindle whorls and polishers). Grater bowls with red painted rims are present in the samples. Tazónes, escudillas, and neckless ollas were the most common vessel forms found throughout the sunken court. Botellas, vasos, and platos are entirely restricted to the Brown Phase. In short, the overwhelming majority of Middle

Paracas ceramic at Cerro del Gentil is associated with funerary events that took place just prior to the court's abandonment. Late Paracas (Topará) Chongos blackwares comprised only 10 sherds from near-surface levels. Rodríguez and Zapata (*in press*) suggest that Pinta wares at Cerro del Gentil are contemporaneous with Ocucaje 8-9 wares in Ica, placing these phases at the terminus of the Middle Paracas period.



Figure 19: Middle Paracas 'Pinta' finewares recovered from excavation in Cerro del Gentil's sunken courts. Grater bowl sherds are also present (bottom right). Photo by J.C. Fasano, courtesy H. Tantaleán.

Ceremonial Deposits

The Brown Phase contained a dense assemblage of high-value ceremonial offerings, funerary internments, and feasting debris. This presents the single largest assemblage recovered at Cerro del Gentil. Excavators suggest that the majority of this assemblage represents one massive event (Tantaleán et al. 2016), and several auxiliary deposits. Apart from objects associated directly with mummy bundles, investigators uncovered 17 discrete offerings deposited around the sunken court in parallel with this event. These deposits allow us to consider the material investments made in terminal Middle Paracas ritualized events, to examine the geographical origin of participant communities, and to define the spatial syntax of Paracas ritual practices in the mid-valley cluster.

The largest offering is a sizable neckless olla containing a ceremonial 'kit' including 13 gourd containers (*mates*), 4 ceramic vessels, 38 complete individual baskets, and a small textile bag filled with human hair (Fernández and Rodríguez *in press*). It was recovered inside the southeast corner of the court. The olla itself was burned on its exterior, suggesting that it was used during the event and 'retired' at the event's close. Ceramic vessels are post-fire painted wares executed in the local post-fire resin painted styles sharing similar motifs with those recovered from the Cerro Colorado Cavernas burials. One small Pinta jar contained an additional bundle of human hair. Of the 13 gourd vessels recovered in the offering, seven were pyro-engraved with motifs, including zoomorphic figures in profile (felines, birds and foxes) in exterior bands around the center of gourd specimens, interlaced rhomboid and hexagonal bands, circle-and-dot elements filling in negative space within bands, and other geometric designs. Other gourd specimens are entirely undecorated, but were cut to form narrow-necked bottles, jars, and closed globular containers. Baskets include circular specimens woven from a central

point, and specimens with square bases that flare out into a circular opening – akin in form and technique to pieces recovered from the Cavernas burials (Tello and Mejia 1979:172, Figure 36). Excavators found several of these baskets neatly 'stacked' inside one another. Most specimens show complex geometric designs executed by interweaving beige and black-dyed thin flexible reeds. Interlaced rhomboid designs on some pieces approximate the motifs observed on ceramics and gourds (Fig. 20). The rims of several baskets are decorated with woven yellow, red and black-dyed camelid wool. Finally, the Brown Phase ritual 'kit' contained two textile bags with masses of human hair, earth, and botanical matter. One is embroidered on its exterior with red-dyed camelid fiber, forming a poorly preserved image. Fernández and Rodríguez (*in press*) suggest that these objects were used as part of major ceremonial events before deposition.



Figure 20: Basketry recovered from a single ritual 'kit' interred in an olla during the Brown Phase of Cerro del Gentil. Courtesy H. Tantaleán.

Excavators identified 16 other discrete deposits associated with the Brown Phase (Fernández and Rodríguez *in press*). Many of these represent refuse associated with ceremonial or comestible activity, including concentrations of burnt wood, cane, shell and other botanical material, pottery fragments, bottle stoppers, and dozens of maize cobs along the court's walls. Some burnt deposits were often delimited by stones or adobes, suggesting intentional burning of debris in temporary hearths or possibly intentional ceremonial incineration of selected items. Here it was common to find nearly complete but fragmented ceramic vessels in context with maize cobs seeds, gourds, other botanical remains, bone and textile scraps. These events appeared to be small and isolated – there is no evidence for an overwhelming conflagration in the court.

Other unburnt offerings suggest careful deposition of select materials. These include singular ceramic vessels, *mates,* and baskets; pots containing fine sand, seeds, shells, charcoal and a small textile bundle; textile-covered baskets containing gourd, ceramic, maize cobs and bone; and a medallion made from colorful bird features. One offering involves an upside-down Pinta basin containing the remains of several other vessels, marking the closing of the Brown Phase court. The role of other intentionally deposited objects is unknown – for example, a large (60 cm long) textile 'tube' containing bundles of prepared wooden rods. Nearly all decorated finewares recovered in this event belong to the Pinta style, and are comparable to vessels recovered from the Cavernas Peninsula burials (Tello 1959; Tello and Mejia 1979).

Funerary Bundles

The Brown Phase court contained seven near-complete mummies wrapped in cotton *bundles*, as well as the scattered remains of several more individuals (Fig. 21). Alexis Rodríguez

suggests perhaps as many as ten total burial events (Rodríguez *in press*:164). At least six of these bundles were deposited in a group and accompanied by baskets, gourd vessels, fineware ceramics, decorated textiles, *pacae* branches and additional offerings. They resemble Cavernas-style interments in their bundled form and stylistic aspects of associated grave goods, but are obviously quite different in terms of tomb architecture (Rodríguez *in press*:145). Some features seem to be locally specific to the Cerro del Gentil burials – for instance the placement of gourd bowls over the mouth of open vessels near bundles and use of sunken courts as a cemetery context. From a regional perspective, these follow the general bundling tradition found in the northern valleys of the south coast, in contrast to Paracas communities with distinct burial traditions, such as Palpa. These are the first scientifically reported Paracas burials in Chincha.



Figure 21: One of half a dozen Middle Paracas funerary bundles left in the sunken court of Cerro del Gentil during its final Middle Paracas phases. The image on the left shows the bundle as it was left in the court. The image on the right shows a variety of polychromatic textiles closer to the body. Courtesy H. Tantaleán.

Gómez (*in press*) conducted a bioarchaeological analysis on five of the individual bundles found together in Locus 247, a separate bundle from Locus 246, and a bundle from Locus 150. The latter two were separate from the group burial. Her results suggest that Locus 247 contained three adult females and two subadults. One young adult female was between 15-21 years old, one between 24-35 years old, and one around 60 years old; of the two subadults, one was slight younger than a year, and the other between 2-4 years old. The oldest female suffered from a suite of age-related pathologies – bone loss in the sacrum (possible osteoporosis) and osteoarthritis in the lumbar vertebrae (Gómez *in press*:170). The second oldest female suffered from an active infection that caused debilitating inflammation in the mandible, and Gómez suggests that this might be the cause of death. The youngest adult shows evidence for a variety of pathologies that may indicate infection or other medical stress. The only skeletal trauma reported was history of a broken nose on the oldest adult. The single individual from Locus 246 was an older adult male between 45 and 60 years old with dental and joint pathologies typical for his age. This individual exhibits cranial trauma from a blunt instrument and a subsequent surgical trepanation; he did not survive long after treatment. The individual in Locus 150 was a subadult between 3-5 years old with evidence for tabular-style cranial modification.

The adult females exhibit tabular cranial modification also found among adults in the Cavernas tombs, as well as at least one example of forearm tattooing similar to that reported in the Wari Kayan Necropolis populations (Gómez *in press*:175). Two of the adult females shared anatomical traits suggesting that they were related, for example a distal sinfalagism affecting the phalanges of the 5th metatarsal (fusion of the joint in the small toe). Relatedness between these individuals is akin the family or lineage groups apparent from the Cavernas burials. Oral pathologies among all individuals suggest a heavy carbohydrate-based diet, and the general state

of health points to physiological stress over the course of their lifetimes. Artefactual, chronological, and bioarchaeological indicators suggest that the Cerro del Gentil were contemporary to the Paracas Cavernas interments and followed a shared set of general principles.

Comestibles

Zorogastúa et al. (*in press*) conducted an analysis of comestibles recovered from Cerro del Gentil, including botanical, animal, and shell taxa. These results allowed them to compare consumption patterns in the court through time and test for the presence of high-quality or non-local species. They suggest that most of these finds are related to feasting activities that accompanied ceremonial events.

Excavators collected a total of 5672 macrobotanical specimens representing 15 plant species (99.88% identified to species level). They contrast scant finds from the Grey Phase (Capa H, n=101, 1.78% of the sample) to the more abundant Brown Phase (Capa E, n=5571, 98.22% of the sample). Extra-long staple cotton (*Gossypium barbadense*) is the most common species in the overall assemblage (n=1717, 30.27%), followed by jack beans (*Canavalia plagiosperma*, n=967, 17.05%), maize (*Zea mays sp.*, n=808, 14.25%), lima bean (*Phaseolus lunatus*, n=561, 9.89%), and champa (*Campomanesia lineatifolia*, n=488, 8.6%). Smaller amounts of peanut (*Arachis hypogaea*, n=365, 6.44%), pacae (*Inga feuillei*, n=336, 5.92%), bottle gourd (*Lagenaria siceraria*, n=115, 2.03%), string bean (*Phaseolus vulgaris*, n=88, 1.55%), and guava (*Psidium guajava*, n=76, 1.34%) were present. Analysts identified minor quantities of bulrush sedge (*Schoenoplectus sp.*, n=54, 0.95%), cassava (*Manihot esculenta*, n=51, 0.90%), local epiphytes (*Tillandsia sp.*, n=25, 0.44%), and caña brava (*Gynerium sagittatum*, n=14, 0.25%) (Zorogastúa et al. *in press*). Because they do not specify the anatomical features used for identification of

each species, it is difficult to say whether there are actually 'more' desirable units for some species over others. For example, fifty maize kernels may be recorded as fifty samples, but may only represent a single cob. The distribution of taxa in the Brown Phase mirrors that of the overall assemblage, with cotton as the most common taxa, followed by jack beans, maize, and lima beans. The sample size of the Gray Phase is very small making quantitative analysis within the phase difficult. Maize was the most abundant taxa in the Gray Phase.

All of the botanical taxa identified in Cerro del Gentil's sunken courts play important roles as subsistence products, raw materials for tools, and architectural materials. Maize, peanut, and beans are longstanding coastal domesticates preceding the Formative Period, while cassava and guava are later arrivals from nearby subtropical regions. Pacae is local to Chincha. Taxa used as raw materials include cotton and bottle gourd. Cotton has a long history as a principal raw material for coastal weaving traditions. Bottle gourds are abundant in archaeological contexts on the south coast, and are both functional containers and the medium for artistic display (pyroengraving). Both bulrush and caña brava grow locally and have principal uses as structural materials for roofing and walls in perishable architectural elements. Local epiphytes recovered at Cerro del Gentil may have also served cultural uses in associated with burials at the site – Benzing (2000:605) describes ornamental uses of various *Tillandsia* species in southern Peru for wedding decorations, on caskets at funerals, and as wrappings for pre-Hispanic mummies.

There are a few Formative sites on the south coast of Peru from which botanical assemblages are fully described and can be compared to Cerro del Gentil. Peters (1997:361-362) provides a synthesis of macrobotanicals found in Late Paracas contexts at Pachinga and Chongos, and DeLeonardis (1997:273-275) discusses botanical remains from domestic contexts

in Early-to-Middle Paracas Callango. In the Pisco case, midden and fill layers contained an assemblage similar to that of Cerro del Gentil, with the notable addition of *aji* capsicum peppers, sweet potato, *jicama* tubers, and lucuma (*jiquima*, lucuma, and sweet potato were represented by very small sample sizes). Raw material taxa are similar to those from Gentil, with the inclusion of a few additional local species (horsetail, cactus, maguey, *huarango* wood). Later Carmen levels at Pachinga and Chongos see the appearance of *algarrobo* pods and *chirimoya* fruit (Peters 1997: 365). Peters concluded that the botanical assemblage from Paracas sites in Pisco represented a suite of local, coastal valley taxa (Peters 1997: 371). In contrast, Paracas domestic contexts in Callango showed a prevalence of carbonized plant remains representing 99% industrially useful taxa by weight (cotton, *huarango* wood, local reeds, and gourds) and several notable subsistence taxa (maize, sweet potato, beans and chili peppers) (DeLeonardis 1997: 274). Despite a greater variety of taxa from Late Paracas contexts in Pisco, all three cases show a predominance of locally available coastal species.

Finally, the botanical assemblage at Cerro del Gentil contains a number of worked and composite artifacts constructed from plant materials. These range from small *camillas* (fragments of reed and fiber wound together), to fully functional tools. Zorogastúa et al. report a small circular dip-net made from a wooden hoop and woven reed, and a cactus spine comb – both similar to objects from the Cavernas cemeteries illustrated by Tello and Mejia (1979:174, 176). They also report 21 carved wooden cones from the Brown Phase, potentially net floats or bottle stoppers (Zorogastúa et al. *in press*: 201). Other finds include portions of painted wooden placard; fragments of basketry made from local reedy material (*Schoennoplectus sp*.); and 25 fragments of pyro-engraved gourd with complex designs (Zorogastúa et al. *in press*: 202).

Cerro del Gentil's sunken court also produced notable quantities of shell. Zorogastúa et al. (*in press*) analyzed the malacological assemblage from Capa E (a Brown Phase deposit) using Jones' (2014) shell typology for Chincha. Here they recovered 1423 invertebrate specimens representing 19 species of freshwater and marine bivalve and gastropod mollusks. Each specimen presents part of a shell, not a single organism – thus the total MNI is clearly much smaller. The most common was the edible intertidal marine mussel *Semimytilus algosus* (n=962, 67.60%) which thrives along the rocky littoral of southern Peru. This is also a common species in other Chincha malacological assemblages, for instance at the coastal LIP fishing village of Lo Demas (Sandweiss 1996:140). Other prevalent taxa include the marine snail *Tegula atra* (n=118, 8.29%), the ribbed mussel *Aulacomya atra* (n=95, 6.68%), the mussel *Brachidontes sp.* (n=54, 3.79%) and the saltwater clam *Mulinia edulis* (n=62, 4.36%). The remainder of the assemblage consists of lesser amounts of marine mollusks (15 species, each representing 0-2% of the total assemblage). The assemblage as a whole presents edible species. Analysts report no evidence of tool or bead production utilizing shell remains. It is notable that only low frequencies of *Donax sp.* littoral clams were present in Gentil feasting contexts, as this species is the most common in post-Paracas contexts surrounding Cerro Gentil (see Jones 2014) as well as in excavations at Huaca Soto (see Chapter 9). All mollusk taxa are local to the Chincha coast. There is a notable lack of skeletal elements belonging to fish in the Gentil assemblage.

Excavators recovered 270 samples of vertebrate animal bone from Capas C, E, G, and H (all Brown Phase) representing 12 species. Guinea pig (*Cavia porcellus*) and dog (*Canis lupis familiaris*) represent the most common elements identified (both n=73, 27.04%), followed by elements belonging to the Mountain Parakeet (*Psilopsiagon aurifrons*, n=38, 27.14%), and small amounts of camelid (*Lama sp.*, n=21, 7.78%). All guinea pig elements pertain to a single

individual, which was likely an offering (Zorogastúa et al. *in press*:198). Other taxa included singular elements from a hawk, and a sea lion. Deposits in this phase also included a clay medallion formed into the shape of a parrot's head and decorated with green and orange feathers, belonging to a species of large South American parakeet (*Aratinga sp.*). A most likely candidate for this specimen is *Aratinga wagleri*, the scarlet fronted parakeet indigenous to Peru's subtropical dry forests.

These remains express a mixture of wild and domestic taxa, although there is not enough evidence to suggest regular exchange with non-coastal areas. Camelid species are non-local fauna that must be brought from the highlands, but could have arrived on the coast during seasonal visits by pastoralists or traders. The natural range of *Aratinga* parakeets, for which only a single specimen was recovered from Cerro del Gentil, is not far beyond Chincha. Perhaps this was an idiosyncratic offering. Guinea pigs and dogs may be raised on the coast. Overall, the majority of vertebrate fauna at Cerro del Gentil appear to be left as ritual offerings, rather than comestibles products.

Late Paracas (Topará) and Post-Paracas Contexts at Cerro del Gentil

Late Paracas (Topará) reuse of the Cerro del Gentil court included minor architectural changes in association with Chongos-style pattern-burnished blackware ceramics. Structural changes included addition section of north-south wall between the court and the uppermost tier (perhaps part of a remodeled platform on the uppermost tier), superimposed over earlier Middle Paracas Brown phase architecture. Pérez et al. (2015) describe adobes in this wall as 'odontiform', laid with the flat side facing laterally to form the wall's outer face, and suggest that

this is a diagnostic Late Paracas feature comparable to techniques at the Chongos site in Pisco and nearby Pampa de Gentil. Excavation uncovered a hearth adjacent to this wall and facing the sunken court, defined by a circle of burnt fieldstones and containing botanical remains and shell. A small refuse deposit near the hearth contained Chongos-style blackware ceramics. Pérez et al. (2015) demonstrate that vessels were bowls and plates with pattern burnished interiors and a slight angular change near the rim, producing what Wallace (1986:41) refers to as a 'gambrelled bowl'. Excavators also recovered 165 blackware sherds in the superficial levels of the court. Fernández and Pérez (*ms*: 249) note that 92% of this sample are serving wares (n=152, cuencos, tazónes, and platos). These sherds depict internal pattern-burnished geometric designs depicting grids, parallel lines, rhomboid forms, and pattern-burnished depictions of feathers or leaves. Later Carmen Phase (EIP) offerings are also present in the court's surface layers. These intrude through earlier Paracas levels and include the sacrifice of an adult camelid and Carmen style ceramics. Pérez et al. (2015) suggest that Late Paracas and EIP Carmen reuse of Cerro del Gentil took the form of light, temporary events rather than a permanent occupation.

Adobe Brick Metrics at Cerro del Gentil

The use of adobe bricks as temporal or cultural markers is a common but untested practice for Formative south coast archaeology. Fernández et al. (*in press*:214) took length and width measurements on 20 bricks specimens from Late Paracas (Topará) architecture. Brick lengths range widely from 13-24 cm and widths from 12-15 cm. Average length was 21.5 cm and an average width 12.95 cm. In contrast, Zorogastúa (*ms*) measured 13 intact adobe bricks recovered from Middle Paracas debris within the sunken court. Zorogastúa describes these bricks as conical in shape. Lengths range from 15-21 cm (mean 17.27 cm), widths 8.5-13 cm (mean 11

cm), 11-16 cm high (mean 13.23 cm), and masses 1402-2953 g (mean 2222 g). These measurements raise the possibility that different cultural periods at Cerro del Gentil are associated with different brick shapes, but it is unclear whether this distinction is statistically supportable.

Using an average brick volume of 2431 cm^3, Zorogastúa estimated the number of bricks necessary to construct the outer walls of the Yellow and Gray Phase courts. Assuming a wall thickness of 50 cm for both courts, heights of 2.3 m and 1.8 meters (Yellow and Gray, respectively), and dimensions of 12x12 m (Yellow) and 7x7 m (Gray), he concluded that the Yellow Phase court required approximately 18,449 adobes bricks and the Gray Phase 10,364 bricks (Zorogastúa *ms*:279). Zorogastúa then conducted an experiment with local veteran brick-maker Basilio Ballumbrosio and concluded that a single person could produce 500-600 adobes per six-hour workday, given that materials were already available and prepared (Zorogastúa *ms*: 280). According to Ballumbrosio, the alluvial sediments in the low-lying areas around El Carmen are favorable for brick making, especially when mud is combined with a straw temper material. In an experimental trial, Ballumbrosio could produce one brick approximately every 30 seconds. Drying time varied between 3-6 days depending on weather conditions. Altogether, they estimated that a single person working six-hour days could produce the bricks required for the Yellow Phase in about 26 days and for the Gray Phase in 14 days. Based on this preliminary analysis, the construction of each court's walls would be easily accomplished by a small group of people working intermittently over a few weeks' time. Alternatively, a few dozen people working for half a day could complete the task, not accounting for drying time. These replicative experiments suggest that court construction at Cerro del Gentil required only low labor investments. However, it should be kept in mind that this analysis only accounts for construction

of the court walls – digging out of the court space, preparation of the substrate, and other architectural components not revealed by archaeological excavation were also required.

PACH Investigations at El Mono (PV57-63)

PACH researchers excavated several two-by-one meter test units at El Mono (Stanish et al. 2014) (Fig. 22). They placed one unit in Structure A, one in Structure B, and one in Structure C1. These units were designed to expose major architecture, characterize activity patterns in ceremonial structures in accordance with findings by Isla (1992), and recover organic materials for dating. While these test pits revealed little cultural material, they provided secure dates necessary to bring Isla's excavation data into dialog with valley settlement chronology.



Figure 22: Surveyors map one of the low earthen structures at El Mono.

Excavators placed the test pit in Structure A at the edge of an exposed profile, providing a view of the structure's deep stratigraphy. Structure A contained at least three clear construction episodes, with compacted earthen floors separated by layers of clean sandy fill (Stanish et al. 2014). At the base of each episode, between the floor and subsequent fill layer, excavators uncovered a layer of intentionally deposited maize husks and reeds. This layer was probably deposited in preparation for subsequent construction. These annual grasses provided excellent samples for radiocarbon dating. Dates indicate that all iterations of the structure were built in Middle Paracas times. Pinta-style sherds are visible on the surface of the structure and the immediate surrounding area support this conclusion. Excavators recovered little cultural material apart from sherds. Post-Paracas activity is clear in upper strata, including at least one destroyed tomb from an unknown period as well as limited Late Paracas (Topará) monochrome sherds.

Excavators placed one test unit squarely on the apex of the Sector B structure. Surface levels in Structure B contained post-fire resin painted pottery typical of the Pinta style, as well as fragments of textile and botanical material. Deeper layers in the structure revealed multiple occupation surfaces separated by layers of vegetal matting and sealed with clean sand fill, akin to those identified in Structure A (Stanish et al. 2014). Excavation revealed a portion of double-coursed wall, consisting of irregular fieldstones set in a mud mortar (PACH 2013:568). This confirms that the structure contained a sunken patio, as reported by Isla (1992). This fieldstone construction technique was similar to wall architecture on the uppermost tier of Cerro del Gentil.

Finally, excavators placed a test unit in Structure C1, just outside the building's southwest corner near the remains of a fieldstone wall. This unit yielded quantities of Pinta-style

Middle Paracas pottery and, like the other structures, layers of annual grasses for radiocarbon dating. We identified no additional architectural remains. All in all, these three test units supported Isla and Lumbreras' suggestion that El Mono was the seat of non-quotidian events.

Investigators observed that the orientation of El Mono's platform structures and wall features nearly matches the June solstice (294° azimuth for the Chincha Valley). This bearing has shifted by only one-fifth of a degree in the past 3,000 years. While other Middle Paracas platform structures in Chincha are typically oriented on an East-West axis, the long axes of Structure A and B orient to ~293° ± 2° and 294° ± 2° respectively. Structures C1 and C3 do not align to the solstice, but walls uncovered during test excavations in both structures indeed align to 295° ± 2° (Stanish et al. 2014).

Stanish et al. (2014) suggested that the summer solstice was the temporal marker for political ceremonial events at upper-valley Paracas sites like El Mono and Cerro del Gentil. This is supported by evidence for associated geoglyphs on the neighboring Pampa Carmen, an arid desert plane immediately to the southwest of the mid-valley cluster. PACH surveyors identified more than 70 geoglyph lines/line segments and at least 350 non-geoglyph features (stone cairns, circle *apachetas*, and rectangular platforms) in an area of approximately 30^2 km (Stanish et al. 2014). Geoglyphs are predominantly linear line segments (Fig. 23).

Four notable geoglyph clusters converge on the five Paracas-associated sites that make up the mid-valley cluster (PV57-59, 60, 63, 64, 136). Several segments form line-pairs or 'framing' lines (lines 221/222, 340/341, 122/123, 124/167, 162/164, and 107/108) that orient towards Paracas platform structures. For a person on the ground, these V-shaped pairs actually appear as parallel lines due to perspective projection distortion (Stanish et al. 2014) (Fig. 24). Thus, for a traveler moving along these segments, line pairs appear to 'mark' culturally significant sites by

providing visual cues and geographic orientation – a person standing between specific sets of lines has a clear view of Paracas platform architecture to the northwest. In several cases, ray centers contained stone *apachetas* that may once have been viewing platforms.

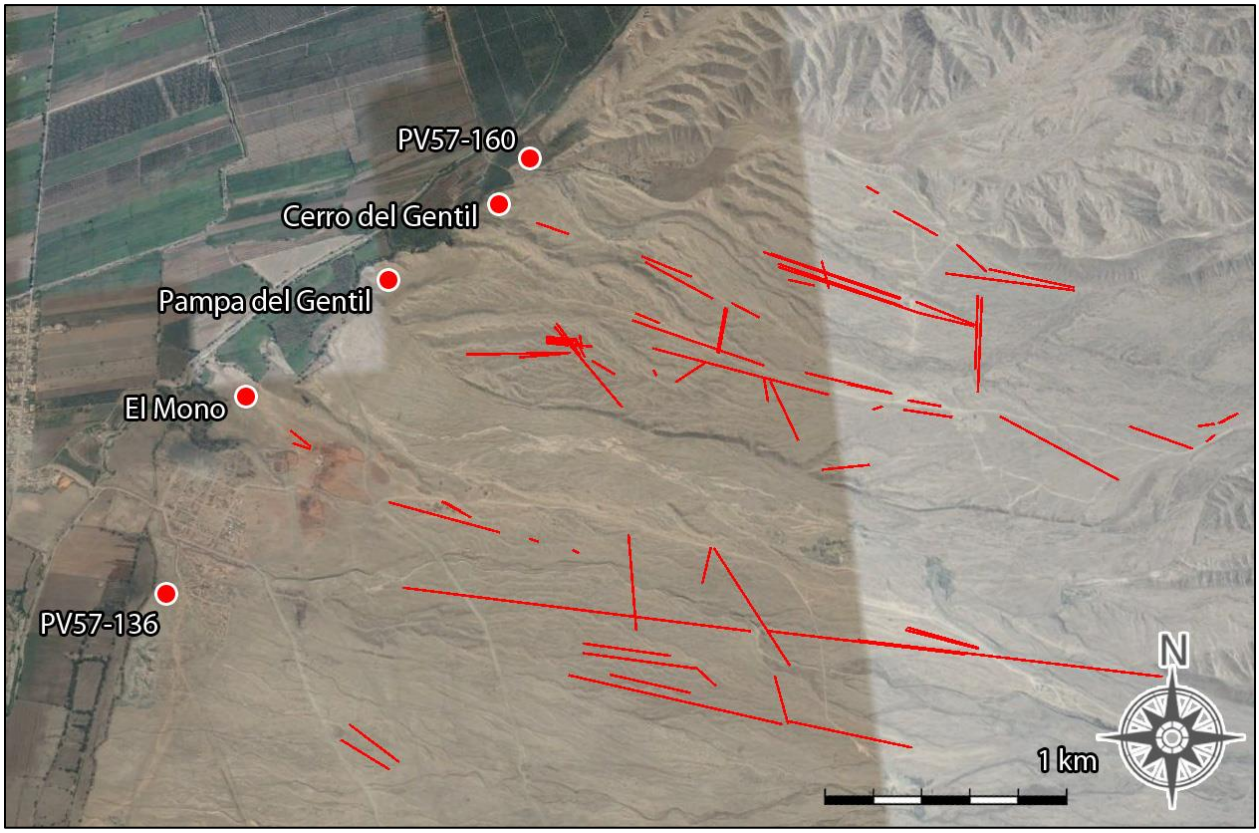


Figure 23: Red lines indicate linear geoglyphs on the Pampa Carmen, many of which orient directly towards one of the five mid-valley cluster sites. Additional illustrations are available in Stanish et al. 2014.

Similar to the platform structures at El Mono, several line segments oriented toward the June solstice. Three of the four major line clusters include at least one long geoglyph with a bearing of 294° (lines 29–32, 124/167,390, 451/452, and 319). In some cases, segment pairs that mark the solstice also orient directly towards Paracas sites (for example lines 124 and 167, which frame PV57–64). At least 14 segments orient directly to El Mono (PV57-63), and three of these

segments also mark the June solstice (lines 319, 451, and 452). A person approaching these sites along these segments around the time of the June solstice would observe the setting sun sink into the tops of the platform mounds.



Figure 24: Looking westward towards Cerro del Gentil along one of the Pampa Carmen geoglyphs. Two orange cones in the foreground mark a series of stone piles and small apachetas; two figures in the far background mark the same lines. Cerro del Gentil is visible in the far background to the left of the geoglyph.

Geoglyphs are not single-purpose technologies, but are flexible tools that serve a variety of functions. Stanish et al. (2014) argue that these mound-geoglyph complexes on Chincha's southeast margin present a ritualized landscape marking both ritual space and calendrical time. Paracas platform structures clearly served as the focal point for major events – such mortuary

ceremonies identified at Cerro del Gentil, and perhaps related activities at El Mono. In a most utilitarian sense, geoglyphs literally 'point the way' for participant communities. By marking the solstice, they provide a formal schedule for these events. Stanish et al. (2014) suggest that this ritualized landscape encouraged interaction between disparate Paracas communities.

Upper Valley Survey and Additional Formative Sites (2013)

PACH investigators conducted a reconnaissance survey of the upper-valley corridor above the convergence of the modern Rios Matagente and Chico. We covered approximately 40 square km along a 20 km stretch of valley bottom. Our goal was to clarify and expand upon Canziani's (2009) identification of small, upper-valley occupation sites listed on various INDEA maps. We identified 11 sites with Formative components based on surface ceramics. These sites are evenly dispersed across the survey area and present no clear clustering or hierarchical arrangement. Each covers no more than a few hectares at most, and nearly all consist of retaining terraces with scattered evidence of utilitarian pottery and small structures (interpreted as domestic in nature). In most cases they are built into the steep escarpments that border the valley, some rising more than 50 meters above the river. We also recovered isolated Formative sherds in substantially eroded down-hill areas, suggesting that our picture of Formative settlement in the upper valley is much obscured by local geomorphological processes.

Formative pottery in upper valley sites included incised and post-fire painted Pinta wares, neckless ollas with incised rim designs, and grater bowl fragments. Diagnostic sherds at these sites is present but not dense – usually site assemblages contained less than half a dozen specimens. Design elements on post-fire painted pieces include incised bands, rhomboid figures

with circular incisions at the corners, dot and line motifs, and concentric or parallel incisions. These sites are associated with the Middle Paracas period and appear to be contemporaneous with the mid-valley cluster. We identified no Late Paracas (Topará) ceramic components in this survey. This complicates Canziani's suggestion that this area was developed in parallel with Late Paracas ('Necropolis') urbanization of the lower valley (Canziani 1992).

PACH Excavations at La Cumbe

Most recently, under the direction of Tantaleán, PACH investigators conducted trial excavations at the site of La Cumbe (PV57-3), a monumental non-vernacular platform structure in the valley's northeastern corner. It is part of the Huaca Centinela cluster, located adjacent to the littoral. La Cumbe is known archaeologically from Uhle's early excavations of several Late Intermediate Period cemeteries along its flanks (Lumbreras 2001; Uhle 1924 [1901]; Kroeber and Strong 1924). The structure contains at least one rectilinear sunken court aligned along an East-West axis, and exhibits post-fire resin painted Middle Paracas finewares (Henry Tantaleán, *pers. comm.*). Excavations at La Cumbe took place in the northeastern quadrant of the court and were accompanied by study of an exposed profile on the structure's eastern end. Investigation is in its initial phases at the time of writing, and publication of results will be available at a future date. The following information is based on personal communication from excavation director Henry Tantaleán.

La Cumbe sites upon a natural *tablazo* that provides a dominant view of the surrounding landscape. Similar to the evolution of Cerro del Gentil and El Mono, the structure underwent multiple renovation events defined by alternating floor-and fill layers. Each of La Cumbe's four

iterations includes a deep sunken court with walls composed of conical adobe units and mud-plastering of exposed surfaces (Henry Tantaleán, *pers. comm.*). Courts were typically well-maintained and kept relatively free of refuse, with the exception of ash lenses between court iterations, interpreted as abandonment events. Courts were filled and leveled with architectural debris before construction of the subsequent phase (Henry Tantaleán, *pers. comm.*).

Associated levels in the exposed profile for the first court revealed a thick deposit of burnt debris containing charcoal, shell, and macrobotanical remains, as well as a scrap of textile depicting the 'Occulate Being' – a regional motif that appeared during the Middle Paracas period (Henry Tantaleán, *pers. comm.*). The second court reutilized earlier walls and displayed a similar assemblage, with the addition of incised grey-ware pottery. The third renovation of La Cumbe involved the installation of new court walls, dramatically reducing the overall area of the court. Evidence for post-holes in the phase-three floor suggest that phase included a perishable partitions or coverings. Excavators also exposed a small staircase in the eastern wall and a low bench-like feature around the interior of the space (Henry Tantaleán, *pers. comm.*). Middle Paracas post-fire resin painted finewares are prevalent in this phase. Excavators suggest that technical and ornamental features of these vessels are comparable to those found in Pinta wares and Ocucaje 8 pieces. Grater bowl fragments are also present (Henry Tantaleán, *pers. comm.*). Thus La Cumbe presents the architectural and stylistic characteristics similar to those identified in the mid-valley cluster

The fourth occupation of La Cumbe is distinct from the prior three. This phase saw a partial filling of the older court, transformation of the eastern staircase into a sloping ramp, and the installation of a small platform at the apex of the ramp above the eastern wall of the court (Henry Tantaleán, *pers. comm.*). This presents interesting parallels with Huaca Soto (see Chapter

7). Builders utilized rounded field stones as the base of platform walls, similar to the Late Paracas (Topará) period architectural renovations at Cerro del Gentil. Excavators noted an overall spike in utilitarian wares and large ash lenses during this phase. Late Paracas (Topará) wares are so far absent from La Cumbe. Unpublished radiocarbon dates from La Cumbe place the site in the Middle Paracas phase (Henry Tantaleán, *pers. comm.*).

PACH Radiocarbon Dates from Middle Paracas Settlements in Chincha

One of the major contributions of PACH research has been the establishment of a robust radiocarbon sequence for Paracas settlements in the valley. More than 70 dates are now available for El Mono, Cerro del Gentil, La Cumbe, Huaca Soto, and other Formative sites in the valley. The Keck Accelerator Mass Spectrometry Laboratory at the University of California, Irvine, processed all radiocarbon samples recovered from PACH projects. Calibration of the 14C age for each measurement used CALIB 7.0 protocols using the SHcal13 dataset.

Thirteen AMS radiocarbon dates from three structures at El Mono (A, B and C1) suggest that the site was used by Paracas peoples during the 4th and 3rd centuries BCE. All 13 dates come from non-carbonized annual grasses (maize husks and reed leaves or stalks) recovered in stratigraphically sealed fill layers placed at the base of multiple construction episodes in each structure (see Stanish et al. 2014). One outlier from Mono A (UCIAMS-131965) returned a date of 1305–1395 cal. CE. This reflects the reuse of the structure during the Late Intermediate Period as evidenced by surface materials.

Three samples from Mono A returned dates falling within a range of 410-355 BCE (probability 0.83) or 410-250 BCE (probability 0.16) (see Stanish et al. 2014). These dates were taken from three phases within Structure A, each pertaining to a different layer of annual grasses laid down before the construction of a new occupation surface. For example, UCIAMS-131966 was recovered from 97 cm below datum and returned a date of 400-355 cal. BCE (0.83 probability). Deeper into the stratigraphy at 112 cm below datum, UCIAMS-131967 returned a date of 405-360 cal. BCE. Finally, at 183 cm below datum UCIAMS-131968 returned a date of 410-365 BCE. These stratified dates suggest that all construction phases at Structure A occurred within a short period of time, perhaps within a single lifetime.

Four radiocarbon samples from Mono B also cluster tightly with a range of 365-225 (0.65 probability) or 390-205 cal. BCE (0.32 probability). Two samples from 48 cm below datum (UCIAMS-131969 and UCIAMS-131970) returned dates of 360–205 cal. BCE and 365–210 cal. BCE respectively. A third sample at 62 cm below datum returned a date of 360–205 cal. BCE. A final sample at 85 cm below datum returned a date of 320–225 cal. BCE (0.65 probability) or 390-345 BCE (0.32 probability). Thus, it seems reasonable to argue that Mono B appeared around the closure of Mono A and persisted into the late 3rd millennium BCE.

Finally, five samples from Structure C1 returned dates ranging from 405-225 cal. BCE. Two samples recovered from 40 cm below datum (UCIAMS-131973 and UCIAMS-131974 respectively) returned dates of 405–355 cal. BCE (probability 0.92) and 320–225 cal. BCE (probability 0.61). From 50 cm below datum, one sample (UCIAMS-131975) returned a date of 400–350 cal. BCE (probability 0.57) or 300–230 cal. BCE (probability 0.43). Finally, two dates from 110 cm below datum (UCIAMS-131976 and UCIAMS-131977 respectively) returned dates of 410–355 cal. BCE and 405–355 cal. BCE (probability 0.87). These dates place Mono C1 in a

closer parallel to Mono A, but may suggest that the structure was in use for a longer period. The El Mono dates are tight, straightforward, and do not contradict stratigraphic relationships.

Seventeen radiocarbon dates exist from excavations in the sunken courts of Cerro del Gentil (see Tantaleán *in* press; Tantaleán 2016). Overall, these dates suggest that activity at Cerro del Gentil's sunken court began in the 5th century BCE (Yellow Phase) and lasted into the 3rd century BCE (Gray and Brown Phases). We can assume court phases (Yellow, Gray, Brown) are discrete from one another due to the construction of new court walls and floors. However, from available data it is difficult to account for the spatial relationships between samples within a given court - i.e. stratigraphic depth and whether samples came from discrete deposits. Three dates from the Yellow Phase present a total range of 590-360 BCE. One of these dates (UCIAMS-162406) is much older than the remainder of the sample and appears to be an outlier – a fragment listed as 'botanico' returning a date of 590-405 BCE (0.67 probability) or 750-615 BCE (0.33 probability). The remaining two dates provide ranges of 515-380 BCE (UCIAMS-162403) and 415-360 BCE (UCIAMS-162415). If these three samples are from the same deposit, the range would be constrained between 415-380 BCE. If not, there indeed may be an earlier context. Tantaleán suggests that the Yellow Phase falls between 550-400 BCE; given the available data, the late 5th century BCE seems to be a parsimonious starting point.

Three dates from the Gray Phase produced a range of 475-260 BCE. One date returned a range of 475-360 BCE (UCIAMS-162404), a second produced a range of 410-355 BCE (UCIAMS-137882), and a third a range of 410-260 BCE (UCIAMS-162414). Given that the Yellow Phase architecture would have been sealed off from the Gray Phase, the early part of this range could not be earlier than the start of the constrained range for that phase – i.e., 415 BCE. Tantaleán (*in press*:88) suggests that the Gray Phase ranged between 400-300 BCE, which is

logical based on stylistic similarities shared with contexts in El Mono and La Cumbe that also fall within this range.

Nine Brown Phase samples were recovered from cord, textile, and gourd fragments associated with the Middle Paracas mummy bundles. These samples return an overall range between 405-155 BCE, roughly contemporaneous with Paracas occupations at El Mono. Eight of these dates have a lower range between 385-360 BCE, which seems to provide a solid starting range for the interments. Seven provide an upper range between 210-200 BCE. This leaves open the possibility that many of these bundles were interred as part of a single event, as excavators propose elsewhere (Tantaleán et al. 2016). Tantaleán (*in press:*88) suggests a date between 300-250 BCE for the Brown Phase.

Six unpublished dates are available from La Cumbe. These will be described in future publications by excavators. For now, we can say that these returned ranges between the fourth and second centuries BCE (Henry Tantaleán, *pers. comm.*). Five of these dates show a lower range in the mid-fourth century BCE and an upper range at the end of the third century BCE BCE. This suggests that La Cumbe was constructed and occupied (at least the portions represented by these dates) in parallel with El Mono and the Grey and Brown Phases at Cerro del Gentil. Thus all three of the PACH-excavated sites in this chapter – Cerro del Gentil, El Mono, and La Cumbe – were Middle Paracas (Cavernas) era structures.

Chapter 6: Huaca Soto: Research Design and Methodology

So far I have discussed Paracas development at two scales – the first a broad and long-term view of regional-scale settlement patterns and evidence for shifting sociopolitical organization (Chapter 2), and the second considering the evolution of non-vernacular architecture in Formative Chincha specifically (Chapters 4 and 5). Radiocarbon dates and stylistic assays from multiple sunken courts in Chincha suggest that these structures were active during Middle Paracas (Cavernas) times, with construction and primary use falling between the 5th and 3rd centuries BCE. During this period, sunken courts shared a well-established architectural canon, hosted large non-quotidian events, and involved a suite of material culture common to Middle Paracas assemblages elsewhere on the south coast. It is clear that the valley's Paracas communities were evolving in tandem with broader regional-scale changes that occurred during this time. For instance, the appearance of the region's first settlement hierarchies, the emergence of new locally-derived iconographic styles, and the rise of clear Middle Paracas corporate groups all took place at the same time that sites like La Cumbe, Cerro del Gentil, El Mono, and Huaca Santa Rosa were growing larger, undergoing continuous monumental renovations, and attracting sizable groups of adherents on a regular basis. Likewise, it appears that Chincha's sunken courts were universally abandoned for politico-ceremonial functions by the onset of the Late Paracas period – the very time where Paracas political centralization reached a regional apex and individualizing elites appeared in the Peninsula cemeteries. Returning to the major issues laid out in the introduction to this dissertation, the objective is to understand the role of Chincha's politico-ceremonial landscape in the development of Middle

Paracas (Cavernas) communities, and to understand why it failed at the onset of Late Paracas (Necropolis/Topará) times.

The goal for the remainder of this dissertation is to further explore the development of Formative Chincha by considering the long term evolution of Huaca Soto (PV57-26), a massive platform structure in an untested lower-valley cluster (Fig. 25). Controlled excavation in two of Huaca Soto's sunken courts provides high-resolution data on the structure's architectural development, the evolution of activity patterns associated with the site, and data on whether participant communities had access to non-local high-value goods that might suggest long-distance economic relationships. Excavation also provides the secure contexts necessary for radiocarbon dating of the structure's internal features. In most general terms, I am testing the hypothesis that the evolution of Huaca Soto paralleled the evolution of Cerro del Gentil, El Mono, and La Cumbe – initially appearing during Middle Paracas times in association with Pinta-style polychromes, and diminishing by Late Paracas times with the appearance of Topará-style monochromes. This comparison also extends to events at Huaca Soto – we would expect ritual architecture and practice to mirror that of other Paracas monuments in Chincha. If this is indeed the case, then we can further explore why these monumental structures appear around the same time, operate under the same general framework, and cease to operate suddenly around 200 BCE. On the other hand, if Huaca Soto is significantly different that other PACH datasets – either expressing a different chronological profile (perhaps an Early Paracas component like Pozuelo, or a major Late Paracas continuation not yet described in Chincha), or expressing a very different kind of ritual architecture and practice – we can further explore the implications of this outcome. This chapter outlines the research design for a multi-year archaeological

investigation at Huaca Soto, poses a series of formal hypotheses to be tested, and describes the methodology deployed for data collection.



Figure 25: Huaca Soto from the northwest using a fish-eye lens. There is a small single-story home in the left background for scale.

Research Question 1: Who Built and Occupied Huaca Soto?

The first step of this investigation is to determine whether Huaca Soto was a Formative Period structure in the first place. This should include a determination of specific Paracas phase(s) at the site (e.g. Early, Middle and/or Late Paracas) based on analysis of distinguishing fineware styles corroborated by secure absolute dates. Wallace (1971) referenced the structure's exposed conical adobe substructure as possible evidence for Middle Paracas (Cavernas) construction, but noted that the only available surface ceramics (located in the structure's westernmost and highest sunken court) appeared to be post-Nasca in date. His later arguments suggested that Huaca Soto was one of nearly a dozen isolated Late Paracas ceremonial centers (Wallace 1986:43). Menzel (1971:82) referenced Wallace's observations to propose a principal Late Paracas (Topará) occupation of the site. Canziani (1992) concluded that the Soto cluster

was primarily occupied during the Late Paracas period as part of an emerging urban environment (Canziani 1992:93). Lack of subsurface testing meant that potential Early or Middle Paracas occupations, if present, would be located in deeper strata as was the case at Cerro del Gentil and El Mono.

Hypothesis #1: *Huaca Soto contains at least two discrete phases - a Paracas 'Cavernas' occupation (Early or Middle Paracas) followed by Paracas 'Necropolis'/Topará phase (Late Paracas).*

Accept: We will accept this hypothesis if controlled excavations demonstrate Early or Middle Paracas (Cavernas) material culture in secure stratigraphic layers beneath levels containing Late Paracas (Topará) monochromes (Lanning 1960, Peters 1997). We might further expect post-fire wares to be in the Pinta style, as is found in Middle Paracas contexts elsewhere in the valley. As is the case at Cerro del Gentil and El Mono, I would expect little overlap between Middle Paracas and Late Paracas strata. I suspect that notable architectural renovations will accompany any transition from Early/Middle to Late Paracas. Radiocarbon dates associated with specific artifact styles should return reasonable ranges for Early (ca. 800-500 BCE) Middle (ca. 500-200 BCE) or Late Paracas (200 BCE-200 CE) contexts. Late Paracas contexts at the structure may approximate the case at Cerro del Gentil and El Mono – essentially a light superficial reuse that presents a sharp break from Middle Paracas traditions. On the other hand, Huaca Soto could transition more smoothly into the Late Paracas period and maintain its function as a politico-ceremonial centers.

Reject: This hypothesis must be rejected if no Early/Middle Paracas (Cavernas) component exists; if no Late Paracas (Topará) component exists; if the two are sufficiently intermingled so that no distinct chronological relationship can be determined; or if no Paracas components exist. In the first case, lack of an Early or Middle Paracas component below Late Paracas levels would indicate that the structure was built *after* strong political consolidation began to rise across the region. This would support Wallace (1985) and Canziani's (1992) original hypothesis for a rising proto-urban core after 200 BCE. It would also suggest that lower-valley platform mounds were built specifically to serve the needs of an emerging Late Paracas political economy. In the second case (no Late Paracas component), it is possible that Paracas peoples abandoned the structure entirely during the Later Paracas reorganization of the valley. In the third case (both styles intermingled), we would conclude that 'Cavernas' and 'Topará' wares were contemporaries at Huaca Soto. We could then hypothesize that the two were distinct communities that interacted during major events, or perhaps two socially-bounded groups within a broader regional system. This seems unlikely given that the two traditions are typically found in distinct chronological contexts. Finally, if neither Cavernas nor Topará are found, it is possible that Huaca Soto was constructed during a later period (perhaps Nasca-contemporary, or LIP Chincha). This would also be surprising based on what we already observed from the site's exposed architecture.

Research Question 2: What was Huaca Soto's Principal Function?

Prior to excavation, it seemed clear that Huaca Soto's massive size, deep sunken courts, and strict orientation are commensurate with politico-ceremonial architecture elsewhere in Chincha. Even outside of the region, the structure shares some general aspects with the non-vernacular architecture of Nasca, the Initial Period central coast, and the Formative Titicaca

Basin. Huaca Soto's emphasis on rising vertical space is reminiscent of Cahuachi's constituent temples, which provided a ceremonial focal point for periodic long-distance pilgrimage (Kantner and Vaughn 2012; Silverman 1993). Its series of three ascending sunken courts is reminiscent of processional space, not unlike the carefully planned routes at early central coast centers (Shady et al. 2000; Burger and Burger 1991). Perhaps most indicative are the sunken courts themselves. Investigations elsewhere in the Formative Andes demonstrate that sunken courts were spaces for periodic ritual events that brought together disparate communities, served as forums for the distribution of high-value goods, political jostling, and sharing of pro-social information (Chicoine 2010; Klarich 2005; Stanish and Haley 2005; Stanish 2003; Moore 1996a). Therefore, it is parsimonious to hypothesize that Soto's primary function was to host ritualized events that involved significant economic and political activity. This must be tested directly.

Hypothesis #2: *The principle function of Huaca Soto's sunken courts was to host non-quotidian, politico-ceremonial events.*

Accept: I will accept this hypothesis if excavations in Soto's sunken courts 1) demonstrate substantial evidence for non-quotidian ceremonial activity, and 2) fail to demonstrate evidence for an alternative primary function. Bell (1997) provides a framework for identifying ritual-like activities, and Moore (2005) operationalizes this argument for monumental architecture of the Formative Andes (see Chapter 3). Archaeological evidence could include the intentional deposition of offerings, especially involving high-value or non-local goods; architectural spaces that delimit 'inside' sacred space from 'outside' profane spaces and provide for large aggregations of people; evidence for feasting, such as a prevalence of food taxa, large-scale comestible preparation, and high percentage of serving wares; presence of materialized ideology,

for example ideologically-charged craft goods; evidence that multiple communities converged at the site to participate in periodic events, such as multiple contemporary pottery styles; or formal maintenance and rejuvenation of court space at close intervals. On the other hand, evidence of quotidian domestic activity, such as small-scale food preparation, basic tool production, animal husbandry, or horticulture would not be expected in a dedicated ceremonial structure. Non-ceremonial *reuses* of the structure may occur, but should not characterize its principal period of use.

Reject: I will reject this hypothesis if there is little or no indication of formal politico-ceremonial activity. In this case I would expect to observe a clear alternative function. The site could be predominantly domestic, characterized by 'tell-like' accumulation and compaction of adobe debris over many centuries. Evidence for domestic activities (cooking, basic tool making, trash burning), low-labor residential architecture (in Chincha this manifests as *quincha* techniques), or domestic midden deposits would support this scenario. Similarly, the site could be an elite residence for early Paracas authorities. In this case we would expect to see highly controlled access to the structure's interior spaces; perhaps distinct activity areas for household retainers vs. elites themselves; high-value domestic materials, for instance special food products; and perhaps evidence for attached specialists. Alternatively, Soto could be a monumental tomb, similar to early Moche pyramidal structures at Dos Cabezas and Sipán, albeit smaller and significantly older (Donnan 2007; Alva and Donnan 1994). In this case we would expect to find evidence for burial or mortuary practices as the structure's principal function.

Research Question 3: Did Huaca Soto Co-evolve with Regional Political Complexity?

The format of ritualized events in early complex societies is strongly linked to the political and economic organization of participating communities (Sharp et al. 2010; Hastorf 2007; Chicoine 2006; Marcus and Flannery 2004; Schachner 2001). The emergence of sociopolitical inequality among participant communities may be reflected in the proxemics and content of ritual events. For example, appearance of ritual specialists on materialized ideology or architecture may indicate changing authority roles and rising inequality (e.g. Rick 2005), as would the movement of priests' houses into ceremonial complexes (e.g. Kahn 2015). Access to specific architectural spaces may become more exclusive through time as an elite class of participants begins to distinguish themselves from non-elite adherents (e.g. Marcus and Flannery 2004). Specific changes in ritual architecture may affect the way that ritual performers and audiences relate to one another during events, thus indicating shifts in the nature of ideological leadership – for example, a transition from 'shamanic' to 'canonical' ritual specialists (e.g. Moore 2005). Production iconographically charged craft goods within politico-ceremonial centers may indicate export functions and the development of long-distance bonds between pilgrimage centers and adherent communities – for instance, in the case of Nasca (Vaughn 2006, 2009). And the appearance of non-local high-value objects in ritualized contexts may indicate the rise of new economic networks, perhaps manipulated by incipient elites to support wealth-financing redistributive strategies (Earle 1997). Diachronic changes such as these, if present, should be detectible through controlled excavation in Huaca Soto's sunken courts. If present, we can ask whether such changes accompanied the emergence of regional-scale complexity in Late Paracas times (ca. 200 BCE).

Hypothesis #3: *The evolution of ritual architecture and practice at Huaca Soto paralleled the emergence of social inequality across the region.*

Accept: Ritual events at Huaca Soto would express greater evidence of socioeconomic inequality through time. This would be evidenced by the factors described above. In particular we can look for a new emphasis on rising spatial exclusivity (e.g. Marcus and Flannery 2004), for example, if access to Soto's sunken courts became carefully controlled through the addition of narrowing corridors or check-points, the construction of high walls that limit external visibility and auditory participation, or architectural modifications that establish new status-differentiated spaces as part of broader public events. In the latter case, these areas would hold fewer people and perhaps provide privileged access to certain activities or objects, for example high-value status-goods and preferred foodstuffs. It is possible that one of Huaca Soto's courts (the structure contains a total of three) became a limited-access space, while others remained accessible to a broader public. Evidence for rising status among ritual specialists may also appear, for example in the construction of private chambers associated with specialized vestments or ritual paraphernalia (Kahn 2015). Intensified redistribution of materialized ideology would indicate greater control over both economic and ideological sources of power (i.e. Earle 1997). As is the case with Cahuachi (Vaughn 2006), we may observe the actual production of artisanal goods at Huaca Soto, indicating an elite-supported craft industry. There are two chronological points of interest during which we would expect to see these changes at Huaca Soto. The first is around 400 BCE, when the appearance of platform structures elsewhere in Chincha demonstrates the major rise of a new politico-ceremonial tradition. The second is around 200 BCE, when Late Paracas Topará-style materials begin to blanket Paracas sites in Chincha in conjunction with the establishment of new planned settlements like Pampa de Gentil.

Reject: This hypothesis will be rejected if no substantial changes are observed in the format of ritualized events at Huaca Soto through time. The structure may be too short-lived to demonstrate change across the period in question. It is possible that Soto was built late in the Chincha sequence, or that it was abandoned at a very early date. A late construction date would suggest that Soto was built as a special-purpose structure to serve the specific needs of a Late Paracas political economy. This would be interesting in its own right, and would provide insight into new strategies of authority deployed by powerful new elites. If Soto was abandoned early, this would suggest that it was no longer necessary or perhaps even an impediment to valley-wide consolidation. It could represent the remains of a center that 'lost out' to competing groups. In this case we might expect to observe ritual decommissioning, a violent abandonment, or reuse of the structure for alternative purposes. Finally, it is possible that the structure was in use throughout the entirely of the Paracas sequence but its ritual architecture and practices did not change through time. This would suggest that the evolution of Paracas communities in Chincha was not entirely in line with regional-scale changes – perhaps the valley exercised a high degree of independence from the broader region, or was buffered from major changes.

Research Question 4: Did Huaca Soto Interact with Non-Local Communities?

Anthropological archaeologists posit that intensifying interaction between disparate communities can lead to the emergence of politically complex organizations (Spencer 2010; Stanish and Levine 2011). This can take many forms, ranging from violent conflict, to increased trade relationships, to the spread of particular ideological or religious tenets. In the Paracas case, it is clear that regular interaction between the valleys of the south coast increased throughout the first millennium BCE. By the final centuries BCE, there is plentiful evidence for new non-local

wealth goods brought in from outside regions, dissemination of new ideologically-charged textiles featuring images of ritual specialists, and an increase in cranial trephination that may indicate a general increase in blunt-force head injuries. Therefore, we might expect that these factors would be expressed within Chincha's Formative communities as well. PACH excavations in the mid-valley cluster revealed little evidence for systematic raiding or violent behavior, and surprisingly few non-local goods (limited to a few non-local parrot feathers and camelid specimens). However, it does express a direct connection to neighboring settlement zones via the construction of the Pampa Carmen geoglyph field. We can ask whether Huaca Soto expresses direct connections with non-local communities, or was insulated from non-local connections.

Hypothesis #4: *Huaca Soto contains evidence for regular interaction with non-local communities.*

*Accept***:** I will accept this hypothesis if non-local high-value wealth goods are found in Huaca Soto's sunken courts. Items may be similar to the few non-local objects recovered at Cerro del Gentil (tropical birds and camelids). They may also include new forms of value that appeared in the Peninsula cemeteries, for instance *Spondylus* shell, precious metals, and tropical bird-feather fans. These materials may be deposited as offerings, as is the case of Cerro del Gentil. Depictions of these objects may be present on textile or ceramic iconography. Accepting this hypothesis would suggest that Huaca Soto was plugged into widening economic networks, clearly benefitting from them but perhaps also driving them. We could then explore how these objects and raw materials reached Huaca Soto – whether they arrived directly via participant communities, were brought in through organized trading expeditions, or arrived via mid-valley satellite centers like Cerro del Gentil and El Mono. Alternatively, Huaca Soto may reveal

evidence of regular interaction with non-local communities via violent incursions. Trophy head taking, defensive architecture, weapons caches, or large conflagrations would serve as evidence. We may also see the appearance of violent iconography, such as that recorded on Paracas Necropolis textiles. This latter scenario would suggest that Huaca Soto was one subject in a highly competitive landscape composed of similar groups. Either scenario may help explain the social and material conditions that gave rise to incipient political complexity on the Formative south coast.

Reject: This hypothesis will be rejected if there is minimal or no evidence for non-local wealth goods or violent incursions throughout Huaca Soto's evolution. This would indicate that the site was not plugged into long distance exchange networks, nor was it locked in severe competition with neighboring groups. We would then consider alternative explanations for what drove the development of ritual architecture and practice at Huaca Soto.

Post-Paracas Eras in Chincha

Given the abundance of monumental architecture in Chincha that dates to late antiquity (LIP or Inka Period construction), it is possible that parts of Huaca Soto were constructed during a post-Paracas period. Likewise, it is possible that the structure was heavily reutilized during post-Paracas phases. Therefore, it is necessary to acknowledge potential groups other than Paracas that may be encountered at Huaca Soto.

At least four recognized post-Formative socio-cultural traditions are documented in the valley – the Nasca contemporary EIP 'Carmen' stylistic tradition, the Wari state, the Chincha Kingdom, and the Inca Empire. Two of these (Wari and Inca) are non-local highland states

which executed imperial designs across large swaths of the southern Andes. The reincorporation of recognized *huacas* featured in the imperial strategies of both groups (e.g. Bauer and Stanish 2001; Schreiber 2005). The other two traditions (Carmen and Chincha) were endogenous to the valley (Silverman 1993; Nigra et al. 2014). The Chincha, Wari, and Inca states developed characteristic politico-ceremonial architectural canons and distinct ritual practices unique to the social and historical contexts of each. We know far less about the practices of Carmen groups, which are known generally via painted pottery styles that appear in surface contexts. Each of these post-Paracas groups may be identified via characteristic architectural practices, specific fineware traditions, and other characteristic material culture.

Carmen and Nasca

Nasca follows Paracas chronologically and the important relationship between the two is the subject of ongoing study (Van Gijseghem 2006, 2004; Van Gijseghem and Vaughn 2008; Van Gijseghem and Peters 2010; Tinteroff 2004, 2008, 2009). Early surveys did report 'Nascoid' materials in Chincha and Pisco (Wallace 1959, 1971; Engel 2010), but further review suggests that these were actually related contemporary styles called Carmen and Estrella (Wallace 1972; Velarde 1998, 2006). A general distribution of Carmen-associated settlements is known from Chincha and Pisco surveys (Canziani 1993:102; Wallace 1971) and from the Paracas Peninsula (Engel 1966:214). These typically expanded upon prior Late Paracas settlements (Velarde 1999). Subsurface data on major Carmen occupations are limited to two excavations. The first is at Pampa de Gentil (PV57-64), in which Carmen occupation expressed a general continuity from the earlier Late Paracas use (Velarde 2006). The second is Alto del Molino in Pisco, which demonstrates a Carmen reuse of an earlier Late Paracas platform structure, including unadorned

Carmen burials (Silverman 1997). In both cases, Carmen architecture was associated with the use of fieldstones set in a mud mortar. Carmen-style painted polychrome ceramics feature red and white diagonal lines on a black background, usually painted on the exterior of shallow bowls. PACH investigations identified Carmen materials in surface levels of Cerro del Gentil and as part of scatters in the upper-valley corridor (Pérez et al. 2015). A Carmen occupation at Huaca Soto would be demonstrated by the presence of this fineware style.

It is entirely possible that 'true' Nasca material reached Huaca Soto, but seems unlikely that a Nasca-associated community held a permanent occupation there. Nasca ritual practices center around regular pilgrimage to Cahuachi in the SNR and the exportation of ideologically charged craft goods to outlying areas (Silverman 1993; Kantner and Vaughn 2012). It is quite possible that such vessels arrived at Huaca Soto as late offerings to the *huaca*, but a fully-contributing Nasca community would be surprising.

The Wari State

The Wari state (ca. 600-1100 CE) used a multi-faceted imperial strategy to incorporate local populations into its political and economic apparatus (Schreiber 1992). The state's presence is well-documented on the south coast, particularly in the Rio Grande de Nasca drainage as multi-room orthogonal compounds typical of the state's architectural canon (Edwards and Schreiber 2014; Schreiber 2000). Other notable Wari centers in the region include the Maymi site in Pisco, a ceramic production center with attached domestic components (Anders 1990). In Chincha, Javier Alcalde et al. (2001) report 21 sites containing Wari-style materials, most of which lack standing architecture. The most substantial of these sites, La Cantera (PV57-138), took advantage of defensive geography and irrigable land near the upper-valley neck. It consisted

of an orthogonal complex built of fieldstone and mud mortar and was associated with a mixture of imperial Wari and local Estrella (post-Carmen) ceramics. This emphasis on defensive posturing, self-sufficiency, and careful geographical placement suggests that Wari positioned itself apart from the endogenous population of Chincha, perhaps taking advantage of existing economic arrangements rather than organizing new ones (Alcalde et al. 2001:550: Jennings and Craig 2001). Wari on the south coast is clearly a non-local entity that arrived with specific goals in mind – the state sought to control the flow of goods and people by placing sites on important coast-highland routes and at valley bottlenecks, brought the specialists necessary to produce its characteristic fineware ceramics, and probably benefitted from a sufficiently organized local populace.

Ritualized architecture played an important role in Wari imperial ambitions, particularly in areas where strong territorial control and direct administration were advantageous. These structures - 'D-shaped Temples' - are common features in the Wari heartland and capital (Benavides 1991; Bragayrac 1991; Isbell and Cook 2002). On the periphery they appear at major provincial centers and hosted politico-ceremonial events involving Wari elites (Nash and Williams 2005:170; Nash and Williams 2009). In some cases, the construction of new temples was used to 'disrupt' the sacred landscape of local communities by co-opting established *huacas* (Schreiber 2005). Substantial Wari material culture or this kind of architecture would suggest a direct investment in Huaca Soto.

It is also possible that Huaca Soto witnessed reuse by *local* Middle Horizon populations. Almost no data exists on these communities apart from the recognition of poorly-studied Estrella style ceramics as contemporary to Nasca 7 (see Santa Cruz 2007:72; Wallace 1972; Menzel 1971; Velarde 1998; Alcalde et al. 2001). There is no precedent to predict the form that a local

Middle Horizon reuse would take, though it is reasonable to suspect architectural modifications and dedicatory offerings in non-recognized styles.

The Chincha Kingdom

The pinnacle of autochthonous development on the south coast is surely the highly centralized Chincha Kingdom of the Late Intermediate Period (ca. 1200-1475 CE) (Nigra et al. 2014). Outside of the valley, the Chinchas wielded major political, economic, and stylistic influence over large swaths of the south coast (Menzel 1966; Menzel and Rowe 1966). Classed as a *señorio*, scholars suggest that the polity was organized into three economic castes – dedicated farmers, fishermen, and a mercantile/artisan class (Rostworowski 1977:128, 1970:157-8). Each group had a set of governing lords united under a paramount chief (Sandweiss 1992).

The impact of the Chincha kingdom on the local settlement landscape is enormous, with well near 100 individual sites with substantial standing architecture recorded in Chincha alone (Lumbreras 2001; Engel 2010; Canziani 2009). Surveys indicate a clear three-tiered settlement hierarchy centered on the massive site of Huaca Centinela near modern day Chincha Baja (Wallace 1998). Secondary clusters existed at Lurinchincha and Las Huacas, two built-up zones each containing more than a dozen individual structures (Lumbreras 2001). Each of these secondary clusters may be related to farming and fishing sects. A radiating set of linear roads connected Centinela to these subsidiary centers and provided outlets to upland areas and neighboring drainages (Wallace 1991b).

Study of Chincha Kingdom architecture focuses on a main cluster of Centinela, Tambo de Mora, and La Cumbe (Middendorf 1973[1894]:105–106; Uhle 1924[1901]; Kroeber and Strong 1924; Wallace 1998) though general surveys briefly address basic plans at other sites

(Canziani 2009; Lumbreras 2001). While general consensus holds that the kingdom's political and ideological capital was located in the Centinela cluster it is unclear which, if any of these structures, were used for public events or politico-ceremonial purposes. The best evidence for a local Chincha ritual practice comes from Cieza de León, who claimed that the Kingdom hosted a Pachacamac branch oracle called Chinchaycamac (Cieza de León 1959 [1553]:345). From an archaeological standpoint, however, we have no direct evidence for this. In terms of whether the various LIP *tapia* monuments spread throughout the valley served exclusively politico-ceremonial functions, or some other use, there is no clear consensus. Tapia architecture or characteristic Chincha material culture would indicate an LIP addition or reuse of Huaca Soto.

The Inca Empire in Chincha

Ethnohistorical and archaeological evidence suggest that the Inca Empire negotiated the peaceful capitulation of the Chincha Kingdom in the late 15th century CE (Morris 1998, 2004; Morris and Covey 2006; Castro and Ortega Morejón 1934 [1558]; Pizarro 1921 [1571]; Cieza de León 1959 [1553]; Rostworowski 1970). Sandweiss and Reid (2016) suggest that diplomatic settlement was beneficial to both parties. The Empire received access to non-local high-value *Spondylus* shell and the Chinchas' maritime capital; the Chincha's received a distinguished place in the Empire, avoided wholesale disarticulation, and likely benefitted from expanded trade opportunities.

Inca hegemony in Chincha left little impact compared to areas where imperialism was heavy-handed. Excavations at a dedicated fishing village suggest that the economic structure of the horizontally-integrated *señorío* remained largely intact after the arrival of the Empire (Sandweiss 1992). Whereas Inca built massive waystations in Cañete (Inkawasi) and Pisco

(Tambo Colorado) no such structure was built in Chincha. The empire's singular architectural contribution was an atypically small palace structure in the shadow of Huaca Centinela (Morris 2004; Morris and Covey 2006; Morris and Santruzillana 2007), more of an 'embassy' than an intrusive showing of dominance. It is reasonable to suspect that Inca hegemony in Chincha perhaps put local Chincha peoples in contact with Inca symbols of wealth, including high-value trade goods and non-local artisanal styles. For example, Chincha cemeteries near the Centinela cluster contained notable Inca-styled goods (Uhle 1924[1901]; Kroeber and Strong 1924). PACH survey of the upper-valley in 2013 identified nearly a dozen Chincha cemeteries with non-local reduction-fired ceramic wares dating to the Inca period. Thus we have some idea of what sorts of materials and ceramics would indicate an Inca Period occupation of Huaca Soto.

Methodology for Investigations at Huaca Soto

Above I outlined a set of research questions regarding the emergence, use, evolution, and reuse of Huaca Soto as a monumental Paracas structure. I provided four hypotheses regarding Formative Period development, and have indicated the conditions under which we might accept or reject them. I have also indicated what specific forms of post-Paracas construction or reuse might look like. These scenarios are directly testable through intensive study of the site, including: 1) analysis of the structure's standing architecture, including general physical parameters, exposed features, pre-existing cuts that provide a window into the structure's interior, 2) controlled stratigraphic excavation in two of Huaca Soto's sunken courts that combine broad horizontal exposures with targeted deep soundings, and 3) diachronic analysis of architecture and artifact assemblages recovered from sunken courts. Specific methods suitable

for these objective were developed in consultation with co-director Kelita Pérez Cubas and PACH directors Stanish and Tantaleán.

Assessing the Structure's Standing Architecture

The first step in our investigation was to create a battery of site maps and take general metrics on the standing architecture. We used a combination of analog and digital techniques to achieve this. First, in 2014, Jacob Bongers (UCLA) deployed a Trimble ProXRT Differential GPS to build a Digital Elevation Model (DEM) of the structure. He collected 4935 spatial points transecting along the East-West axis of the structure. Data was imported into ArcMap to generate the DEM. This allowed for the construction of a gray-scale 3D model that we could manipulate to visualize the structure for analysis and reference purposes (Fig. 26). Second, in 2015, Dr. Luis Jaime Castillo (Pontificia Universidad Católica del Perú) conducted a photogrammetric study of Huaca Soto using an aerial drone. He used Agisoft Photoscan software to render a georeferenced 3D model of the structure with photographic detail. We were able to use these models to look for anomalies in surface features that might indicate the presence of staircases, corridors, or rooms, and then target these areas for excavation. Analog approaches were also key part of our methodology, providing cartography teams with the parallel opportunity to make detailed observations of surface features, conduct technical drawings of small-scale features, and photo-document peculiarities in standing architecture. We created a topographic map of the site as it is today using an optical theodolite and tape-and-compass techniques. We incorporated analog data into a digital reconstruction of the site using Google Sketchup (see Chapter 7). As excavation exposed additional architectural features, we were able to update digital models accordingly. Cartography teams conducted basic measurements on the structure's circumference, maximum

dimensions, the plan of each sunken court, the masonry ridges that separate the sunken courts, and exposed architectural features on Soto's surface. We captured data on construction materials, techniques, and formal design features associated with standing architecture. Analog site maps are shown in Chapter 7.

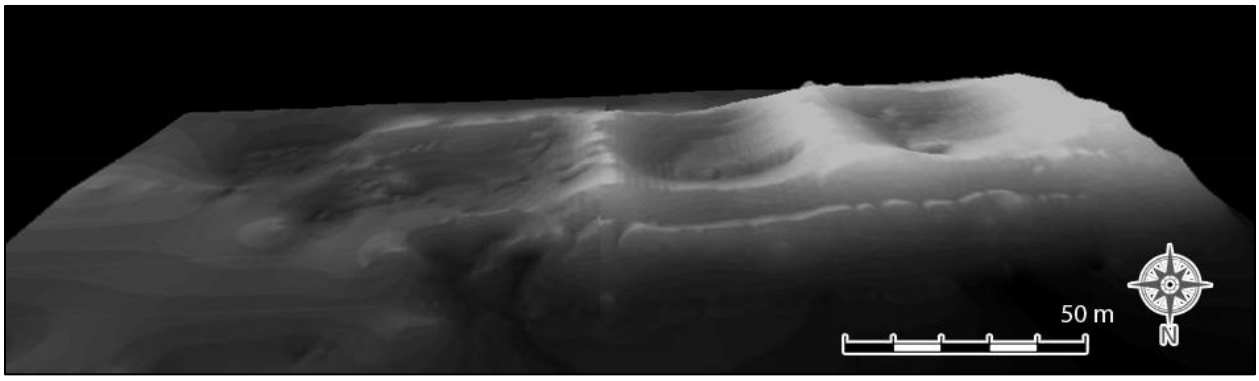


Figure 26: An early DEM of Huaca Soto showing the structure's three-tiered layout. Each tier contained a deep sunken court. This model was produced by Jacob Bongers.

Pre-existing cuts on the western and southern sides of Huaca Soto allowed us to observe the structure's deep interior architecture. This provided data on structural engineering, architectural techniques and materials, the process of construction, and maintenance and renovation episodes. We deployed field crews to systematically map and study these areas. Crews conducted basic analysis of exposed faces, including quantifying the size of coursing layers, estimating the number of paraboloid adobe units per layer, mapping out major breaks in coursings that indicate major additions to the structure; probing empty spaces between *in situ* adobes to understand packing of adobe units; noting finished surfaces, and collecting loose adobes for material analysis in the laboratory. We observed and collected no artifacts other than bricks from this portion of the site. Crews conducted a similar set of analyses on the southern side of the structure. Looters and animals tunneling into this area created a series of deep tunnels

into the structure that also expose deep architecture, and fieldworkers exploited these features to better understand internal architecture. Crews conducted a similar battery of observations on the structure's northern and eastern sides, both of which are comparatively well-preserved. The northern edge displays finished structural elements suggesting that little erosion or damage has occurred here over the structure's lifetime. The eastern portion of the site currently hosts a small farmstead.

The eastern-most and lowest sunken court (Sector C) is currently filled with modern structures. This has major implications for our research. First, in the interest of our hosts, we did not collect quantitative data in this area. However, we were able to make general observations and take photographs of exposed architecture in this area. Modern use actually has preserved a great deal of standing court architecture in the easternmost court, and has discouraged looting and unwanted disturbance. Roads and outbuildings near the farmstead also help defend against encroachment by irrigation works; fruit trees planted around the property protect the site from wind erosion. As a result, the pre-Columbian architecture of Huaca Soto's eastern end is relatively well-preserved despite a modern occupation.

Excavation of Sunken Courts in Sectors A and B

Extensive stratigraphic excavations in the structure's westernmost and middle sunken courts, which we called Sectors A and B (Fig. 27), comprised the majority of fieldwork at Huaca Soto. As per our permit with the Peruvian Ministry of Culture, we could excavate one sector per field season. Our general methodology followed modern scientific protocols aimed at maximizing data collection while minimizing damage to the structure's standing architecture. We designed certain aspects of our excavation methodology to be fluid, allowing us to respond

to local on-site conditions, new questions raised by emerging field data, safety concerns, and logistical contingencies. Generally, we adhered to the best practices of our Peruvian colleagues.

Excavation took place from June through August 2014 in Sector A, and from June through July 2015 in Sector B. The total number of crew deployed per day varied substantially, but averaged around fifteen persons daily. Excavators included graduate students from UCLA and other American universities; licensed Peruvian archaeologists; undergraduates from Peruvian universities gaining practical field experience through our project; undergraduates participating in the Chincha Valley Field School (through the Institute for Field Research); hired workmen; and occasionally visitors from the local community. We typically organized three or four independent working groups per day, each of which focused on specific excavation, mapping or cataloging tasks. An experienced individual managed each crew – usually a licensed Peruvian archaeologist or an American graduate student. All personnel were under the supervision of the author and the excavation co-director. Based on an active work day of 7-hours in the field and a work force of 15 persons daily, this excavation totaled around 10,000 person-hours of labor, excluding curation and analysis of collections in the laboratory.

Units and Targeting

We pursued a two-pronged strategy for excavations in Huaca Soto's sunken courts. First, we focused on broad horizontal exposures that allowed us to reveal and follow the structure's most recent architectural phase – including exposing occupation surfaces, identifying entrances and staircases, and locating corners of sunken courts that might trap elevated levels of material culture. Second, we established Soto's long-term occupation sequence through deep 'sounding'

units in the corners and center of each court. These were designed to reveal vertical stratigraphy and recover organic material for radiocarbon dating.



Figure 27: 3D model of Huaca Soto from the north, showing division of the site into analytical sectors. Image is an Agisoft Photoscan model based on drone photography developed by Luis Jaime Castillo.

We excavated in standard 2 x 2 meter units oriented to the cardinal directions. In some cases we used smaller units, for example 2 x 1 meter and 1 x 1 meter units when necessitated by context. We typically placed these smaller units adjacent to deep soundings exceeding three meters deep as precautionary measure against profile collapses and cave-ins. We also used these smaller sized units to excavate features (called *rasgos*) that merited particular attention. Examples of rasgos include large *in situ* offerings, special architectural features like narrow passageways, and laid out camelid sacrifices. A rasgo could stand alone as independent unit or be embedded within previously established units. In four cases we used long, narrow units to follow the remains of architectural tiers and staircases (Fig. 28).

In Sector A, the highest and western-most sunken court, we excavated 44 spatial units. Of these 37 were typical 2 x 2 meter units and 7 were modified rectilinear units. There were two independent *rasgos* (R10 and R12) not associated with separate unit numbers (meaning that they fell outside of the established unit grid)[32].

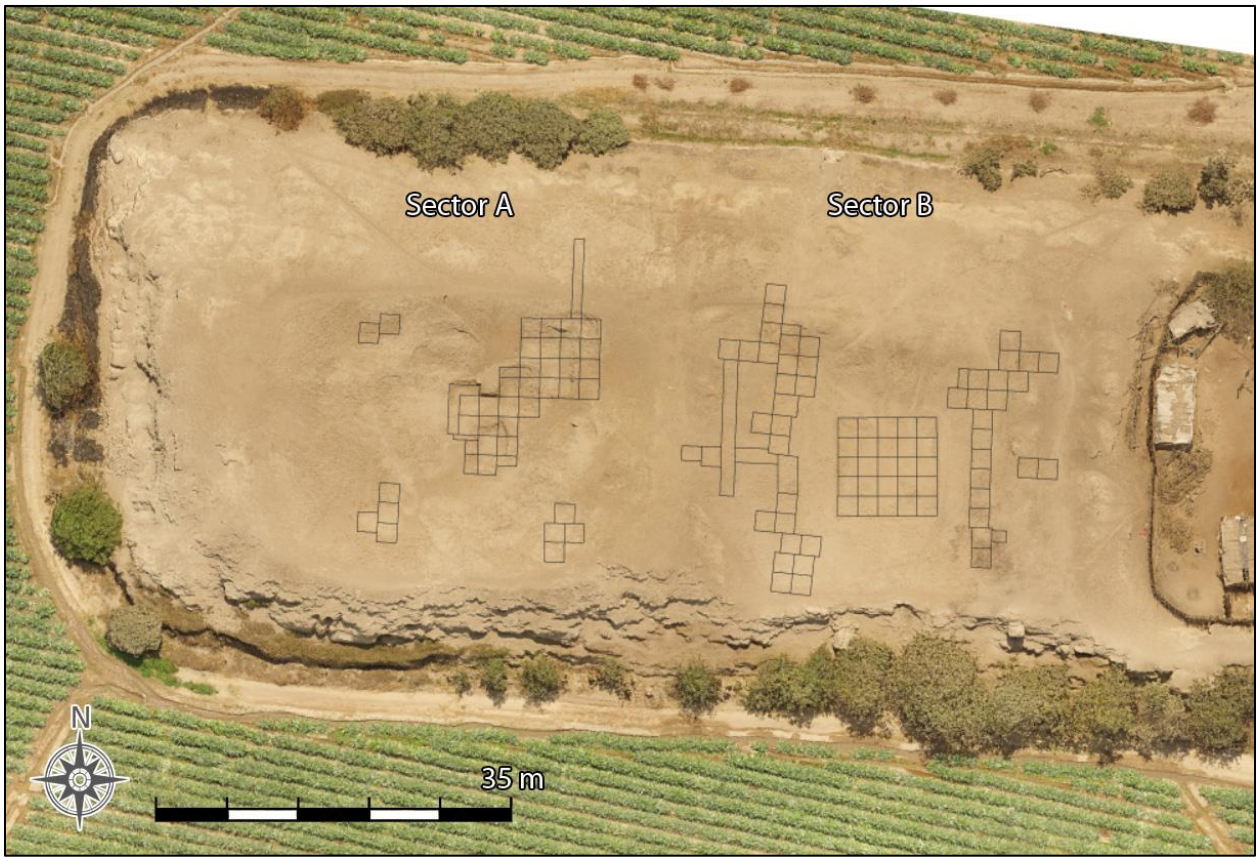


Figure 28: Overhead view of Sectors A and B showing placement of excavation units. Image is an Agisoft Photoscan model based on drone photography developed by Luis Jaime Castillo.

[32] Rasgo numbers restarted for each sector. In a few cases we skipped rasgo numbers for clerical reasons. While Sector A has a total of 17 rasgos, we skipped 'rasgo 17' and labeled the 17th rasgo as 'rasgo 18'. Sector B has a total of 25 rasgos, labeled 'rasgo 1' to 'rasgo 27'. Rasgos '2' and '12' do not exist.

We began by placing an 8 x 8 meter grid (4 units by 4 units) in Sector A's northeastern corner (Units 1-16). The initial goal was to locate the northeast corner and continue to track the court's outermost walls to the west and south. Upon locating the outermost northeastern corner and a narrow passageway providing access from the north, we established a long, narrow unit that granted entrance to the court from the north (Unit 28/R16). Excavations in this initial grid also revealed that the court had an internal 'tier' around its north and eastern sides, which provided an additional north-south and east-west wall to follow.

Next we established a 6 x 4 meter grid (3 units by 2 units) in the court's exact center (Units 17-22). We eventually connected the central grid and northeastern grid via a set of additional units (Units 23 and 24). We expanded the central grid to the south and west upon encountering substantial post-Paracas architecture and elevated levels of material culture (Units 38-43). Our goal in doing so was to delimit the exact dimensions of this free-standing post-Paracas structure discovered at the court's center. The total result was a single broad exposure (124 square meters) encompassing the court's northeastern quadrant and center. This is roughly a fifth of the total area of the Sector A court.

We established two deep-soundings in Sector A. The first was in the central grid (Unit 21). Eventually we excavated two independent *rasgos* around the western and southern edges of this sounding (R10 and R12) to prevent collapses and facilitate the removal of matrix for sifting. We established a second deep-sounding (Units 9 and 13; R11) inside the northeast corner of the court's innermost tier. We used this sounding to follow the northern and eastern internal walls downward and observe major diachronic shifts in wall placement and construction. We conducted substantial excavation of adjacent units in order to provide a stepped structure to facilitate removal of matrix and provide bulks for general safety (Units 23 and 27/R13).

We established 10 units in the court's remaining three corners (NW, SW, and SE) by extrapolating from walls segments previously identified in the northeast corner. Our goal was to reveal all four of the court's outermost corners in order to gain an understanding of its total form, size, layout, and to test for architectural asymmetries. Units 29, 30, 32, and 34 comprised the southeastern corner, units 36 and 37 the northwest corner, and units 25, 26, 31 and 33 the southwest corner. In the southwestern corner we established a third deep sounding in order to follow the western and southern walls downward. Finally, we placed Unit 35 on the exterior of Huaca Soto's southwestern side, outside of the sunken court, to explore how external architecture was structured and finished (Fig. 29).

Excavation in Huaca Soto's middle court, Sector B, covered a larger area than Sector A. We continued the same strategy of broad horizontal exposure and targeted deep-soundings. Sector B contained 78 discrete spatial units (Fig. 30). Of these, 70 were typical 2 x 2 meter units. Eight were modified rectilinear units and independent rasgos unassociated with separate unit numbers. There were twenty were rasgos embedded within established units[33].

We began by placing a 10x10 meter grid (5 x 5 units) in the center of Sector B (Units 46-70). We designed this grid to support a deep sounding capable of reaching sterile soil more than 6 meters below the current surface of the court. The layout and size of this grid was a response to what we learned regarding the practical difficulties of conducting deep soundings in Sector A. The use of a broad grid allowed us to engineer additional supporting tiers, walkways, bulks, and staircases to facilitate efficient excavation and further protect crew members.

[33]There are no units 44 or 45 due to a clerical error between the 2014 and 2015 seasons. Sector A excavations in 2014 ended with unit 43; Sector B excavations in 2015 began with unit 46.

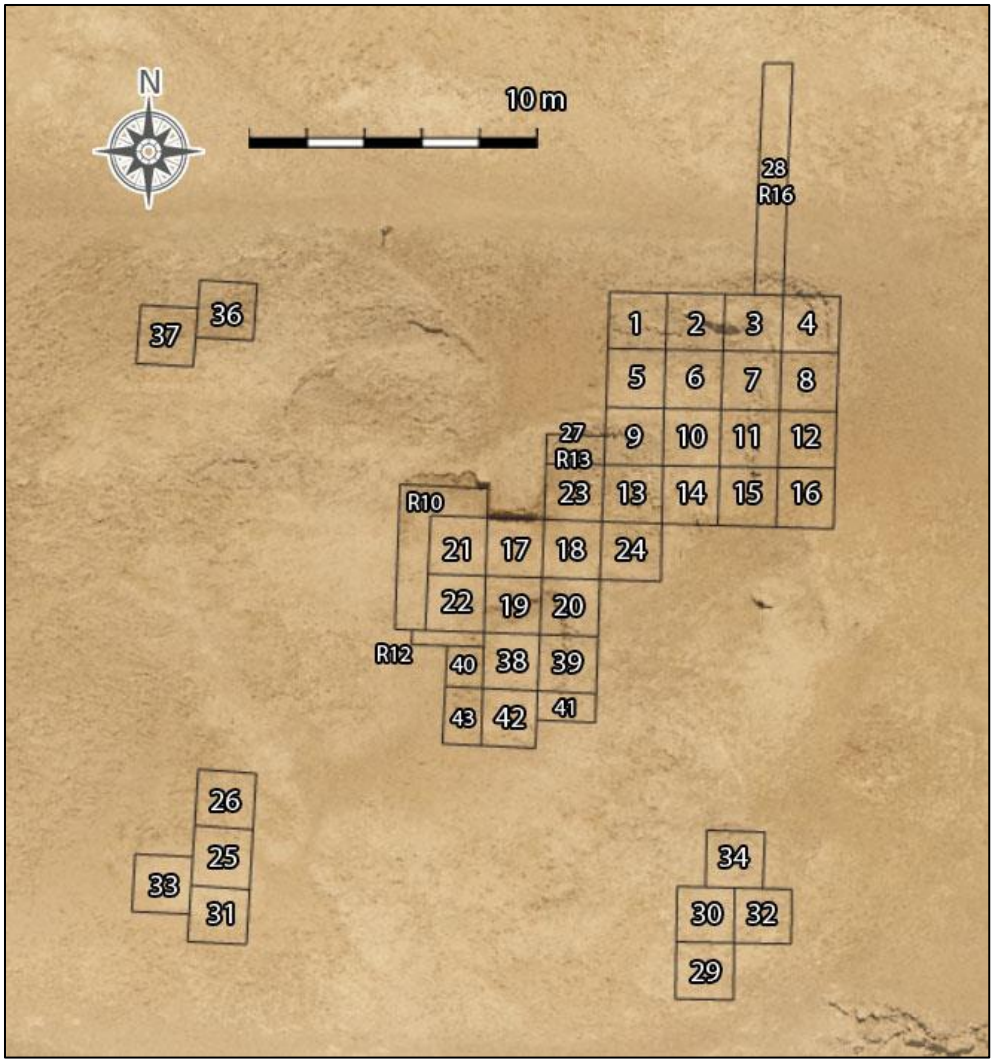


Figure 29: Accounting of units in Sector A, the highest and westernmost sunken court.

Next we established blocks of units in each of Sector B's four corners. Like Sector A, our goal was to establish the general plan of the most recent court and look for evidence of entrances, staircases, divisions, and other notable features. The northeastern corner initially consisted of Units 71 and 72. Architecture in this corner was complex, consisting of multiple temporal phases and spatial tiers, including a secondary internal tier much like that of Sector A. We later established additional adjacent units to further explore specific architectural features in this corner (Units 77, 81, 84, 86, 87, 93, 94, 100 and 103). Sector B's northwestern corner was

similarly complex, containing at least four architectural phases, multiple remodelings, and a connected set of rooms outside the court's northern limit. We initially established Units 75 and 76 in this corner but later made substantial additions (Units 80, 83, 85, 107, 111, 118, and R8). We conducted deep soundings in both of the northern corners to follow wall construction through time. We dedicated rasgo 27 as a deep sounding within the innermost northwestern corner (Unit 85). The deep-sounding in the innermost northeastern corner (Unit 86) did not receive an independent rasgo number.

We collected substantially less data from the southwestern and southeastern corners. Substantial damage and erosion to the southern side of Huaca Soto left little distance between the southern corners and the crumbling edge of the structure, making excavation in this area precarious. In the interests of retaining maintaining stability we placed fewer units in the southwestern corner (Units 73, 74, 78, 79, 82, and 88) and only three units in the southeastern corner (U113, 114, and independent R26). These revealed important architectural features. We did not conduct deep soundings here for fear of destabilizing the southern side of the court.

Once we identified corners, we established two linear sets of units to follow the innermost eastern and western walls. That is, we 'connected' the northeast and northwest corners to their southern counterparts. On the eastern side Units 104, 105, 106, 108, 109, and 110 traced the innermost and lowest eastern wall, including revealing and excavating a set of short staircases. In addition to tracing the lowest tier, we placed Units 112 and 115 high on the eastern wall to identify the limits of the upper ridge separating Sector B from Sector C. These units also allowed us to test for the presence of accessways in the center of the eastern wall, for example an intermediary north-south tier, an entranceway connecting Sector B with Sector C, or a staircase.

On the western side of the court we designed Units 92, 95, 96, 97, 98, 99 to trace the lowest and innermost western wall. There was a second tier above this wall, which we explored by placing three units just west of the tier's edge (Units 90, 101, and 102). In addition to these areas, excavation revealed that the western wall was composed of at two additional upper tiers (bring the total to four). We placed Unit 91 and Rasgo 21 to follow the third tier along the western wall. Above the third tier we designed Unit 116 to test an architectural anomaly noted during surface survey and cartography. Upon encountering evidence for a large staircase in the center of the western wall, we designated Rasgo 25 to follow this staircase from the top of the western wall to the center of the sunken court. Rasgo 25 is a continuous feature that runs through Unit 116.

In sum we excavated 122 spatial units in Sectors A and B combined. We placed these units to maximize horizontal exposure, define the limits of each sunken court, and investigate specific architectural features. This included 5 deep soundings – one at the center of each court, one in the northeastern corner of each court, one in the southwestern corner of Sector A, and one in the northwestern corner of Sector B.

Vertical Control

All vertical measurements were calibrated off of a Master Datum located on the high ridge separating Sectors A and B. The datum itself was a pre-existing survey marker cemented into the structure. It was conveniently located to serve as a datum for both courts. We used a Garmin Oregon 400t handheld GPS to place this datum at 18**L** 0375136**E** 8504308**N** and approximately 48 meters above sea level with an error range of 5 meters.

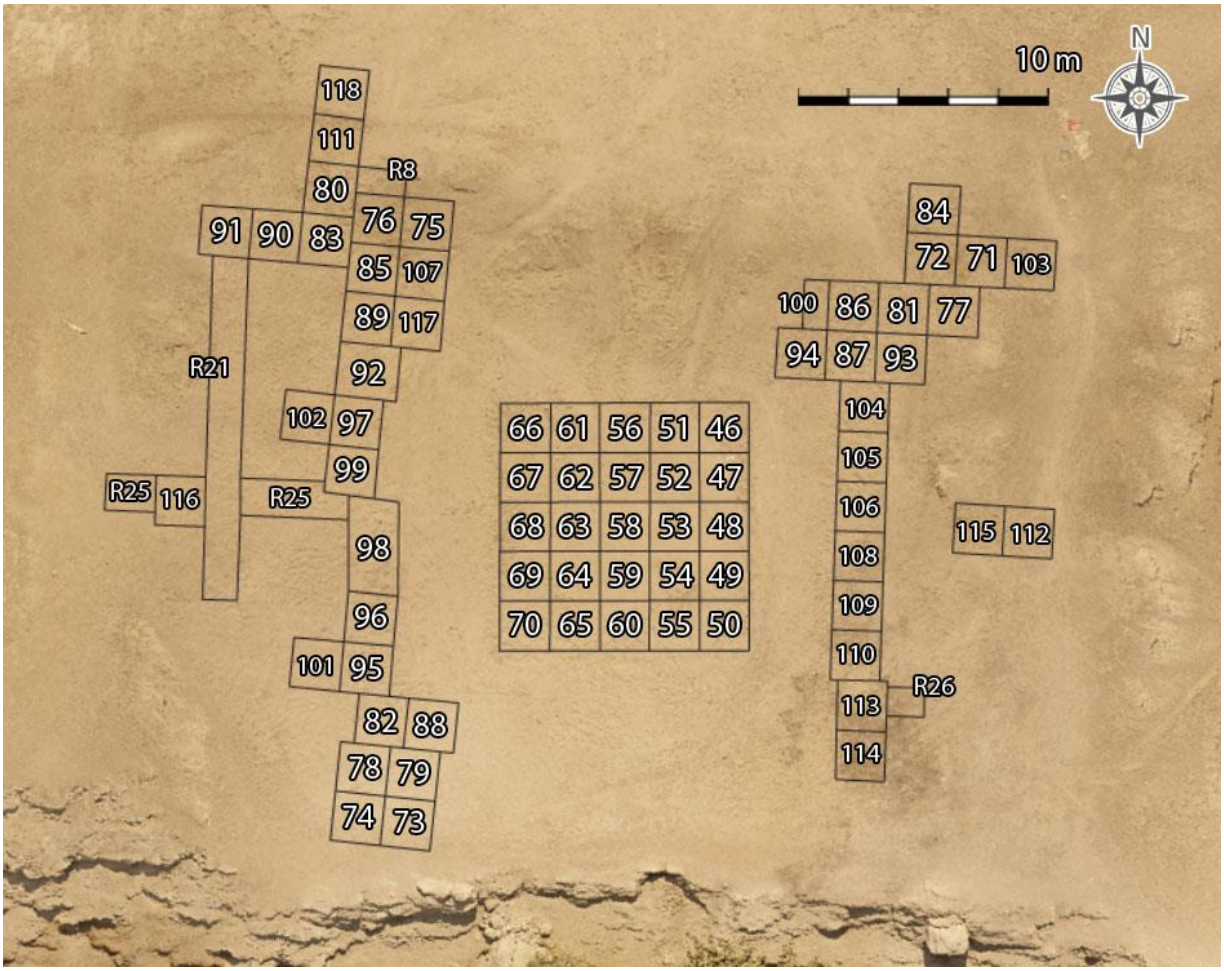


Figure 30: Accounting of units in Sector B, the middle saddle-shaped sunken court.

For each sector we established a system of sub-datums (*cotas*) below the master datum. We assigned each sub-datum with a number, measured its altitude against the master datum using an optical theodolite, and labeled it permanently with its elevation. Our choice of where to place each sub-datum was based on the location of excavation units. We established new cotas throughout the excavation to suit our needs. We occasionally retired old cotas that lay in the way of new excavation units. We periodically re-measured this entire system of sub-datums to ensure accuracy. All vertical measurements for architectural analysis, point-plotting of artifacts, profile drawing, and contextualizing C14 samples at Huaca Soto are based on this system (Fig. 31,

Table 6.1). For Sector A we used 16 sub-datums (Cotas 2A through 17A)[34]. For Sector B we used 18 sub-datums (Cotas 1B through 18B). Crews typically used line-levels attached to sub-datums for documentation during excavation. For important samples and idiosyncratic finds, we set up an optical theodolite over an appropriate sub-datum. For digital mapping of the site by Bongers, we used a Topcon Total Station set up over the Master Datum.

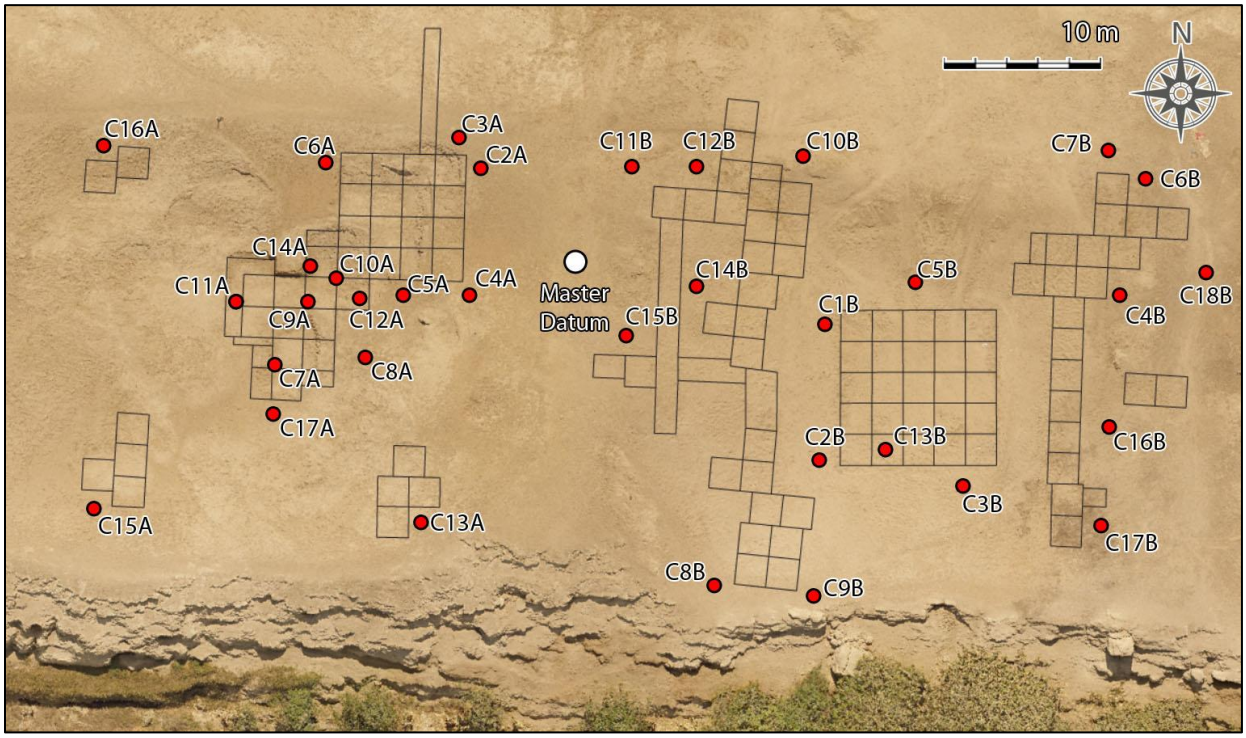


Figure 31: Location of subdatums within Sectors A and B

[34] 'Cota 1A' is the Master Datum.

TABLE 6.1: HUACA SOTO SUB-DATUMS

Sector	Sub-datum Number	Alt. below Master Datum (m)	Total Altitude (masl)
-	Master Datum	-0.00	48.00
Sector A	Cota 2A	-0.89	47.11
Sector A	Cota 3A	-2.00	46.00
Sector A	Cota 4A	-2.25	45.75
Sector A	Cota 5A	-4.07	43.93
Sector A	Cota 6A	-3.74	44.26
Sector A	Cota 7A	-5.94	42.06
Sector A	Cota 8A	-4.01	43.99
Sector A	Cota 9A	-6.68	41.32
Sector A	Cota 10A	-6.46	41.54
Sector A	Cota 11A	-7.81	40.19
Sector A	Cota 12A	-7.74	40.26
Sector A	Cota 13A	-2.10	45.90
Sector A	Cota 14A	-6.67	41.33
Sector A	Cota 15A	-3.79	44.21
Sector A	Cota 16A	-2.48	45.52
Sector A	Cota 17A	-5.38	42.62
Sector B	Cota 1B	-6.53	41.47
Sector B	Cota 2B	-6.28	41.72
Sector B	Cota 3B	-6.63	41.37
Sector B	Cota 4B	-6.63	41.37
Sector B	Cota 5B	-6.53	41.47
Sector B	Cota 6B	-3.49	44.51
Sector B	Cota 7B	-4.72	43.28
Sector B	Cota 8B	-4.35	43.65
Sector B	Cota 9B	-4.74	43.26
Sector B	Cota 10B	-4.24	43.76
Sector B	Cota 11B	-3.24	44.76
Sector B	Cota 12B	-5.52	42.48
Sector B	Cota 13B	-9.43	38.57
Sector B	Cota 14B	-4.60	43.40
Sector B	Cota 15B	-1.76	46.24
Sector B	Cota 16B	-5.52	42.48
Sector B	Cota 17B	-4.02	43.98
Sector B	Cota 18B	-2.72	45.28

We relied on a system of natural levels to control stratigraphy within excavation units. This was convenient as the sunken courts are composed of alternating floor and fill levels (technically architectural features) each quite regular and internally homogenous. This sequence of levels was identical in Sectors A and B. We established new levels based on changes in matrix color, consistency, density, or content. Some levels were relatively thin (typically floors, less than 25 cm), while others could be more than a meter thick (typically clean fill layers between floor episodes). The ridges surrounding the courts on all sides, on the other hand, consisted of solid masonry coursings. We did not excavate through these solid portions of architecture except to remove surface matrix or fallen debris.

Single-Context Locus

In addition to spatial units and vertical levels, we used a *Locus* number to identify each unit-level and rasgo-level combination. We instituted this system primarily to facilitate the efficient creation of a post-season report as required by our excavation permit. This amounted to a single-context recording system wherein all features could be reassembled through the use of a Harris matrix. This made it easy to conduct a basic accounting of field documentation, photo documentation and inventory of recovered materials, especially considering the large number of open units at any given time and the fact that we did not excavate all of them to the same vertical level. We also expected that this would be advantageous in the case of extremely complex stratigraphy within Huaca Soto's sunken courts. However, we quickly found that that stratigraphy at Huaca Soto was incredibly homogeneous, regular, and generally undisturbed – there are very few complicated stratigraphic features. Thus, in discussing results in subsequent chapters, it is more straightforward to describe finds in terms of units and levels.

To ensure that no *locus* number was repeated we kept a hardcopy log of available numbers in the field. Excavators who wished to excavate a new feature, open a new unit, or begin a new level in an established unit assigned a unique locus number to the new context. Photography, new documentation, a matrix sample, and additional mapping of the unit accompanied each new locus number. All told, Sector A contained 150 unique *locus* contexts and Sector B contained 258. The stark difference between these numbers does not reflect the number of features in each court, but rather the number of excavation units opened and the depth to which each was excavated. We employed similar single-log systems when opening new units and assigning collection numbers to samples.

Collection, Provenience, Workflow

We typically deployed a full-collection strategy for all pre-Columbian materials. We used cloth geological sample bags for large or bulky items and plastic geological sample bags for smaller items. Fragile finds were placed in foam-lined Tupperware containers prepared by field conservator Colleen O'Shea. We placed all radiocarbon samples in aluminum foil. We did not collect modern material culture found in surface levels, which typically consisted of bottle glass, cigarette butts, scraps of modern textiles, plastics, and bones from modern food taxa. At times modern deposits were extensive – the southeastern corner of Sector B was used as a modern trash dump. All recovered materials received Sector, Unit, Level, Locus, and optionally a Rasgo (feature) designation. Specific metric depths were recorded for carbon samples, soil samples, and important finds. We used hand-drawn maps to point-plot finds including all soil and radiocarbon samples, figurines, metal objects, *Spondylus* shell artifacts, human remains, hyper-diagnostic

ceramics and other idiosyncratic objects. We did not point-plot bulk items, for instance fragments of local shell, animal bone, or most ceramic sherds, due to practical constraints.

We employed a variable dry-screening strategy throughout the excavation. When opening a unit, level, or feature we began with 100% sifting – every bucket of matrix removed was sifted through a ¼ inch wire mesh and all materials were collected. We typically encountered incredibly clean contexts. Floor layers more than a few cm thick and intentional fill layers (deposited as single events) usually contained extremely low amounts of material. In these cases, we incrementally reduced the percentage of matrix sifted from 100% to 50%, and sometimes to 25%. We always maintained at least this minimal level of screening in order account for changes in micro-assemblages. If notable quantities of material began to reappear, we increased the proportion of dry-sifting. We did not wet-sift finds with the exception of a macrobotanical float experiment (see below), as most matrices at the site were loose sand or dust that separated easily from artifacts.

We pulled radiocarbon samples from each stratigraphic level in all deep-soundings, as well as from special features (absolute dates are discussed in Chapter 9). We also pulled soil samples from each stratigraphic level to study soil matrix, establish a baseline for luminescence dating of ceramics, and to run preliminary micro-botanical float tests. We exported 30 radiocarbon samples and 20 soil samples to the US. When possible we selected annual grasses for carbon dating, though these were rare in Huaca Soto. The majority of C14 samples were charcoal from hearth contexts, maize cobs, and cane associated with architectural features. All radiocarbon samples were submitted to the W.M. Keck Carbon Cycle AMS laboratory at the University of California, Irvine, which processes all PACH samples.

All finds received a unique collection number (*lote*) based on a registry of available numbers kept in the field. Important objects received individual numbers and were curated separately, while bulk items received *lote* numbers by the collection unit (for example, single cloth bags might contain dozens of ceramic sherds, shells, or animal bones recovered from the same *locus* context). We removed *lotes* to the laboratory where crew members weighed each bag, quantified, photographed, and studied its contents, and entered each into a master database. Specific lotes were later studied by material type, resulting in individual analyses of ceramic material (Chapter 8), vertebrate and invertebrate material (Chapter 9), bricks and architectural materials (Chapter 7), and a variety of smaller material assemblages like beads, lithics, and botanicals (Chapter 9). We recovered 1782 *lotes* from Sector A and 1428 *lotes* from Sector B.

Ceramic materials were washed upon arriving in the laboratory. This process involved soaking in water for half a day, followed by careful cleaning with a light brush to remove any attached matrix. We did not apply this cleaning to post-fire resin painted wares or other friable ceramic objects. Non-ceramic objects were typically cleaned with a light brush to remove attached matrix.

We passed all special collections and fragile items to a field conservator for cleaning and stabilization. This process involved an initial assessment of the object's condition, a treatment plan, and full photo documentation of the conservation process. A full conservation report exists for each of these items. Typically, we passed all post-fire resin painted ceramics, unfired clay figurines, textile materials, and metal objects on to a field conservator. Collections from Huaca Soto were stored in a PACH depository for study. They were submitted to the Ica regional museum in 2016.

Architectural Features

A major portion research involved study of architectural features. First, a dedicated team constructed a master plan drawing for the site that incorporated all exposed architectural features. This allowed us to extrapolate the trajectory of walls across each court. We then conducted targeted excavations to confirm or reject these working hypotheses; this process typically allowed us to find court corners quickly. Analog and digital coordinates were taken for all architectural features. We used Google Sketchup to create 3D reconstructions of Huaca Soto in its various phases. Two-dimensional hand-drawn maps were digitized using Adobe Illustrator. The result of this process was the production of accurate 2D architectural plans, profiles, and 3D architectural models.

The long term architectural evolution of Huaca Soto was most clear in deep sounding units placed in the interior corners of each sunken court. These deep profiles allowed excavators to observe when a floor stratum passed beneath a plastered wall – essentially demonstrating that an older court existed prior to the placement of that particular wall. Thus we were able to track the construction of court walls through time. Excavators attempted to capture these relationships through standard profile drawings and diachronic architecture models (see Chapter 7).

We also analyzed the materials and techniques used to construct and maintain architecture. This involved sampling mud plaster and paint samples for visual analysis and reference in the laboratory. We did this with decontextualized samples when possible and did not remove any intact features. We also collected a sample of 139 conical adobe bricks from contexts across the site for metric analysis (see Chapter 7). We selected intact bricks that were removed from their original context (usually in rubble or wall-fall). As all floor and fill layers at Huaca Soto were intentionally placed architectural features, we also studied matrix samples from

each stratum under a microscope in the laboratory. Results of this analysis comprise the section on court stratigraphy in Chapter 7.

Botanical Float

We conducted a set of flotation trials on sediments recovered from four of Soto's *in situ* sub-surface contexts. Terrah Jones (UCLA) constructed a field flotation machine from materials purchased locally in Chincha Alta. Each of our samples consisted of 5 liters of sediment. We also kept reserve samples for study (see Chapter 7). Each of these sample levels has radiocarbon dates available for chronological control. The goal of this preliminary analysis was to determine if Huaca Soto strata contained adequate amounts of micro-debitage or micro-botanicals to warrant a separate sampling strategy and targeted investigation of micro-assemblages in each layer. After several trials, we concluded that Huaca Soto's clean fill layers did not contain suitable amounts of micro-botanical materials for analysis. Likewise, Soto's concrete-like occupation surfaces did not contain adequate amounts of botanical material to warrant a more extensive analysis. We did not continue flotation trials.

Chapter 7: The Architecture of Huaca Soto

Excavation revealed that Huaca Soto was a carefully planned, non-vernacular structure, delimited by an orderly masonry foundation and expressing an intentional and specific socio-spatial logic. The structure was built in at least four major episodes dating from Early Paracas times into the start of the Middle Paracas period. Builders relied on technical and engineering principles tailored to local environmental conditions, and made constant investments in managing and rehabilitating Huaca Soto's exposed architecture. Huaca Soto's configuration of internal tiers, passageways, and emphasis on axial movement indicates processional events that emphasized ascent through its three sunken courts – beginning in the open and spacious Sector C court, and arriving in the deepest and most intimate court in Sector A. In Late Paracas (Topará) times, haphazard modifications to the middle court (Sector B) cut this area off from the rest of the structure in association with new domestic activities. Post-Formative construction events included the addition of a small adobe structure in the Sector A court, which we date to the Late Intermediate Period based on offerings and radiocarbon samples (see Chapter 9).

This chapter is organized into four sections. The first defines the Huaca Soto's physical parameters, visual impact, and exposed standing architecture. The second section analyzes paraboloid adobe bricks that make up the majority of the structure. The third section considers the floor surfaces and intentional fill layers that constitute the stratigraphy of the court centers in Sectors A and B. The final section of this chapter investigates internal architectural features that govern proxemics and movement within the structure – interior court tiers, enclosure walls, corridors, staircases, annexes, and portals.

Part 1: Huaca Soto as a Total Structure

Exterior Plan and Parameters

As it stands today, Huaca Soto is a single structure with an elongated rectilinear plan. Its major axes are oriented towards the cardinal directions. The structure's long axis (E-W) measures 150.20 meters on the southern face and 158.90 meters on the northern face. The difference is due to uncertainty at the eastern terminus, where current residents have built-up around the tier to support a modern homestead. Huaca Soto's short axis (N-S) measures 51.40 meters on the western side and 50.90 meters on the eastern side. The total footprint of the current structure covers some 7,500-7,800 square meters with a perimeter of ca. 400 meters.

The structure consists of three seamlessly adjoined rectilinear platforms that rise in step-wise fashion towards the west (Fig. 32, 33). The highest and westernmost platform (Sector A) serves as the structure's apex, followed by a saddle-shaped central area (Sector B). A low but spacious eastern platform (Sector C) is the structure's most accessible space and probably provided a general point of entry. Each sector hosts a deep sunken court surrounded by multiple, step-like internal tiers. Courts are separated from one another by high masonry bulks that hosted long narrow staircases providing passage by one person at a time. Masonry enclosure walls bound the Sector A and C courts to the north and south. The Sector B court has a broad atrium on its northern side, which was possibly mirrored on the south side in antiquity (this area is now destroyed).

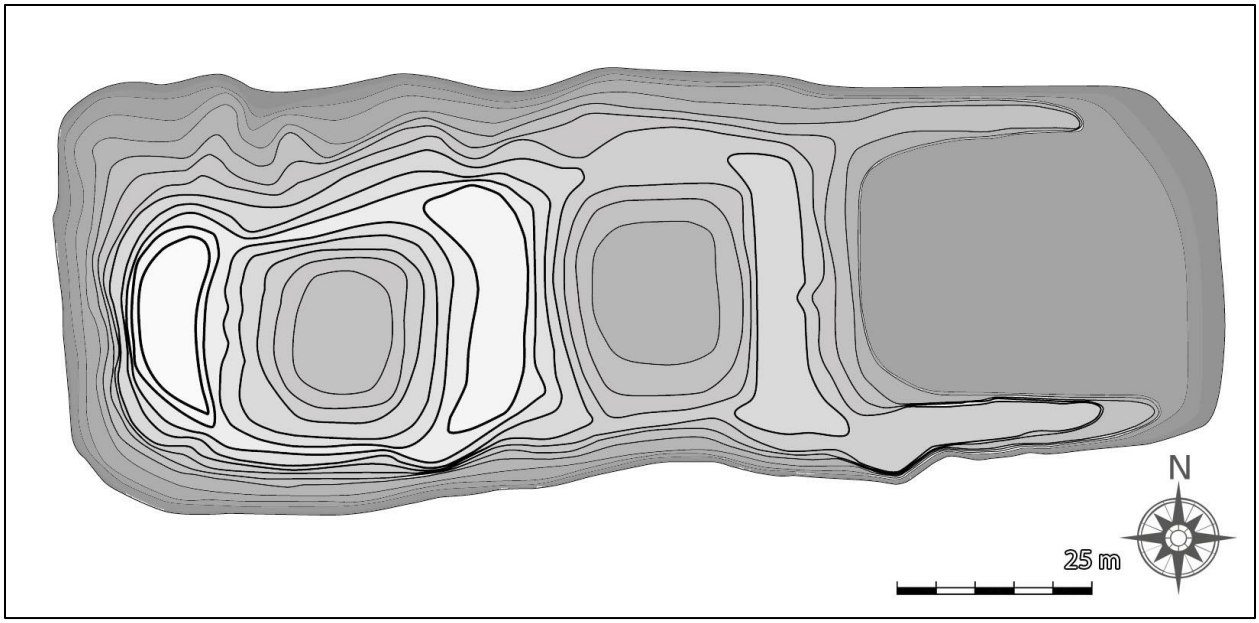


Figure 32: Topographic map of Huaca Soto developed with analog chain-and-tape techniques



Figure 33: Composite photograph showing Huaca Soto's three rising platforms.

Huaca Soto's northern face is well-preserved between 1-2 meters above ground level. It exhibits a section of finished exterior surviving along eastern half of the structure's long axis. External portions of this foundation are battered between 1 and 3 degrees to support the weight of masonry bulks above. A coating of prepared earthen plaster[35] was applied as a finishing material to forming a smooth and even exterior surface. This northern side of the structure features a long atrium that runs along the exterior of the Sector A and B platforms (Fig. 34). This area is approximately 20 meters wide (N-S) on the Sector B platform, but narrowing substantially as it joins the Sector A platform. It is separated from the Sector B court by a low masonry wall, and from the Sector A court by a high and comparatively imposing masonry bulk. Both courts are connected to this atrium via narrow corridors (see fourth section below).

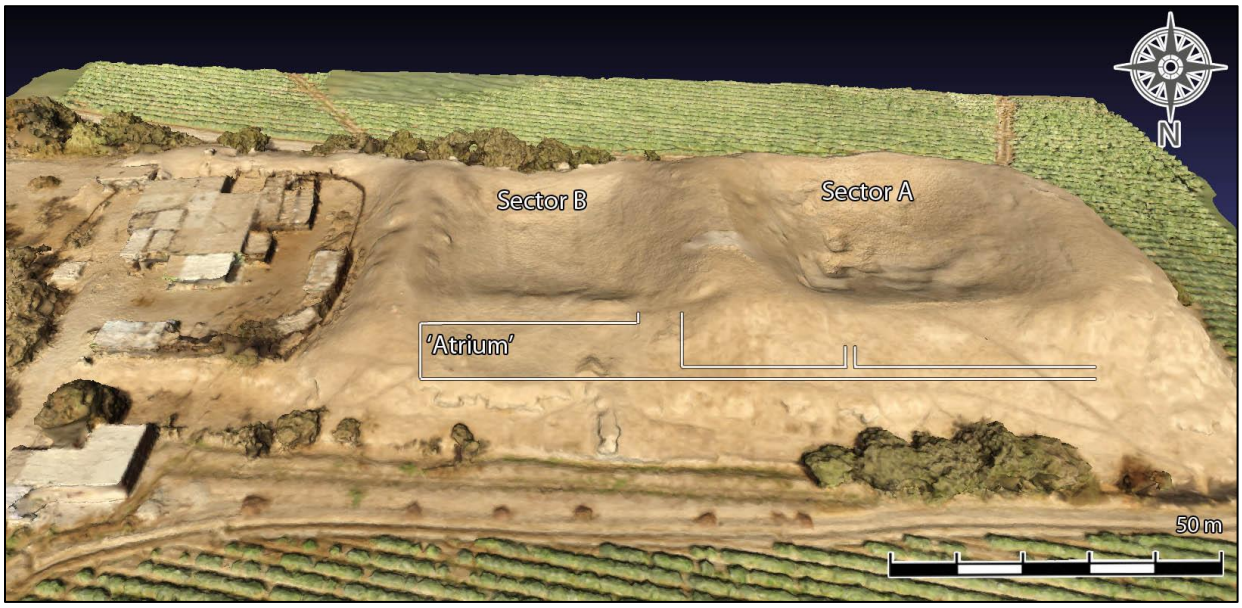


Figure 34 : Huaca Soto from the north, with projection of the atrium feature along the structure. Drone imagery courtesy of Luis Jaime Castillo.

[35] Most earthen finishes at Huaca Soto consist of a finely levigated earthen slurry that achieved a clean and hard finish when dry.

In contrast, Huaca Soto's southern, eastern, and western sides are poorly preserved and do not exhibit any of the structure's original exterior covering. Much of this damage is due to wind erosion, animal burrowing, and destruction from modern irrigation. Several intrusions carved deep into the structure's southern face provide a view into Soto's masonry interior. Here we observed *in situ* paraboloid adobes set vertically in coursings (flat base downward) and separated by poured layers of prepared mud slurry. We also observed two thickened adobe 'caps' in the upper part of the southern profile. Instead of adobes, these were composed of poured mud slurry; each was up to 50 cm thick. These are similar to the prepared floor surfaces that we observed during excavation of the Sector A and B sunken courts, and thus may indicate the prior existence of an external tier running along the structure's southern side. Perhaps this mirrored the atrium feature that passed along Huaca Soto's northern side. If so, the total width of Huaca Soto would have originally been broader by some 20-25 meters.

While each of Huaca Soto's three courts share a rectilinear plan, the differences between them are visible in the standing architecture. Sector A is notably smaller than its counterparts and is surround by markedly higher enclosure walls. It presents a deeper, more cavernous, visually inaccessible, and enclosed space. The Sector B court is broader and shallower than Sector A. It is notably open to the north and south, where it articulated with exterior atriums on its wings (Fig. 35). Sector C is the most open and shallowest of the courts. We observed no evidence for an enclosure wall on the eastern end of the structure, although this side of the platform is badly damaged and covered in modern construction. This raises the possibility that the eastern side of Sector C was open in antiquity, but this hypothesis should be tested with targeted future excavations.



Figure 35: Comparison of Sector A (above, facing west) and Sector B (below, facing east) courts before excavation.

The masonry bulks that separate each court from its neighbors were accessible spaces open to foot traffic in antiquity. The westernmost and highest bulk (forming the western extremity of the structure) is approximately 13 meters above the surrounding fields on the structure's southern side (48.75 meters above sea level) and is Huaca Soto's highest point. It is flat and broad in its E-W plain, spanning approximately 7 meters, and could have hosted significant activity in its own right. To the west the structure is badly damaged and drops off

precipitously. This bulk would have been considerably broader in antiquity, by as many as 5 additional meters, based on observations of exposed architecture in the structure's western terminus. The second masonry bulk, separating Sectors A and B, is only slightly lower at 12.25 meters above the surrounding fields. It is substantially narrower than the first (4-5 meters E-W). The third bulk, separating Sectors B and C, is similar in width to the second but substantially lower at 10.30 meters above surrounding terrain). The prominent views afforded by these bulks provided a clear perspective on activities taking place within the adjoining courts. From the westernmost bulk a person can easily monitor activities taking place in the Sector A court, but has no view of Sector B or C. From the second bulk (between Sectors A and B), a person can easily observe all activity within the Sector A and B courts, and gains an oblique view of Sector C. From the third bulk, one can observe activity in Sectors B and C, but not Sector A.

The northern and southern enclosure walls of all three courts are lower than the bulks separating the courts to the east and west. In Sector A, the apex of the western wall is about 2.5 meters higher than that of the northern and southern walls. In Sector B, the western bulk rises more than 4.66 meters higher than the northern and southern enclosure walls. This makes Sector B appear to be relatively open on its northern and southern ends, giving it a 'saddle' shape. Thus, Huaca Soto presents a hierarchy of court spaces, beginning in the relatively spacious and open-ended Sector C, entering an intermediate Sector B court, and rising to the visually and physically exclusive court in Sector A. Reconstructions based on quantitative excavation data demonstrate this rising three-tiered hierarchy (Fig. 36).

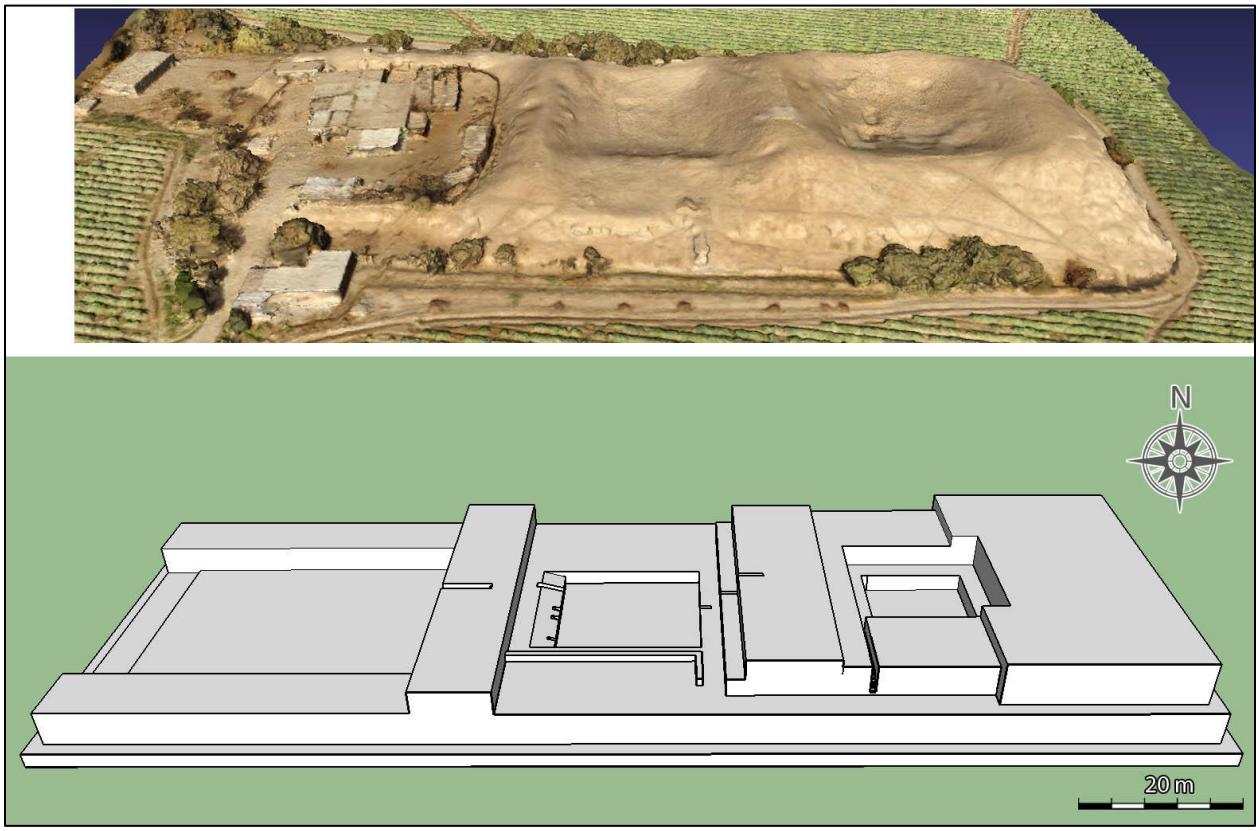


Figure 36: A comparison of Huaca Soto's courts as they appear today, and a Google Sketchup reconstruction based on quantitative excavation data. Drone imagery courtesy of Luis Jaime Castillo.

Viewsheds from the Valley Bottom and Approach Thresholds

As a result of its massive footprint, substantial elevation, and contrast with the surrounding vegetation, Huaca Soto is visible from at least 2 kilometers away given clear lines of sight. An incoming visitor's perception of the structure varies depending on the direction of approach. An observer standing to the East perceives Huaca Soto as a squat step-pyramid extending westward toward the Pacific Ocean. This orientation gives one a sense of the structure's three-tiered layout, while deemphasizing its length. It emphasizes the hierarchical

relationship between the ascending platforms and implies a sequential path of movement from the bottommost court towards the uppermost. An observer approaching from the North or South gains an appreciation of the structure's impressive length. This side-view portrays Huaca Soto's westward rise as slow and gradual. While Soto's tiered arrangement is perceptible, an observer gains little sense of the structure's internal architecture. Neither the courts themselves or entrances to the structure are evident from the North or South. Finally, Soto appears as a steep and inaccessible monument when approached from the West. Its sheer and uninviting western face provides no overall impression of the structure's tiered plan and offers no clear access points. This approach effectively hides all internal architecture from view (Fig. 37). Again, this suggests that the lowest and easternmost court provided general access to Huaca Soto.

As one approaches Huaca Soto from the east, the hypothesized point of entry, one passes through a series of visual thresholds determined by distance from the structure. While the structure itself is visible from several kilometers away, its three-tiered layout becomes perceptible at around 1.5 km. Once one approaches within 80 meters, full appreciation of the structure's plan is lost as the upper two tiers recede behind Sector C's standing western wall[36]. The structure takes up most of the visual field at around 22 meters distant – at this point it is clearly perceived as 'monumental'[37]. At about 14 meters from Sector C the structure fills the entire upward field of vision[38]. Here, Soto's overall length and layout are no longer perceptible; one loses the sense of proportion available at a distance and perceives only the Sector C court.

[36] This calculation uses platform heights of 13, 10 and 7 meters and an average length of 50 meters for each platform. The angle of depression from sector-to-sector is a constant 3.3498 degrees. Soto occupies 3.3498 degrees of visual field for a 2-meter tall person at approximately 80 meters away.

[37] Moore defines this as 18 degrees of visual field above the horizon (1996a:99-101).

[38] Moore defines this as a 27 degrees of visual field above the horizon (1996a:99-101).

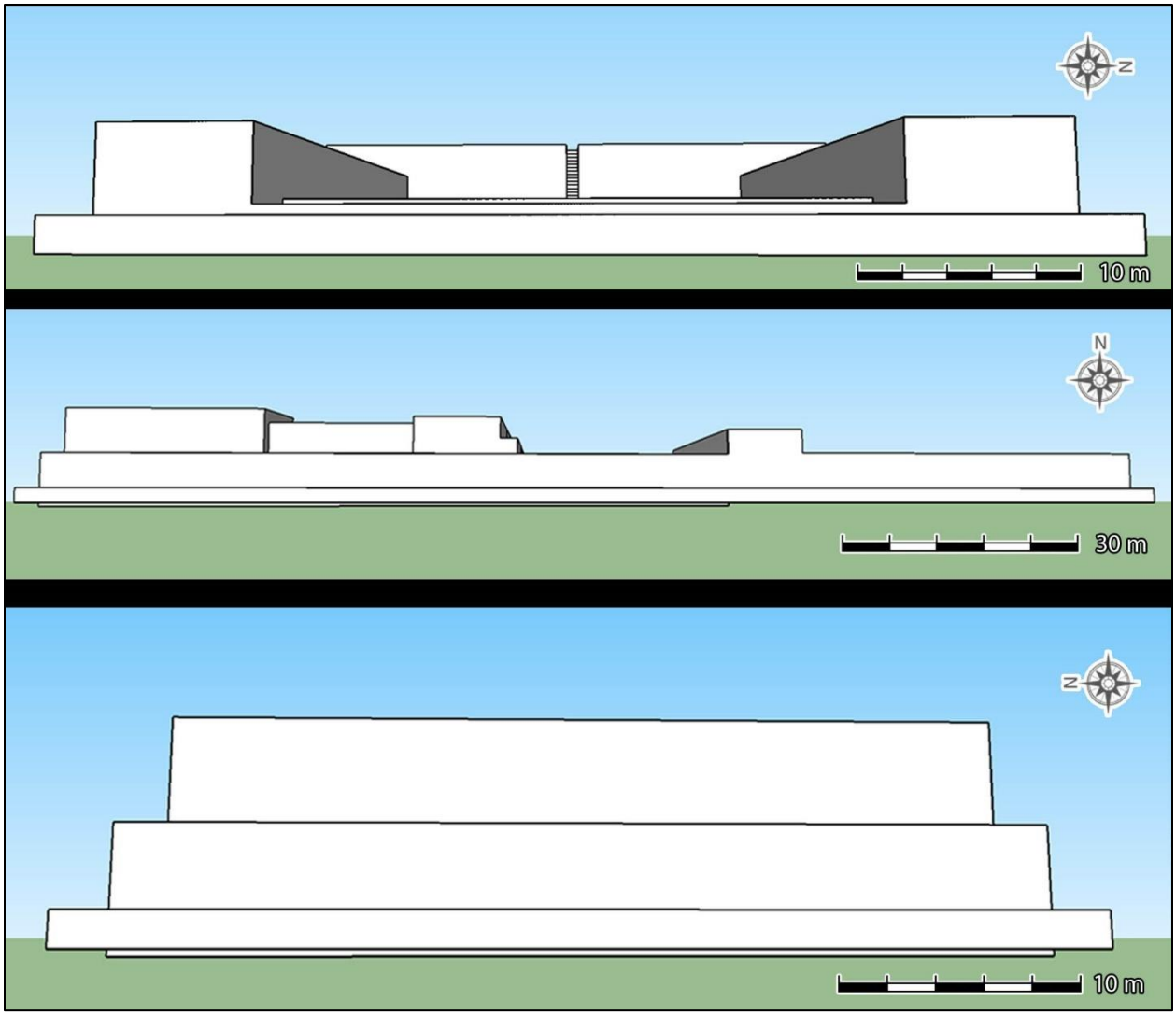


Figure 37: A Google Sketchup reconstruction, showing approaches from each of Huaca Soto's eastern face (top), northern and southern faces (middle), and western face (bottom).

Cross-Section of the Western Ridge and Deep Architecture

A large portion of the Huaca Soto's western terminus has sheared off, exposing a cross-section of internal architecture (Fig. 38). Based on measurements anchored to small portions of intact finished face near the structure's base, we know that this cross-section was once approximately 5 meters 'inside' the structure. This provides a view of deep construction techniques that is not available through stratigraphic excavation of the courts.



Figure 38: The exposed western face of Huaca Soto, showing thousands of paraboloid adobe bricks set into neat masonry coursings.

This exposure demonstrates that Huaca Soto's masonry bulks consist entirely of regular adobe coursings. These are visible in cuts from the base of the structure all the way to its apex. The adobes themselves, sometimes called 'conical', odontiform', or 'maize kernel-shaped', are technically elliptic paraboloids. The majority rest with the flattened base downward and the long-axis oriented E-W. The long-axes of adobes abut one another. In some cases, it appears that neighboring rows were slightly offset to create an interlocking effect. Overall it is clear that coursings were carefully following a pre-established plan, rather than simple *ad hoc* placement.

Despite this careful fit, the paraboloid shape results in substantial interstitial spaces around top of each coursing, where adobes taper to a point. We observed that builders filled this

spaces with a combination of poured-mud slurry and loose sand. This would bolster structural integrity by preventing open spaces within coursings that could weaken load-bearing capacity. After finishing a coursing with a seal of mud slurry, a subsequent level of adobes was placed directly upon it. The overall effect is a 'layer-cake' formation consisting entirely of earthen materials (Fig. 39).



Figure 39: Paraboloid adobes and mud-slurry caps in situ within the exposed western face of Huaca Soto.

Both adobe units and mud slurry were composed of the same material and probably prepared in the same way (see second section below). However, adobes separate from slurry cleanly with little force. This suggests that bricks were already well-cured before application of the slurry cap – they could be fabricated in place and allowed to dry, or placed in coursings once dry. Likewise, caps would require significant time to cure. This would slow the pace of

construction considerably, given that drying time in replicative experiments ranged from 3-6 days or longer given climatic conditions (Zorogastúa *ms*). It is reasonable to suggest that the construction of Huaca Soto's major masonry portions was a gradual process that took place over many construction episodes, covering a period of weeks or months.

We observed several notable structural anomalies within the exposed western face. These include vertical plastered surfaces running through the core of the masonry near the lower half of the structure's base (Fig. 40). These 'seams' faced north-northwest and south, running along the long axis of the mound. They may be the remnants of earlier architectural phases that were filled in during subsequent expansion of the structure. Another possibility is that these seams were never permanently exposed, but instead represent the edges of individual construction segments. This strategy would be useful for maintaining level construction over long spans. This also opens up the possibility that individual segments represent labor investments by individual work groups. While this problem is difficult to resolve without excavation into the standing architecture, it highlights the fact that construction of Huaca Soto was a complex, planned endeavor that occurred in multiple stages.

The western face also contains the remnants of three exposed 'caps' similar to those observed on the structure's damaged southern side. Each of these is approximately 50 cm thick and consist of solid poured slurry. Again, they are identical to floor surfaces found within the sunken courts. From the base of the structure we counted a minimum of 29 adobe coursings before the first cap, followed by 15 additional coursings and a second cap. Lastly came a third set of five coursings and a final cap. This evidence suggests that Huaca Soto once had a set of external tiers fairly high up that circled its western end. These may have been accessible spaces,

similar to the atrium on the north side of Sector B, or they may simply be the remains of support tiers that served to buttress the structure.

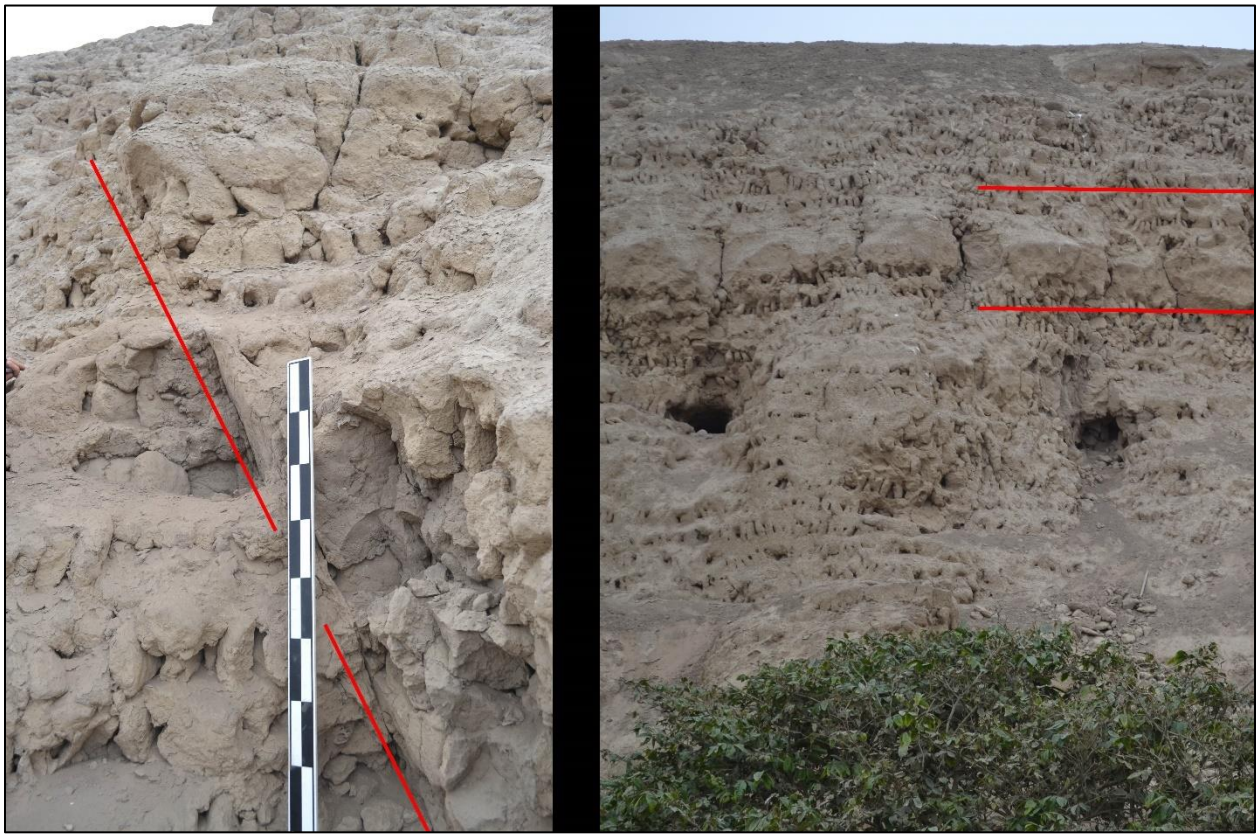


Figure 40: Structural anomalies in Huaca Soto's exposed western end. At left, marked by a red line, is a long finished 'seam' embedded in the masonry sections of Huaca Soto's western face. At right, marked by two horizontal lines, is thickened mud cap with no internal adobes.

Part 2: Adobe Brick Materials and Production

We collected and analyzed 120 loose paraboloid adobes from different locales in Huaca Soto. Of these, 26 came from the exposed western end of the structure. These represent Early-to-Middle Paracas (Cavernas) phase construction episodes wherein bricks were set vertically in coursings, as described above. The remaining 94 adobes were recovered from the northwest corner of Sector B in units 76, 80, and 91 (n=30, 37, and 27, respectively). These were associated

with a small Late Paracas (Necropolis/Topará) reconstruction event, in which bricks were laid horizontally to 'brick-up' prior tiers and corridors (see fourth section below). We also collected and analyzed samples of the mud slurry used to fill and finish coursings. The goal of this analysis was to test whether brick shape and composition differed significantly between the two phases, in order to discern for standardized production. It also provided some insight into the material inputs, timing, and process of brick-making.

Adobe Brick Metrics

We began with a basic metric analysis of the sample, including measurements in all planes plus mass and volume for each brick. We noted that paraboloid adobes in all contexts are handmade – approximately 67% of the sample showing hand or fingerprints (Fig. 41). In many cases we noted multiple handprints oriented in different directions on a given sample. This indicates that builders manually worked each adobe into a desirable shape. We hypothesized that builders made bricks in large batches and used standardized proportions. Therefore, we expected to observe little variation between bricks from a given locale within the structure. We also hypothesized that builders utilized the same brick-making techniques in both the Cavernas and Necropolis construction events, as we observed no visible differences between bricks from the two phases. Our alternative hypothesis supposed that there was little standardization in handmade adobes, wither between sectors of the structure or between Middle and Late Paracas construction episodes. We used one-way ANOVA tests and T-tests to determine whether the means of each population were statistically comparable. We focused on brick Mass, Height, Length at Base (defined as the portion that contacts the substrate), Total Length, and Width at Base.



Figure 41: Adobe bricks recovered from Huaca Soto, showing typical paraboloid form and handprints.

Mass of adobe bricks varied markedly within each collection unit (Table 7.1). The smallest brick massed 641 grams and the largest 3431 grams (both from the West End; a difference of more than 500%). Factors such as air content within the adobe matrix, 'bulging' of many bricks (e.g. a fatter or skinner paraboloid would not necessarily increase a brick's height, length, or width), and erosion of the samples before collection would contribute to this

variability. A set of two-sample F-tests demonstrate that sample variances between Unit 80 and West End, and Unit 91 and West End, are not statistically equal (F=5.181, F Critical one-tail=1.815, P=0.000005; F=3.115, F Critical one-tail=1.938, P=0.003, respectively). In addition, sample variance is not equal between Unit 76 and Unit 91 (F=2.606. F Critical one-tail=1.907, P=0.008). This is expressed in a comparison of the standard deviations for each sample. Considering that mean averages between the groups appeared to be similar, we tested the null hypothesis that the means of the four populations were statistically equal. Based on the results of an ANOVA test we accepted the null hypothesis that there is no statistically significant difference between the means of the four groups (F=1.438, F crit = 2.683, P-value = 0.235). In short, 1) the range of masses within each collection unit was notably broad, 2) there are significant differences between the ranges of certain collection units, 3) average mass appears to be the same overall.

TABLE 7.1: MASS OF PARABOLOID ADOBES

UNIT	n	Range min. (g)	Range max. (g)	Mean (g.)	σ_X
Unit 76	30	731	3123	1467	496
Unit 80	37	955	2051	1366	239
Unit 91	27	868	2543	1283	307
West End	26	641	3431	1485	541

The height of paraboloid adobes also varied greatly, including samples recovered from the same collection unit (Table 7.2). The shortest example was only 8 cm high (West End) versus the tallest at 22 cm (Unit 91). The West End sample showed the greatest degree of variability of any of the four samples, and two-sample F-tests concluded that variances are not equal between West End and Unit 76, West End and Unit 80, or West End and Unit 91 (F= 2.620, F Critical

one-tail=1.891, P=0.007; F=4.212, F Critical one-tail=1.815, P=0.00005; F=2.455, F Critical one-tail=1.938, P=0.013, respectively). This is expressed in the comparatively high standard deviation for the West End distribution. Again, despite differences in variance, all four sample means were quite comparable. We tested the null hypothesis that all sample means were statistically similar. An ANOVA test suggests that there is no statistically significant difference between the means of the four groups (F=1.586, F crit=2.623, P-value=0.1966). In short, mean brick height is the same regardless of collection unit, although overall range is significantly greater between Early-to-Middle Paracas construction and Late Paracas construction. This may be due to the fact that West End adobes were exposed on the surface, and thus more likely to be damaged.

TABLE 7.2: ADOBE HEIGHT

UNIT	n	Range min. (cm)	Range max. (cm)	Mean (cm)	σ_X
Unit 76	30	12.5	18.5	15.3	1.9
Unit 80	37	10.0	17.0	14.2	1.5
Unit 91	27	11.9	21.5	14.6	1.9
West End	26	8.0	21.5	14.9	3.0

Next we tested the length of brick bases – the portion that the brick rests upon for Early-to-Middle Paracas architecture, and the portion that faces outward in Late Paracas architecture (Table 7.3). Again, we noted significant variation within and between collection units, with the shortest adobe at 8 cm and the longest at 21.5 cm (both from the West End sample). A series of two-sample F-tests concluded that Unit 76 and West End populations had statistically equal variances (F=1.141, F Critical one-tail=1.891, P=0.364) and Unit 80 and 91 had statistically equal variances (F=1.806, F Critical one-tail=1.213, P=0.292). We again tested the null

hypothesis that the means of the four populations were statistically equal. Results of an ANOVA test force us to reject the null hypothesis (F=4.945, F crit=2.683, P=0.003). Because ANOVA is an omnibus test that does not indicate which set of means are statistically non-equivalent, we conducted a series of two-sample t-tests to determine which pairs exhibited non-equivalent means. Only two out of six possible combinations had statistically equal means: Units 76 and 80 (t=-0.357, t Critical two-tail=2.013, P(T<=t) two-tail=0.7227) and Unit 91 and West End (t=-0.706, t Critical two-tail=2.018, P=0.484). Therefore, while the mean length of bases is quite non-standard across the sample, this does not appear to be related to chronological phase.

TABLE 7.3: ADOBE BASE LENGTH

Unit	n	Range min. (cm)	Range max. (cm)	Mean (cm)	σ_X
Unit 76	30	6.0	21.0	12.5	2.8
Unit 80	37	10.0	17.0	12.7	1.7
Unit 91	27	8.0	15.5	11.2	1.9
West End	26	5.0	15.0	10.8	2.9

Length of the base was typically not the total length of the adobe brick. In most cases we observed a significant amount of over-hang on each end of the long axis. This may be a better indicator of standardized length, as it directly governs the amount of space that an adobe takes up within the structure (Table 7.4). Variance between populations were statistically equivalent with the exception of Unit 76 with 91, Unit 80 with 91, and West End with 91 (F=3.313, F Critical one-tail=1.907, P=0.001; F=2.394, F Critical one-tail=1.869, P=0.0115; F=3.246, F Critical one-tail=1.938, P=0.002, respectively). While the smallest brick measured 12 cm (Units 76 and 91) and the longest 21.5 cm (Unit 76), means of the four populations were visually similar. An

ANOVA test confirms the null hypothesis that the means of each of the four populations are statistically equivalent (F=1.363, F crit=2.683, P=0.258).

TABLE 7.4: TOTAL ADOBE LENGTH

Unit	n	Range min. (cm)	Range max. (cm)	Mean (cm)	σ_X
Unit 76	30	12.0	21.5	14.7	2.1
Unit 80	37	11.0	19.5	14.6	1.8
Unit 91	27	12.0	16.5	14.4	1.2
West End	26	11.0	19.5	15.3	2.1

We tested the width of adobe bases (Table 7.5). There was significant variation within and between units. The shortest width measured 3.5 cm (from Unit 80) and the widest at 9 cm (Unit 76 and West End). Variation was statistically equivalent between all populations except for Unit 80 vs. West End (F=1.841, F Critical one-tail=1.921, P=0.036). In terms of mean width, results of an ANOVA test force us to reject the null hypothesis that populations had statistically equivalent means (F=7.172, F crit=2.683, P=0.00002). A set of two-sample t-tests determined that means were equivalent between Units 76 and 80 (t=1.958, t Critical two-tail=1.997, P=0.0546) and between Unit 91 and West End (t=-0.039, t Critical two-tail=2.008, P=0.969). Non-equivalence of population means is perhaps exacerbated by the tightness of each population's overall range of widths – standard deviations hover around a centimeter. Mean values for each unit range between 6.7 and 5.5 cm, a little more than a centimeter.

TABLE 7.5: ADOBE BASE WIDTH

Unit	n	Range min. (cm)	Range max. (cm)	Mean (cm)	σ_X
Unit 76	30	4.0	9.0	6.7	1.1
Unit 80	37	3.5	8.5	6.2	0.9
Unit 91	27	4.0	8.5	5.6	1.1
West End	26	4.0	9.0	5.6	1.2

Because mean height and overall length were statistically equivalent for all units but mean width was not, we decided to test overall volume directly (Table 7.6). We measured this using a displacement method involving a bucket filled with rice. Volume ranged between 300 mL (West End) and 2225 mL (Unit 76). Variance between the distribution of each population was statistically equivalent in only two cases, between Unit 76 and West End and between Unit 80 and 91 (F=1.842, F Critical one-tail=1.926, P=0.062; F=1.187, F Critical one-tail=1.806, P=0.312, respectively). This is represented via a comparison of the respective standard deviations. We expected a similar set of relationships for equivalency of means. However, results of an ANOVA test cause us to reject the null hypothesis that the means of all four populations are statistically equivalent (F=4.159, F crit=2.683, P=0.007). A series of two-sample t-tests shows non-equivalency for three pairs: Units 76 and 80, Unit 80 and West End, and Unit 91 and West End (t=2.129, t Critical two-tail=2.024, P=0.039; t=3.193, t Critical two-tail=2.024, P=0.002; t=2.694, t Critical two-tail=2.017, P=0.01, respectively). This suggests that volume of adobes was non-standard between several collection units, despite the fact that paraboloid adobes from across the structure converge on a relatively similar overall size and shape.

TABLE 7.6: ADOBE VOLUME

Unit	n	Range min. (mL)	Range max. (mL)	Mean (mL)	σ_X
Unit 76	30	450	2225	88	349
Unit 80	37	475	1050	699	158
Unit 91	27	425	1200	718	171
West End	26	300	1400	883	256

The variables explored in this brief analysis focused on spatial and volumetric aspects of individual paraboloid adobes. The overall form of an adobe is expressed in the combination of

height, total length, and width of base – these maximum dimensions govern the 'fit' of bricks in a given coursing. Total length generally exceeds base length due to over-hang on the lateral ends of most adobes. The same is not true for width – base width is total width in all cases. Aspects like mass, volume, and base-length may express important variations in brick-making practices, but variation in these categories would have less overall impact on the 'fit' of bricks.

While mean height and total length are statistically equivalent for all units, mean base width is not. This may be a product of notably tight standard deviations in base width (σ_X = 0.8-1.2), compared with standard deviations in height or total length categories (σ_X = 1.46-2.99, 1.16-2.12, respectively). This suggests that while variation in mean base width between areas of the structure is indeed statistically significant, it affects the 'fit' of adobes no more than variations in height and total length.

One of our overarching goals was to discern for patterned differences between Early-to-Middle Paracas (Cavernas) adobes on the western end, and Late Paracas (Necropolis/Topará) adobes in Units 76, 80, and 91. Our results indicate no straightforward differences that can be attributed to this distinction. All four collection areas showed equivalency of means in mass, height, and overall length. Non-equivalency of base width, base length, and volume is evenly spread across the samples units – there is no clear outlying area that might suggest a different approach to brick-making. Overall, 'Cavernas' and 'Necropolis' associated adobes at Huaca Soto cannot be distinguished from one another on the basis of form alone.

Cross-Section and Inclusions

We used a Dinolite USB microscope to conduct a visual analysis of the interior of several paraboloid adobes. All bricks, regardless of placement or location on the structure, shared a

similar internal composition. Furthermore, the interstitial 'slurry' material between coursings was identical to the bricks themselves when viewed under magnification (Fig. 42). Both bricks and slurry contained a limited amount of angular mafic mineral grains, quartz inclusions, and even fewer green-brown amphiboles, all of which were less than a millimeter across. Bricks and slurry also contained microscopic amounts of shell and carbon inclusions. There is no vegetal temper present. Neither shell nor carbon appears in the quantity or density that would suggest an intentional temper. Rather, these appear to be unintentional inclusions that occurred naturally in lower-valley sediments. The overall small size of these inclusions suggests that sediment went through a levigation process before use.



Figure 42: A comparison of cross-sections from a paraboloid adobe recovered from Huaca Soto (left) and interstitial mud-slurry matrix attached to that brick (right).

Replicative Experiments with Adobe Materials

We conducted a brief replication experiment in an attempt to recreate matrix-to-water ratio, general consistency, and texture observed in earthen construction materials at Huaca Soto.

We started with one 5-liter bucket of adobe rubble collected from the western end of the structure. We reduced this material to a fine powder under controlled laboratory conditions. We divided the sample into three lots. Each lot contained 200 mL of powder. We added 50 mL water to the first sample (ratio = 1:4). The matrix became immediately sticky, similar to baking flour. The composition was quite malleable, and could be shaped like wet clay. It was moist enough to resist cracking while under manipulation, and retained detailed finger prints. It left a fine layer of mud residue on experimenters' hands, but adhered better to itself than skin. There was no notable clumping of the matrix.

The second sample received 100 mL of water (ratio 1:2). This sample was a thick, watery mixture with the consistency of porridge, too watery to mold into a solid shape. It was immediately clear that this mixture was over-saturated. It could easily be poured This lot was abandoned during the mixing process because it was unsuitable for hand manipulation.

We added 25 mL of water to the third sample (ratio 1:8). This was not enough water to create an adequate amount of cohesion, and the sample cracked as we tried to mold it. We were able to fashion a rough parabolic adobe, but application of too much pressure caused our samples to crumble. This mixture did not adhere to the hands. In this case it was difficult to get all of the residue out of the container, as it did not adhere together. There were small amounts of dry powder left over, and the brick remained brittle throughout the drying process.

After thorough mixing, we kneaded each sample for five minutes. We then formed each lot into a small elliptical paraboloid brick. Our resulting adobes were substantially smaller than pre-Colombian example recovered from Soto. We left each sample to cure in an outdoor, sunlit area. It took more than two weeks for the samples to desiccate completely. This may be due to

the overcast seasonal climate and occasional precipitation in Chincha during the months of June through August. These months do not appear to be an ideal time for adobe construction.

Once adobes were dry, we cross-sectioned each sample. Our reconstituted bricks contained the same general mixture of inclusions observed in bricks recovered *in situ* from Soto excavations – very fine mineral particles, microscopic shell and carbon inclusions, and small air pockets. The overall consistency and hardness of our samples, especially Sample #1 (1:4 ratio) matched well with our findings from *in situ* samples. Our reconstituted adobes are indistinguishable from actual samples when viewed under magnification.

This experiment raised a few important insights. First, the ratio of water to matrix is crucial, especially considering that Paracas builders used no molds. Bricks had to immediately hold their shape and stay upright during the extent of the drying process. Second, inclusions within the bricks are minimal and probably unintentional – there is no proper temper. When reduced to a fine powder we observed only minimal vegetal material, sand, or other inclusions; we were able to reproduce remarkably hard and durable bricks without a temper component. Third, the drying process probably presents the greatest limit to the pace of construction. This suggests that brick-making was likely a seasonal activity that took advantage of hot summer months and longer daylight hours. Even so, construction would be a slow process, especially if bricks were placed into coursings before drying. Even if large quantities of bricks were made beforehand and allowed to dry before placement, interstitial mud slurry could potentially take days to weeks to fully cure. Overall, analysis of adobe brick materials and production suggests that builders utilized locally available materials, were well-acquainted with the strengths and weaknesses of these materials, and were able to coordinate the timing of brick making and construction on a large scale.

Part 3: Floors and Fills in Sectors A and B

The stratigraphy of Huaca Soto's sunken courts is part of the structure itself. Controlled excavation in Sectors A and B exposed a sequence of alternating floor and intentional fill layers constructed during the site's Early-to-Middle Paracas phases. There are no intervening 'natural' strata between Early-to-Middle Paracas reconstructions, suggesting that the courts were continuously used over this period. The order and composition of stratigraphy is overwhelmingly identical in both courts with a few notable exceptions. We observed evidence for continuous maintenance of more recent court floors, including careful removal of debris and constant replastering of wall and floor surfaces. While this had clear aesthetic implications, it also kept floors and tiers level, prevented water damage to the exposed architecture, and removed detritus left over from court events. Altogether, these data support the hypothesis that Huaca Soto was a non-vernacular structure during its original phases of use. All Late Paracas and post-Paracas activity took place in unsealed surface strata above the final Early-to-Middle Paracas architecture.

The Stratigraphic Architecture of Sector A

The Sector A court contains 11 stratigraphic levels, including four occupation surfaces (Fig. 43). The two most recent floors were continuously maintained and replastered, becoming quite thick over time. The third surface, a compacted clay *apisonado*[39], is comparatively thin. The final and deepest surface is a second *apisonado* close to ground level, which represents

[39] An informal occupation surface tamped down by foot traffic, as opposed to a formally prepared floor.

Huaca Soto's earliest iteration. Floors are separated by layers of intentional fill. The earliest fill layers express a soil-like quality that may be derived from local sediments around the site, while later fill layers were clean sand brought in from the Río Matagente or the nearby beach. Together, this evidence suggests a minimum of four distinct architectural episodes (Fig. 44, 45). We recovered Early Paracas incised brownwares in association with the oldest apisonado (Lv. 8-9); incipient Middle Paracas post-fire resin painted wares in association with the most recent three phases (Lv. 2-7); and Late Paracas 'Topará' monochromes on and above the most recent floor (Lv. 1-2). Post-Paracas activity occurred within the surface strata. In addition to fineware styles, radiocarbon dates taken from secure floor and fill layers in both courts support this chronology (see Chapters 8 and 9).



Figure 43: Stratigraphy in the Sector A sunken court center, from the latest Level 2 floor downward (left). At right is a photograph of stratigraphy in the court's northeastern corner from above, facing north.

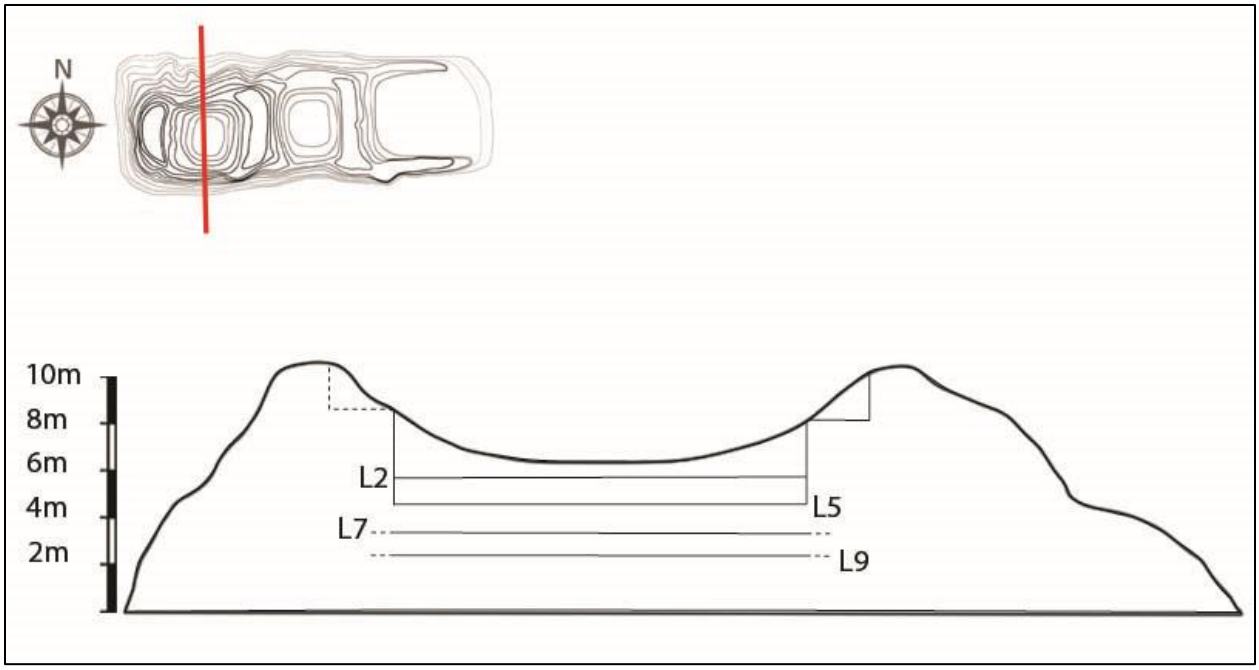


Figure 44: North-South cross-section of the Sector A sunken court, facing west. The Level 2 and Level 5 floors abut visible East-West walls, while the older Level 7 and Level 9 floors run beneath standing architecture.

The *surface matrix* of Sector A consists entirely of a loose, wind-blown dust and fine sand mixture with small petrous inclusions less than 1mm in diameter. Strong afternoon windstorms from the southwest deposit the majority of this matrix. We experienced several of these events during excavation, usually requiring us to cease work and cover exposed units. The windblown matrix collects against the walls of the structure and creates deep drifts, turning the surface of the court into a rounded 'bowl'. For this reason, surface deposition is significantly deeper in the corners of the court. We noted scattered rectilinear adobe bricks in the superficial matrix, which are associated with a post-Paracas structure at the center of the court that collapsed sometime in late antiquity.

Level 1 is a compacted version of the windblown surface matrix that includes elevated amounts of architectural debris. We recovered loose paraboloid adobes from units nearest to the

court's walls where erosive forces exposed and damaged standing Early-to-Middle Paracas architecture. In contrast, fragments of rectangular bricks were common in Level 1 near the center of the court. Rectangular types share a regular squat and flat form (averaging around 28 cm long, 12 cm wide, 5 cm thick), were clearly mold-formed, and show evidence that they were once joined with a mud mortar of similar color and material composition. We traced this debris to the foundation of a small post-Paracas structure near the court's center. The structure was founded above the Level 2 floor (no direct contact) and contained a number of Late Intermediate Period and Inca -styled figurines. In Level 1, beneath and around this structure, we also recovered a substantial amount of post-Paracas serving wares dating to the Middle Horizon and a fair quantity of Late Paracas (Topará) monochrome sherds. Late Paracas materials were likely deposited in surface levels during reuse events. There is substantial evidence for disturbance throughout Level 1, including looting activity and animal burrows that caused movement of materials between Level 1 and the Superficial layer.

Level 1B exists only in the corners of the sunken court. It is identical to the Level 1 and surface matrices with the exception of being compressed into a hard, caked layer and lacking architectural debris. It cleanly separates from the Level 2 floor below. We interpreted this stratum as natural accumulation in court corners that occurred prior to the deposition of post-Paracas architectural debris. Level 1B contained little to no material culture.

Level 2 is the most recent Early-to-Middle Paracas prepared floor in Sector A. The matrix was notably lighter in hue than prior strata (2.5Y 6/2 Light Brownish Grey, 10YR 6/3 Pale Brown, 10YR 6/2 Light Brownish Grey, 7.5YR 6/3 Brown). It was clearly and immediately distinguishable from the prior Level 1. We exposed this stratum in several units but only excavated through it in six targeted contexts (Units 17, 21, 22, 24, and Rasgos 11 and 18). The

floor was regular and well-leveled, varying in total altitude by only a few centimeters between the court's center (Units 21 and 22) and the northeast corner (Rasgo 11). This suggests that great attention was invested in level construction. Overall thickness of the floor varied from an average of 43 cm in the northeast corner (R11), to 40 cm in its center (U22), and up to 54 cm at points in between (U17). The floor is extremely hard and dense – reminiscent of concrete – making it nearly impossible to excavate with a hand trowel. In fact, we recording abandoned attempts to penetrate this strata – probably by looters – due to its compactness and thickness.

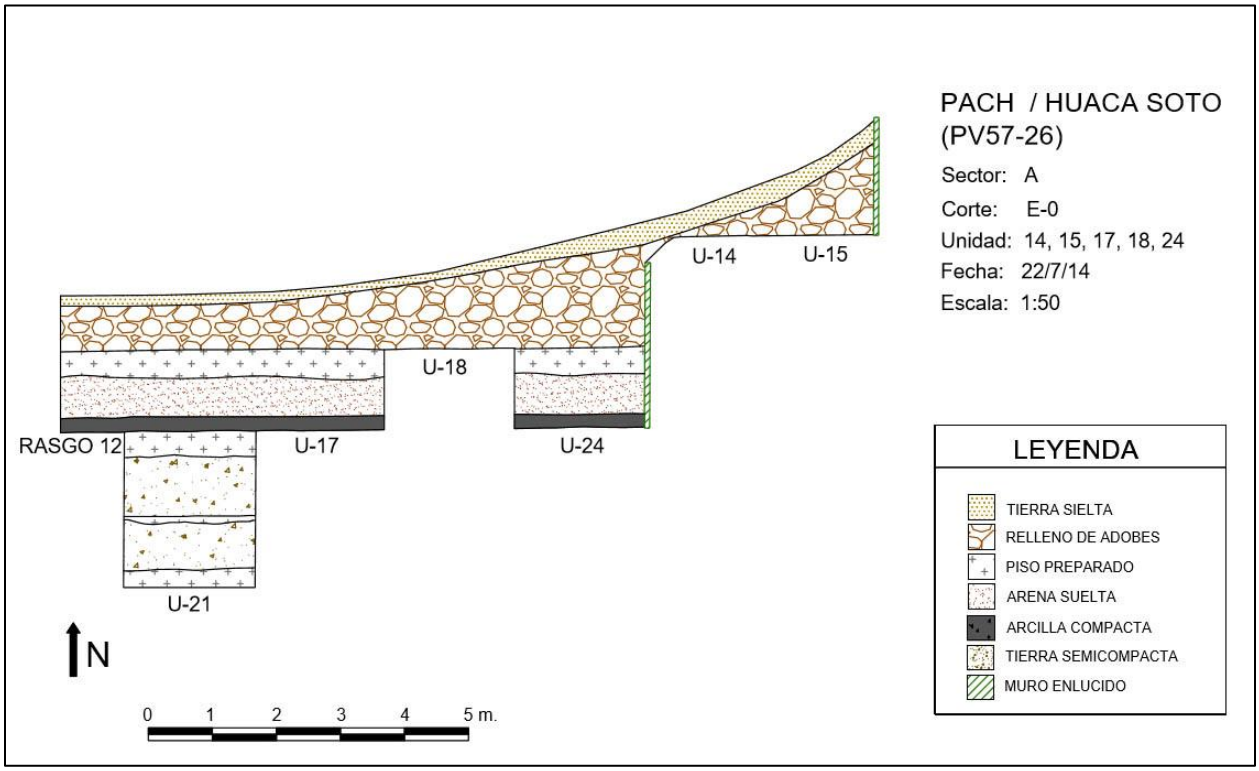


Figure 45: East-West cross-section of the center of the Sector A court, showing floor and fill layers.

The Level 2 floor is clearly a planned and carefully engineered surface. The floor matrix contained very low amounts of visible petrous material. These were limited to small angular components (less than 2 mm) comprising at most 3-5% of the matrix. Under a microscope this

matrix reveals a very fine-grained mixture of clay and silt particles, a majority composition of quartzes and feldspars with muscovite inclusions, resulting in an overall firm consistency. This is striking for its similarity to the adobe material used throughout Soto's substructure, and we could hypothesize that it is indeed the same prepared mud slurry used to finish coursings. In fact, during excavation we noted that the finished tops of the court's enclosure walls (*cabeceras*) were almost indistinguishable from the material of this floor. The only exception is that the Level 2 floor contained no independent adobe units, instead forming a single solid mass. Builders could have achieved the singular hardness of this floor by slowly pouring a prepared slurry and tamping it. This might be akin to *tapia* or rammed-earth techniques that became common in Chincha during later periods.

We identified relatively low amounts of material culture from within the floor itself. Furthermore, we did not observe striations or horizontal breaks (indicative of multiple compacted surfaces) apart from finishing plaster near the surface. This suggests that builders constructed the Level 2 floor as a single objective. Incipient Middle Paracas post-fire resin painted ceramic sherds, sit atop the floor, as do Late Paracas (Topará) monochrome sherds. We recovered post-fire painted wares from beneath the floor, but we did not recover Late Paracas Topará wares from beneath the floor. Therefore, the Level 2 floor marks the final 'Cavernas'-era construction episode in the Sector A court.

Finally, we noted sets of postholes penetrating into the Level 2 floor in several corners of the Sector A court. Rasgo 11 (comprising the northeast corner) shows two parallel sets of three postholes each following the eastern wall. Unit 26 (the southwest corner) showed evidence for a set of two, possibly three postholes paralleling the southern wall. These features are poorly preserved, and it is unclear whether they were put in place during pouring of the floor, or were

intrusive events from a date. In whatever case, these features suggest that areas of the Sector A court were once covered with a perishable roofing material.

Level 3 is a thick layer of loose, clean sand fill covering the entire span of the court. It separates the Level 2 floor above from the Level 4-5 floor below. We excavated this stratum in six units (Units 17, 21, 22, 24, and Rasgos 11 and 18). This layer is reasonably regular in thickness, ranging from an average of 54.8 cm deep in the court's center to 69.8 cm in its northeast corner. The fill itself consists of a fine-grained sand composed of angular particles, mostly quartz and feldspar. We identified limited amounts of biotite, hematite, amphibole, and muscovite inclusions under magnification. This sandy material had notably larger grains than wind-blown sediments in superficial strata. A comparison of this matrix to local beach sand and alluvium deposited by the Rio Chico suggests that it originated in a local riverine deposit. Color ranged from a 10YR 4/4 Dark Yellowish Brown to a 2.5Y 5/4 Light Olive Brown. If we account for the total size of the court and assume an average depth of 50 cm for this strata, Level 3 represents more than 200 cubic meters of sand, weighing close to 250 metric tons. It appears to have been deposited over a fairly short period of time – there are no internal striations or other evidence for multiple iterations.

Level 4 is a thin layer of plaster associated with underlying Layer 5, exposed in six soundings (Units 17, 21, 22, 24, and Rasgos 11 and 18). It is not distinguishable from Level 5 in any real sense other than its comparatively friable consistency (it reduces to a fine powder under light pressure). This was probably part of the thick plaster finish applied to the underlying floor. Accordingly, it is no more than a few centimeters deep. Under a microscope, particles of this matrix are rounded and fine grained with a high clay content, reminiscent of earthen finishing plasters used on Soto floors and walls elsewhere.

Level 5 comprises Sector A's second-most recent floor surface (Fig. 46). We exposed this level in six units (Units 17, 21, 22, 24, and Rasgos 11 and 18) but only excavated through it in two (Unit 21 and Rasgo 11). This floor averaged 33 cm thick in the corner (R11) and 35 cm in the court center (U21), while expressing a variance of up to 8 cm in thickness within a given unit. The surface of the level 5 floor shows the physical imprint of resurfacing activity in which a broom-like tool was used to smooth over a wet plaster surface. This activity left clear imprints in the floor's surface. Upon excavation it became clear that this surface was periodically recoated with thin layers of plaster. The matrix itself is similar to that of Level 2; it is a firm, very high clay content matrix composed of rounded fine-grained quartz and feldspar particles with muscovite inclusions. Its color ranges from 10YR 5/2 Greyish Brown to 10YR 5/3 Brown. Level 5 was exceptionally clean compared to prior strata. Like the Level 2 floor it contained almost no material within it – the few fragments of shell and undecorated ceramic we recovered came from near the floor's surface.

Level 6 is a loose fill layer separating the 2nd and 3rd floors in Sector A. It is significantly siltier, and less sandy, than the previous fill layer in Level 3. We exposed and excavated through this stratum in Unit 21 and Rasgo 11. This layer averaged 89.2 cm thick in Unit 21 and 53.2 cm thick in Rasgo 11, demonstrating high variability between the court's center and the northeast corner. Thickness varied by as much as 20 cm within a given unit. Under a microscope the matrix appears as fine angular grains of loose consistency, consisting primarily of quartz with biotite, muscovite, and amphibole inclusions. There was a noticeable humus or 'soil' quality to this fill, suggesting it contained elevated amounts of organic material in comparison to later fill e events in Sector A. It appears to have come from a different local source – perhaps somewhere with notable vegetation, such as the alluvium in the pre-modern floodplain. Color was a

consistent 10YR 4/4 Dark Yellowish Brown. Material inclusions in this layer included small fragmented specimens of charcoal, shell, and animal bone.



Figure 46: Formal Level 5 floor at the center of the Sector A sunken court.

Level 7 is an informally compacted *apisonado*, the third floor in Sector A stratigraphy. We exposed and excavated through this level in Units 21 and Rasgo 11. Thickness within a given unit varies by more than 10 cm. However, the Level 7 *apisonado* averages at 13.4 cm thick in the center of the court (U21) and almost an equal match in the northeast corner at R11 (14

cm). If indeed this surface is the result of foot traffic rather than formal pouring, this would suggest that the total area of the court experienced relatively even usage during this period. The Level 7 matrix is composed of a fine-grained silt with a moderate amount of clay particles, consisting mostly of quartz grains with minor amounts of feldspar and muscovite and amphibole inclusions. Color ranges from 10YR 4/3 Dark Yellowish Brown to 10YR 3/3 Dark Brown. We recovered small inclusions of shell, bone, and charcoal, and small fragments of non-decorated ceramic embedded in this floor.

Level 8 is a fill layer overlaying Sector A's oldest architectural iteration. We exposed and excavated through this level in Units 21 and Rasgo 11. There is notable variability in the thickness of Level 8 between the center of the court (average 88.8 cm thick) and the northeast corner (average 21 cm thick), with less variation within a given unit (ca. 11 cm). Like fill layer Level 6 and unlike Level 3, this stratum has a silty quality rather than being a pure sand. A microscopic sample of the matrix shows very fine-grained and well-rounded particles of feldspar clay with few inclusions. Color ranges from 10YR 4/3 Dark Yellowish Brown to 10YR 4/4 Brown. Level 8 contained a relatively high amount of material culture compared to prior strata, including elevated levels of shell, bone, and an incised spindle whorl. It also contained decorated ceramic sherds with Early Paracas technical and design features. There was clearly human activity taking place throughout this deposit.

Level 9 is the final stratum identified in Sector A excavations. We exposed only a small portion of it in Unit 21 and Rasgo 11. It is an informal clay *apisonado* at Soto's core, 5-10 cm thick, that terminates into sterile subsoil below. Color is predominantly 10YR 3/3 Dark Brown. It appears that this stratum was the top of a low earthen mound that sat a few meters above the modern floodplain. Although we did not encounter loose material culture beneath Level 9, the

earthen mound that it rested upon was above modern ground level and thus was clearly an artificial feature. Sterile subsoil is similar to the Level 8 matrix (10YR 3/4 Dark Brown). The Sector A court is entirely negative space – it demonstrates no masonry foundation at its core.

Overall, excavation of the sunken court in Sector A yielded evidence for a minimum of four occupational surfaces (Levels 2, 5, 7 and 9) separated by thick sandy fills. In most recent phases these floors are incredibly thick and dense, clearly engineered and planned, and show evidence for continuous maintenance (Levels 2 and 5). In older phases they are more informal surfaces formed by foot traffic (Levels 7 and 9). Earlier fill layers involved local silts (Levels 6 and 8), while builders deposited later fills as single, massive events involving clean sand (Level 3). This suggests investment in architectural maintenance and construction at Huaca Soto intensified from the Early Paracas into the Middle Paracas period. All Late Paracas and post-Paracas reuse events in the Sector A court took place within and upon loose Level 1 and Superficial strata.

The Stratigraphic Architecture of Sector B

Like Sector A, stratigraphy in Sector B is the result of intentional and planned construction. Indeed, both courts exhibit the same series of layers (in terms of physical, mineral, and spatial characteristics), occurring in the same order, and of relatively the same thickness[40]. The single exception is that Sector B does not contain the deepest Level 9 *apisonado*, thus suggesting that Sector A existed before the addition of the Sector B court. Overall, Sector B

[40] One notable exception, a product of our methodology rather than historical reality, is that Sector B contains no 'Level 4' as described in Sector A. Having recognized that this was simply a finish plaster layer associated with its underlying floor (Level 5) we combined these into a single level while excavating Sector B.

contains 10 strata, including three occupation surfaces separated by thick layers of intentional fill. The first two floors are more-or-less identical to those found in Sector A (Levels 2 and 4). These are thick and formal surfaces with evidence of continuous maintenance and replastering. The third is an informal *apisonado* that represents the court's earliest occupation surface (Level 7). Like Sector A, the core of the Sector B court is 'hollow', with no masonry foundation. Excavators reached sterile soil in the court's center, more than half a meter below modern ground level (Fig. 47).

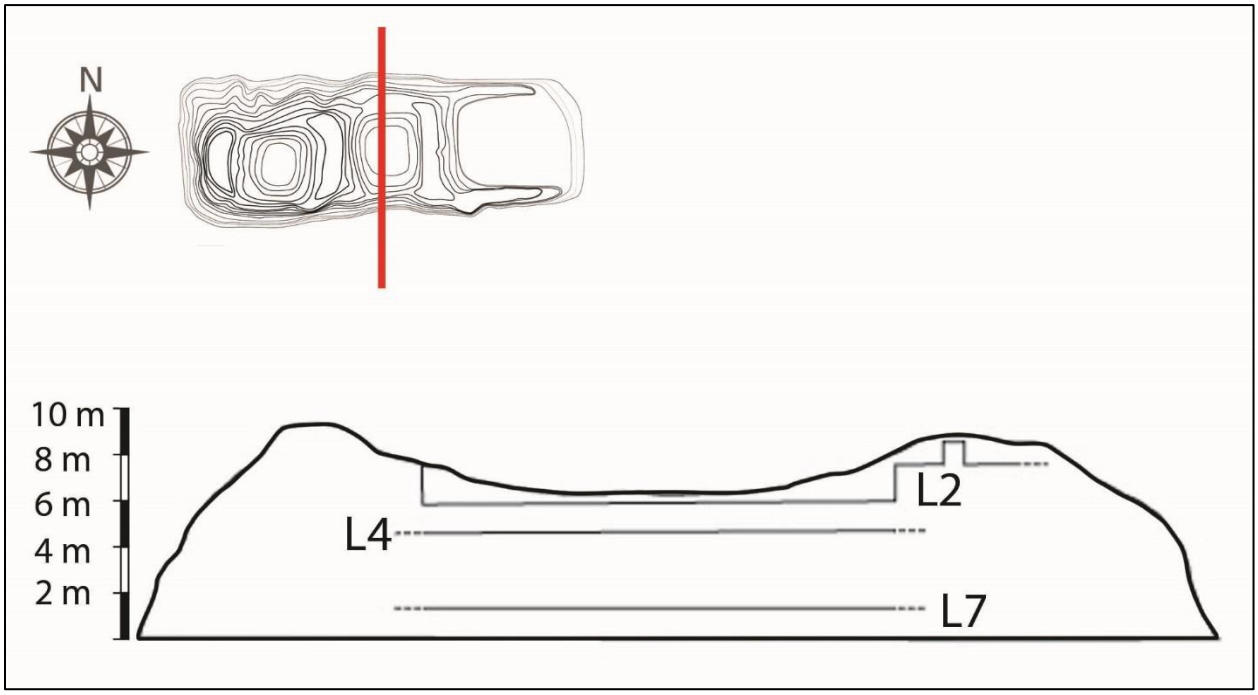


Figure 47: North-South cross-section of the Sector B sunken court, facing west, exhibiting three stratified court floors. The Level 2 floor abuts visible East-West walls, while the older Level 4 and Level 7 floors run beneath standing architecture.

The *surface matrix, Level 1, and Level 1B* in the Sector B court are superficial levels deposited by wind and compacted over time. Like Sector A, accumulation is significantly deeper

in the corners, giving the court a bowl-like shape. These strata are identical to those from Sector A and so specific details are not repeated here. The major exception is that Sector B lacks post-Paracas architectural additions, such as the rectangular adobe debris that characterized the upper levels of Sector A. Instead, all construction materials recovered from Sector B's upper strata relate directly to Formative phases. This includes a major Late Paracas (Topará) domestic reuse of the court during the final centuries BCE, which included addition of perishable architecture, deposition of household tools, and evidence for food preparation. I describe non-architectural aspects of this Late Paracas reoccupation in Chapters 8 and 9.

Level 2 is the first occupation surface in Sector B. This extremely hard, compact floor is identical to that of Sector A in its physical, mineral, and spatial characteristics. It covers the entire surface of the court. Unlike Sector A, we observed several instances where looters successfully penetrated the Level 2 floor, including a large pit in Unit 56 (Rasgo 4). We also observed several cases in which intrusive postholes (from perishable Late Paracas architecture) were carved into the original floor (Fig. 48). Radiocarbon dates from wooden posts in these intrusions confirm that they post-date the original floor surface (see Chapter 9).

We exposed Level 2 in 39 units but only excavated through it in 18 units (Units 48-50, 53-65, U86, R27), and areas that includes the court's center and its northeastern and northwestern corners. The Level 2 floor in Sector B is relatively level in its center and on its eastern side (the surface of the floor varying in altitude by less than 10 cm overall) but is elevated by more than 20 cm against the western wall. This may indicate a slight gradient or a small 'step' or 'bench' against the western wall. The overall thickness of Level 2 varies by as many as 30 cm between the court center and the corners. Average thickness of the center court

(44-45 cm) is nearly identical to that of Sector A (40-43 cm). It is reasonable to suggest that the two floors were constructed during the same event or very close together in time.



Figure 48: Broad exposure of the Level 2 floor in Sector B. A few large intrusion and multiple intrusive post-holes are visible in the floor.

All finds associated with this stratum rested directly upon the floor or very shallow within it. Like Sector A, both Middle Paracas (Cavernas) wares and Late Paracas (Topará) wares are present above the Level 2 surface. However, unlike Sector A, we also recovered a very low quantity of non-diagnostic Topará monochrome fragments below the floor. All instances where this occurred were in units that contained intrusions through the floor.

Level 3 is a thick deposit of clean sand fill separating the Level 2 and Level 4 floors (Fig. 49). It is identical to its counterpart in Sector A in terms of physical, mineralogical, and spatial

aspects. Likewise, it is similar to local river alluvium when observed under a microscope. We exposed Level 3 in 17 units and excavated through it in 16 units at the center of the court (Units 48-50, 53-65). The thickness of Level 3 varies between 110 and 124 cm across the center of the court. This stratum contained incipient Middle Paracas wares as well as quantities of shell, bone, charcoal, and microbotanical specimens. It also contained human remains indicating at least one adult burial (see Chapters 8 and 9). All of the material found within Level 3 was in its uppermost portions, directly beneath the Level 2 floor; thus it appears to have been deposited after filling the court with sand.

In Level 3 we identified a series of small channels and finely levigated sediments near the court's center (Rasgo 10), which appears to be the taphonomic signature of liquid draining through the Level 2 floor and dispersing in the sand fill below. These channels originate at Late Paracas postholes or intrusions into the floor. Apart from the post-holes themselves, the subfloor channels were not intentionally constructed. Either natural surface water entered through post-hole intrusions and seeped into the fill below, or Late Paracas inhabitants used some of these features as a sump for pouring off waste liquids. In terms of the former, it is possible that Paracas builders understood the structural advantages of using sand fill to disperse surface water quickly, preventing it from pooling within the structure's core and potentially causing greater damage to the earthen architecture. The selection of sandy materials for these fills, rather than soils available from the surrounding floodplain, indicates that builders wielded specific engineering knowledge related to monumental earthen construction.

Level 4 is the second formal occupational surface to appear in Sector B (Fig. 50). It spans the entire court – we encountered it in the court center, as well as northwestern and northeastern corner soundings. We exposed this floor in 14 units and excavated through it in 12 units at the

center of the court (Units 48-50, 53-55, 58-60, 63-65). The floor is incredibly regular, averaging 15 cm thick, with less than 2 cm of variation within any given unit. Like Level 2, Level 4 is characterized by a hardened mud-clay matrix with copious evidence for cleaning and maintenance. The layer contained few internal inclusions and exhibited a light gray color (10 YR 7/2). This stratum is associated exclusively with incipient Middle Paracas wares. These materials rest upon its surface or are partially driven into the stratum; the interior of the floor does not contain foreign objects. Thus, like other occupation surfaces at Huaca Soto, it appears to have been laid down in a single episode.



Figure 49: The central grid in Sector B showing exposed Level 3 sand fill (right) and later solid Level 2 floor (left).

The Level 4 floor was cleaned and replastered prior to the deposition of the Level 3 fill. We observed evidence for delicate arcing brush-strokes where a vegetal broom was used to smooth a thin layer of wet mud plaster. Amid this strokes we recorded 27 human footprints,

presumably left by an adult based on their size (Fig. 51). These spacing of these prints and the fact that they are identical in size suggests a single individual. This was probably the person applying and leveling the new plaster surface. We created plaster casts of each footprint for future study.



Figure 50: The Level 4 floor exposed in the center of the Sector B court.

Levels 5 and 6 represent a deep layer of fill between the second floor (Level 4) and the earlier *apisonado* (Level 7). We split this fill into two arbitrary levels due to the depth of the

deposit. We exposed and excavated this stratum in 12 units (Units 48-50, 53-55, 58-60, 63-65). Total depth averaged 174 cm and differed by as much as 10 cm within a given unit. The stratum consists of a compacted sandy sediment with irregular clay inclusions and slight color variations throughout. The layer contains small earthen clods, fragments of charcoal, very limited amounts of bone and shell, and non-diagnostic ceramic sherds.



Figure 51: Two different footprints left by an adult in the Level 4 floor during a final cleaning and replastering event.

Level 7 is a compacted high-clay *apisonado* at Soto's core, similar in form to Sector A's Levels 7 and 9. The upper 5 cm of this layer had notable bone, shell and ceramic inclusions driven into it. The compact matrix beneath was completely sterile. We exposed segments of this

stratum in 12 units (Units 48-50, 53-55, 58-60, 63-65) and fully excavated a single unit (Unit 53). The total thickness of the *apisonado* and underlying compaction averaged 55 cm. This is the oldest occupational surface in Sector B and contains the earliest evidence for cultural activity.

Level 8 is the final stratum exposed in Sector B. We exposed it in Unit 53 only. It lies immediately beneath the Level 7 clay core. The matrix is a compacted sandy soil with a yellowish brown color (10 YR 5/6). This was a sterile layer containing no culturally deposited materials. In finishing this unit, our excavation team had penetrated the entire way through Sector B, and was more than a meter and a half below ground level. Unlike Sector A, there does not appear to be a primordial earthen mound at the core of Sector B.

Comparing Stratigraphy in Sectors A and B

The stratigraphic sequences of Sectors A and B are nearly identical, with a few notable exceptions (Fig. 52). First, Sector A contains an additional occupation surface in its deep core. This *apisonado* suggests that the Sector A court was present prior to formal construction in Sector B. From Sector A's second oldest occupation surface forward (Level 7) the two courts evolved in tandem. A second and related observation is that equivalent strata in Sectors A and B are offset by a constant 1 to 1.5 meters throughout the structure's history (the difference varies depending on the stratum and area of the court). Sector A is always more elevated than Sector B. For example, Level 3 (a clean sand fill easily distinguishable from hardened floors above and below) begins in Sector A at a mean depth of 7.05 meters below the Master Datum, whereas in Sector B this level begins at a mean depth of 8.16 meters. Similarly, the second-most recent floor in each court (called Levels 5 and 4 in Sectors A and B, respectively) is approximately 1.40 meters deeper in Sector B than it is in Sector A. While there are slight variations in the overall

thickness of each stratum, this general offset between Sectors A and B is constant. Sector A was consistently the higher court.

Part 4: Architectural Features within Sunken Courts

Excavations in Sectors A and B exposed internal tiers, masonry enclosure walls, staircases, corridors, and other internal architectural features. These give shape to each court, govern movement through the structure, and dictate how individuals interact with one another during major events. The placement of these features changed over time in concert with new occupation surfaces. One objective of our investigation was to reconstruct the architectural evolution of Huaca Soto's courts. We naturally have a more conclusive picture of recent phases for which we were able to expose large areas of standing architecture. Data on the earliest configuration of courts remains limited.

The Sector A Sunken Court

With the exception of the late post-Paracas structure at the center of Sector A, all masonry architecture at Huaca Soto was built in Early-to-Middle Paracas times between the 8th and 5th centuries BCE (see Chapters 8 and 9). All solid internal architecture consists of handmade paraboloid adobes laid in orderly coursings and finished with a mud plaster.

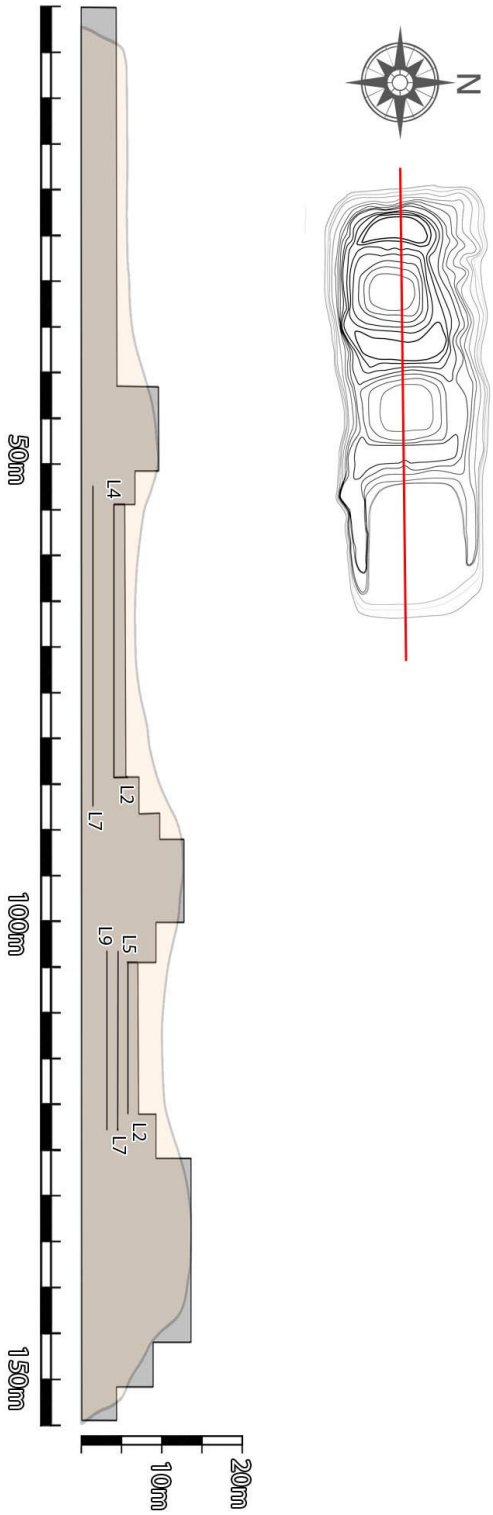


Figure 52: East-west cross-section of Huaca Soto through all courts, with reconstruction based on excavation data and standing architecture.

This coating is a pale yellow-brown in color, contrasting with the light brown-gray of Soto's floors, and is notably more friable. Damaged sections of wall reveal dozens of replastering events wherein builders applied a new coat directly upon its predecessor. The transitional join between walls and floors is well-covered and seamless. These observations are consistent for both excavated courts.

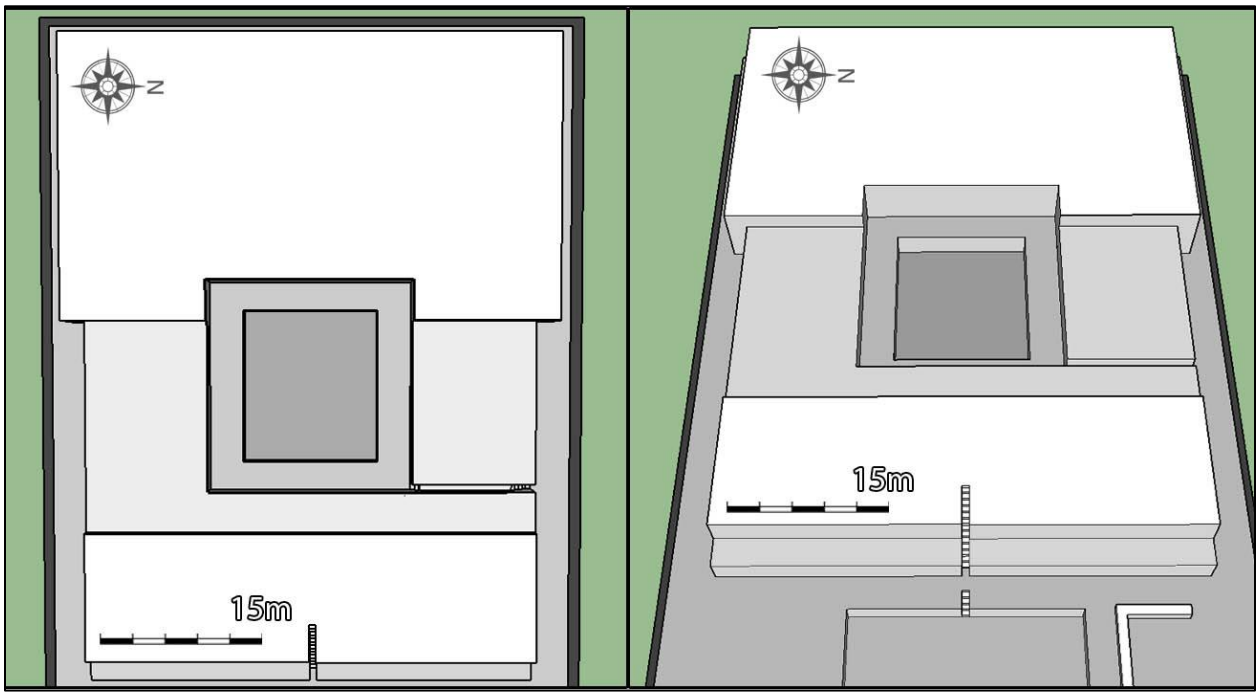


Figure 53: A Google Sketchup hypothetical reconstruction of the Sector A court in plan (left) and oblique view (right), based on excavation data and standing architecture.

The most recent court in Sector A exhibits an internal tier surrounding the court floor on at least the norther, eastern, and southern sides (Fig. 53). Based on excavation of three corners, we can extrapolate that the floor of the court measures ca. 13 meters E-W and 12.5 meters N-S. We did not identify an access-point for this lower tier. It may be accessible via a short staircase in the eastern wall or closer to the western face, as was the case in Sector B (see below). The

internal tier is approximately 2.5 meters higher than the court floor. Investigators revealed the northeastern, southeastern, and southwestern corners of this tier, allowing us to measure total dimensions of 20 meters east-west by 19.3 meters north-south. The tier itself varies between 3.1 meters and 3.5 meters wide as it circles the court. We recorded two niched features against the eastern wall. We did not excavate these niches because overall preservation of the court's eastern wall was poor and we did not want to destabilize this area further. These features may be decorative in nature, but it is also possible that they are the remains of narrow staircases that connected this tier to the masonry bulk between the Sector A and B platforms.

A long and narrow corridor (9.20 meters in length) connects the northeastern corner of the internal tier to the external atrium running along the northern side of Sector A. This corridor was raised 0.90 meters above the level of the tier. Three steps connected the tier to the corridor, each approximately 30 cm in height (Fig. 54). The corridor is only half a meter wide, permitting passage by a single person at a time. We recovered evidence of black, grey and red mural fragments inside this corridor, suggesting it was once vividly painted. This raises the possibility that other faces within the court were decorated with painted friezes. The passage does not appear to be covered, and the portals on either side have no visible threshold. For now, this is the only known access point into the Sector A court.

Excavation in the northeastern corner of the court reveals that the court's two most recent floors articulated with standing enclosure walls. We can provisionally conclude that the Sector A court maintained the same size and form during the structure's most recent two Early-to-Middle Paracas iterations. The two older *apisonados*, on the other hand, pass beneath standing enclosure walls in the northeastern corner of the court (Fig. 55).



Figure 54: Narrow access corridor in the northeastern corner of Sector A. The image on the left is from the exterior atrium looking towards into the court. The image on the right is from the second internal tier of the court looking outward towards the atrium.

The earliest apisonado (Level 9) articulated with neither the standing eastern or northern walls, but was sandwiched between fill layers. The third floor (Level 7) has no articulation with the northern wall, while the standing eastern wall was built directly atop of it. This suggests that the standing eastern wall appeared between the Level 7 and Level 5 occupations. Subsequent construction episodes slowly constricted the available court space. The Level 5 floor terminates against the eastern wall (which clearly predates the floor), but passes beneath the standing northern wall, which would have appeared between the Level 5 and Level 2 phases. The Level 2

floor terminates against both the northern and eastern walls, indicating that both walls predate the occupation surface. While our current data allow us to conclude that courts evolved through time, for now it is unclear whether this was uniform in all corners of the court. In any case, it is clear that available court space decreased with each iteration. This is similar to what Canziani described at PV57-25, a neighboring monumental structure within the Soto Cluster (Canziani 1992: Figure 9), as well as what PACH excavators observed at Cerro del Gentil and La Cumbe.

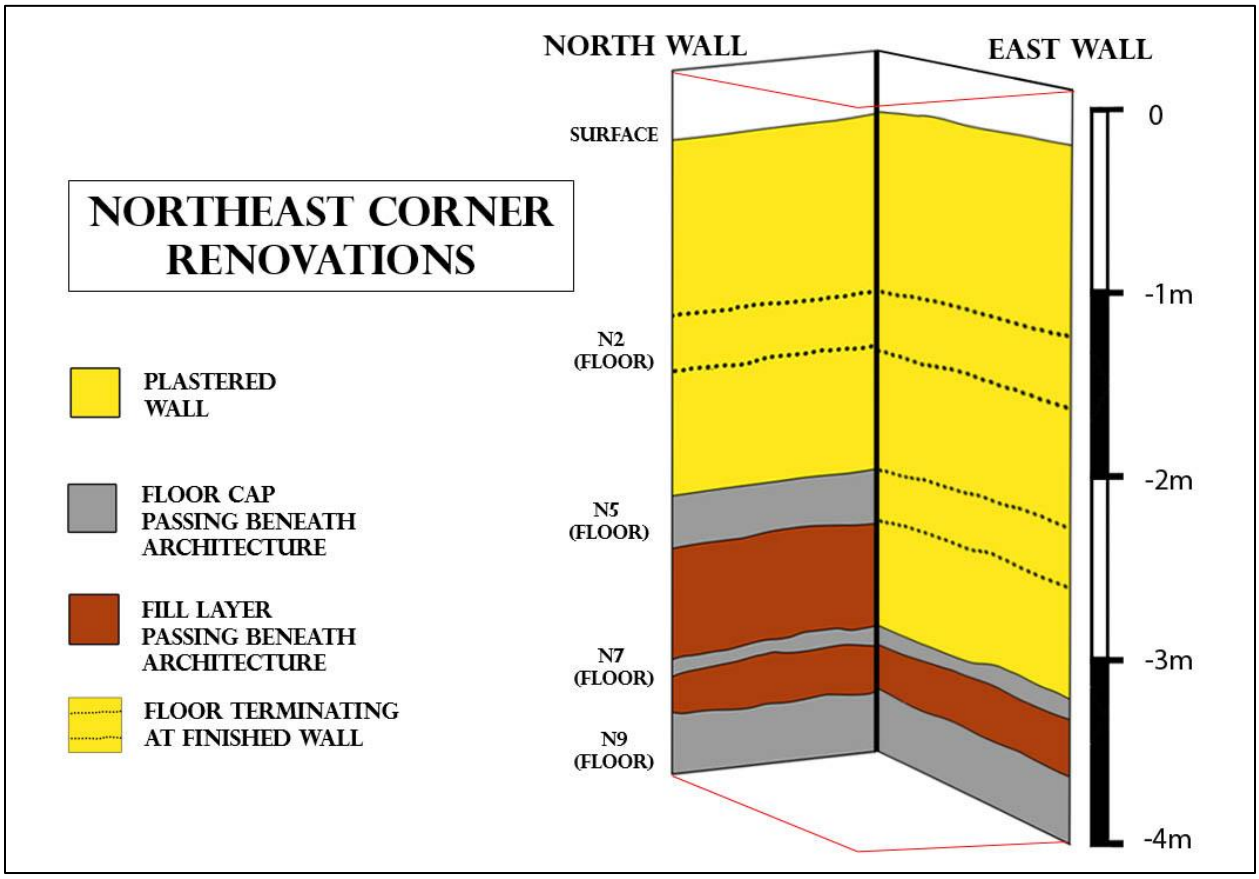


Figure 55: Renovation events in the northeastern corner of Sector A. The oldest two floors pass beneath standing architecture, indicating that standing walls are more recent. The later two floors abut standing architecture.

There were substantial additions to the interior Sector A court during post-Paracas periods, exemplified by numerous rectangular adobe bricks observed within surface strata. This debris came from two sources. The first was a narrow post-Formative wall header built upon earlier Middle Paracas enclosure walls that surround the court. All that remains of this feature is a foundation measuring approximately 1.4 meters wide. Second, we identified an irregularly shaped post-Formative structure in the center of the Sector A court, founded on compacted sediment above the Level 2 floor (Fig. 56). This feature was an irregular ellipsoid shape, measuring approximately 5.5 meters on its long axis by 4.4 meters on its shorter axis. It consisted of the same rectangular adobes laid in mud mortar, with interior and exterior faces finished in a true white plaster. The amount of collapsed adobes in the area around this structure (including in its interior) suggest that it was several meters tall, and collapsed inward and to the north, filling the northeastern corner of the court floor. There is a clear doorway on the structure's southern side. It once had a perishable roof, as evidenced by a nearly 2.5-meter wooden post with associated cane roofing material that collapsed and was buried in the structure's interior. Shallow post-holes in the structures interior helped to support this vertical beam. Radiocarbon dates from cane roofing materials place it between the 11th and 13 centuries CE, the Late Intermediate Period. We recovered a variety of objects from the structure that fit this date, including LIP earthen figurines and Inca-styled figurines (see Chapter 9). Late pre-Columbian Inca architecture in Chincha does utilize rectangular adobes, for examples at Huaca Centinela; however, the post-Paracas structure in Sector A lacks other formal Inka characteristics. The architecture of the Chincha Kingdom generally relies upon a combination of *tapia* and *quincha* techniques rather than adobe masonry.



Figure 56: A post-Formative structure composed of rectilinear adobe blocks, sitting above the Level 2 floor at the center of the Sector A court. The photograph on the left faces south.

The Sector B Sunken Court

The Sector B court exhibits a minimum of four architectural phases, including at least three Early-to-Middle Paracas iterations and a series of Late Paracas remodeling events. There is no evidence for post-Formative construction.

During Early-to-Middle Paracas times, Sector B was well-connected to the neighboring courts through a combination of staircases and passageways along its central axis. The court was surrounded by multiple internal tiers (Fig. 57). Each renovation involved the addition of new

enclosure walls around the court floor, slowly reducing the overall size area. As was the case in Sector A, the deepest occupation surface in Sector B (Level 7) runs beneath standing architecture and therefore we cannot estimate the overall size and layout of this earliest court. The first iteration for which we have reliable architectural evidence involves the second-oldest occupation surface (Level 4). This would be contemporaneous with the Level 5 architecture from Sector A. During this time, builders achieved the general form that is visible today.

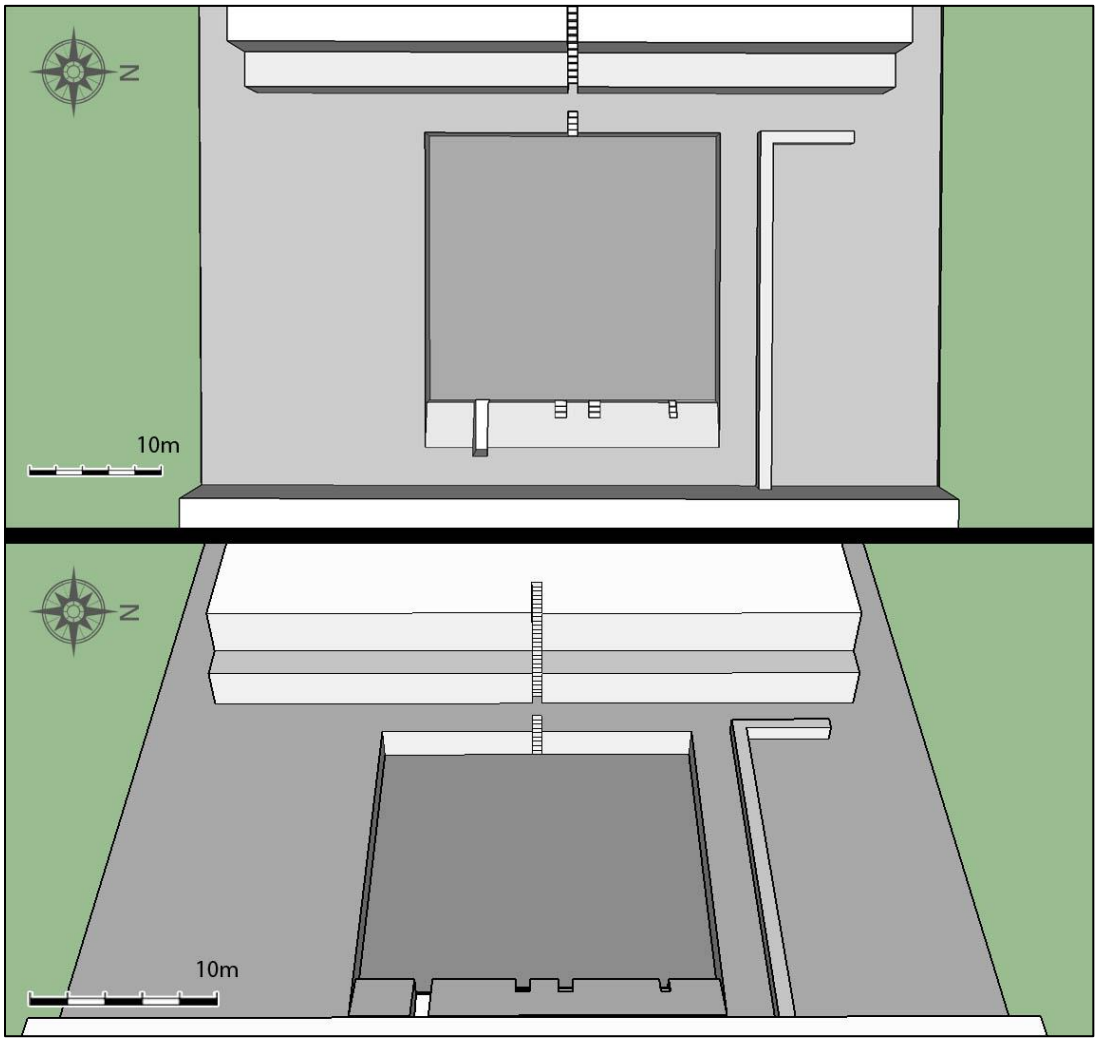


Figure 57: Hypothetical reconstruction using Google Sketchup, showing the Sector B court during Early-to-Middle Paracas phases in plan (top) and an oblique angle (bottom).

This court included two major tiers along its western wall, and one tier along the remaining sides. The court floor was an uninterrupted rectilinear space measuring approximately 23.4 meters E-W by 20.4 meters N-S. The lowest tier, surrounded the court on all sides, rose 1.6 meters and varied in width from 3-3.3 meters on its eastern and western sides to 2.5-2.8 meters on its northern side. The southern side of the structure is too badly damaged to determine the full extent of this feature. The northwestern corner of this tier was open to the north, allowing access to the atrium running along the northern exterior of the structure. Otherwise, the court and the atrium were separated from one another by a low masonry wall (ca. 1.3 meters high).

The western wall contains a second tier that rose 3.2 meters above the first tier and 4.8 meters above the court floor. This tier is badly damaged today but would have been approximately 2.5 meters wide in antiquity. We recovered fragments of white and black painted plaster against the face of this second tier, indicating that this and likely other interior surfaces were once decorated. The masonry bulk separating Sector B from the Sector A court rises and additional 2.2 meters above the second tier, making the top of this bulk approximately 7 meters above the court floor. On the eastern side of the court, the masonry bulk separating Sectors B and C rises approximately 4 meters above the court floor. There are no high enclosure walls on the northern and southern sides of the court apart from the first tier and atrium.

A long staircase ascended the center of the western wall during the most recent Early-to-Middle Paracas phases (Fig. 58). This feature provided direct access from the court center to the top of the masonry bulk separating Sectors A and B. It covers a horizontal distance of 9 meters with a vertical rise of 6.8 meters. We recorded a total of 22 steps, each averaging 0.3 meters high and 0.4 meters deep. Each stair was encrusted with multiple layers of earthen finishing plaster, demonstrating regular maintenance and probably indicating high levels of use. We noted

evidence of black and white painted plaster against the interior walls of the staircase, suggesting it was once decorated with a frieze. The staircase is half a meter wide, allowing passage by one person at a time.



Figure 58: Photograph of the western wall of the Sector B sunken court.

The final Early-to-Middle Paracas phase, associated with the Level 2 floor, was defined by notable renovations to the court's interior northern and eastern faces. These reduced the total dimensions of the court center from 23.4-by-20.4 meters to 19.9-by-19.4 meters. The northern face of the court was buttressed with a new masonry enclosure wall measured approximately a meter thick and ran the entire E-W distance of the court. It served buttressed earlier architecture

and provided a renewed surface. A ramped extension was added to the inside of court's eastern wall around the same time. This feature was approximately 3.5 meters wide and tapered downward towards the court floor. This extension involved notable modifications to court access and movement. Approximately 2.7 meters south of the northern wall, a three-step staircase provided a means to move between the court floor and the eastern tier. The stair case itself was half a meter wide, now a standard width for corridors and passages at Huaca Soto. Each stair was 35-40 cm high and 45-50 cm deep. We two more short staircases, identical to the first, near the center of the eastern wall (Fig. 59). We also identified a corridor passing from the court floor into the eastern face of the standing architecture; this feature was 2.7 meters from the southern wall. This corridor extends at least 2.5 meters into the surrounding tier, is approximately 0.7 meters wide, and is finished with a mud plaster on its interior. The passageway is almost certainly present in earlier phases, as it appears to pass right into the masonry bulk separating Sectors B and C.

Late Paracas modifications to the Sector B court include sealing off of external access to the court by bricking-up staircases and passageways, and the addition of perishable domestic architecture in the court's center. Additions involving solid architecture utilized paraboloid adobes, but laid these adobes horizontally and packed them into an earthen mortar. This was a haphazard departure from the neat, vertical coursings of Early-to-Middle Paracas phases. These final additions can be dated by the fact that they sit upon Topará-style monochrome sherds. In all cases, horizontal adobes were laid with flat bases against an older wall face – an indication that this was intentional activity, rather than a collapse event. Radiocarbon dates from wooden posts and cane roofing material associated with new domestic structures place these events between the 2nd century BCE and the 1st century CE (see Chapter 9).



Figure 59: Two access points on the eastern side of the Sector B court in Early-to-Middle Paracas phases. On the left is a passageway near the southeastern corner, heading into the eastern masonry bulk. On the right is a small staircase providing access from the court center onto an internal tier.

Late Paracas builders placed a new E-W wall across the northwest corner of the court's second tier, limiting access from the atrium to the north (Fig. 60). This wall consists of a horizontally-laid adobe core and was finished with earthen plaster. It measures half a meter thick. Late Paracas occupants also eliminated access to the lowest portion of the western staircase using horizontally laid adobes and earthen slurry. New buttressing activity on the eastern side of the court was extensive, filling in more than 2 meters of E-W horizontal space and rising more than 2 meters vertically. The overall effect of these modifications was restriction of access into and

through the court, covering of earlier painted surfaces, and general buttressing of older standing architecture

Extensive perishable architecture in the court's center was a major feature of Late Paracas phases. This was associated with Topará blackware and orangeware monochromes. Evidence in the form of postholes demonstrates a rectilinear structure rebuilt periodically on several occasions (Fig. 61). This area contained hearths, grinding mortars, and a thick midden deposit, thus suggesting use as a habitation or preparation area during this period (see Chapter 9).



Figure 60*:* Remains of a Late Paracas support wall buttressing a prior Early-to-Middle Paracas masonry wall.

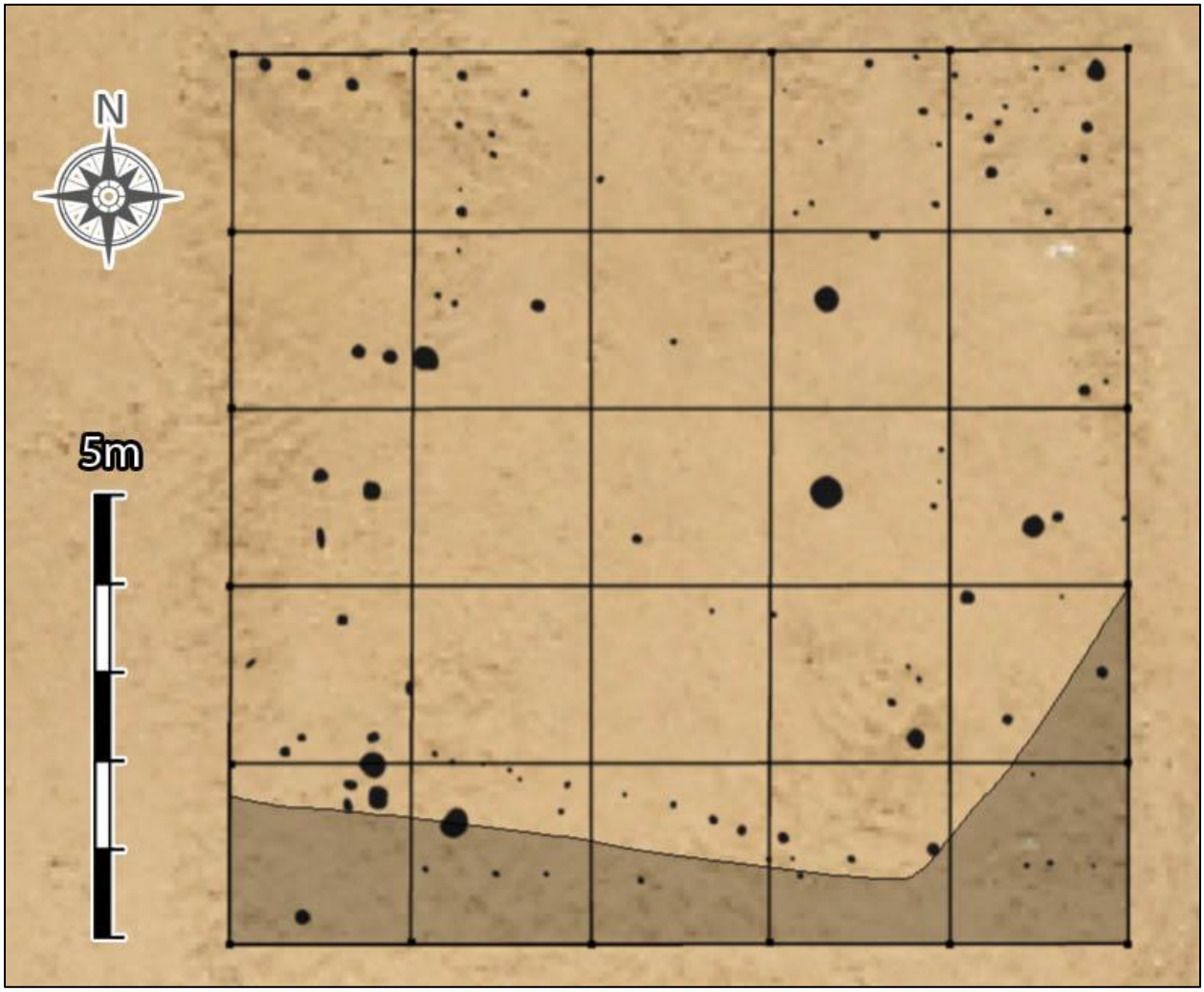


Figure 61: Distribution of post-holes within a 10x10 meter excavation grid, associated with Late Paracas domiciles in the center of the Sector B court.

Wall segments in these perishable structures reached up to 8 meters in length. Posts were tapered on the end to form a point, as evidenced by *in situ* examples recovered from post holes during excavation. Most of these were clearly driven into the prior floor. Some posts penetrated the floor completely, while others did not; post-depth varied between 40 cm (puncturing the floor

completely) to no more than 10 cm. Posts also ranged in diameter from as thin as 8 cm to as rotund as 35 cm, perhaps differentiating major roof-bearing supports from those that held up lighter partition walls. Larger posts formed the corners and the center of the structure, with smaller posts towards the outside edges. The available spatial layout suggests a single rectilinear structure, although overlap and redundancy in posthole placement makes clear that this was periodically rebuilt and rearranged. This structure appears as an open hall, with fewer supports on its interior compared with its edges. Two circular features were located in the back of the structure on its northeastern side, each measuring between 1 and 2 meters in diameter. We found fragmentary evidence of reed mats and cordage associated with this area, which may be the remains of wall material or roofing.

Discussion

Discussion: Materials, Engineering, and Labor

Architecture at Huaca Soto reflects a suite of practical material choices and engineering decisions that are broadly consistent with non-vernacular coastal architecture during the first millennium BCE. This fact is central to Canziani's (1992, 2009) placement of Soto and similar lower-valley structures within the Formative Period. Huaca Soto's Paracas architects modified these super-regional trends to serve a set of regionally and locally directed needs. I consider these most pragmatic angles first – what materials and skillsets were required to plan, construct, and maintain Huaca Soto's Early-to-Middle Paracas structures?

Huaca Soto's substructure consists *exclusively* of earthen materials. There are no stone, wood, or other non-adobe components. Yet the structure is neither a 'mound' nor a 'tell'. Apart

from loose fill-layers between court floors, there is no heaping of bulk material to make up the structure's mass. Instead, it exhibits a regular and repeating internal masonry composed of tens of thousands of individually shaped paraboloid adobes. Unlike techniques that rely on stone components to bear structural weight, corral areas of loose fill, or protect exposed faces and corners, the structural possibilities available to Soto's builders were limited by the physical properties of these earthen materials. Major limitations included susceptibility to water and wind erosion, a need to resist seismic forces, and natural settling.

It is clear that builders were well-aware of these engineering challenges and cultivated specific solutions to address them. One way to improve stability was to guarantee that adobe coursings fit together tightly and remained level across long spans. At Huaca Soto, without the use of molds, builders achieved basic standardization of adobe size and form through basic reference to the human body. Average brick height and length (ca. 14-15 cm) is comparable to the length of an adult hand. Clear finger and palm prints on most sampled bricks, often running in multiple directions, demonstrate hand-molding and compaction were key aspects of adobe preparation. It is reasonable to suggest that the size of these adobes is the result of a practical and readily available standard – the amount of material that can be compressed comfortably between two hands. This pragmatic solution to the problem of adobe standardization agrees with the amount of variability we observed in our sample of bricks.

The interstitial spaces between adobes present a second engineering challenge. A purely earthen structure of Huaca Soto's size relies on solid compaction for general stability. Hardened adobe materials are brittle; any large gaps or regular gaps in coursings would risk deterioration and eventual failure. This is typically less of a problem with rectilinear bricks which fit together with minimal gaps. However, Soto's parabolic shapes only abut at their bases, leaving substantial

space around each cone. Paracas builders addressed this problem by pouring a prepared mud slurry into interstitial spaces. The conical shape of adobes, pointed end upward, guaranteed that this slurry reached all crevices between bricks. Both brick and slurry consisted of the same prepared matrix, thus guaranteeing equal density. As useful as this strategy was, it significantly impacted the pace and process of construction. In order to prevent warping of coursings, each would have to fully cure before the application of subsequent layers. If construction occurred too quickly, uncured coursings might sag or buckle under the weight of new layers. If construction were too slow, builders risked accumulating erosion damage to exposed unfinished coursings. Thus, constructing Huaca Soto required accurate allocation and management of time. Presumably, decisions of this nature were made by a person with experience in large-scale earthen construction – a Paracas architect.

Finally, controlled and predictable drainage would be crucial in order to forestall long-term water damage. Even in Chincha, where heavy precipitation is rare (ONERN 1970), winter brings light rain that occasionally accumulates as standing water. At Huaca Soto, this problem is enhanced by the closed nature of the sunken courts, which offer no clear surface outlet for water. Our excavations revealed a surprising amount of evidence for liquid on the Level 2 floors of both Sectors A and B, as well as large quantities of liquid percolating through these floors. It seems that builders addressed this problem in multiple ways. First, the floors themselves were thick, clayey, and quite resistant to water penetration. This would have been the first line of defense against erosion. Second, I believe that the use of sandy fills between construction episodes was quite intentional. Sand has a high rate of infiltration and effectively disperses water, lessening the effects of pooling within the structure. Together, this composition of resistant floors and penetrable fills provided a bulwark against water damage. Third, scrupulous maintenance,

continuous replastering of exposed walls and floors, and seamless plaster transitions between walls and floors helped to prevent and mitigate the effects of both water and wind. The fact that Huaca Soto is more-or-less intact today – more than 2,500 years after its construction – is a testament to knowledgeable Paracas architects who were well versed with local materials and prepared for long-term environmental contingencies. Huaca Soto was not an ad hoc experiment – rather, it was a specialized structure that required proficient forethought and skill to construct and maintain.

Building Huaca Soto clearly required coordination of labor above the level of the household. It should be kept in mind that the structure is entirely artificial – the core of the structure is a human-made feature, rather than a natural landform. I estimate the total volume of Huaca Soto's paraboloid adobe architecture (excluding sunken courts, which are 'hollow') to be approximately 63,600 cubic meters[41] (about the equivalent of 25 Olympic-size swimming pools). The volume of an average paraboloid adobe is approximately 0.001287 cubic meters[42]. This places the total number of adobes at Huaca Soto at around 49.4 million units. According to experimental trials by Paulo Zorogastúa and local Chincha brickmaker Basillio Ballumbrosio (Zorogastúa *ms*), one person can produce between 500-600 bricks in a 6-hour workday given prepared materials, or taking the upper limit, about 100 bricks per hour. This suggests that brick-making alone would require around 494,000 hours of work for a single person to complete. This is 82,300 six-hour workdays. If we increase the labor force to 100 people, total brick-making

[41] This rough calculation divides Huaca Soto into three evenly sized tiers (50x50 meters), applies the average height of each tier (13, 10, and 7 meters), and subtracts the volume of three 20x20 meters sunken courts adjusted for the height of each tier. Given that large parts of the structure are destroyed, this is a minimum estimate.

[42] I treat each adobe as if it occupies an exclusive rectangular 'box'. Average adobe height is 14.7 cm, total length is 14.6 cm, and width is 6 cm. Compared to the actual measured volume of adobes (average = 0.000786 cubic meters), this significantly overestimates the size of each adobe. For purposes of this calculation, we are looking at a *minimum* number of adobes.

would take 823 six-hour days to complete – roughly 2.25 years' worth of daily work. Dividing this among four major construction episodes, each episode would require 100 people working six-hour workdays for 206 days[43]. These calculations do not consider gathering of materials, preparation of matrix, application of mud slurry between layers, or necessary drying periods.

While the numbers offered above make clear that Huaca Soto was one of the largest total investments in construction labor on the Formative south coast, this is well within the capabilities of a non-state society organized on the basis of corporate groups. While our current analysis suggests four major construction episodes, we have sampled only a fraction of the site (and none of Sector C). Additional investigation may reveal a greater number of comparatively smaller events. For example, if Huaca Soto contained 10 major construction episodes rather than four, 100 people could complete each construction episode in about 20 days. Even if we maintain the original estimate of four major construction episodes, each could be achieved in a few weeks by increasing the workforce to 1000 persons. Populations of this size are not unreasonable for lower Chincha during the Formative, given the rich maritime and agricultural resources that the valley affords. Furthermore, these need not be full-time or subsistence-supported populations. Gatherings at specified times of year, perhaps coordinated with politico-ceremonial events in the structure itself, may have brought together enough persons and resources to facilitate renovation and construction events.

In short, the construction of Huaca Soto involved a studied understanding of adobe materials, careful planning, supra-household labor, and timed, orderly composition. There was a need to coordinate multiple households, to centralize certain management decisions, and to

[43] This is assuming that each renovation episode was of equal size, which does not appear to be the case. Earlier episodes required substantially less labor, and the most recent episodes substantially more.

follow best-practice techniques. It did not, however, require specialists or decades to build. There does not appear to be a need for permanent, coerced, or even full-time labor force. Builders relied exclusively on plentiful, locally available materials that probably involved minimal transport and preparation costs. While its construction is an impressive feat of coordination, Huaca Soto could easily be built by a non-state society with low levels of socioeconomic inequality.

Discussion: Space, Movement, and Proxemics

Huaca Soto was designed to be occupied and experienced in specific ways. Internal architecture clearly regulates individuals' ability to proceed through the structure, to access each sunken court, to send and receive verbal and non-verbal signals, and to monitor the performance and participation of fellow adherents. One way of measuring the effects of the built environment on group behavior is through proxemics – the study of how individuals' relationships to one another in space affects interpersonal interaction and communication (Hall 1966; see also Steadman 1996). Moore (1996a, 1996b) operationalizes this concept for use with the monumental architecture of the Formative Andes. Understanding the spatial possibilities and constraints provided by Soto's planned architecture allows us to infer details about ritualized performance at the site, the nature and quality of information that could be communicated during these events, the presence or absence of ritualized specialists, and exclusionary vs. inclusionary use of interior spaces.

I suggest that the socio-spatial logic presented at the site points to a unique, Early-to-Middle Paracas ritual tradition in Chincha. This begins as one approaches the structure from the surrounding floodplain. Huaca Soto is recognizable as a non-vernacular monument from a

significant distance. Evidence of plastered friezes throughout its interior raises the possibility that the structure's exterior faces were also painted in vivid colors that would augment its visual impact. Even from afar, a person passing through lower Chincha would immediately recognize formal similarities between Huaca Soto and Huaca Santa Rosa, Huaca Partida, Huaca Alvarado and others tiered structures oriented E-W. The formal similarities between these sites signal their participation in a locally-specific monumental tradition that stands apart from Formative architecture in neighboring drainages.

So far, there is no conclusive evidence for an eastern wall in Sector C. I provisionally suggest that this side of the structure was open, receiving visitors into the low, U-shaped court. If this was indeed the case, then human activity would be visible as one approached Huaca Soto from the east. The coming-and-going of other visitors would be perceptible, as would activities taking place within the Sector C court. Aural perception of these activities would also become clear within a few hundred meters of the structure's eastern end – perhaps human voices, bustle, music, or marked silence. This stands in stark contrast to isovistas from the north, south, and west. These orientations provide no notion of activities taking place inside – one is simply confronted with the sheer face of the monument. Similarly, sounds emitted from within the structure are well-insulated by the earthen architecture and are markedly less audible from the structure's solid faces. This diverging set of visual and auditory landscapes support the logical hypothesis that entry into the structure began in its lowest, largest, and easternmost tier.

Once inside Sector C, Huaca Soto's internal arrangement of high enclosure walls, tiers, bulks, sunken courts, corridors, and staircases dictated all visible and physical access further into the structure. Our excavations revealed a pathway of longitudinal East-West movement through Soto's rising central axis, connecting the three sunken courts. This trajectory includes a series of

narrow chokepoints through which traffic was restricted, or could be cut off completely. This include steep staircases that prohibit quick movement and limit passage to one human body at a time. While these features clearly regulated the volume and velocity of traffic along Huaca Soto's central axis, the staircases themselves are highly visible features, rather than being hidden or peripheral. Sector B's western staircase was arguably the focal point of objective for activities taking place within the court. Standing architecture in Sector C suggests the presence of a similar staircase in the western wall. In any case, the possibility of proceeding deeper into the structure is outwardly communicated to all participants.

While Soto's internal architecture clearly communicates the potential for step-wise progression through the structure's courts, it carefully hides and reveals each subsequent court to impressive visual effect. As entrants ascend the narrow, body-width staircase between two sectors, the lay of the next court appears abruptly. These high-points combine unimpeded views of each court with magnificent landscape vistas of the surrounding valley. On clear days, a person standing on one of Soto's ridges can view the distant foothills of the Andes to the east, the arid desert pampa to the southeast, sprawling fertile bottomland to the north, and the ocean to the West. Such views also look out upon contemporary monumental sites – Huaca Santa Rosa on the northern horizon, Huaca Partida to the south, and the remaining Soto Complex to structures to the north and west (PV57-24 and PV57-25). The repeating juxtaposition between these changing low and high vistas, from contained and below-ground (in the courts) to exposed and paramount (on the ridges) provides a unique and non-quotidian experience of the surrounding natural and built environments. This effect is progressively exaggerated, as each subsequent court is deeper than its predecessor, and each bulk is higher. One is drawn inward into ever more

intimate spaces, only to emerge among ever more spectacular views. This suggests that processional movement was a planned component of politico-ceremonial events at Huaca Soto.

This processional experience of space not only allows participants to survey the surrounding landscape, but permits them to observe the movement of other individuals. Given the dimensions of passageways, it is reasonable to propose that traffic along Huaca Soto's central axis was a one-way affair. Persons ascending or descending masonry bulks were clearly visible to groups aggregating in the courts below. At this distance, certain features of each individual would be visible – for example, their clothing, hair, and non-verbal gestures. Upon reaching the apex of each bulk the soundscape also changes dramatically. While thick court walls generally prevent one from perceiving sounds emitted on a different tier or outside of the structure, sounds emitted within a court are clearly audible from the surrounding ridges[44].

Descending from bulks into sunken courts appears to be a more indirect process. We did not identify any grand central staircases on the eastern sides of either the Sector A or B courts. Perhaps descent involved step-wise navigation of each court's internal tiers, rather than direct access to the court center. For example, the set of short staircases on the eastern side of the Sector A and B courts only connect the innermost tier to the court floor. While ascent focused on the theatrics of person-by-person movement, the architecture of descent may be more practical, dispersing participants into and throughout the court – much like the multiple aisles of a modern auditorium.

Despite a clear emphasis on movement along a central axis, there was a 'backdoor' connecting Sectors A and B via the atrium on the structure's northern side. A passageway in the

[44]We came to this simple conclusion after observing that a loud radio, used to pass the time during excavations, was not audible outside of the courts even though it was sometimes deafening within them.

northwestern corner of the Sector B court and a narrow corridor in Sector A's northeastern corner were connected via the atrium. Moving from east to west, a person could pass from Sector B into the atrium, along the northern exterior of the structure, through the Sector A corridor, and reappear on the interior of the Sector A court. The narrowness of the passage obscures a full view of the court until one turns the corner. At this point, the visitor would gain an unobstructed view of activities taking place within Sector A. This also works the other way around – persons in the court cannot see an individual approaching through the corridor until the last second. Perhaps this route provided private access for ritual specialists or other important individuals to appear suddenly in the midst of major events. Alternatively, traffic may have flowed *outward* instead of inward. The passage could be an exit from Sector A, redirecting visitors out of Soto's sunken courts via the northern side of the structure. This would allow participants to flow in a one-way cycle through the structure, rather than retracing their steps. It is unclear whether there was once a parallel feature on Soto's southern side, though we recorded no passages in any other of the Sector A corners.

While movement along Soto's central axis appears to be processional - involving a rising hierarchy of distinct yet interconnected spaces – it is unlikely that visitors simply passed through each sunken court. Courts provide the possibility for aggregation, interaction, and performance. Occupation surfaces in the center of each court were thick, well-trod, and carefully maintained. These areas provided for a range of interactive distances that allowed for verbal and non-verbal communication. Tiers on the inside of each court provided additional places to sit, stand or place objects. Each internal tier would have effected one's perception of activities taking place within the sunken court. For example, the staggered tiers of the Sector B court were perhaps designed to be occupied be spectators, restricted to certain people, or restricted altogether. The layout of

Sector A, with only one major internal tier, clearly places the 'focus' of court activities towards the western wall.

Our understanding of space, movement, and proxemics at Huaca Soto is surely incomplete. We can only infer general details regarding how the internal architecture of this massive structure affected performance and communication between participants. We can be sure, however, that there was a well-planned socio-spatial logic at work. Access and movement at Huaca Soto were certainly not ad hoc; rather, they present a comprehensible order. Available data suggest that these were processional events. The structure's architecture played with the constitution of entrant groups, dividing them into individual persons with every staircase and recombining them in each court. Each participant passed through a series of individualizing moments, becoming visible with the ascent of each bulk, and witnessing the participation of each of their peers.

Discussion: Architectural Evolution of Huaca Soto

Our ability to reconstruct detailed proxemics at Huaca Soto is limited to what we can observe from excavation data and standing architecture. Notwithstanding, it is clear that the structure achieved its monumental dimensions over multiple construction episodes, rather than all at once. We know little about the very earliest iterations of Huaca Soto. The oldest portion of the site is buried beneath more recent Sector A architecture. According to what we could observe from limited exposure, this was a low earthen platform with a compact *apisonado* at its summit. At present we cannot say whether it was surrounded by masonry enclosure walls, or was simply a 'mound' composed of amorphous fill. We do know, however, that this structure stood alone – there was no contemporary component in Sector B and presumably none in Sector C. This

earliest feature was associated with Early Paracas finewares and returned radiocarbon dates ranging between the 8th and 5th centuries BCE (see Chapters 8 and 9).

The second major construction episode included a new occupation surface in the Sector A court (Level 7) and the addition of an eastern enclosure wall. Excavation data suggest that Sector B's core was built during this time. From this point forward, the two courts evolved in tandem, each receiving new fill and floor modifications of approximately the same thickness and material consistency throughout the remainder of the Early-to-Middle Paracas phases. It is clear that builders constructed each new court within the confines of its predecessor, slowly restricting court space over time.

While Huaca Soto's tiered layout became a constant feature, material and technical investment in new architectural episodes began to increase with each subsequent renovation. For example, later floors are denser, better-leveled across the court, and better maintained. Likewise, later fill layers are thicker and made from purer sand. Newer enclosure walls were more massive than their predecessors, requiring greater investments in replastering and maintenance. The most recent Early-to-Middle Paracas phases express a more orderly, well-measured, and confident execution than older ones. These steady advancements in technical skill and overall dimensions, however, do not necessarily reflect organizational changes in the material, social, or political conditions affecting Paracas communities in Chincha. At most they suggest a maturing architectural tradition, perhaps involving larger populations concordant with settlement growth in the lower valley. Even in its final and most monumental phase, the Middle Paracas architecture at Huaca Soto provides little evidence for *permanent* political complexity. The development of the structure's processional layout over time may have involved new roles for ritual specialists, but so far we do not have sufficient data to suggest that these persons were

politically or economically set apart from their peers. We observed no evidence for truly exclusive spaces in Huaca Soto; on the other hand, all courts were designed to accommodate large groups of people. It seems more reasonable to go with the current hypothesis regarding Early-to-Middle Paracas communities – that these groups were organized as corporate entities, able to coordinate construction of ceremonial architecture. According to our available data, there is no evidence for disproportionate accumulation of wealth at Huaca Soto, or that the structure served only elite members of Paracas society. Architectural data suggest that ritual specialists at Huaca Soto did not yet make the transition to individualizing, permanent leadership.

Late Paracas modifications took place exclusively on the Sector B court and were relatively minor. The most substantial of these involved the packing of paraboloid adobes, flat bases outward, into prior Early-to-Middle Paracas tiers and corridors. While the choice of materials, adobe form, and dual use of brick and slurry is comparable to earlier construction episodes at Huaca Soto, horizontal arrangement of paraboloid adobes and association with Topará-style monochromes is more akin to Late Paracas architecture in Pisco (Peters 1997:162-3). As others suggest (Velarde 1999:68), this orientation may reflect practical considerations – it may simply be more effective for buttressing older architecture. I suggest that this was the primary objective of Late Paracas modifications. These additions eliminated access between the Sector B court and the atrium to the north, blocking the open passageway in the court's northwestern corner. This made the direct 'backdoor' between Sectors A and B obsolete. They also sealed off the lowest portion of Sector B's western stair case, cutting off the court floor from surrounding tiers. Furthermore, packing of tiers rendered these features unusable for foot traffic. It is clear that Huaca Soto's united processional environment was no longer active by the final centuries BCE.

Late Paracas builders also installed a series of perishable structures in the center of the Sector B court. These were large rectilinear buildings consisting of wooden posts that supported a perishable roof. Wall and roof materials were clearly light and organic (perhaps woven cane), similar to *quincha* domestic architecture. These structures deviated from the cardinal directions that governed the rest of Huaca Soto's architecture, instead being haphazardly skew and varying in orientation over several iterations. Finds associated with the Sector B perishable structures suggest a suite of domestic activities (see Chapters 8 and 9). We did recover Topará monochrome sherds from Sector A in surface strata, however we did not observe any major architectural additions or modifications to that court. Perhaps this was due to a continued recognition of Sector A as some kind of sacred space – a place to be conserved rather than repurposed.

The Late Paracas period saw the emergence of marked political complexity elsewhere on the south coast, and I initially hypothesized that this would manifest at Huaca Soto. However, Late Paracas architecture does not conform to this scenario. Late Paracas architectural modifications do not express the degree of organization, careful execution, or even overall planning present in earlier phases. These renovations are comparatively ad hoc, clumsily built, and notably limited in volume and scope. Although they do isolate space within the structure, this seems to be a side-effect driven by the need to buttress centuries-old walls rather than an attempt to create exclusive-access spaces. It is most parsimonious to suppose that Late Paracas modifications represent a post-abandonment reuse of Huaca Soto. New domestic occupants simply took advantage of a desirable and available space, fortifying it and installing shelters.

Finally, post-Paracas millennia witnessed limited additions to the Sector A court. This included a small, irregular structure in the court's center that became a focal point of activity at

Huaca Soto. Additions relied upon standardized, mold-formed rectilinear adobe bricks typical of the local LIP or Inca Periods. Associated offerings and radiocarbon dates support this chronology (see Chapter 9). While Sector A was utilized as the focus for late ritual activities, there is almost no evidence for post-Paracas activity in Sector B. It is clear that during these period, Sector A was once again recognized as sacred space.

Concluding Thoughts

Huaca Soto represents part of a unique architectural tradition that emerged in Chincha during the first half of the first millennium BCE. Coordination of supra-household labor, clear and careful planning, attention to specialized engineering concerns, emphasis on procession, and deep sunken courts leave no doubt that this was a non-vernacular ceremonial structure. Major construction episodes were associated with Early-to-Middle Paracas fineware styles and dates, while Late Paracas reuse was limited to perishable domestic structures and associated with Topará monochromes. Minor post-Paracas architectural additions suggest that Sector A remained an important *huaca* in the millennia after its initial construction.

With no evidence for strong political centralization in Chincha or elsewhere on the south coast until the final centuries BCE, the most parsimonious hypothesis is that the available labor pool was 'corporate' in nature – that is, composed of multiple, interdependent lineage groups and a deemphasis on individual accumulation of wealth (i.e. Blanton et al. 1996). This interpretation fits nicely with the fact that Huaca Soto is only one of several platform-clusters in Chincha's lower-valley. Late Paracas architecture at Huaca Soto, on the other hand, suggests a collapse of the local social order.

Chapter 8: Ceramic Material at Huaca Soto

Ceramic is the most common material encountered at Huaca Soto in all chronological phases and stratigraphic levels. It is overwhelmingly recovered as potsherds[45]. Pottery served in various roles throughout the structure's history – as cooking vessels for preparing food and beverage, containers for storing foodstuffs, decorated serving wares and iconographically-laden prestige goods. In some cases, finewares provided the principal means of distinguishing between two periods of interest - for example, the appearance of thin, well-fired Topará monochromes marked the onset of the Late Paracas period at Huaca Soto. In other cases, detailed metric analysis of servingware bowls enabled us to detect multiple events that otherwise appear as a massive single deposit – for example commingled post-Paracas feasting contexts in which stratigraphy is poorly defined. Moreover, the distribution of certain vessel types within and around sunken courts suggests that use of space was not homogenous, but utilized different areas for different tasks. Ceramic evidence is key for this dissertation, both as a chronological control and a marker of major activity patterns.

Camille Weinberg (UT Austin), Brian Vallejo (UCLA), and the author conducted an intensive analysis of ceramic data recovered at Huaca Soto. All diagnostic sherds were passed through a series of qualitative and quantitative tests based on visual analysis and measurement, observation of sherd cores via a USB microscope, and comparison of form and design against published assemblages. Thirty-four 'fields' were recorded for each sherd that sought to capture

[45] Only a few vessels survived in complete or near-complete form. I illustrate these as figures when possible. Ceramic objects produced or repurposed as non-container tools – for example polishers and spindle whorls – are discussed in Chapter 9.

vessel form and dimensions, production techniques, use-wear, decoration, and other attributes useful for detecting patterns in the sample. These included binary, continuous, and categorical variables. Categorical variables were defined in reference to 1) prior ceramic data recovered from PACH survey and excavation in Chincha, including fieldwork at Cerro del Gentil, El Mono, and Late Intermediate Period/Late Horizon sites in the upper valley; 2) data reported in published south coast research oriented towards Paracas and Chincha (e.g. Menzel et al. 1964, Menzel 1966, Menzel 1971, Menzel 1977; Alcalde et al. 2001; Peters 1997; Tello 1959; Tello and Mejia 1979; Garcia 2010; Garcia and Pinilla 1995 among others); and 3) general treatises on ceramic analysis by Andean researchers (Rice 1987; Druc and Chavez 2014). This chapter provides a basic description of the Huaca Soto assemblage.

We recovered 34,991 individual sherd specimens from the combined Sector A and B courts combined (totaling 539.58 kg). Sector A excavations recovered 25,206 specimens (349.32 kg) and Sector B excavations recovered 9,785 specimens (190.26 kg). The analysis in this chapter considers 6,845 'diagnostic' sherds that give some indication of vessel form or exhibit notable decoration. The majority of sherds in this sample exhibit portions of the vessel rim (n=5,788, 84.56%), while the remainder comprises vessel bases and decorated body. Sector A contained the vast majority of diagnostic sherds (n = 5,361, 78.32%), while Sector B contained many fewer (n=1,484, 21.68%). This stark difference indicates that the two courts were used in very different ways over the course of Huaca Soto's history, particularly during post-Formative periods. For example, only 40 post-Formative sherds were recovered in the Sector B court, compared to more than 5,000 in Sector A. This is all the more striking for the fact that we excavated a significantly larger volume of Sector B.

This chapter is organized into three chronological periods. I consider each independently. The earliest ceramic period includes Early-to-Middle Paracas contexts that contained post-fire resin painted and incised finewares. This assemblage is subdivided into four subphases based on stratigraphy. Sectors A and B are analyzed together by subphase, given the relatively small sample size from each court and the fact that both courts contain more-or-less identical stratigraphy. The first subphase comprises diagnostic ceramics from Levels 8-9 (n=65); the second from Levels 6-7 (n=68); the third from Levels 3-5 (n=162); and the fourth from Level 2, Level 1, and the surface strata (n=139). Level 2 was the final episode of floor construction in the Early-to-Middle Paracas courts, and thus some events that took place on this surface were not adequately sealed off from intrusions in later periods. As a result, there is limited commingling of post-fire painted wares with Late Paracas monochrome sherds in near-surface strata. The majority of commingling occurred in Level 1, and was most pronounced in units that experienced heavy post-depositional disturbance. We were not able to distinguish securely between Middle and Late Paracas utilitarian wares[46].

The second ceramic period involves Late Paracas (Topará) finewares recovered above the Level 2 floor. These monochromes are present in both Sector A (n=247) and Sector B (n=444). We analyzed Late Paracas sherds separately for each court. Due to the fact that Sector B lacks post-Paracas reuse events, I was able to make the assumption that utilitarian sherds in this court belonged to the Middle/Late Paracas periods (n=870). In the discussion section I use this profile as an anchor point to further disentangle Formative and post-Formative utilitarian wares in the near-surface strata of the more complex Sector A assemblage.

[46] Visual and metric analyses of commingled utilitarian wares did not provide a sound distinction between the two subphases. This can be tested via petrographic or chemical analysis of pastes at a future date.

The third period is limited to the near-surface strata of Sector A (Levels Superficial, 1 and 1B) and features a massive commingled assemblage involving multiple post-Paracas events. Given the disproportionately large sample size and diversity of this assemblage (n=4,898), I describe it in six segments based on vessel form and decoration. The first segment covers palm-sized serving ware bowls that feature painted pendant-arc designs on the interior (CC-bowls). The second segment focuses on goblet-shaped cups designed as drinking vessels. The third segment examines smaller fine-ware closed-form vessels – spout-and-bridge bottles, pear-shaped bottles, and small disc-shaped *cancheros*. The fourth segment looks at larger open fineware vessels – including large *floreros* and squat jars with painted exterior designs. The fifth segment examines non-decorated utilitarian wares, including ollas, cántaros, and very large bowls. The final segment describes fineware sherds associated with non-local ceramic traditions (e.g. Nasca, Wari, and Carmen).

Early and Middle Paracas (Cavernas) Ceramic from Huaca Soto

This section describes incised brownwares and Paracas 'Cavernas'-style post-fire resin painted finewares. These pertain to the Early and incipient Middle Paracas periods and can be separated into four discrete phases based on major architectural additions (Levels 9-8, 7-6, 5-3, and 2). While sample size for each of these Early-to-Middle Paracas phases is small, we observed diachronic variation in decorative style and firing characteristics that suggest ongoing development of Paracas fineware traditions during the first half of the first millennium BCE. We recovered 434 diagnostic sherds from deep strata in Sector A (n=302) and Sector B (n=132).

Early Paracas Diagnostics from Levels 8-9

Excavation in Levels 8-9 of Sector A recorded 65 diagnostic sherds out of 144 total sherds recovered. These came from two deep-soundings. The first, Unit 21, contained 45 diagnostic sherds and the second, Rasgo 11 (Units 9 and 13), contained 20. Together these units provided ten square meters of horizontal exposure. Given an average thickness in of 0.5 meters for Levels 8-9, the overall density of *all* sherds in Levels 8-9 averaged around 29 sherds per cubic meter (diagnostics averaged 13 specimens per cubic meter). This assemblage does not include Sector B, as there was no occupation during this early time.

Sherds from Levels 8-9 exhibit a high percentage of incomplete oxidation (73.85%, n=48). This is visible as a dark, carbon-rich band in the sherd core and is typically due to a combination of low-oxygen conditions, shorter firing times, and low firing temperatures; composition and fineness of the clay particles also plays a role (Rice 1987:88, 334-5). Only 26.15% (n=17) exhibit complete oxidation of organic matter within the paste. These sherds can be compared to the Munsell color system and exhibit a majority of 2.5YR 3/4 Dark Reddish Brown pastes, with a few other dark red-to-brown pastes (2.5YR 4/6 Reddish Brown, 7.5YR 3/4 Dark Brown, 7.5YR 4/6 Brown). Oxidized iron in low-fired environments and small surviving amounts of carbon likely produced these reddish-brown hues (Rice 1987:333-4). This color profile contrasts with later post-fire painted finewares, which exhibit progressively higher percentages of total oxidation accompanied by a prominence of lighter red to yellow pastes.

All sherds in the Huaca Soto assemblage contain mineral (sand) temper to the complete exclusion of shell or vegetal materials. Grains consist predominantly of silicates (quartz) visible

to the naked eye. Under magnification we determined that grain size in Level 8-9 specimens range from 0.2 mm to 1 mm and can be described as medium-to-coarse grained. We recorded a slight prevalence of sub-rounded temper grains in 69.23% of the sample (n=45) and sub-angular grains in 30.77% of the sample (n=20) using an illustrated reference point from Druc and Chavez (2014:13, Figure 2.2). We could not reliably link sand temper to one of three possible local sources – the Pacific littoral, riverine alluvium in the valley bottom, or the surrounding desert pampa, though future investigation could pursue this through a controlled comparison.

Out of 36 sherds in the Level 8-9 assemblage for which we observed external surface treatment, 72.22% (n=26) were burnished, 22.22% (n=8) high-polished, and 5.56% (n=2) brushed. Of 20 sherds with observable interior surface treatment, 75% (n=15) were finely brushed, 6.15% (n=4) polished, and 1.54% (n=1) burnished. Polishing and burnishing of the dark brown paste produced a finish that glints in direct light. Eight specimens were finished with a red slip – three sherds on the interior, four on the exterior, and one on both sides. All of these cases occurred on open bowls. One interior red-slipped specimen appears to have been reduction-fired to a jet-black finish on the exterior.

I estimate that the Level 8-9 assemblage represents a minimum of seven vessels based on analysis of rim sherd parameters. Four of these vessels were decorated serving ware bowls. One bowl was 19 cm in diameter and red-slipped on the interior. Another was 24 cm in diameter and high-polished on both sides, exhibiting fine, clean linear incisions circling just below the rim. The remaining two bowls were represented by only a few fragments with red-slipped exteriors.

Neckless ollas account for two additional vessels associated with this assemblage. The first was located in Unit 21 at the court center, and the second from Rasgo 11 in the northeastern corner. All neckless olla sherds in Levels 8-9 showed brushed interiors and burnished exteriors.

Several of these sherds were charred, suggesting that they were used for preparatory functions. Finally, decorated body sherds indicate an unidentified number of closed fineware vessels, including at least one spout-and-bridge bottle. Variation in the thicknesses, surface treatment profiles, and decoration on these body sherds suggests additional closed-form vessels. All vessels in the Level 8-9 assemblage have rounded rims. We recovered no base sherds.

There is no evidence of painted decoration among Level 8-9 brownware sherds. However, several specimens exhibit incised designs on the exterior (Fig. 62). One bowl featured at least four horizontal incisions running parallel to the rim, each approximately 5 mm apart, and two diagonal intersecting incisions that form part of a larger geometric figure. Other high-polished brown-ware sherds exhibit cruder, thin incisions of uneven width and depth that do not intersect cleanly. These tended to occur on closed forms – most likely bottle-necked containers. One of these sherds appears to be a carination angle from a squat closed vessel, exhibiting a single incision encircling the diameter of the pot and an incised cross-hatched design on its upward-facing surface. Another specimen exhibits a set of semi-circle designs formed by shallow, broad incisions. The most complex decorated specimen in Levels 8-9 is a handle-column from a spout-and-bridge bottle featuring thin, deep incisions on its upper surface (Fig. 63). The column is punctured all the way through by a 2 mm hole, presumably to let in air to facilitate smoother pouring from a paired spout. This area also exhibits two incised ‘eye’ circles with punctuate pupils and a now-missing sculpted facial feature, possibly a beak. The side of the column features a second ‘eye’ feature that shows a square pupil inset into the upper half of a square cornea. These unpainted, incised brown-ware vessels most closely resemble descriptions of Early Paracas wares in the local Pozuelo style.

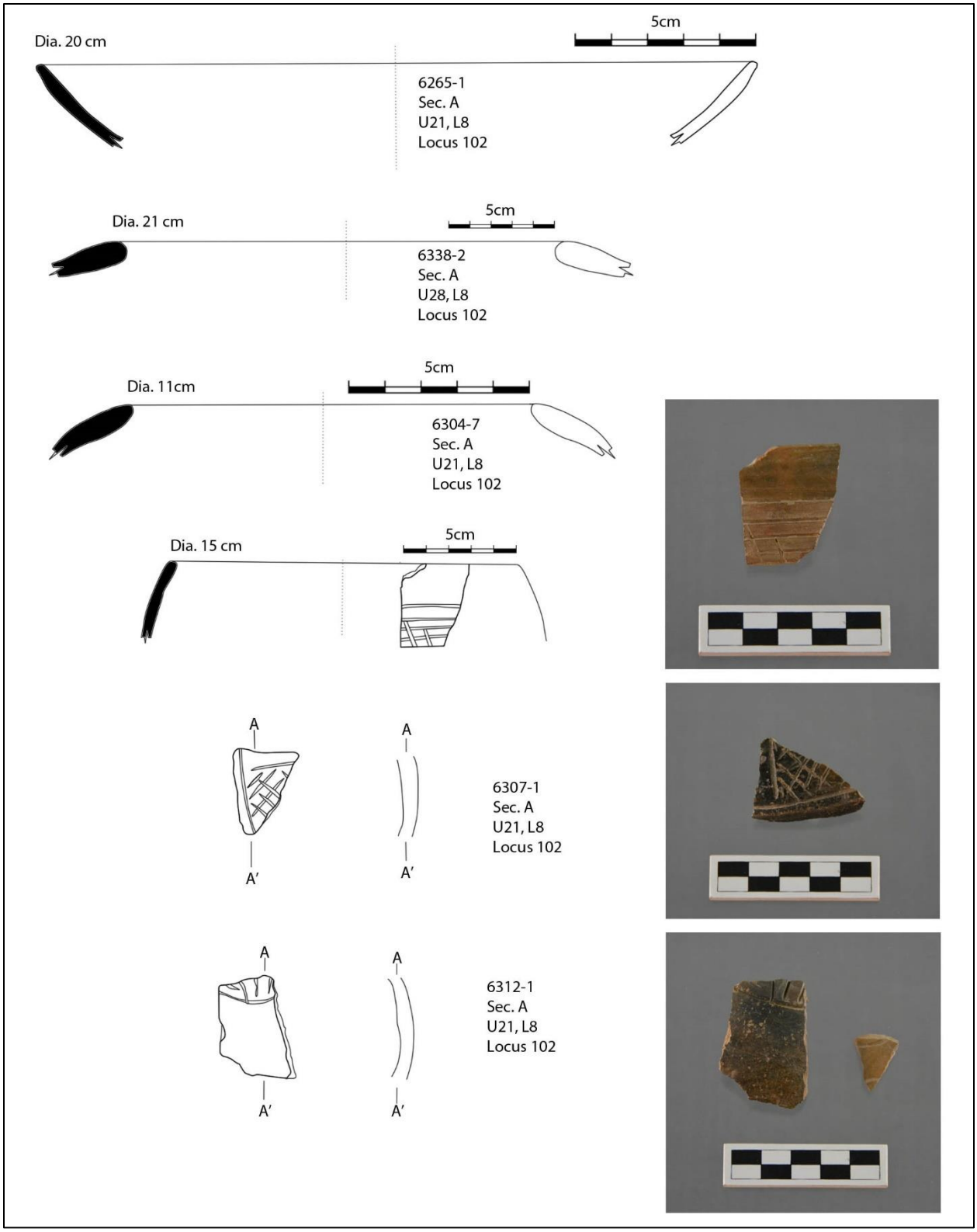


Figure 62: Neckless ollas and brownware bowls with incised design from Sector A, Levels 8-9. Original drawings by Jose Tumbalobos.



Figure 63: Detail of incised handle portion from Early Paracas spout-and-bridge bottle, Sector A, Levels 8-9.

Early-to-Middle Paracas Diagnostics from Levels 6-7

We recovered 140 sherds from Levels 6-7. Sixty-eight of these are diagnostic. Exposure was limited to Unit 21 and Rasgo 11 in Sector A, with the addition of a single diagnostic sherd recovered from the earliest occupation surface at the center of the Sector B court (Unit 53, Level 7). Sherd density in Levels 6-7 averaged 17 specimens per cubic meter and 8 diagnostic sherds per cubic meter.

Paste characteristics of the prior phase were maintained in Levels 6-7. We recorded some degree of incomplete oxidation on 75% (n=51) of diagnostic sherds, with only 25% (n=17) exhibiting total oxidation. About half of sherds for which cross-section color could be suitably

estimated exhibit darker brown pastes (2.5YR 3/4 Dark Reddish Brown, 7.5YR 3/4 Dark Brown, 7.5YR 4/6 Brown), but now include a slightly higher proportion of light red to yellows (5YR 4/6 Yellowish Red, 7.5R 5/8 Red, 7.5YR 6/6 Reddish Yellow). Temper material is identical to Levels 8-9, being exclusively medium to coarse-grained sand composed primarily of silicates.

Surface treatment profiles in Level 6-7 assemblage also approximate sherds from the prior phase. Sherd exteriors are typically burnished, interiors finely brushed, and red slips feature in several cases. In 37 cases of external surface treatment, burnishing occurred on 72.97% (n=27), with smaller amounts of polishing (16.22%, n=6) and brushing (10.81%, n=4). Of 22 cases of interior surface treatment, fine brushing occurred on 81.82% (n=18), polishing on 13.64% (n=3), and a single case of interior burnishing. We observed red slip on the interior of two rim sherds, on the exterior of seven rim sherds, and on both sides in a single case.

The Level 6-7 assemblage represents a minimum of three fineware shallow bowls, three neckless ollas, a small closed bowl form, and a narrow bottle-necked vessel (Fig. 64). We recovered sherds from two of the bowls in Level 6 of Unit 21 (Sector A). These vessels are distinguished by being two distinct sizes (18 and 25 cm in diameter) and both exhibit post-fire resin painted decoration on their exteriors and red slip on the interior. We recovered sherds from the third bowl, undecorated brown-ware, from Rasgo 11. The first neckless olla is represented by an isolated sherd from Unit 53 in Sector B (20 cm in diameter at the opening, with a thickened, flattened rim). Sherds from the other two neckless ollas were recovered from Sector A – at least one olla in Unit 21 (20 cm in diameter at the opening) and one from Rasgo 11 (18 cm at the opening). Unit 21 also contained sherds from a squat, well-polished, closed-form, brown-ware bowl (11 cm at the opening) with part of an incised star motif encircling the rim. A spout sherd from a small bottle (4 cm diameter at opening) was recovered from Unit 21.

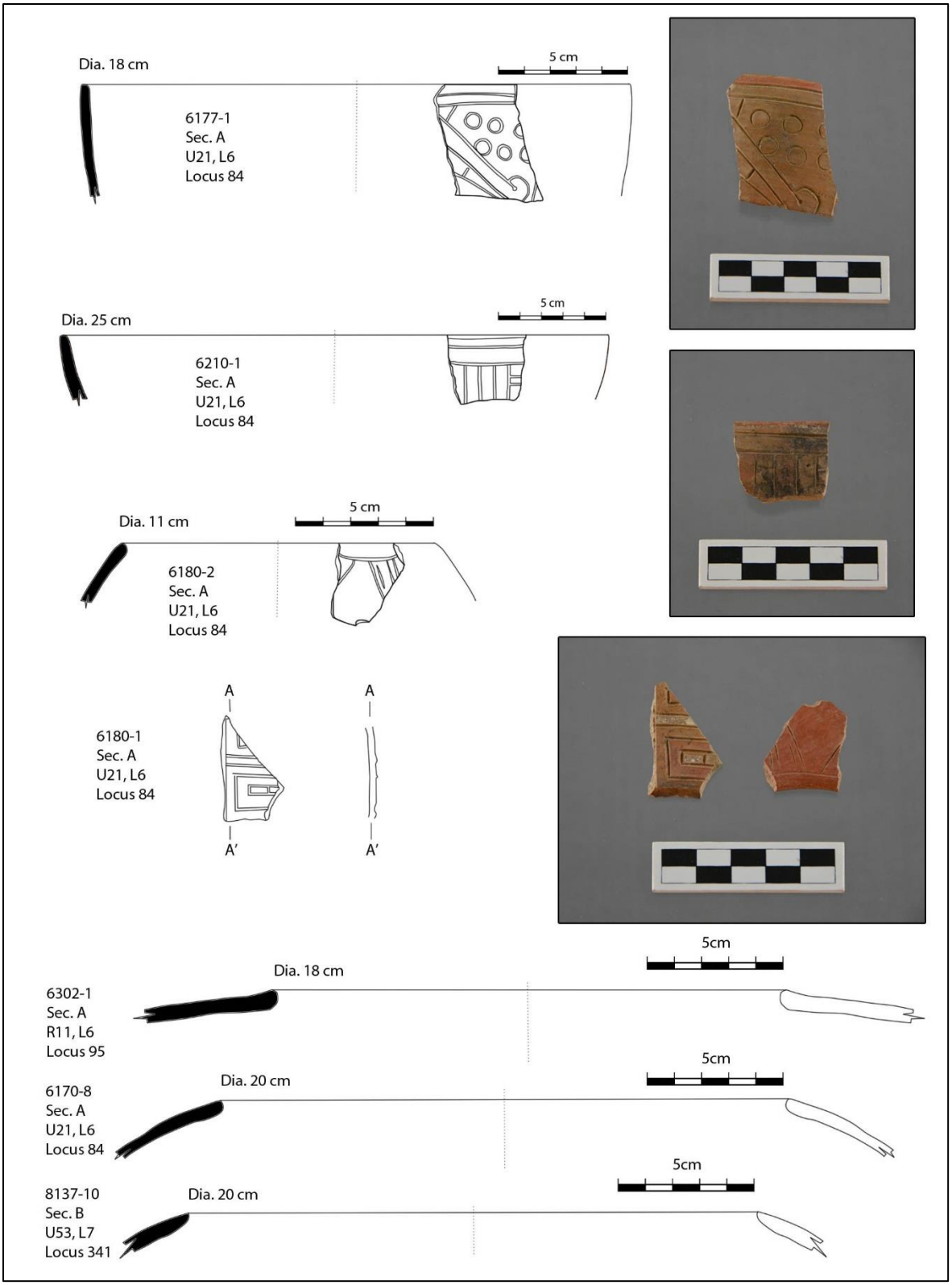


Figure 64: A selection of Paracas post-fire painted bowl and neckless olla sherds from Levels 6-7. Original drawings by Jose Tumbalobos.

Levels 6-7 contained the first post-fire resin-painted specimens recovered at Huaca Soto. These do not replace the burnished brown-ware style typical of the Level 8-9 phase, but appear as advanced design elements associated with high-polishing exterior finishes and red slips. Incision techniques on post-fire painted wares now favor thin (1-2 mm), sharp, linear patterns of regular width and depth with all excess material carefully removed. On all post-fire painted specimens, incisions always separate different colored zones. One specimen (6210-1) exhibits a small area of red slip transitioning from the inside of the sherd onto the exterior, stopping at an incised line running parallel to the rim; the area below this incision is divided into zones by additional vertical incisions. Other notable incised designs include a specimen (6180-1) with a concentric rectangle motif forming what appears to be the mouth of a front-facing figure (teeth painted in white, lips in red). Another sherd (6177-1) exhibits what may be the tail or snout of a quadruped in profile, surrounded by incised, unpainted circles (each 7mm in diameter) in two horizontal rows. This sherd, including the figure, is unpainted with the exception of the rim (in red) which is separated from the body of the sherd by a circumferential incised line. Finally, a rim sherd from the small closed bowl mentioned above features an incised star-design around the opening (6180-2). These incisions are formed from extremely sharp, thin incisions or irregular width and depth. This piece is unique among Huaca Soto wares.

Early-to-Middle Paracas Diagnostics from Levels 3-5

Levels 3-5 includes Soto's penultimate Middle Paracas floor and the thick layer of sand fill deposited upon it. This phase is limited by the construction of the Level 2 floor which seals it off from surface strata. We exposed the Level 3-5 phase in three Sector A units (Units 21, 22,

and Rasgo 11), several units in the center of Sector B (Units 49, 53, 54, 55, 56, 57, 58, 61, 63, 65), and a single unit in Sector B's innermost northeastern corner (Unit 86). We recovered 621 sherds from this phase (216 in Sector A, 405 in Sector B), 162 of which are diagnostic (103 from Sector A, 59 from Sector B). Total sherd density in Sector A approximates that of Levels 6-7 at 15.43 sherds per cubic meter (7.36 diagnostics per cubic meter). Total sherd density in Sector B was notably less at 4.94 sherds per cubic meter (0.72 diagnostics per cubic meter). The overall larger sample size from Levels 3-5 reflects greater exposure of these strata.

Complete oxidation of sherd cores is more common in Levels 3-5 when compared to prior phases, suggesting advancing investment in ceramic production that could involve higher temperatures, better oxygenated firing environments, or greater attention to firing times. We recorded complete oxidation of sherd cores on 51.23% (n=83) of the diagnostic assemblage, with the remaining 48.77% (n=79) incompletely oxidized. Sector A showed slightly higher levels of complete oxidation at 57.28% (59 of 103) versus Sector B at 40.68% (24 of 59). Curiously, 14 of 16 post-fire resin painted sheds exhibited narrow bands of incomplete oxidation in the sherd core. Being quite thin (2-4 mm), perhaps these finewares were more susceptible to warping when over-fired, and thus potters erred on the side of caution.

Paste color of completely oxidized sherds is variable in Levels 3-5, exhibiting more than a dozen observed hues. Dark to medium brown pastes typical of lower strata are less frequent (7.5YR 3/4 Dark Brown, 7.5YR 5/4 Brown, 2.5YR 3/4 Dark Reddish Brown), occurring in only 27 of 77 diagnostic specimens (35.06%). The remainder of the sample consists of medium red to reddish-yellow hues. The shift to redder pastes in Levels 3-5 likely goes hand in hand with higher occurrence of complete oxidation firing. Temper material consists exclusively of medium

to coarse grained sand, with a few sherds exhibiting fine-grained sand. Tempers classified as sub-rounded particles are about twice as prevalent as sub-angular types.

Fifty-seven specimens exhibited some form of interior surface treatment, including comparable amounts of brushing (42.12%, n=24), high polishing (33.33%, n=19), and burnishing (24.56, n=14). Interior brushing typically occurs on neckless olla sherds, while interior polishing is typical on post-fire painted fineware bowls. Fifty-six specimens exhibit exterior surface treatment, including mostly burnishing (73.21%, n=41) with lesser amounts of polishing (n=13, 23.21%) and brushing (n=2, 3.57%). Neckless ollas tend to have roughly burnished exteriors, while serving ware bowl sherds tend to exhibit lustrous polishing on exteriors. Post-fire painted sherds exhibit some form of high-polishing in 12 out of 16 cases (75%), but only on unpainted zones. These were clearly finewares intended to impart a strong visual effect. Sherds polished to a shine on the exterior were also polished on the interior in 11 of 13 cases (84.62%). Eleven sherds exhibited a red slip on the interior, one on the exterior, and five sherds on both sides. All specimens exhibiting red slip are bowl-forms, and this appears to carry-over from earlier phases. Thus, beyond vessel form, post-fire painted serving ware bowls and large utilitarian neckless ollas are distinguished from one another on the basis of surface treatment and decoration.

Open bowls and neckless ollas constitute the majority of the Level 3-5 assemblage. We recorded a minimum of ten open bowls from within Sector B, ranging from 16 to 29 cm in diameter, and four in Sector A ranging from 15 to 20 cm. These vessels were deposited in the centers of the two courts, with the exception of a single bowl in the northeastern corner of Sector B. Of the Sector B bowls, three individual vessels exhibited Middle Paracas post-fire resin painted designs; two of these were medium bowls around 17 cm in diameter and the third was substantially larger at 25 cm in diameter. All bowls exhibit flattened bases.

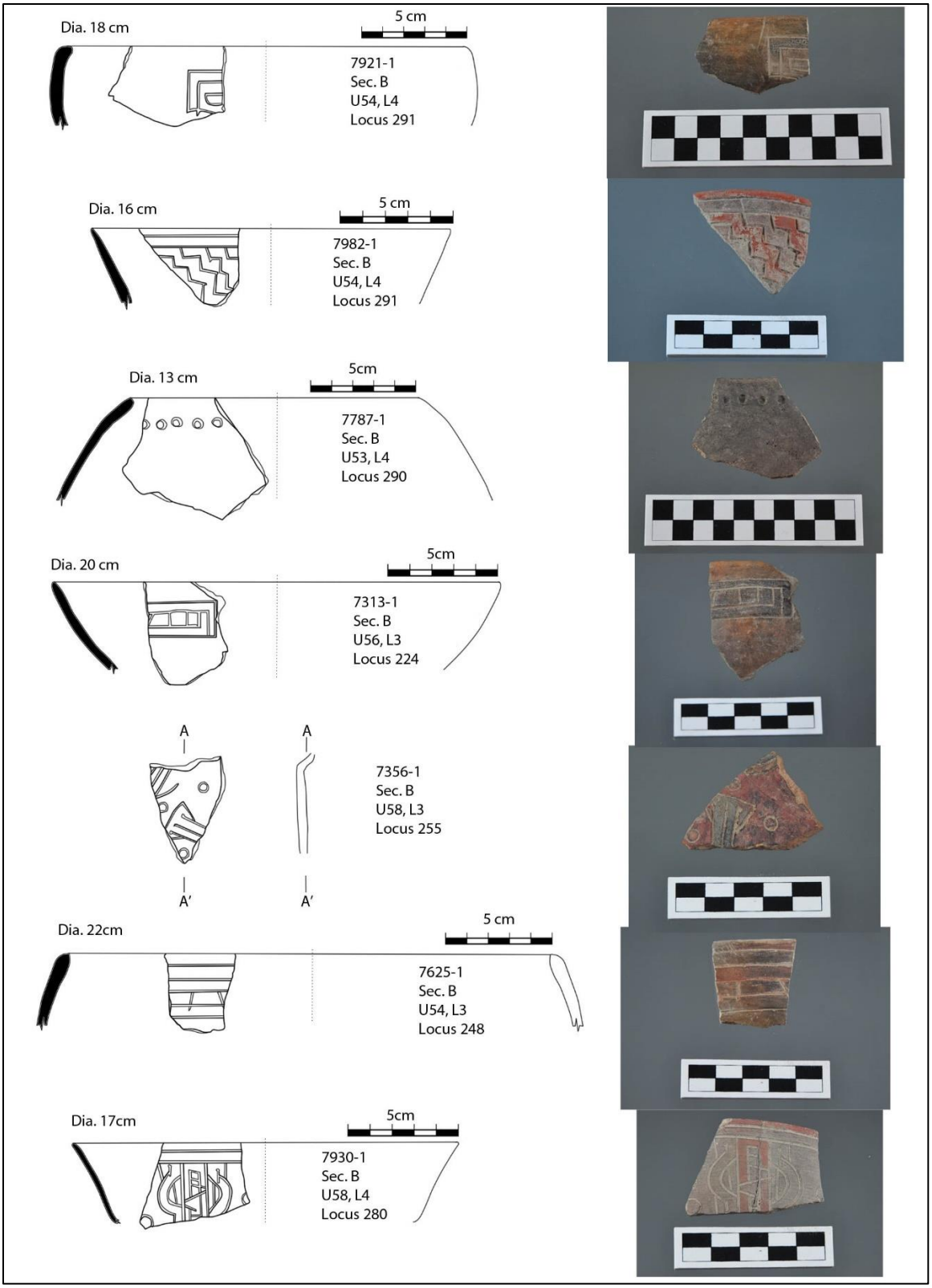


Figure 65: A selection of Paracas post-fire painted bowl sherds from Levels 3-5. Original drawings by Jose Tumbalobos.

The Level 3-5 assemblage represents at minimum 12 neckless ollas, five in Sector A and seven in Sector B. These are in addition to *in situ* ollas recovered as distinct *rasgos* (see Chapter 9), and are identical in form to the neckless ollas from prior phases. Sherds from Sector A represent at least three neckless ollas near the court's center (Unit 21) measuring 12, 18 and 22 cm at the mouth. An additional two neckless ollas from Rasgo 11 measured 20 and 16 cm at the opening and exhibit dark brown pastes typical of lower strata. We recovered evidence of at least seven additional neckless ollas clustered in the center of the Sector B court (concentrated in Units 55-58), ranging from 11 to 22 cm in diameter. We identified sherds from a short-necked olla in the northeastern corner (Unit 86). Rim sherds from neckless ollas exhibited evidence of burning in ca. 1 in 4 of cases, compared to no instances of post-fire charring in bowls. This supports the logical hypothesis that large globular vessels were used for preparation of food or beverage, while bowls functioned as serving wares.

Less common sherd forms included at least two spouts from bottle-necked vessels, rims sherds from at least two bowls with flaring side walls, a small olla with an everted neck, at least two plates with low side walls, a small *taza* cup, and a very large *tazón* measuring 30 cm in diameter – all from the center of the Sector B court. Sherds from this area also suggest at least two closed-bowls with slightly inverted rims. The first was a large polished brown-ware vessel with post-fire pained designs. The second was a smaller closed-bowl.

Decorative elements in Levels 3-5 are dominated by post-fire resin painting and incision techniques (Fig. 65). Incisions are the same linear, thin (1-2 mm), and cleanly executed types that appeared in Levels 6-7. Geometric incised patterns typically involve lines meeting to form right angles, incisions paralleling the rims around open bowls, and incision-zoning to create fields for post-fire painting. One rim sherd from a post-fire painted bowl (7982-1) exhibits a

repeating staircase motif of alternating red and black painted zones. In a second case, we identified a shallow zig-zag pattern rounding the base of flat-bottomed bowls. Other geometric motifs included a set of isolated concentric rectangles on the exterior of polished brown-ware bowls (7921-1, 7313-1), incised and zone-painted 'stripes' paralleling the rims of bowls (7625-1), and addition of small incised circles in incised zones (ca. 3-4 mm in diameter).

Figurative depictions also appear on sherds in Levels 3-5. One example (7930-1) shows two intertwined fanged animals, oriented perpendicular to the rim of a very thin (2-3mm) interior red-slipped bowl. These may be felines or crocodiles, exhibiting half-circle brows and baring teeth. The lips of the animals are zone-painted in red, while the remainder of the incised design remains unpainted. A second example from a globular vessel (7356-1) shows part of what appears to be a tail, post-fire painted in green, on a red painting field covered in small incised circles. Both cases were once part of more complex figurative designs. Level 3-5 post-fire painted sherds include examples of black, red, green, and yellow paints.

Finally, a few small fragments exhibit a negative-resist technique that appears in 'Cavernas' styles regionally at the onset of the Middle Paracas period (Fig. 66). This manifests as red circles on a reduction-fired background. These sherds pertain to a single vessel recovered from the center of Sector B and are generally rare at Huaca Soto. Negative resist dots are larger and closer together than parallel decorations that typify the local Pinta style. Other decorative techniques include a line of punctuate dots paralleling the rim of a closed bowl (7787-1), and a similar technique applied in a double row circling the mouth of a neckless olla. Punctuate incising was more casually executed, with varying distance between dots, varying sizes, and small ridges of pushed-up matrix at the edges of each dot.

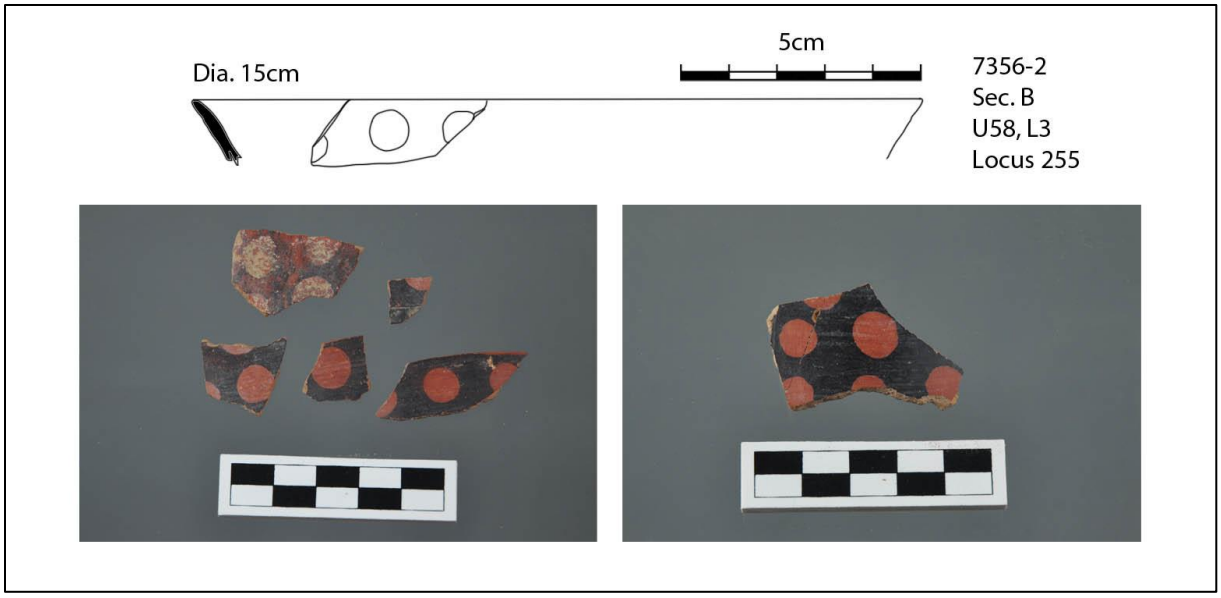


Figure 66: Negative resist sherds appearing in Level 3 at Huaca Soto. Original drawings by Jose Tumbalobos.

Paracas Diagnostics from the Level 2 floor and Near-surface Strata

The final Middle Paracas events at Huaca Soto took place in association with the Level 2 floor. Post-fire painted sherds from these events appear on the floor itself and in smaller quantities in surface strata (Levels 1, 1B and Superficial), displaced by later events in the courts. While we can clearly distinguish between Paracas subphases based on fineware styles, we cannot reliably distinguish between Early/Middle and Late Paracas utilitarian wares in surface strata. Therefore, this section considers only post-fire resin painted wares from Levels 2 through Superficial, as well as undecorated wares that sit directly upon the Level 2 floor.

This assemblage contains 139 diagnostic sherds (68 from Sector A, 71 from Sector B) out of a total assemblage of 978 sherds (453 in Sector A and 525 in Sector B). The majority of specimens in both sectors came from units abutting enclosure walls and corners. Disproportionate accumulation in corners is probably due to maintenance events that swept out the court center, leaving debris against standing architecture. Density of Early-to-Middle Paracas

ceramic sherds was 29.61 sherds per cubic meter (3.59 diagnostics per cubic meter) for Level 2, 1B, 1, and Superficial in Sector A, and 18.23 sherds per cubic meter for Sector B (1.63 diagnostics per cubic meter).

We observed incomplete oxidation of sherd cores in 57.55% of cases (n=80) and complete oxidation in 42.45% of cases (n=59). This is closer to the prior Level 3-5 assemblage (51.23% complete) than the earlier Levels 7-6 and 8-9 assemblages (25% and 26.15% complete, respectively). Complete oxidation firing was notably more common in Sector A (61.76%, 42 of 68) compared to Sector B (23.94%, 17 of 71). Paste color of completely oxidized sherds exhibited a majority of reddish-yellows (5YR 6/6 Reddish Yellow, 7.5R 6/6 Light Red), reds (2.5YR 4/6 Red, 7.5R 5/6 Red), and lesser amounts of lighter brown pastes (7.5 YR 5/4 Brown, 7.5YR 6/4 Light Brown). Level 2 lacks the darker brown hues more typical in Levels 3-9. Temper material consists exclusively of medium to coarse-grained sand composed of sub-rounded grains.

Like prior phases, open bowls and neckless ollas dominate the Level 2 assemblage. Of 83 sherds that could be assigned to a specific form, 49.40% (n=41) belonged to open bowls. A minimum of 15 distinct bowls can be distinguished within the Level 2 assemblage (7 in Sector A and 8 in Sector B). There was a clear distinction between small to medium sized shallow-curving bowls featuring post-fire painting (ranging between 14 and 25 cm in diameter) and a thicker *tazóns* with straight or flared sides (reaching up to 40 cm in diameter). Forty of forty-five sherds with post-fire painted designs (88.89%) abutted court walls or corners, with five additional specimens recovered from the center of the courts. Sweeping of debris away from the court center and towards the margins of the court is the likely cause of this distribution.

Neckless olla sherds comprised 33.73% (n=28) of all sherds that could be assigned a specific form. We can distinguish a minimum of 13 individual vessels (6 from Sector A, 7 from Sector B). These ranged from 10-18 cm in diameter at the opening, are completely undecorated, and show a high prevalence of post-fire charring on the exterior (60.71%, 17 of 28 cases). These were evidently used for preparation of food and beverage. Again, we recovered 26 of 28 neckless olla rim sherds from against court walls and corners, notably the northeastern (Rasgo 11) and southwestern (Unit 25) corners of Sector A, and the southwestern corner of Sector B (Unit 74). We also recovered a fair amount from within the northeastern corridor of Sector A (Unit 28, Rasgo 16). Remaining sherds represent at least two thin closed bowls in Sector B (Units 81 and 74), at least one small cup in Sector A (Unit 25), two small undecorated plates in Sector B (Unit 78 and 89) and at least three cántaros for holding liquid (Units 25, 74, and 100).

Fifty-seven specimens had visible interior surface treatment. Brushing occurred in 54.39% of cases (n=31), with lesser amounts of high polishing (35.09%, n=20) and burnishing (10.53%, n=6). All neckless olla sherds evidence of visible interior surface treatment (n=16) were brushed. On the contrary, serving wares (bowls and plates) typically exhibited burnishing and polishing on the interior. Highly decorated bowls with post-fire painting or incision design were burnished or highly polished on the interior in 20 of 26 cases (76.92%). We observed exterior surface treatment on only 33 sherds. Exterior burnishing occurred in 51.52% of cases (n=17) and most commonly on serving wares. Exterior brushing occurred in 21.21% of cases (n=7), typically on neckless ollas and cántaros. Exterior polishing occurred in 27.27% of cases (n=9), the majority of which exhibited post-fire resin painted designs in unpolished zones.

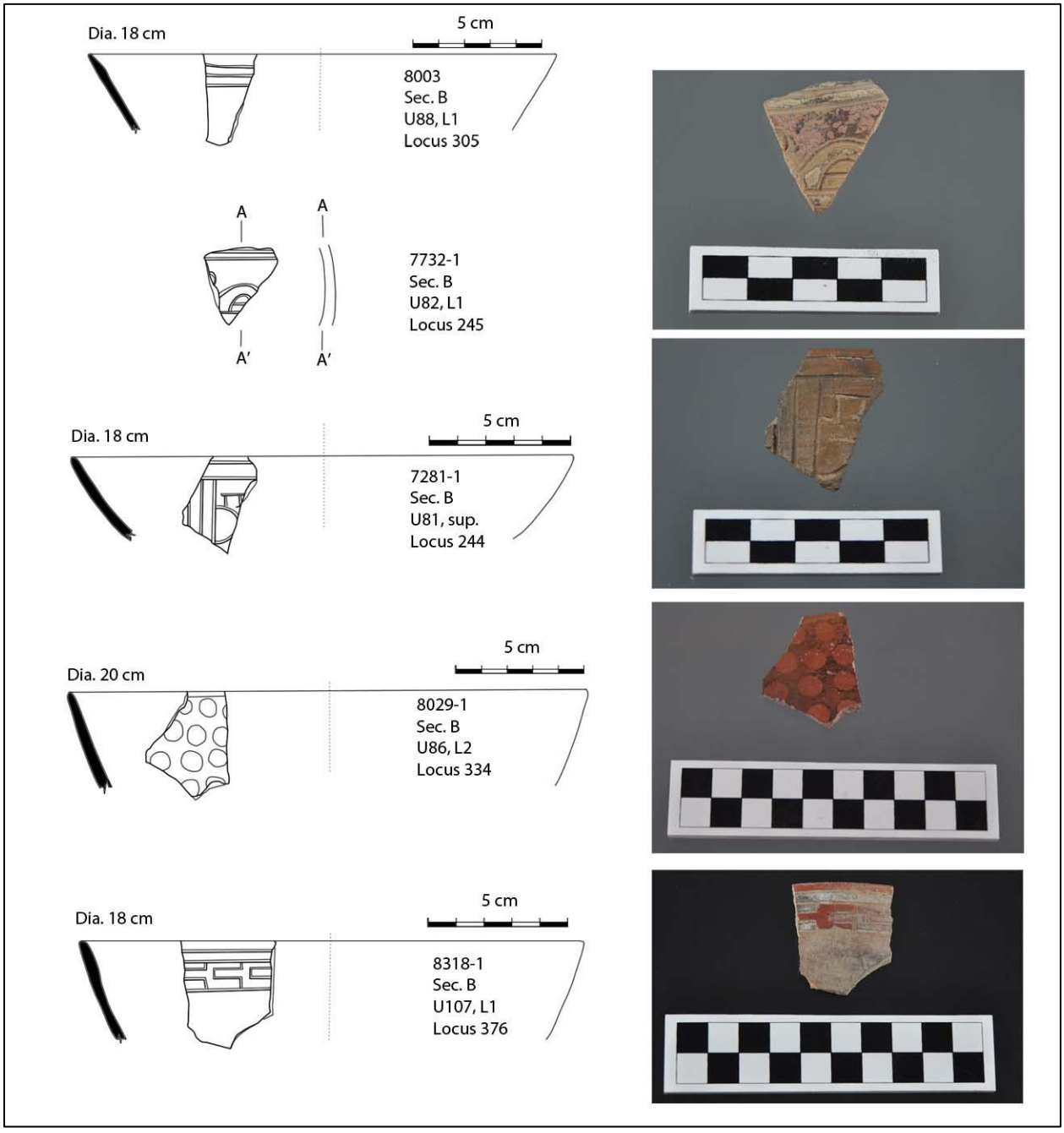


Figure 67: A selection of Paracas fineware sherds from Levels 2 and 1. Original drawings by Jose Tumbalobos

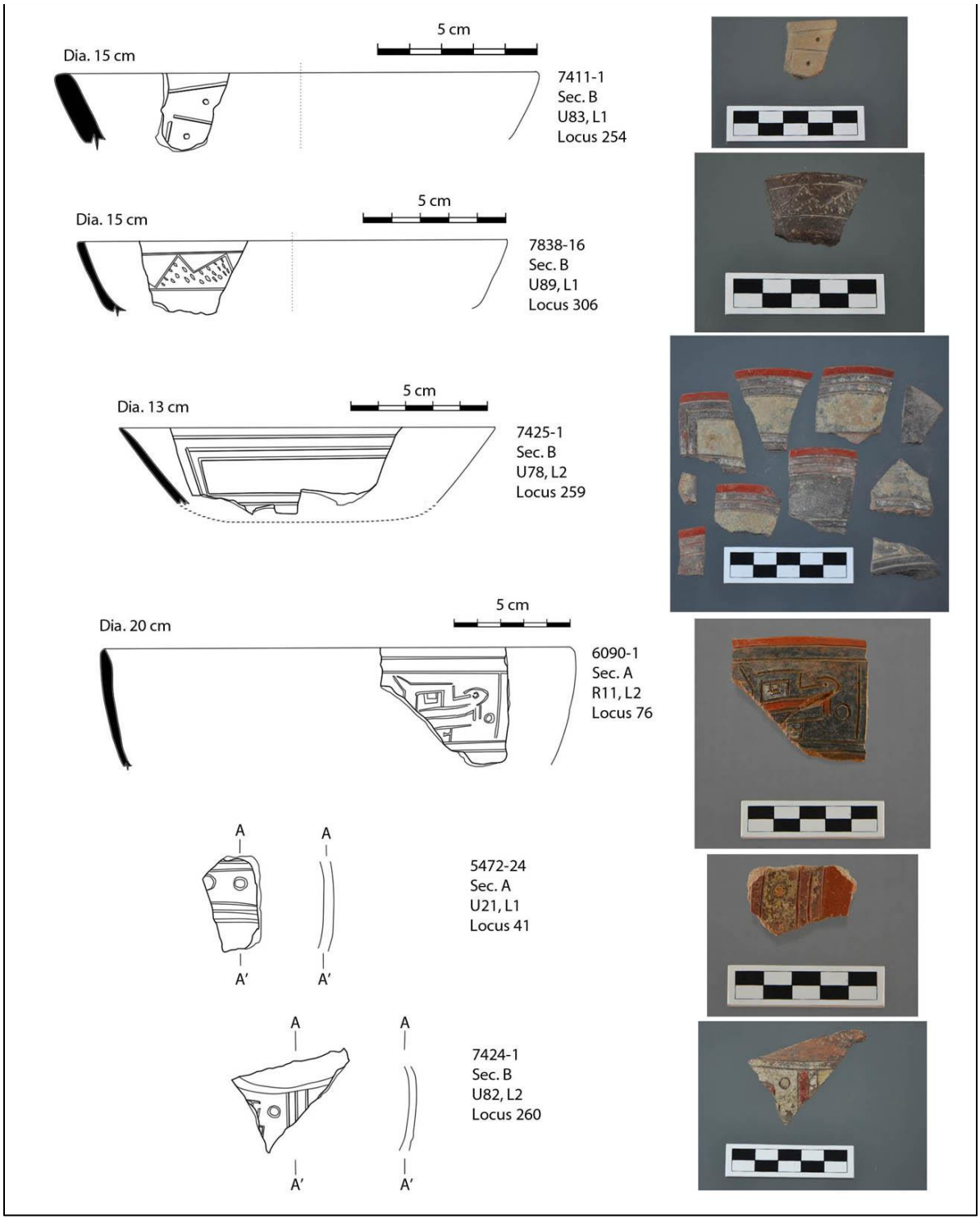


Figure 68: A selection of Paracas post-fire painted sherds from Levels 2 and 1. Original drawings by Jose Tumbalobos.

Interior red slips occurred in 22 cases, 20 of which (90.9%) also exhibit post-fire resin painting on the sherd's exterior (all fineware bowls). Exterior red slipping occurred on only 3 specimens (two of which were accompanied by post-fire painting), and three specimens exhibited red slip on both sides. This distribution of surface treatments presents a stark contrast between visually striking serving wares vs. large neckless ollas. Decorated bowls evidence more time-consuming treatments to promote a specific visual aesthetic, while finishing of large globular vessels is overwhelmingly practical and more suitable for cooking wares. This remains in line with prior Paracas phases at Huaca Soto.

Forty sherds exhibit exterior post-fire resin painting and incised decoration typical of Middle Paracas traditions (Fig. 67, 68). Thirty-four of these specimens come from open serving wares (bowls or plates), with an additional 6 body sherds from closed vessel forms. Most post-fire painted sherds are thin-walled (2-4 cm), contain fine even-sized temper, and exhibit little to no evidence of burning, repair, or rough use. These are typically burnished on the interior and exterior if not highly polished, and tend to exhibit red slips on non-painted areas. Servingware bowls exhibit flat bases.

Incision designs are linear or slightly curving, thin (1-2 mm), and of even thickness with all excess material carefully removed. Post-fire painted bowl sherds tend to exhibit one or more parallel incisions around the exterior circumference of the rim. The area between the rim and the first parallel line is often post-fire painted in red, but sometimes receives a red slip continuing from the vessel's interior. Geometric motifs incised into vessel exteriors often form thick bands that are later filled with resin paint. These include interlocking horizontal 'Y' shaped motifs (8318-1), fields of incised circles and semi-circles, narrow single-incision zig-zags (7838-16), and bands containing a single row of incised circles. In some instances, parallel incised lines

(horizontal and vertical) are used to frame open panels. These occasionally contain figures or additional geometric motifs. In one example, a flat-bottomed bowl, these panels lack additional design and are painted in a solid yellow field (7425-1).

Human and animal figures incised into Level 2 post-fire painted sherds express some similarities with motifs found in earlier phases. Sherds recovered from Rasgo 11 in Sector A show what appears to be a feline or canid in profile within a panel defined by incised horizontal and vertical lines (6090-1). This figure has a single ear pointed backward, a rounded snout with an incised nostril, and exhibits part of a short forelimb. Its upper lip is post-fire painted in red, similar to the lips of the intertwined carnivores from Level 5. The Level 2 figure, however, lacks visible teeth. The animal's body is painted black. The figure exhibits a squared-off eye (painted white) with an inset square cornea; this eye is similar to the figure on the incised brown-ware spout recovered from Level 8. A second figural specimen from Level 2 depicts part of a front-facing creature with a semi-circular eye and horizontal line pupil (7732-1). The color palate for this specimen includes light red to pink hues alongside lighter yellows, rather that the strict red, black and white typical of post-fire painted sherds at Huaca Soto. The eye in this case is similar to that of the intertwined carnivores found on a sherd in Level 5.

We observed negative resist techniques on a few fineware bowl sherds (8029-1), but never alongside post-fire painting. Rather than the well-spaced and relatively distinct red dots on a black field typical of Pinta wares recovered from Cerro del Gentil, these pieces present a more densely packed field (only 2 mm between circles; each circle ranging from 5 to 7 mm in diameter) and weaker distinctions between circles and background. These sherds are red slipped on the interior and resemble the negative-resist sherds from the Level 3-5 assemblage.

Late Paracas (Topará) Ceramic at Huaca Soto

The Late Paracas 'Topará' monochrome tradition is described in detail by Lanning (1960) and others (i.e. Peters 1987/88, 1997, 2000; Wallace 1986; Tello and Mejia 1979; Silverman 1996a:132-134). These wares are associated with the Necropolis burials on the Paracas Peninsula and thought to remain in play into the first centuries CE. Peters (2000) and Wallace (1986) suggest that Topará material culture signifies an ethnically, politically and religiously independent society that overlapped with an older, independent 'Paracas' tradition. Canziani (1992) argued that this period represents the apex of emergent urbanism in Chincha, with massive platform mounds like Huaca Soto serving as central places. PACH had previously recorded Late Paracas 'Topará' wares in the surface strata of Cerro del Gentil and El Mono; they also appeared in the Pozuelo test pits (Lanning 1960).

Topará monochromes are present at Huaca Soto in the surface levels of the Sector A and B courts (Levels Superficial, Level 1, and Level 1B) with a very small number of pieces also appearing in Levels 2-3 (n=7 in Sector A and 17 in Sector B). These deeper specimens are associated with post-Paracas looting intrusions that punctured the Level 2 floor in specific areas of Sector B (Units 53, 56, 58, 61) and a single deposit in Sector A (Unit 25). Down-shifted pieces are included in this section's analysis as this is sufficient reason to believe they were moved from their original depositional context.

The total diagnostic sample for Late Paracas sherds at Huaca Soto includes 1561 sherds, 691 of which from finewares. We recovered 247 fineware sherds from Sector A and 444 from Sector B. Density of finewares is elevated in Sector B, even when accounting for differences in excavation exposure. Because there was minimal post-Paracas activity in the Sector B court (only 33 post-Paracas fineware sherds, compared to 4,800+ for Sector A), I suggest that non-

decorated utilitarian wares in the court's surface levels are part of the Late Paracas assemblage. The Late Paracas utilitarian ware assemblage in Sector B includes 870 diagnostic specimens, bring the total for this court to 1314 sherds. Conversely, the commingling of massive amounts of post-Paracas material in Sector A prevents us from confidently distinguishing Topará utilitarian wares from later plainware traditions. In order to account for the different scenarios presented by each court, I analyze the Late Paracas assemblage as three independent subsets. The first considers Topará finewares recovered from Sector B (n=444). The second considers plainwares from Sector B (n=870). The third considers Topará finewares from Sector A (n=247).

Late Paracas Finewares in Sector B

We recovered 444 Topará fineware sherds from Levels 1, 1B and the Superficial in Sector B. This assemblage is distinguished from earlier Paracas periods by the appearance of thin black monochrome bowls and matte orange monochrome bowls, the appearance of 'grater bowls' with rough interior incisions, and the complete disappearance of post-fire resin painting and negative resist techniques on finewares.

Blackwares accounted for 212 specimens in Sector B fineware sample. These are typified by very thin, reduction fired, finely made sherds from medium to small-sized open bowls (Fig. 69). They often exhibit a characteristic pattern-burnishing in which the potter dragged a thin, blunted tool across the surface of the bowl's interior before firing to achieve geometric designs visible in raking light (Fig. 70). Density of these blackwares is significantly higher *outside* of the perishable post-and-wall domestic structures in the center of the Sector B court. For example, we recovered 114 blackware sherds from 9 units abutting the exterior walls of perishable structures (Units 50, 55, 60, 65-70), but only 17 specimens from 16 units that were entirely inside the

footprint of these structures (Units 46-49, 51-54, 56-59, 61-64). This suggests that these sherds were deposited as rubbish, being removed from inhabited spaces to a nearby midden area located against the court's southern enclosure wall. We also recovered slightly elevated levels of blackware sherds from the northwestern innermost corner (Unit 85) and from a Late Paracas fill layer that sealed off an earlier Middle Paracas passageway in that same corner (Unit 80).

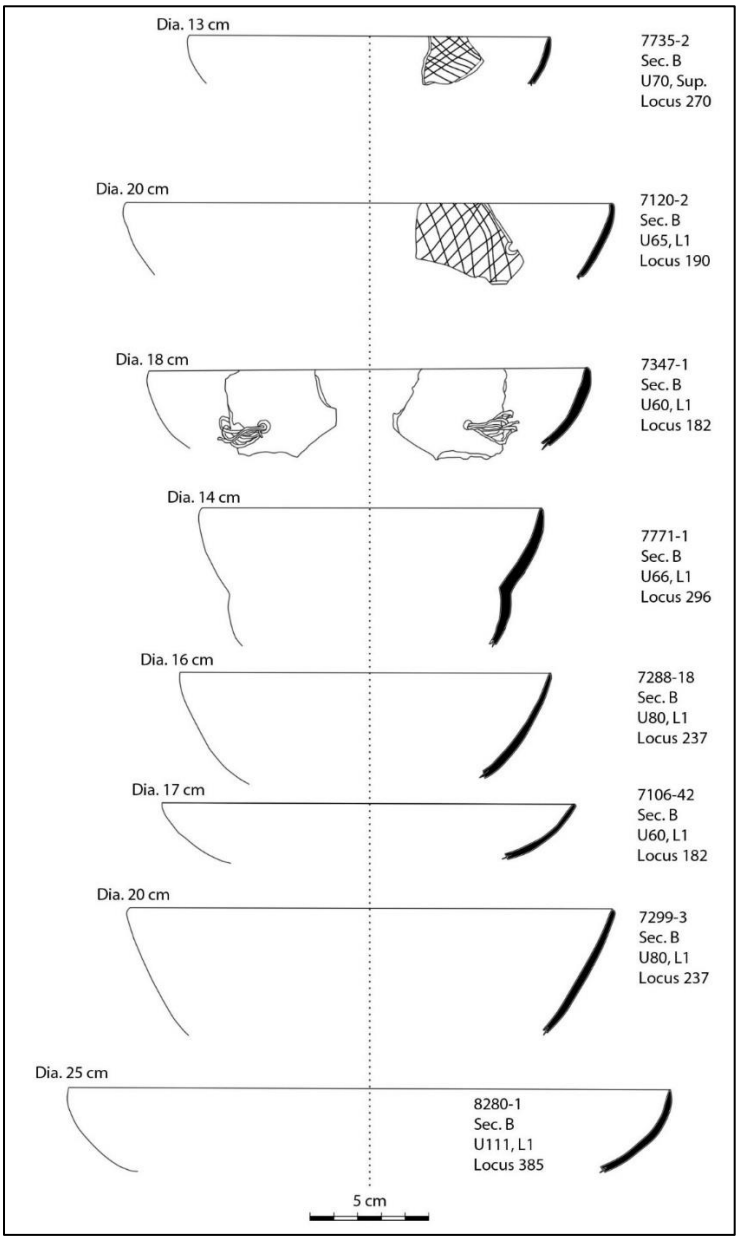


Figure 69: Topará blackware bowl forms. Original drawings by Jose Tumbalobos.



Figure 70: A selection of Topará blackware bowl sherds with pattern burnished designs on the interior. The large sherd at center has protuberance that imitates the interior of a gourd.

Topará blackwares were intentionally fired in a reducing environment to achieve a black surface on the interior of the vessel. Most specimens exhibit total reduction of the exterior as well. Almost all specimens (88.68%, n=188) exhibit incomplete oxidation of the sherd core, as reduction firing was the intention of producers. The few completely oxidized specimens express lighter red pastes (5YR 5/6 Yellowish Red, 2.5 YR 4/2 Weak Red, 2.5 YR 6/8 Light Red, 2.5 YR 5/6 Red). Topará blackwares contain very fine-to-medium grained mineral (sand) temper, which is difficult to see with the naked eye. Temper particle size was well-controlled, resulting in finely and evenly distributed ceramic matrix. These wares present a uniform paste matrix when compared to earlier Paracas wares, suggesting careful management of the production process.

Sixty-three specimens received treatment on the interior surface apart from reduction firing and pattern decorations. Of these, burnishing to a shine occurred in 96.83% of cases (n=61), with two instances of brushing. Sherd exteriors were treated in 146 cases. Burnishing occurred in 81.51% of cases (n=119) and brushing on 18.49% of cases (n=27). The combination of burnishing and reduction-firing gives these wares a lustrous shine. We observed no slips on Late Paracas blackwares or orangewares.

Serving wares dominate the blackware assemblage, with 95.83% (n=92) of rim sherds attributable to shallow bowls with gently curving side walls. The remaining few sherds represent a large straight-sided tazón, one neckless olla, and a small closed bowl. Bowls range from 12-28 cm in diameter, with a strong center of distribution around 20-22 cm. Sidewalls are typically 3-4 mm thick, with a few extremely thin specimens below 3 mm. Rims are always rounded, but sharply tapered. A single base sherd suggests that these bowls rested on flat bottoms. Taking account of rim diameters and distribution of sherds within the court, I estimate that this assemblage represents 20-30 individual blackware bowls.

Pattern burnishing occurred on 126 sherds and always on the vessel's interior. These designs are typically geometric. Most common is a dense cross-hatching that forms a 'net' on the interior of open bowls. Space between hatches is not evenly distributed and lines are rarely straight. Other specimens exhibit thicker linear lines and undulating 'wavy' lines radiating outward from the bowl's center. Undulating lines sometimes occur in parallel sets. One well-preserved base sherd shows a modeled protuberance at the very center of the bowl's interior, imitating the interior of a gourd or a *mate* vessel. The exterior of this sherd exhibits a navel-like depression similar to the external base of a gourd. Pattern burnished radiating lines on bowl interiors may play into this trope, representing natural chambers and ridges within a gourd.

Finally, we recorded 13 instances of repair perforations, suggesting that blackware vessels were consistently conserved and reused when possible. Post-fire charring was recorded on 10.38% of the specimen (n=22); this appears to be related to burning of the midden from which these sherds were recovered.

Topará orangewares accounted for 210 specimens in Sector B. These are similar to blackwares in characteristic thinness, prevalence of burnished surfaces, and association with small to medium open bowls (Fig. 71). Orangewares lack purposeful reduction firing and show no evidence of painting or pattern burnished designs (Fig. 72). Like blackwares, they are most prevalent in units surrounding the court's perishable architecture (n=75), with lower quantities within the structures themselves (n=26). Distribution in the southwest, southeast, and northeastern corners was comparatively low (n=16, 15, 15 respectively). The northwest corner and sealed passageway express a higher density (together n=45). This mirrors the spatial distribution of blackware sherds in the Sector B court, suggesting that both varieties may have been used in similar contexts and in similar ways.

The majority of orangewares exhibit completely oxidized cores (65.24%, n=137). These are typified by light red to red-yellow pastes (10R 5/6 Red, 2.5 YR 5/8 Red, 2.5 YR 6/8 Light Red, 5 YR 6/6 Reddish Yellow). Temper is very fine to medium grained sand (predominantly quartz), evenly distributed in the ceramic matrix, and is difficult to see without the aid of a microscope. Several specimens (n=26) were smudged during firing, leaving a dark grey to purple firecloud on exterior portions of the bowl. It is unclear whether this was intentional or simply a result of the firing environment.

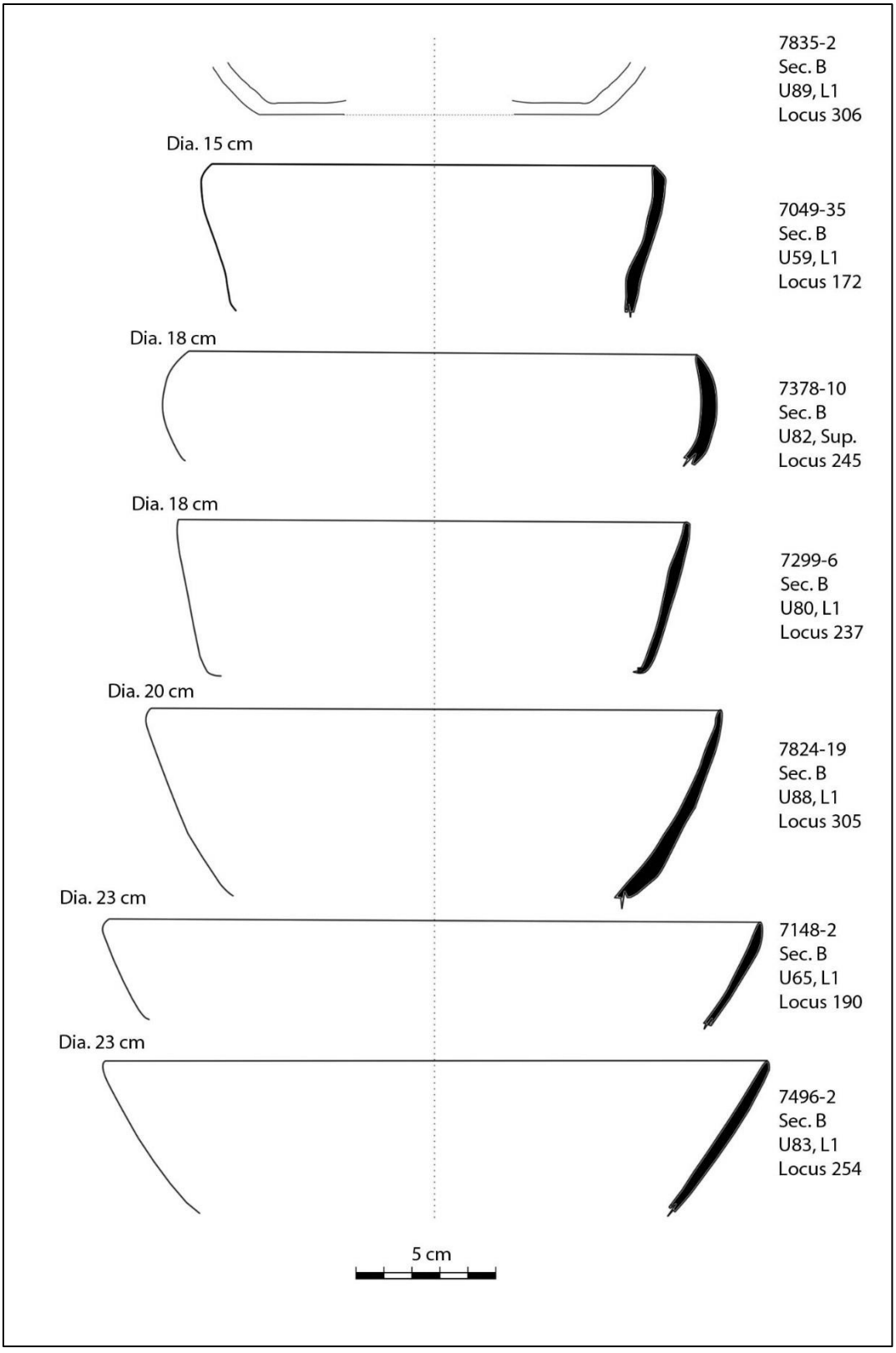


Figure 71: Topará orangeware bowl forms from the Sector B court.



Figure 72: Topará orangeware sherds recovered in near-surface strata.

Ninety-eight specimens exhibit surface treatment on the interior of sherds. Of these 77.55% (n=76) were burnished and 22.45 (n=22) were brushed. One hundred and fifty-eight specimens exhibited surface treatment on the exterior, of which 75.32% (n=119) were burnished and 24.68% (n=39) were brushed. Burnishing on orangewares resulted in a matte effect rather than a reflective luster. Brush strokes were typically finer on orangewares than on associated utilitarian sherds. There was no evidence for slip on Late Paracas orangewares.

Orangewares in Sector B are predominantly servingwares. Of 191 sherds that can be linked to a vessel form, medium to small bowls comprise 93.72% (n=179) of the assemblage. These range from 11-28 cm in diameter with a strong center of distribution between 19-20 cm.

Side walls typically ranged between 2-4 mm thick and were visibly thinner than utilitarian wares. Bowl rims are always rounded but sharply tapered. Base fragments exhibit flat bottoms. Numerous bowl fragments exhibit repair perforations, again suggesting conservation rather than immediate deposition. Post-fire charring occurred on 6.19% of the sample (n=13), likely from burning of trash in the southern half of the court. It does not appear that these vessels were used for cooking or heating contents.

Based on rim size and spatial distribution within Sector B, I estimate that our orangeware assemblage represents 25-35 individual fineware bowls. Additional vessel forms represented in the assemblage include small closed bowls and limited sherds from larger straight-sided tazónes. There was no evidence of neckless ollas or cántaros in the Sector B orangeware assemblage.

Grater bowls are large, shallow open vessels with a dense pattern of incisions, punctures, and slashes on the interior that form a rasping surface (Fig. 73). Sector B excavations recovered 13 grater bowl sherds. We recovered specimens from all corners of the court, but none from the center of the court. Grater bowl sherds seem to be prevalent in areas where monochrome blackwares and orangewares are rarer, and vice-versa. This may suggest specific kind of discard patterns for these wares, that they were used for different tasks, or perhaps that they represent discrete chronological periods. The majority are completely oxidized (86.62%, n=11) and exhibit red to reddish-yellow pastes (7.5 YR 6/6 Reddish Yellow, 5 YR 5/6 Yellowish Red). Pastes contain a fine to medium grained mineral (sand) temper that is visually similar to other Formative wares under magnification. Four specimens show fine brushing on the interior prior to the application of incisions. Five specimens were burnished on the exterior and one was brushed. A single sherd exhibited a red slip covering the vessel's exterior and 6 cm down the interior rim.

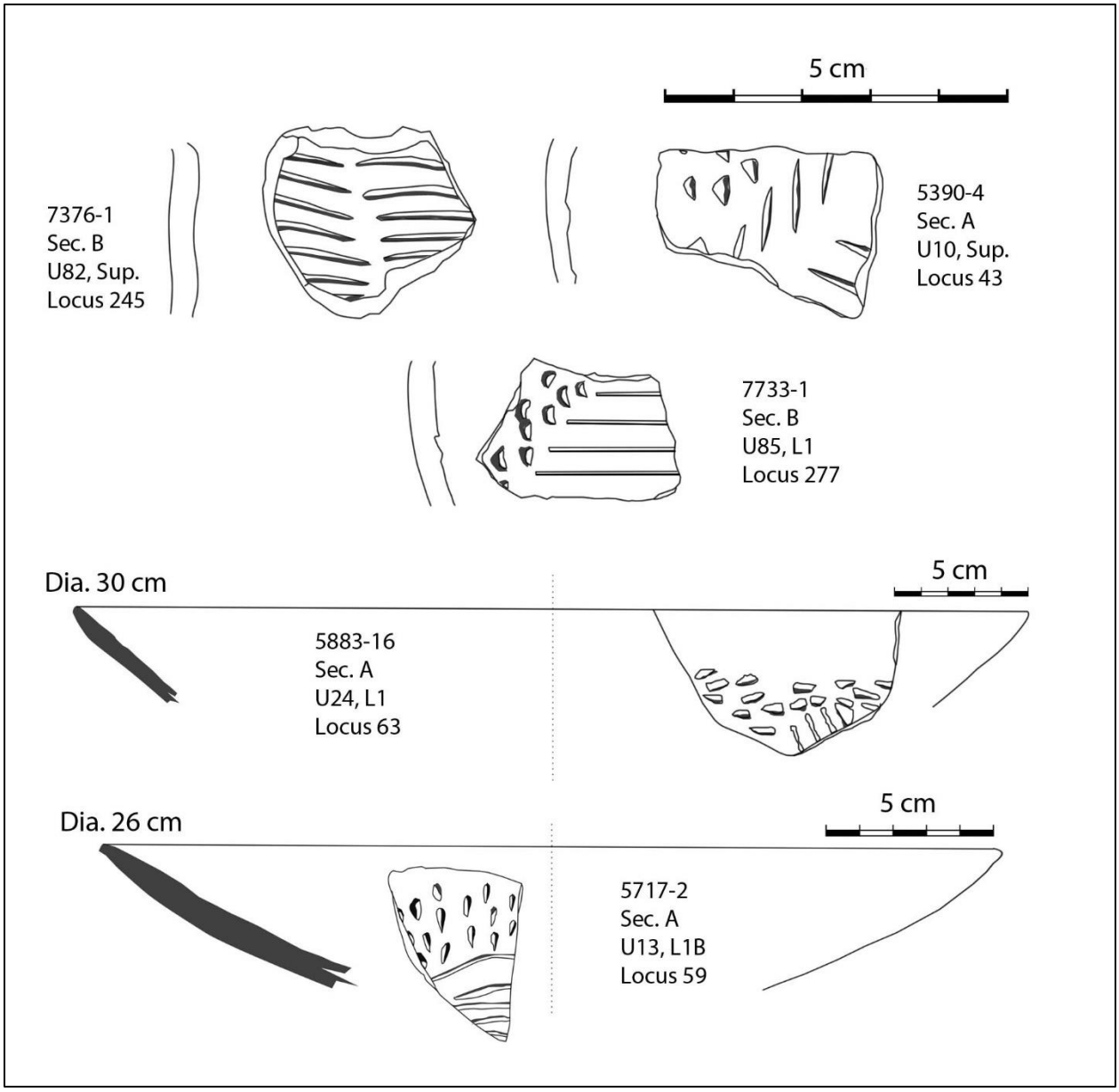


Figure 73: Grater Bowl sherds recovered in Late Paracas layers in near court strata, both Sectors.

All grater fragments are notably thicker than blackware and orangeware bowls. Bowls themselves are significantly larger, measuring between 17 to 33 cm in diameter. The small assemblage of rim sherds from Sector B suggests at least three individual vessels – one 33 cm in diameter, one around 30 cm in diameter, and a smaller bowl around 17 cm in diameter.

Designs on grater bowl interiors are executed with a thick-pointed and not necessarily sharp instrument (Fig. 74). Incisions may vary between fields of parallel lines, often running concentric to the bowl's rim, pointed 'stab' effects in which the point of the instrument was pressed into the clay at a perpendicular angle, and shallower 'slide' effects where the instrument entered the clay at a low angle. In all cases, these incisions that are several millimeters thicker than carefully made Paracas Cavernas-style counterparts and leave an area of displaced matrix on one or more sides of the incision. Grater bowl incisions do not appear to be carefully measured and are not necessarily evenly distributed, suggesting a free-hand approach to application.



Figure 74: Grater bowl sherds recovered from near surface strata, both Sectors.

Late Paracas Plainwares in Sector B

The remainder of diagnostic sherds in the near-surface strata of Sector B are from non-decorated utilitarian vessels. The predominance of Topará black and orangewares in these contexts and lack of alternative traditions suggests that these plainwares are associated with Late Paracas period domestic reuse. Given looting events that disturbed stratigraphy in the court's center, it is possible that some plainwares recovered from Level 1, 1B and Superficial strata also include elements originally deposited on the Level 2 floor during final Early-to-Middle Paracas events. Late Paracas utilitarian ceramics are considered indistinguishable from Early/Middle Paracas plainwares (Paul 1991a:25).

We recovered 870 diagnostic plainware sherds. Like finewares, these are most prevalent in units immediately surrounding the central wood-post structures and far less common from units within the structures themselves. For example, we recovered 68 plainware sherds from 16 units within the area of construction (Units 46-49, 51-54, 56-59, 61-64) compared to 319 sherds recovered from 9 units immediately external to it (Units 50, 55, 60, 65-70). The midden area on the southern side of the court clearly received the bulk of broken pottery. We also recovered high densities of broken plainware in the northwestern (Units 85, 89, and 107) and southeastern (Units 113, 114) corners of the court.

We noted 376 plainware sherds (43.22%) with complete oxidation of the sherd core, while the remaining 494 specimens (56.78%) were incompletely oxidized. Completely oxidized sherds express a wide range of paste colors, including lighter red hues (7.5 YR 6/6 Reddish Yellow, 5 YR 5/6 Yellowish Red, 2.5 YR 6/8 Light Red, 2.5 YR 5/8 Red), medium browns (7.5 YR 5/4 Brown, 7.5 YR 6/4 Light Brown, 7.5 YR 5/6 Strong Brown), and a few striking greys (5

YR 6/1 Gray, 5 YR 3/1 Dark Gray). Crude to medium mineral temper (sand) is present in all plainware cases and is poorly sorted compared with fineware tempers.

Of 564 specimens that show surface treatment on the interior, 81.56% (n=460) are brushed, 17.55% (n=99) are burnished, and the remaining five are a mix of polishing and crude wiping with a cloth. Of 415 specimens that show surface treatment on the exterior, 43.61% (n=181) were brushed, 55.66% (n=231) were burnished, and the remaining three were a mix of polishing and crude wiping. Exterior brushing is typical on large globular vessels (neckless ollas and cántaros) while exterior burnishing is more common on open vessels (bowls). The majority of neckless olla are brushed on both sides, while bowls tend to be burnished on both sides.

Rim interiors exhibit slip in 23 cases, most of which are sherds from small-to-medium sized bowls. Red (n=18) was the most common slip color with a few instances of orange, cream, and brown. Exterior rim sherds exhibit slip in 17 cases. There is a relatively even distribution of red, orange, cream and brown exterior slips. Ten sherds exhibit the same slip color on both the interior and exterior, most commonly double red slips. While the careful application of slip sets these few specimens apart from the rest of the assemblage, they lack the characteristic thinness typical of Late Paracas monochrome finewares.

We determined vessel form for 827 plainware sherds. Neckless olla sherds (n=356 cases) are the most common form, although the size and relative robustness of these vessels contributes to elevated recoverability (Fig. 75). These are large globular vessels with dense sidewalls averaging 6 mm thick. Available data suggest that neckless ollas stood 40-50 cm high and could be equally as wide. Impressions in the floor of the northeastern corner demonstrate that these had rounded bases and were typically embedded in place. Mouth openings range from 7-24 cm in diameter, with peak distribution between 12-14 cm. Neckless ollas were typically undecorated,

with the exception of one rim sherd exhibiting an incised star-like design around the vessel's opening. Charring occurred on more than half of all neckless olla sherds (56.18%, n=200) suggesting a principal role in food or beverage preparation. Neckless ollas appear in relatively even proportions across the Sector B court and corners. I estimate that the Sector B plainware assemblage includes the remains of 30-40 individual neckless ollas based on assessment of rim diameter and recovery location.

We recovered 32 sherds from thinner closed bowls that were clearly distinct from neckless ollas. Like ollas, these averaged from 12-13 cm at the mouth and exhibited rounded bases. However, walls were notably thinner (averaging of 4.4 mm), temper was more evenly distributed, and overall quality of craftsmanship was higher. One sherd with both rim and base portions demonstrates that closed bowls stood around 10 cm high. Charring was comparatively less on closed bowl sherds (21.88%, n=7). Together these factors suggest a serving role rather than cooking function. I estimate that the assemblage represents between 8-12 closed bowls with the densest concentration at the court center

Additional closed-vessel plainwares include 38 sherds from cántaros. These are typically used for the storage of liquids. Cántaros from Late Paracas contexts at Soto are typically taller than wide, exhibit small lateral handles, and have short collar-like necks that are narrower than the body of the vessel. These exhibit openings ranging from quite large (25 cm in diameter) to bottle-necked (4-5 cm in diameter) with an average between 7-8 cm. Two cántaro sherds show evidence for a white slip or thin paint. Only 5.23% (n=2) of cántaro sherds exhibit charring. I estimate that our assemblage represents 10-15 cántaros with higher density at the court's center. We also recovered sherds from at least four ollas with short necks, and at least one jar for pouring liquids (Unit 55).

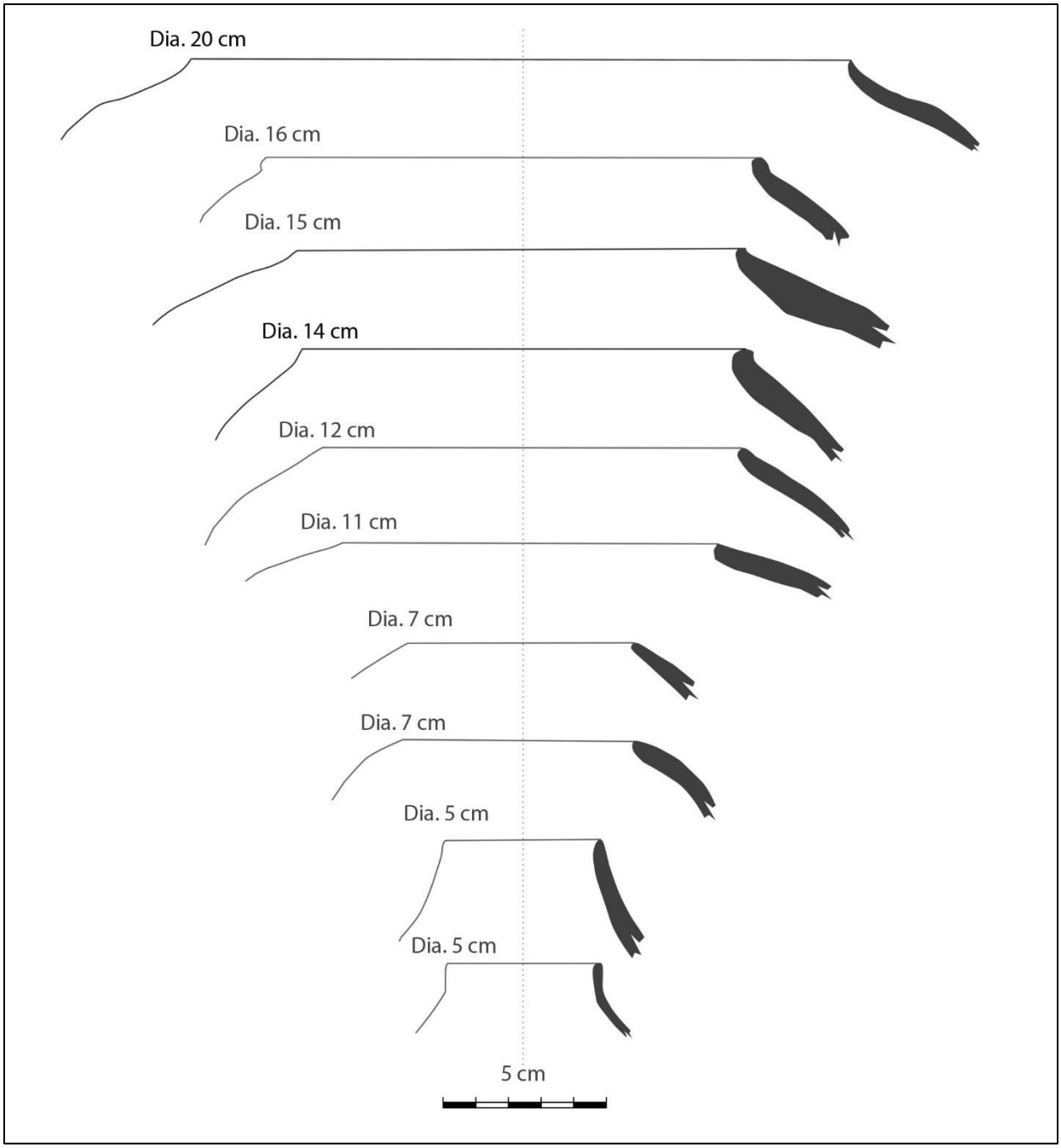


Figure 75: Neckless olla and cántaro closed form plainwares from Sector B near-surface strata

Small-to-medium plainware open bowl sherds (n=246) exhibit flat or rounded bases and gently sloping sides averaging 4.3 mm thick. Bowls range between 8-29 cm in diameter with a center of distribution at 20-21 cm. They are identical in size and shape to Topará orange and

blackware bowls, though lacking characteristic thinness. Only 10.16% (n=25) of plainware bowls were exposed to fire. Three medium bowl specimens exhibit simple incisions near the rim in the form of a single line or faint circles, and 4 specimens exhibit application of a white to cream slip. I estimate that our assemblage represents between 40-50 individual small to medium bowls, with elevated densities in the center of Sector B and in the northwest corner.

We recorded several variations on open vessels. Large bowls ranging from 31-50 cm in diameter are present in smaller quantities (n=36 sherds). I estimate that the assemblage represents 8-12 large bowls concentrated in the court center and northwest corner. Sherds for plainware jars (n=77 sherds) are distinguished by erect sidewalls with no curve or outward flare. These range from 13-46 cm in diameter and exhibit flat bases. Flaring bowls with 45-degree straight side walls are represented by 18 sherds. These cluster in the center of the court and represent no more than 8 vessels. Seven sherds suggest the presence of a few nearly-flat plates in the center of the court, ranging from 20-30 cm in diameter. Finally, we recovered five sherds from a few small *taza* cups ranging from 8-12 cm in diameter. The small sample sizes of these open vessel variants suggest that they were secondary or complimentary components of a plainware assemblage dominated by neckless ollas and small-to-medium sized open bowls.

Late Paracas Finewares in Sector A

Late Paracas (Topará) orangeware, blackwares, and grater bowls appear in Levels 1, 1B, and Superficial of the Sector A court (n=247). Their respective technical similarities, comparative design features, and stratigraphic association suggest that these were contemporary with the Sector B assemblage.

Topará blackwares are represented by 111 sherd specimens in Sector A. We recovered the majority from the center of the court's lowest tier, with only a few specimens from the upper tier and corners. It is notable that blackware sherds lay below rubble fill in the northeastern corridor (Rasgo 16 Unit 28), indicating that this passageway remained accessible during Late Paracas times. We also recovered Topará fineware sherds from beneath the rectilinear adobe structure at the center of the Sector A court. This supports our hypothesis that the structure was a post-Formative feature build over Paracas-era debris.

Blackware sherds in Sector A are virtually identical to specimens from Sector B (Fig. 76). They exhibit similar rates of incomplete oxidation (91.00%, n=101), the same range of red paste colors on completely oxidized specimens, identical mineral temper profiles, comparable surface treatment emphasizing burnishing (87.50% interior, 85.93% exterior), lack of slip, and very low incidence of charring (1.09%, n=1). The overwhelming majority of sherds attributable to a vessel form (total n= 98) represent open bowls (96.94%, n=95). We also identified three sherds from a single blackware fired-neckless olla.

Blackware bowls in Sector A exhibit flat bases, gently curving side walls of notable thinness (3-4 mm), and range in diameter from 10-28 cm with a center of distribution around 19-20 cm. These are clearly serving wares. Patterned burnishing is common on Sector A blackwares. Cross-hatched patterns and sets of parallel, undulating lines radiating from the center of bowl interiors are exclusive design elements. I estimate that the Sector A assemblage holds a minimum of 10 blackware fired bowls.

Topará orangewares in Sector A (n=84) are likewise virtually identical to their counterparts in Sector B. We recovered high densities of orangeware sherds from the southwestern corner of the court (Units 25 and 26) with less density at the center of the court.

Like blackwares, we recovered orangeware sherds from beneath rubble in the northeastern corridor (Rasgo 16 Unit 28) and from below the post-Paracas structure in association with the Level 2 floor – thus dating these features as post-Formative.



Figure 76: Late Paracas blackwares from Sector A, exhibiting similar technical and design features to Sector B sherds.

Sector A orangewares exhibit similar levels of complete oxidation (75.00%) when compared with their Sector B counterparts (65.24%). Paste colors similarly range from light reds to reddish yellows. Mineral temper profiles are identical. Burnishing of surfaces is elevated in the Sector A sample, occurring on interiors in 93.94% of cases and on exteriors in 90.77% of cases. A single sherd from an open bowl exhibited dark red slip on the interior. Charring is completely absent, suggesting use as serving wares. The overwhelming majority of the sample

that can linked to a vessel form (total n=61) represents shallow open bowls (98.36%, n=60), with a single orangeware sherd from a small closed bowl.

Bowl forms are identical to orangewares from Sector B and are similar, if not identical, to blackware forms. These are shallow, gently curving open bowls ranging from 12-28 cm in diameter with a center of distribution between 20-22 cm in diameter. Sidewalls average 3.4 mm thick. We did not record evidence of paint, incisions, or pattern burnishing – evidently the evenly fired monochrome orange surface was a desired aesthetic. I estimate that the orangeware assemblage from Sector A represents 10-12 individual bowls.

Grater bowl sherds are more common in Sector A in comparison to Sector B. We recovered 52 grater bowl sherds with the majority located on the lowest tier just inside the northeastern corner (69.23%, n=36). These cluster strongly in three adjacent units (Units 13, 23, and 24). They express a similar suite of production, form, and design characteristics when compared to Sector B specimens. As in Sector B examples, grater bowls are deeper than blackware and orangeware bowls but express similar gently sloping sides. They are larger and more robust than other Late Paracas open vessels and exhibit well-rounded bases. Samples from Sector A range from 15-37 cm in diameter with the center of the distribution between 30-32 cm. Rounded rims are typically thick (averaging 5.5 mm).

Sector A grater bowls show similar levels of complete oxidation compared to Sector B (83.33%). Paste color of completely oxidized sherds skews towards lighter browns (7.5YR 4/5 Brown, 7.5YR 5/4 Brown). Mineral temper profiles are identical. Nine specimens showed interior burnishing beneath incised rasping designs, while 26 specimens showed exterior burnishing. Red slipping occurred on sherd interiors in 16 cases, typically only extending between 5-10 cm below the interior rim. Red slip occurred on the exterior in four cases. Charring

occurred on 17.31% of the sample (n=9) suggesting that some grater bowls were exposed to fire. This would seem to be intentional, as Late Paracas contexts in Sector A lack the burnt midden deposits that characterize Sector B's near-surface strata.

Grater bowl sherds from Sector A express a similar variety of incised designs when compared to Sector B counterparts. We observed the addition of a zoned 'waffle' pattern involving perpendicularly intersecting lines. Other sherds show deep triangular punctures, suggesting that the application instrument had a triangular cross section. Displaced clay is always left in the bowl during firing to produce the characteristic rasping surface.

Post-Paracas Ceramic at Huaca Soto

This section describes post-Formative pottery recovered from Huaca Soto. This assemblage presented a set of methodological challenges. First, the overall sample is quite large (n=4,898 diagnostic sherds) with the vast majority of sherds packed into a handful of units at the center of the Sector A court (n=4,861)[47]. Second, post-Paracas strata (Levels 1, 1B, and Superficial) underwent significant disturbance during late antiquity and modern times. Severe commingling precluded our ability to distinguish stratigraphically between discrete post-Paracas events. Finally, the post-Paracas assemblage consists mostly of painted serving wares that are unreported elsewhere in Chincha. As my focus is the Paracas Formative, I provide only a general description of these wares here. Additional technical description and analytical statistics would expand upon these observations greatly. Such a treatment is beyond the scope of this dissertation.

[47] Sector B contained only 37 post-Paracas diagnostic sherds, 28 of which belonged to a single Nasca fineware vase. This and the remaining 11 sherds centered on Sector B's western staircase. It appears that the majority of these specimens toppled down from the ridge between the Sector A and B courts.

I organize this section into six parts based on a combination of vessel form and design qualities. I begin with the most common vessels recovered from post-Paracas contexts – personal-sized shallow bowls with painted pendant-arc designs along the interior rim (CC-bowls). In order to determine whether these bowls represent multiple distinct types (and possibly different events), I test whether different arc-variants correlate to specific bowl sizes (rim diameter) or different horizontal distribution throughout the court. The second section describes single-serving cup-like vessels used for holding liquids. This group is dominated by goblet-shaped vessels finished in a cream-slip, which I refer to as 'pedestal cups' for their thickened bases. The third section considers closed vessels, including squat spout-and-bridge bottles with cream-slipped globular bodies and black-painted handles and spouts. It also considers squat red-slipped *cancheros*. Fourth, I assess open fineware vessels that served as special-purpose containers, namely white/cream slipped jars with geometric black-line designs on the exterior. This section also considers a few large *florero* vessels. Fifth, I describe a small batch of sherds from recognized traditions that were intermixed within the post-Paracas assemblage, including Nasca and Wari finewares, and well as idiosyncratic sherds that are rare at Soto and cannot be confidently linked to known traditions. Finally, I analyze utilitarian wares from post-Paracas contexts in Sector A. I briefly attempt to distinguish parts of this assemblage from Middle/Late Paracas elements that lay close to the Level 2 floor.

Post-Paracas Pendant-Arc Bowls

Sherds from hand-sized shallow bowls make up the majority of the post-Paracas assemblage. Most exhibit one or more painted arcs hanging from the interior of the vessel rim

(Fig. 77). Owen (2007) provides a useful description of similar 'pendant-arc' motifs as "those that hang from the rim, touching it along the upper edge of the design, without being connected to each other as a band" (Owen 2007:297). This basic design occurs at Huaca Soto in at least 27 variants (henceforth referred to as *CC-bowls* and *CC variants*) based on the number of concentric pendant arcs, the presence of painted fill between arcs, and paint colors (Fig. 78). Our working hypothesis is that each CC variant indicates a specific event or set of events. The first step in testing this hypothesis is to determine whether specific CC variants correlate with other vessel attributes in a manner that suggests multiple discrete assemblages.



Figure 77: A typical CC shallow bowl, showing characteristic design and scale against a human hand.



Figure 78: A selection of CC bowl sherds from Sector A, showing diversity in pendant-arc design variants.

The total sample size for diagnostic CC-bowl sherds is 3,216 specimens. We recorded specific CC variants on 835 sherds. Another 869 sherds exhibit portions of pendant arcs, but the specific CC variant is indeterminate due to fragmentation. The final 1,512 sherds are from unpainted portions of CC-bowls; we know this based on likeness in bowl shape, rim diameter, depth, thickness, and paste profile. Some CC variants are clearly more common in the bowl assemblage than others. For example, we recovered only three variants with sample sizes greater than 100 (CC2, CC3, and CC27), only five variants with sample sizes greater than 20 (CC2, CC3, CC27, CC6, and CC10), and only 13 variants with ten or more samples.

Eleven contiguous units at the center of the Sector A court account for 93.44% (n=3,005) of the CC-bowl sample (Units 17-22, 38-40, 42, and 43). Each of these units contains hundreds

of specimens in a densely packed and commingled layer. Unit 43, for example, reached a density of 180 CC-bowl sherds per cubic meter[48]. During excavation these deposits appeared as thick sheets of sherds compacted together with loose surface matrix, forming a solid cap. In contrast, units on the second tier surrounding the court, units adjacent to court walls, and units in corners typically contained less than 15 CC-bowl sherds apiece (Units 1-16, 25-26, 29-34, 36-37). The Sector A court was clearly the focal point for deposition of these servingwares.

CC-bowls are roughly the size and shape of a modern tea saucer (Fig. 79, 80). Sherds exhibiting portions of painted design range in diameter from 9 to 35 cm with peak distribution between 13-19 cm (μ=16.10 cm, δ=2.862954 cm). This is a normal distribution with mostly large-diameter outliers. Shallow bowl sherds lacking decoration express a broader overall range from 6-38 cm in diameter, with a similar peak distribution between 13-20 cm (μ=16.97122, δ=4.171481 cm). A two-sample t-test assuming unequal variances concludes that there is no significant difference in the distribution of rim diameters between the population of decorated sherds and the population of sherds that lack decoration (t=0.437, t-Critical two-tail=2.009). This supports the logical hypothesis that non-decorated bowl sherds of the same size and technical qualities are simply the unpainted portions of CC-bowls. Height of shallow bowls ranges from 3-5 cm. Sidewalls are thick (>4 mm), gradually curving, and lack angular changes. Rims are always well-rounded. Bases are typically semi-rounded so as to fit comfortably into the palm of the hand, but in most cases provide enough plane surface to allow the vessel to balance upright. These vessels were clearly used as serving wares – only 0.62% (n=20) show evidence of post-fire charring.

[48] This density calculation does not include other post-Paracas serving ware sherds, plainware sherds, or non-diagnostic sherds – the total density was indeed higher.

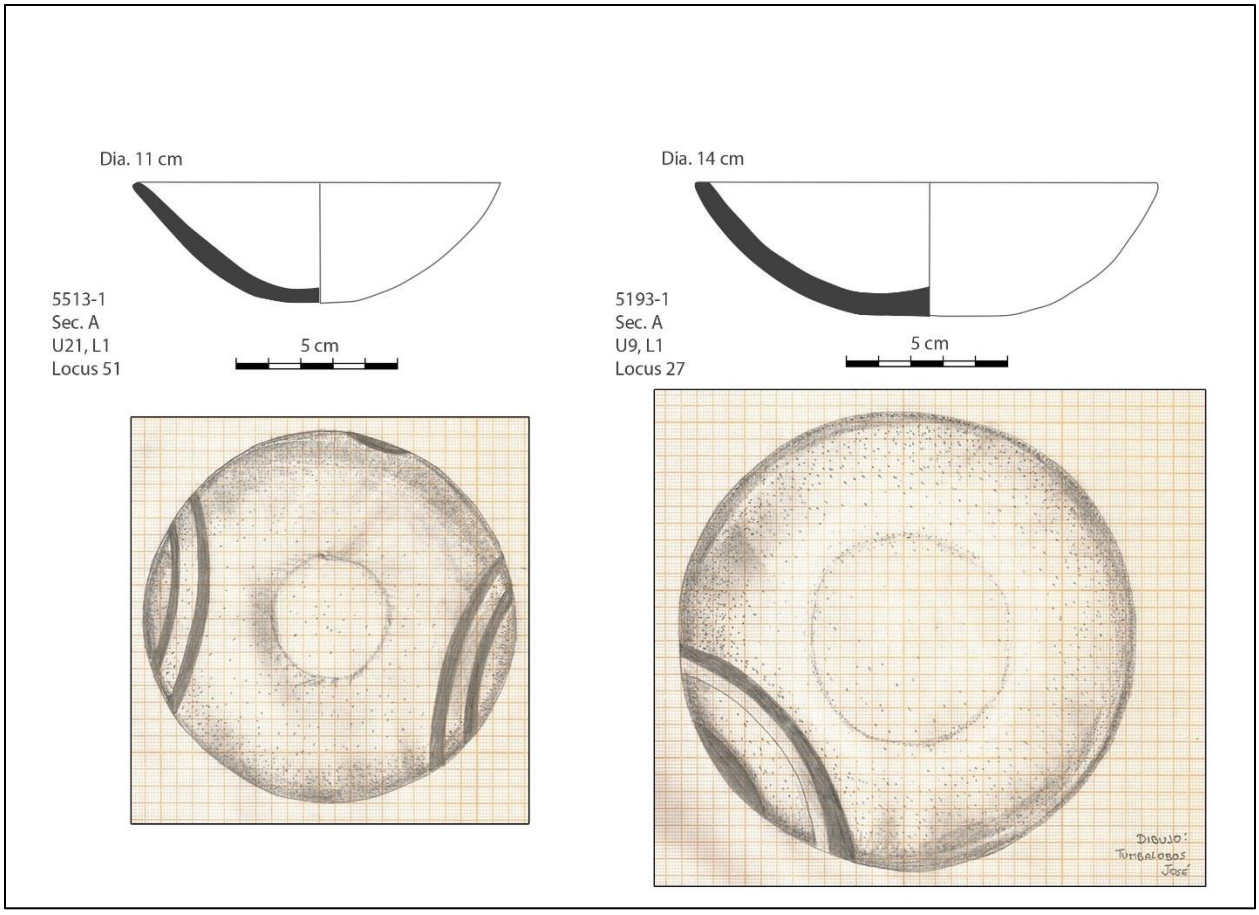


Figure 79: Drawings of CC-bowls showing general dimensions and pendant arc designs. These drawings by Jose Tumbalobos are more compelling than my attempts to digitize them.

A small group of outliers (6.31% of the total sample, n=204) includes small bowls with slightly everted sidewalls (flaring bowls), a few sherds from nearly flat vessels with short straight side walls (true plates), and flat vessels with flaring sidewalls (flaring plates). Flaring side walls are disproportionately common on one variant (58.33% of CC13 vessels, n=7), although the sample size for this variant is low.

Out of 2,360 bowl sherds for which degree of core oxidation was recorded, 96.40% (n=2,275) showed complete oxidation versus only 3.60% (n=85) with visible carbon remaining in the sherd core. Incompletely oxidized sherds were just barely underfired, leaving a thin black-

to-dark brown stripe in the cross section. Smudging or fire-clouding during production was uncommon (0.37%, n=12). These few underfired and smudged specimens are evenly distributed across CC variants and vessel sizes. This suggests that all CC bowls, regardless of specific variant, were produced in consistent, well-controlled firing environments. This reflects general advances in firing technology that occurred in Post-Formative periods. All sherds exhibit well-sorted medium-grained mineral (sand) tempers. Pastes feature predominantly red hues with large representation of 10R 4/6 Red, 2.5YR 6/8 Light Red, 10R 7/6 Light Red, and 7.5YR 6/6 Reddish Yellow. Paste color is not linked to specific CC variants, but fluctuates modestly within all design groups.

Of 1,075 CC-bowl sherds exhibiting interior surface treatment, 93.12% (n=1001) were brushed, 6.61% were burnished (n=71), and 0.28% were high polished (n=3). Sherd exteriors exhibit surface treatment in only 177 cases. About half of these were brushed (49.72%, n=88) and the other half burnished (49.15%, n=87), with two high polished pieces (1.13%, n=2). Internal slips were present on 213 specimens. The majority of these cases (88.26%, n=188) feature a single cream band around the inside of the rim (averaging around 2 cm thick). This standalone cream band is the defining feature of the CC27 variant (see below). Exterior slip is present on 105 sherds. The majority of these are cream slips (81.90%, n=86). Twenty-three bowl sherds exhibit cream slip on both the interior and exterior. The few sherds with non-cream interior and exterior slips (including dark reds, light reds, light brown, or black) are typically associated with additional outlier features including burnishing/polishing, darker brown pastes, and poorly sorted temper grains.



Figure 80: Composite photograph showing a CC10 variant bowl in profile and from an oblique angle.

We uncovered no significant distinction between CC design variants based on raw materials, firing environment, surface treatment, or use-wear. We did observe, however, that vessel size (rim diameter) and CC variant appeared to be roughly correlated. Assuming that

production of these bowls was reasonably standardized, this would suggest that each CC type was produced as an independent batch. Thus we reasoned that the CC-bowl assemblage may represent multiple events in the Sector A court. To test this hypothesis, I compared the distribution of rim sizes on CC variants using a few simple statistical operations. Logically these tests could only apply to sherds for which CC variant was determinate (n=835). Furthermore, I only assessed CC variants with sample sizes of 20 or more sherds in order to ensure a robust analysis. Five CC variants fit this sample requirement (CC2, CC3, CC6, CC10 and CC27).

CC3 was the most common variant recovered (35.81%, n=299). This design variant consists of a thick white pendant arc (10-12 mm) sandwiched between two thinner black pendant arcs (5-7 mm) (Fig. 81). Portions of the white arc on some CC3 sherds have faded or disintegrated, revealing the black arcs running underneath. Other CC3 cases exhibit cursory application of paint in which the white band drifts disproportionately into one of the black bands. In both cases it is clear that black bands were applied first. The CC2 variant (15.33%, n=128) exhibits the same 'Oreo' style pendant arcs as CC3, but with the addition of a single black line that circles the entire circumference of the rim. Similarly, CC10 sherds (4.07%, n=34) are identical to the CC2 variant with the exception that the lip-line is limited exclusively to the area within the arc – it does not extend all the way around the rim. The CC27 variant (n=187) is defined by a band of cream slip extending into the bowl's interior from the rim from between 1-6 cm. This is not a pendant arc, but a proper band. The interior cream band is sometimes accompanied by a small portion of exterior cream slip. CC6 sherds (4.79%, n=40) have three concentric black arcs (typically 4-6 mm thick) with a cream fill between the bottom two arcs; there is no coloration between the first two arcs or between the first arc and the rim.

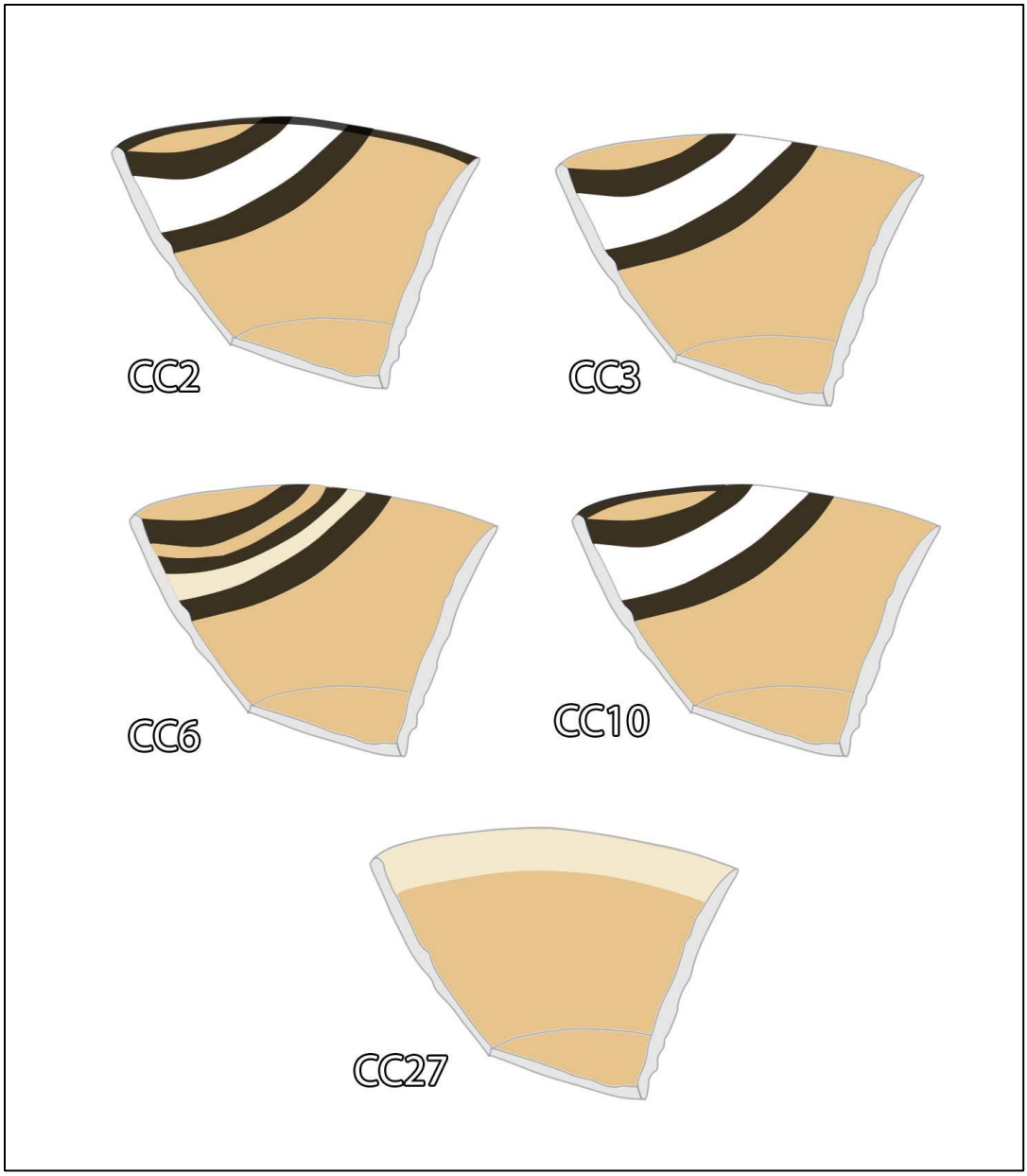


Figure 81: The five most common CC design variants recovered in the Sector A court.

Visual assessment of histograms suggests that rim diameter is normally distributed for CC2, CC3, CC6, CC10, and CC27 variants. An ANOVA test concludes that observed variation between rim size is non-random across some of the ten possible pairings ($F=44.64$, $F\text{-crit}=2.39$, $P=7.16E^{-05}$). A set of paired t-tests for each pairing then determines which sets exhibit significant

variation. Paired t-tests demonstrate that the means of CC2 and CC3 are equal (t=-0.20, t Critical two-tail=1.97), the means of CC3 and CC10 are equal (t=-0.99, t critical two-tail=2.00), and the means of CC2 and CC10 are equal (t=-0.77, t critical two-tail= 1.99). An omnibus ANOVA test of CC2, CC3, and CC10 confirms the parity in rim size distribution between the three (F=0.24, F-crit=3.02, P=0.79). Thus, CC2, CC3, and CC10 can be considered parts of the same population based on rim size. These three variants are indeed very similar, each exhibiting identical pendant arcs with minor differences in the extent of black lines circling the vessel rim. Further paired t-tests suggest that CC2, CC3, and CC10 rim-size distributions are not comparable to the CC27 variant (t=8.987416, t Critical two-tail=1.96906; t=9.647474, t Critical two-tail=1.969654; and t=7.52, t Critical two-tail=1.98 respectively), nor are they comparable to the CC6 variant (t=-2.94, t Critical two-tail=2.01; t=-2.99, t Critical two-tail=1.97; t=-3.25, t Critical two-tail=2.00, respectively). Furthermore, distribution of rim sizes for CC6 and CC27 is not comparable (t=8.86, t Critical two-tail=1.99).

Overall this suggests three separate populations based on the relationship between CC design variant and rim diameter: the CC2, CC3, and CC10 variants; the CC6 variant; and the CC27 variant. These relationships are expressed straightforwardly by a visual comparison of the design styles themselves. Black-white-black variants are part of the same population, versus a three-line variant, versus a banded variant. The difference between these three populations is also expressed in average rim diameter (15.87, 15.82, and 16.12 cm for CC2, CC3, and CC10 respectively; 14.50 cm for CC6; and 19.18 cm for CC27). Thus, we are dealing with at least three distinct assemblages.

Next, I tested whether design variants express different spatial distributions within the court. If so, this would support the hypothesis that each variant indicates an independent event.

The reader should keep in mind that this analysis is complicated by the relatively high degree of intrusion and commingling in surface levels. A chi-square goodness-of-fit test comparing the frequency of CC2, CC3, CC10, CC6, and CC27 sherds per excavation unit suggests that the spatial distribution of specific variants within the Sector A court is non-random ($p=7.10811E^{-07}$). The center of deposition differs per design variant. CC2 sherds were densest in Rasgos 8-10 (a feature covering the western part of Units 21-22) at 24.22%, with secondary distributions in Unit 42 (ca. 14.06%), Unit 40 (ca. 11.72%) and Unit 18 (ca. 10.16%). Likewise, Rasgos 8-10 held the majority of the CC27 assemblage (23.53%), followed by Unit 42 (17.65%) and Unit 21 (10.70%). The CC3 deposit centers on Unit 42 (18.39%), followed by Rasgos 8-10 (14.05%), and Unit 40 (12.37%). CC6 variants center on Unit 40 (ca. 22.50%), Unit 42 (17.50%), Rasgo 8-10 (10.00%) and Unit 39 (10.00%). Similarly, CC10 is most common in Unit 40 (23.53%), Unit 42 (17.65%), Unit 43 (14.71%) and Rasgos 8-10 (14.71%). In sum, the center of deposition for CC2 and CC27 lay just west of Units 21-22; CC10 centered on Unit 40 to the south; and CC3 and CC6 focused on Unit 42 to the southeast. This short preliminary analysis indeed suggests spatial distinctions for different CC design variants. Further work with these data could continue to test the hypothesis that CC bowls represent multiple discrete events.

The post-Paracas assemblage contained an absolute minimum of 298 individual CC-bowls based on summing the rim percentages of bowl sherds and dividing by 100. This number clearly underrepresents the actual assemblage. We can adjust the maximum number of vessels by using a coefficient developed for goblet-shaped pedestal cups (see section below), which are open vessels of relatively similar rim diameters to CC-bowls. For pedestal cups we compared the minimum number of vessels based on complete bases (an absolute minimum) to the minimum number of vessels based on summing rim percentages (a method likely to underrepresent). This

method demonstrates that the rim percentage method underrepresents the total number of vessels by a factor of five. If this logic holds true for CC-bowls, it would suggest nearly 1,500 individual vessels. As we only excavated a small portion of the Sector A court, the total number of vessels in Sector A could be larger still. Regardless of the absolute number, this is a substantial assemblage of standard-sized personal serving vessels that represent multiple deposits.

Post-Paracas Pedestal Cups and other Drinking Vessels

Sherds from servingware drinking vessels are also prevalent in the Sector A post-Paracas assemblage (total n=621). The most common variety exhibit a flat circular base, a waisted goblet-shaped body, and a deep, bowl-like reservoir slipped in white or cream (n=556 sherds). I refer to these as 'pedestal cups' (Fig. 82). We recovered almost all pedestal cup sherds from the center of the Sector A court. Strong spatial association of pedestal cups with CC-bowls suggests that they were involved in the same class of events. Most common proveniences for pedestal cup sherds included Unit 42 (24.10%, n=134), the area comprising Rasgos 8-10 (12.95%, n=72), and Unit 39 (8.78%, n=54). This specifically matches the general distribution of CC6 variant bowls. We recovered no cup sherds of any kind from the court's second tier, and only a few sherds from court corners.

We calculated a minimum of 94 individual pedestal cups based on recovery of complete or nearly-complete bases. Bases are flat with diameters ranging from 2-8 cm. Approximately three-quarters of all specimens range between 3-5 cm, and about half of all specimens range between 3-3.5 cm (Fig. 83). This basal portion of the vessel serves as both a hollow reservoir and a grip. The cup narrows to a pinched waist between 3-4 cm above the base. A view of the waist's interior demonstrates that the vessel was formed in two separate segments (the base and the

upper cup) that were later united. Above the waist, the upper portion of the vessel flares rapidly into an upper portion that held the bulk of liquid. There is some variability here, with some pedestal cups forming large half-globe shapes, while others remain quite small. Rim diameter ranges from 7-20 cm, with 68.25% of rim sherds falling between 12-14 cm in diameter. A few specimens with both surviving base and rim portions express a diameter ratio of approximately 1:4 (base to rim).



Figure 82: A sample of pedestal cup bases from the dense servingware assemblage in the Sector A court.

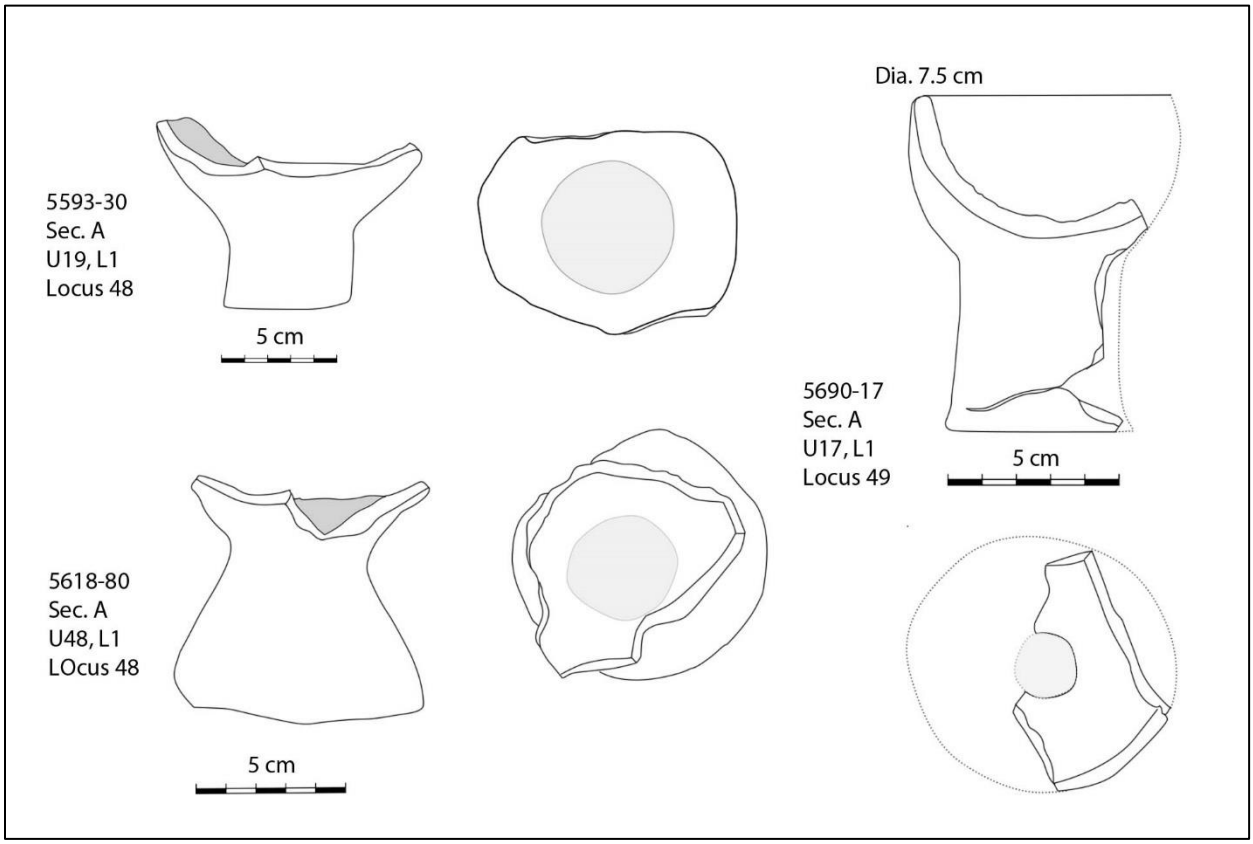


Figure 83: Pedestal cups from Sector A near-surface strata.

Non-pedestal 'cup' sherds (n=65) represent at least three additional forms. These vessels are evenly distributed throughout the units of the court center. Flat-bottomed *tazas* exhibit relatively even dimensions in height, base diameter and rim diameter, resulting in a short vessel resembling a modern coffee cup. Tall straight-sided and narrow cups, similar in shape to a modern collins glass, are taller than wide and tend to exhibit thin side walls. Finally, a few sherds pertain to tall, narrow and flaring vessels most similar to *keros*. All of these forms are rare in the Sector A court. I estimate between 10-15 total non-pedestal cups are represented in the post-Paracas assemblage.

All cup-like vessels in the post-Paracas Sector A assemblage express paste characteristics, temper profiles, and firing techniques similar to CC-bowls. Complete oxidation was achieved on 97.56% (n=400) of all specimens. All temper was medium-to-fine grained sand showing relatively even distribution of particles. Paste colors ranged from lighter reds to reddish yellows, with 10R 7/6 Light Red, 2.5YR 6/8 Light Red, and 7.5YR 6/6 Reddish Yellow the most common hues. Post-fire charring on cup-like vessels occurred in only a single incident.

All pedestal cup sherds that exhibit interior surface treatment were brushed. Interior slips occurred on only seven pedestal cup sherds, including five white-to-cream specimens, one light brown, and one red. The vast majority of pedestal cups were slipped in a white/cream on the exterior. Non-pedestal cups showed physical treatment of the internal surface on nine specimens, six of which were burnished and three brushed. Fourteen non-pedestal cups show interior slip, eight of which exhibit dark red and one a light brown. Exterior of non-pedestal cups exhibit burnishing in six cases. Non-pedestal cups exhibit 15 cases of external slip, 12 of which are dark red and three of which are a dark cream. These differences between pedestal and non-pedestal forms suggest that the two groups played distinct and specific roles in post-Paracas events, or represent different depositional events entirely.

Only a single pedestal cup sherd shows evidence of decorative painting. This piece exhibits three painted ‘X’ designs just above the vessel waist – two in black and one in dark red (Fig. 84). Otherwise, this sample is rather typical, exhibiting a small flat base 3 cm in diameter and characteristic cream slip. It is possible that painted designs were more common in antiquity but did not survive post-depositional processes.

We can compare surviving percentages of pedestal cup rims to the number of known surviving bases in order to create a ratio for ‘rim survival’ in Soto’s post-Paracas strata – in other

words, what is the average percentage of a given vessel's rim that we recovered in the field. Pedestal cup bases demonstrate an absolute minimum of 94 individual vessels. Summing the measured percentages of all rims belonging to pedestal cups gives a result of 1708.89%, or a minimum of 18 vessels. If we take 94 to be the maximum number of cups in the assemblage, then only 19.15% of the real assemblage is represented through rim sherds. This suggests that only about one-fifth of each vessels' rim survived to be quantified. In other words, rim sherds underrepresent the minimum number of these vessels by a factor of five.



Figure 84: A pedestal cup with painted exterior designs

Post-Paracas Spout-and-Bridge Bottles and Small Closed Forms

Sherds from closed-form finewares comprise a small part of the post-Paracas ceramic assemblage in Sector A (n=232). Chief among these are cream-slipped spout-and-bridge bottles with black painted spouts. These express many of the same technical and design features found on CC-bowls and pedestal cups. Squat, red-slipped *cancheros* with no necks comprise a second subset of closed finewares. A third set includes pear-shaped bottles with short, narrow necks. We recovered 171 spout-and-bridge sherds, 53 *canchero* sherds, and 8 pear-bottle sherds. We recovered a few complete examples of *canchero* and pear-bottle vessels.

Spout-and-bridge bottles in the post-Paracas assemblage consist of three independently formed clay pieces that were fitted and fired together (Fig. 85). The first part is a squat globular body with a cream exterior slip, reminiscent of the slip used on pedestal cups. These measuring between 8-12 cm in diameter and are slightly wider than tall. They rest on a semi-rounded base that would allow the vessel to stand upright. The second portion is a straight spout fixed to the apex of the globular body. These are painted entirely in black. They range from 2.5-10 cm in length with the majority falling between 4-6 cm. Spouts taper slightly, with thickness at the base ranging from 1.3-3.2 cm and thickness at the distal end ranging from 0.8-2.6 cm. The third portion of the vessel is a flat, bridging ribbon that connects the spout to the globular body. This is typically attached midway up the spout, forming a gentle 90-degree curve and meeting the globular body some 5-6 cm away. This handle was thickened near the body of the vessel and punctured with a straight pin-sized hole, presumably to allow air to escape and provide for smooth pouring of liquid. Degree of oxidation (overwhelmingly complete), temper (mineral), paste color (reds to reddish yellows), and other technical features are identical to those described for CC-bowls and pedestal cups. We recorded no physical treatment of the exterior surface apart

from slip, no additional painted designs, and no evidence of post-fire charring. The interior of the globular body was brushed. Spouts are robust and survive disproportionately compared with bodies and bridges (Fig. 86). Based on the observation that each spout-and-bridge bottle contained only a single spout, our assemblage represents a minimum of 42 individual spout-and-bridge bottles. Sherds concentrate in the court center, with the highest concentrations in Rasgos 7-10 (n=37), Unit 42 (n=29), Unit 21 (n=17) and Unit 39 (n=16). This is similar to spatial distribution of CC-bowls and pedestal cups. Thus I suggest that the three arrived at Huaca Soto as part of the same series of events.

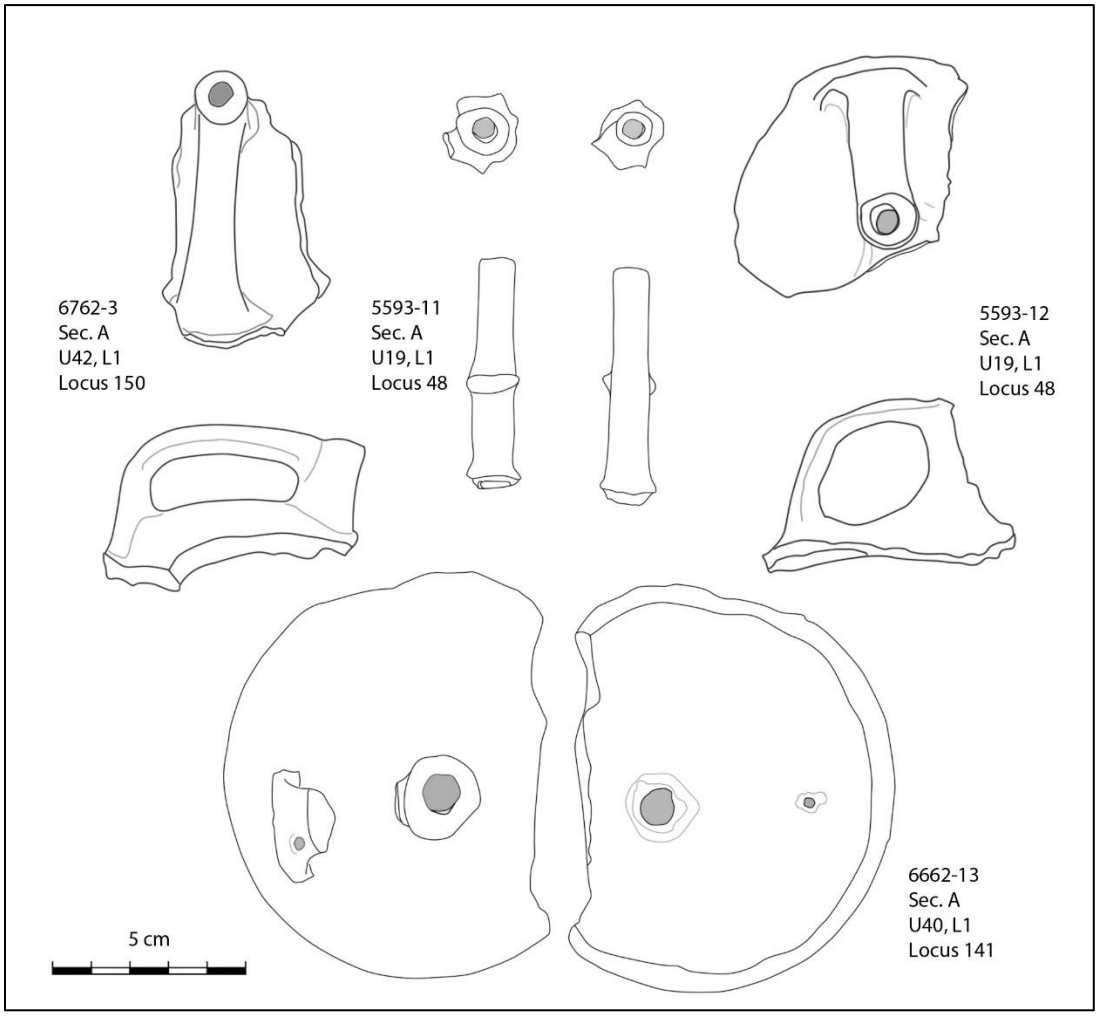


Figure 85: Fineware spouted bottle components from the Sector A post-Paracas assemblage.



Figure 86: Spout and bridge bottle components from the Sector A assemblage.

Cancheros are ornamental vessels that exhibit a characteristic 'flying saucer' form (Fig. 87). They are always wider in diameter than tall, exhibiting a body ratio of diameter to height around 5:2. Height does not exceed 6 cm, and total body diameter ranges between 12-15 cm. These squat vessels exhibit a sharp angle connecting the semi-rounded base to the upper dome-shaped portion of the closed vessel. The opening is at the apex of the vessel and ranges between 4-6 cm in diameter. Rims are well-rounded. The majority of *cancheros* are finely finished, exhibiting exterior burnishing and application of a dark red slip. We recorded no additional painted decoration. Oxidation, temper, paste color, and other technical aspects mirror those of

CC-bowls, pedestal cups, and spout-and-bridge bottles. Sherd interiors are brushed. They exhibit no evidence of burning or other preparatory function, and they are too small to eat from. It is possible that *cancheros* stored small quantities of an important substance brought as an ingredient, delicacy, or small offering. I estimate a minimum of 8-12 independent vessels. These are evenly distributed across the court center, with no single unit containing more than 6 sherds.



Figure 87: Canchero forms found in the Sector A post-Paracas assemblage

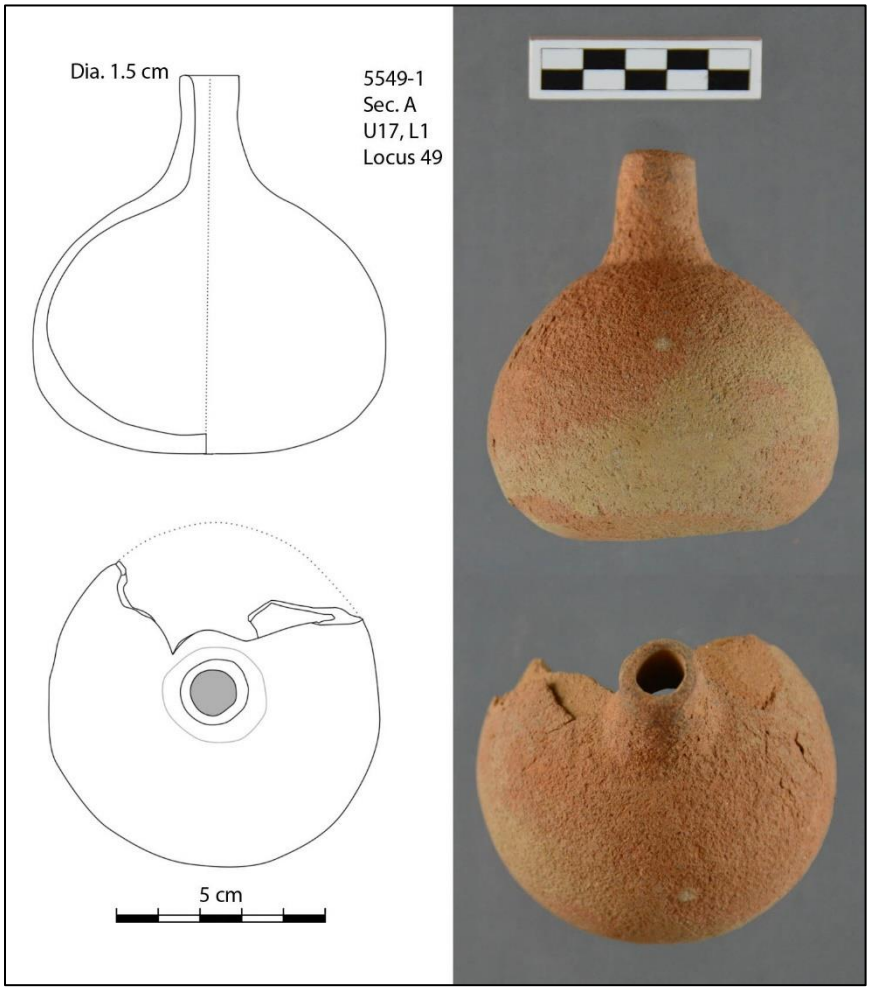


Figure 88: Pear-shaped bottle from the Sector A assemblage

Pear-shaped bottles have ellipsoid bodies tapering towards a small cylindrical spout at the apex (Fig. 88). There is no fixed ratio for body shape. Some specimens are squat, while others are taller than wide. The body is no more than 8 cm in diameter at its widest and may reach 10 cm in height. The few sherds available show red to brownish pastes, medium-grained mineral tempers, and complete oxidation firing. Necks are short, between 3-6 cm, with a small opening around 2 cm in diameter. Some pear-shaped bottles show a mixture of black and cream painted

fields – typically the neck is painted in black (similar to spout-and-bridge bottles), with a cream zone across the top of the body and a black zone near the base. One specimen exhibits only the black painted spout and cream body (identical to spout-and-bridge colors) without the lower black zone. We recovered a minimum of three pear-shaped bottles centering on Unit 17.

Post-Paracas Painted Jars, Floreros, and Idiosyncratic Vessels

We recovered 212 sherds from deep jars with black geometric designs, several large flaring *floreros,* and several closed vessels with idiosyncratic painted motifs. These vessels are too large to be individual serving wares, and thus stand apart from the hundreds of CC bowls, pedestal cups, and small spout-and-bridge bottles that comprise the majority of the post-Paracas assemblage. They are also distinct from utilitarian or plainware pieces because they are finely made, exhibit painted decorated, were not exposed to fire or harsh use, and are overall rare in the assemblage. One hypothesis is that some of these pieces were used for transporting or holding consumables between production and distribution to individuals. An alternative hypothesis places them closer to *cancheros*, as some form of offering vessel or container for specialty goods. Among other things, jar-forms are important for understanding depositional and taphonomic processes affecting post-Paracas deposits at Huaca Soto – refitting of sherds from some of these unique vessels demonstrates scatter patterns within the Sector A court.

Sherds from jars (n=118) exhibit a common set of geometric black line motifs applied atop thick cream and white exterior slips (Fig. 89). These vessels are slightly wider than tall, and range from 12-17 cm deep. They exhibit straight side-walls that curve slightly near the base of the vessel. Rim diameter varies considerably between individual vessels (anywhere from 5-50 cm) with slightly more than half of rim sherds falling between 10-13 cm. Rims are everted and

often form the widest part of the vessel. Semi-rounded bases allowed the vessel to stand upright. The overall effect is a spacious, stable container with an open mouth.



Figure 89: Painted jar-forms

Jars share production and technical characteristics with other post-Paracas servingwares. Sherd cores are always completely oxidized, exhibit light red to yellowish red pastes, and contain medium to crude-grained sand temper. There is a single instance of fire-clouding and no evidence for post-fire charring. Application of slip typically obscures physical treatment of the jar's exterior surface, though three sherds exhibit exterior brushing and one sherd shows burnishing. Seventeen jar sherds show surface treatment on the interior, 16 of which are brushed and one burnished. Jars are universally slipped on the exterior, but all lack interior slip.

Painted geometric motifs on jar exteriors are executed in thick, solid black lines. All well-preserved rim sherds exhibit a black line around the circumference of the lip. Black vertical lines divide each jar into 4-8 tall panels that reach from the lip to the base. Multiple black painted geometric motifs 'hang' at regular intervals from every other vertical line. Motifs vary between individual vessels but are consistent within a given jar. These include two major varieties - right-triangles containing a single black dot, and downward-facing crook or branch shapes. The orientation of these motifs (clock-wise or counter-clockwise around the vessel) may vary with each vertical line. These designs perhaps depict trees or some other type of plant.

We recovered the majority of jar sherds from center of the Sector A court, with a single specimen from Sector B's northeastern corner (Unit 81). Jar sherds in Sector A are densest in Unit 42 (n=17), Rasgos 7-10 (n=9), and Unit 20 (n=7). We refit parts of at least two different vessels from sherds recovered in Units 17, 18, and 19. This distribution in the center of Sector A suggests that slipped jars are part of the post-Paracas feasting assemblage that includes CC-bowls, pedestal cups, and spout-and-bridge bottles. I estimate a minimum of 10-15 individual painted jars in the post-Paracas assemblage.

The post-Paracas assemblage contains 22 sherds representing at least five individual *floreros*. These are large, open, flaring bowl-forms with an exaggerated eversion near the rim, giving the vessel the overall shape of a trumpet's bell (Fig. 90). Bases are flat and quite narrow compared to these wide-open mouths. Unlike other post-Paracas finewares, floreros are equally present in both Sectors A and B. In Sector A we recovered remains from at least two vessels in the court's center (Units 17-19, and Unit 22). We also recovered florero sherds in the center of the Sector B court (Unit 66), in Sector B's northeastern corner (Units 77 and 87) and in Sector B's northwestern corner (Units 85 and 89). The most notable find was two nearly-complete floreros stacked one within the other at the very top of Sector B's western staircase (Unit 116 and Rasgo 23). These vessels are identical. They exhibit flat bases around 5 cm in diameter, rounded rims of 26-27 cm in diameter, and a height of 10 cm.

All florero sherds are completely oxidized, present light red to yellowish red pastes, contain medium-grained mineral temper, exhibit brushing on the vessel interior, and lack post-fire charring. We recorded no exterior surface treatment and no use of slips. All individual vessels exhibit a shared painted motif on the interior. This design consists of a large, solid, cream-painted ellipse (4 cm wide and 3.5 cm tall) surrounded by smaller solid black circles on its margin (each about 0.5 cm in diameter). The number of solid black dots varies from 15-17 between individual vessels. The complete *floreros* recovered in Unit 116 exhibit two of these designs per vessel, opposite each other on the vessel's interior.



Figure 90: Florero forms recovered in near-surface strata

We recovered sherds from four idiosyncratic vessels of unrecognized design from the center of the Sector A court (Fig. 91). Each exhibits unique painted designs unlike other decorated wares at Huaca Soto. The first is a large open bowl (25 cm in diameter) with a thick rim (6-7 mm). It has a near-flat bottom and gradually curving sidewalls with a slight flare. This vessel exhibits complete oxidation firing, medium-grained sand temper, 2.5YR 6/6 Light Red

paste, brushing on the interior, red slip applied as a base coat to both sides, and painted designs on its interior. The apex of the rim was painted in a cream band containing regularly spaced black-painted solid circles. One to two centimeters below the interior rim is a thick, wavy band outlined in black and filled in with cream; this band also contains solid black dots. Near the bottom of the bowl interior is a non-wavering band outlined in black and filled in with cream paint. The bowl does not show evidence for post-fire charring, but exhibits a dark resinous stain from organic matter in the center of its interior. We recovered portions of this unique bowl from Units 19, 38, 42, and 20. These are discontinuous units, thus demonstrating a wide scatter pattern for this vessel which may indicate intentional smashing. Alternatively, portions of this bowl may have been disinterred and redeposited during intrusive activity in the court.

A second set of idiosyncratic sherds represent a large, globular vessel with a narrow neck. Sherds are completely oxidized, exhibit a 7.5YR 5/4 Brown paste, contain medium grained sand temper, and are relatively thick compared with other post-Paracas wares. This vessel was crudely brushed on the interior, but its exterior was polished to a low shine after the application of a light brown slip. Exterior painted designs include carefully painted black lines of even thickness forming elongated acute triangles that radiate outward from the vessel's neck. The overall effect is a 'star' design. The interior of each triangle is painted in a light brown. We recovered component sherds from Unit 21 and Rasgo 9 in the center of the Sector A court, suggesting that this special deposit was at the center of a post-Paracas event.

A third set of idiosyncratic designs appear on two additional large ollas with narrow necks. These vessels are thick-walled, robust, and closed. They exhibit no post-fire charring but would be suitable for the practical storage of liquid consumables. Sherds exhibit complete oxidation, an uneven reddish brown paste, and medium to crude-grained sand temper.



Figure 91: Vessels of unrecognized design from near-surface strata in the center of the Sector A court.

The natural paste color of the vessel was polished to a shine on the exterior. Cream-painted geometric designs are present on the upper portion of the vessel near the neck. One vessel, recovered from Units 26 and 33, exhibits thick S-shaped designs that face one another. I suspect that these designs continued around the base of the rim. The second vessel, recovered from Units

17, 21, 22, and Rasgo 9-10, presents large cream-painted triangles with smaller cream-painted triangles inside. This second vessel is also at the center of Sector A's post-Paracas activity.

A fourth idiosyncratic design occurs on an irregular 'football' shaped vessel with conical extremities and at least one well-made circular aperture in the center of the body. The shape of this vessel is unique within the Soto assemblage. Sherds are completely oxidized, exhibit yellowish-red paste, and contain fine to medium-grained sand temper. The interior of the vessel was brushed, while the exterior was covered in a cream slip as a basecoat. A linear painted band follows the long axis of the ellipsoid vessel (from conical end to conical end) and is interrupted by the well-made circular aperture. This band is outlined in black and filled with a dark red to purple painted field. Evenly spaced red and black vertical lines, alternating in sets of four, hang from this band. Beneath the band and curtain lines is the profile body of a bird in mid-flight. The bird exhibits white plumage, black stripes on the underside of its wing, and long, bare, red legs that might be expected of a waterbird. We recovered sherds from this vessel in Units 19, 21, 40 and Rasgos 7-10.

Plainware vessels in Sector A near-surface contexts

Plainware vessels in Sector A's near-surface contexts are represented by 543 diagnostic sherds. This is a relatively small amount compared to decorated servingwares. Of these, 264 pertain to neckless ollas, 153 to cántaros, 31 to large bowls with diameter greater than 35 cm, and 28 to ollas with short necks (Fig. 92). Distinguishing post-Paracas plainwares from prior Formative plainwares deposited above the Level 2 floor was a major challenge of our investigation. To this end, the brief profiles presented in this section can be compared with the secure Late Paracas plainware assemblage recovered from the Sector B court.

In contrast to the vast majority of serving wares (CC bowls, pedestal cups, spout-and-bridge bottles, and painted jars) neckless ollas are most common in the corners of the Sector A court and on the surrounding second tier. The highest concentrations of neckless olla sherds came from just inside the northeast corner of the court in Units 18 (n=31), Unit 23 (n=22), and the Unit 28 corridor (n=21). The southwestern corner contained 15.91% (n=42) of neckless olla sherds recovered from Sector A, and the northeastern corner and corridor on the second tier contained 18.18% (n=48). Units in the center of the court contained far fewer neckless olla sherds, for example Unit 42 (n=6) and Unit 39 (n=7). These vessels exhibit an elevated level of post-fire charring (49.24%, n=130). This suggests that preparation events involving neckless ollas took place around the edges of the court, or that debris was pushed out of the court center into these marginal areas.

Neckless olla sherds exhibit complete oxidation in only 77 of 234 studied cases (32.91%). Mineral tempers range from crude-to-medium sized sand grains. The majority of paste colors range from light reds to reddish yellows (2.5YR 5/6 Red, 5YR 6/6 Reddish Yellow) with about one-third of the sample in darker browns (7.5YR 5/4 Brown; 7.5YR 5/6 Strong Brown). Together, these observations are more typical of Formative firing and technical characteristics observed in earlier phases. Of 166 sherds with interior surface treatment, 98.22% (n=163) are brushed and only three are burnished. Of 70 sherds with exterior surface treatment, 71.43% (n=50) are brushed and the remainder burnished. Mouth diameters range between 6-31 cm, with 51.83% of the distribution falling between 12-14 cm. This is very similar to the distribution of Late Paracas (Topará) plainwares. We recovered no intact bases. I estimate that our recovered assemblage represents 40-50 individual neckless ollas. I suspect that most neckless olla sherds

recovered from upper strata in Sector A were utilitarian wares left over from Late Paracas reuse events.

Sherds from cántaros (n=153) are most common in the court center (87.58%, n=134) with only a few specimens from the southwestern corner (n=10), the northeastern corner's second tier (n=6), the northwestern corner (n=2), and the southeastern corner (n=1). These vessels were used for storing or transporting liquids. They are differentiated from ollas by a narrow jug-like body with a short collar neck. They commonly exhibit one or more small handles on the upper part of the body. Cántaros show a high degree of complete oxidation (85.71%), mineral tempers composed of crude-to-fine sand grains, and light red to reddish yellow pastes with a minority of medium to dark browns. Sherd interiors in 49 of 53 cases exhibit brushing (92.45%) and the remainder exhibit burnishing (7.55%, n=4). Exterior surface treatment among 46 samples exhibits similarly high percentages of brushing (84.78%, n=39), with lesser amounts of burnishing (13.04%, n=6), and a single instance of polishing (2.17%). Interior slip occurs on four sherds in cream (around the inside of the neck) and two sherds in dark red. Exterior slips include seven sherds in cream, two in red, and two in black. Cántaro rim diameters range from 3-32 cm, with the vast majority (85.71%) measuring between 4-12 cm. Two sherds exhibit flattened bases upon which the cántaro could stand upright. Five sherds exhibit fragments of black painted lines and fields on the exterior, but were too fragmented to determine the larger motif or design. Only 2 specimens (1.31%) show evidence for post-fire charring. I estimate 6-8 cántaros are represented in the Sector A assemblage. Overall, the production and technical features of these vessels are distinct from Paracas-era utilitarian wares, and thus we may suppose that these are post-Paracas types.

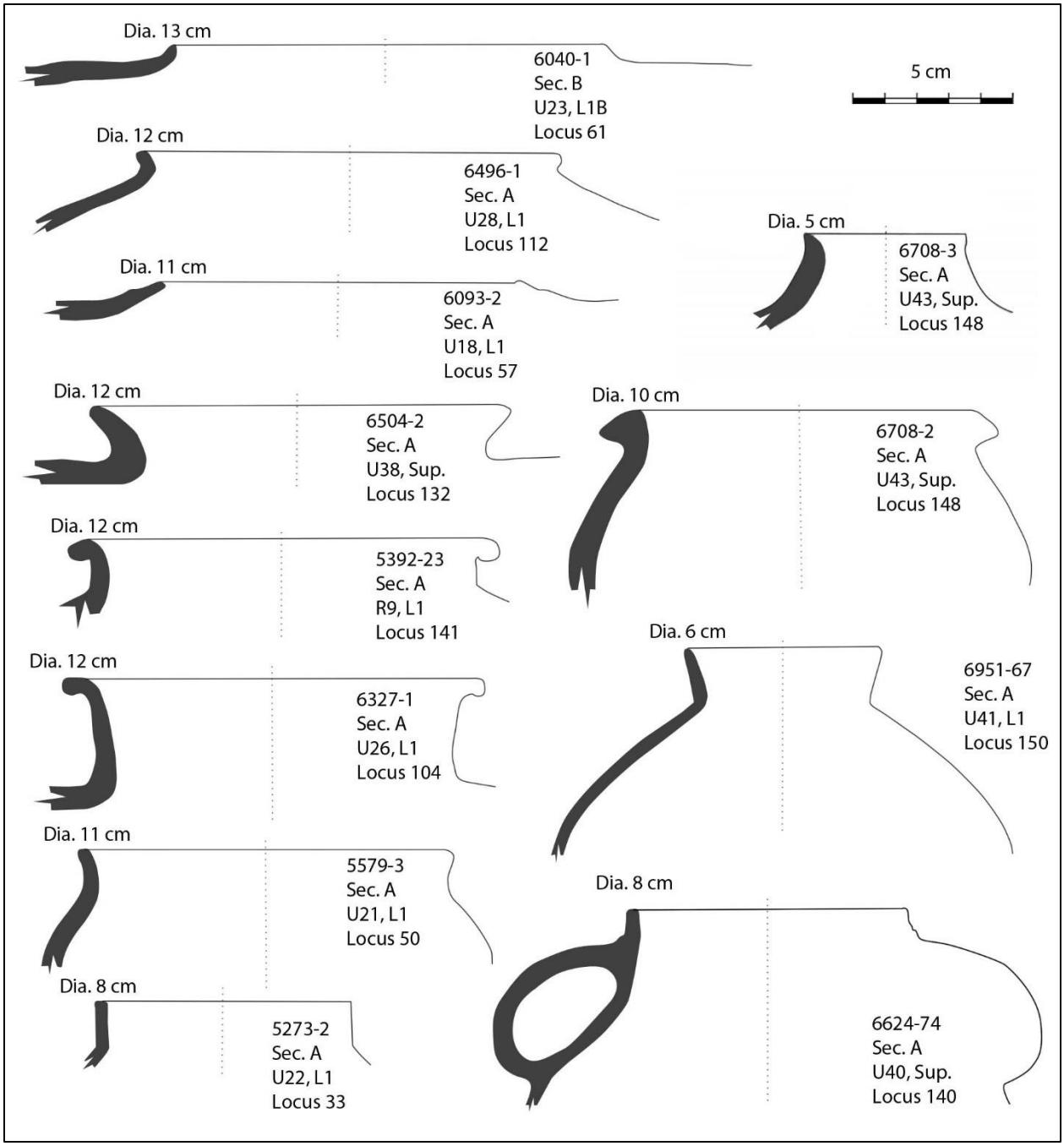


Figure 92: Utilitarian ware forms recovered in the near-surface strata of Sector A, including neckless ollas, ollas with short necks, and cántaros.

Sherds from very large bowls (>35 cm in diameter) (n=31) stand apart from smaller serving vessels described as CC-bowls. These typically exhibit straighter sides forming a deeper

basin, lack painted decoration, and are robustly made with thick walls. We recovered the majority of specimens near the innermost northeastern corner of Sector A, with a few specimens in the southwestern corner and in the court center. Complete oxidation is visible on 88.46% (n=23) of large bowl sherds for which paste cores were observed. Mineral tempers range from crude to medium grained sand. Paste colors range from light reds to reddish yellows. All large bowl sherds with internal surface treatment are brushed. Only two specimens exhibit external surface treatment (one brushed and one burnished). Three sherds from large bowls have a cream slipped band inside the rim, similar to that of smaller CC27 bowls, and a single sherd exhibits cream slip on the exterior. Rim diameters range from 35-52 cm with the majority (61.54%) falling between 36-40 cm. Only 3 sherds (9.68%) show evidence for post-fire charring. I estimate that our recovered assemblage represents 4-6 individual large bowls from the court's inside northeast corner and one large bowl from the southwestern corner.

Sherds from globular ollas with short necks (n=28) represent 5-10 vessels of widely varying dimensions. We recovered the majority of these sherds from units in the center of the Sector A court (71.43%, n=20), with a few outliers in the southwestern corner (Units 26 and 33), southeastern corner (Unit 32), and northeastern corridor (Unit 28). This is contrary to the spatial distribution of neckless forms and suggests that short-necked ollas filled this role during post-Paracas times. These vessels are squat to near-spherical shaped pots with large openings ranging from 5-32 cm, with the majority between 15-22 cm. Ollas sheds show a relatively even balance of fully oxidized (55%, n=11) and incompletely oxidized cores (45%, n=9), a mixture of red and brown hued pastes, and crude-to-medium grained sand temper. They exhibit an even mix of brushing and burnishing techniques on the interior, an even mix of high-polishing and burnishing on the exteriors, and one instance of exterior red slip. Unlike neckless forms, ollas typically

showed little to no evidence of post-fire burning, although we recovered no basal pieces that are most likely to char in an ignition event. This may indicate a change in the way that cooking vessels are placed with regards to a heat source; neckless ollas were clearly embedded within a floor, presumably with fuel placed around them, whereas later ollas may have sat above the heat source. I suggest that short-necked ollas replaced neckless forms in post-Formative eras.

Post-Paracas Finewares in Recognized Traditions

Twenty-five post-Paracas sherds exhibit painted designs affiliated with known stylistic traditions, including Nasca, Carmen, and Wari. These wares are rare at Huaca Soto, representing only a few outlier vessels within the massive post-Paracas assemblage. These specimens are all finewares – exhibiting complete oxidation firing in a carefully controlled environment, well-levigated pastes, finely sorted mineral tempers, and lack of charring or harsh use-wear. I suspect that these objects reached local communities in Chincha via down-the-line exchanges and were deposited at Huaca Soto as offerings.

We recovered a single Nasca-style painted vase (28 sherds) from midway down the western staircase of Sector B (Rasgo 25) (Fig. 93). This vessel clearly tumbled from the ridge above separating the Sector A and B courts. Sherds from this vessel do not include rim or base fragments and so the overall shape and function of the vessel remain difficult to define. Body sherds suggest a tall cylindrical vessel approximately 20-30 cm in diameter at the center. Several perforations indicate that the vessel was repaired on multiple occasions, perhaps demonstrating its importance as a prestige item. Painted designs on the exterior depict one or more animals including part of a bird's tail, limbs with stiff backward-pointing spines, and the lower part of a face, possibly a mouth. These designs occur on a solid dark-purple to black painted field. The

bird's tail feathers are executed in a white paint, while the body feathers are an earthy red. Lighter orange, cream, and darker purple portions also appear on these sherds as part of unidentified objects. This single vessel represents the only true Nasca material recovered from Huaca Soto. It appears to have originally been left on the ridge between the Sector A and B courts, and was deposited separately from later post-Paracas feasting debris.



Figure 93: Portions of a large Nasca-styled vessel deposited near the top of Sector B's western staircase.

Five sherds exhibit painted designs that fall within two local traditions referred to as Carmen and Estrella (for reference see Velarde 1998, 2006; Wallace 1970; Menzel 1971; Alcalde et al. 2001). PACH researchers recovered Carmen pottery at Cerro del Gentil and Pampa de Gentil in the form of low, open bowls decorated with evenly-spaced, alternating black and red diagonal lines over a black field. At Huaca Soto we recovered two sherds bearing this design from Unit 83 and 85 near the northwestern corner. These are well intermingled with Late Paracas

contexts and may have been introduced during the end of the Late Paracas period (ca. 200-300 CE). Carmen is interpreted as a contemporary style to Nasca 2-3 (Alcalde et al. 544). A subsequent style, Estrella, is considered contemporaneous with early Nasca 7 (Menzel 1971:44-45). Estrella shares a general pattern of alternating-color diagonal lines on the exterior of low carinated bowls, but tends to favor an orange background (Alcalde et al. 2001:544). One bowl sherd recovered from Sector A's second tier (Unit 5) with finely burnished exterior orange surface featuring alternating red and black diagonal lines may be an example of Estrella (Fig. 94). The interior depicts the overhead view of a crawfish or lobster, outlined in black and filled with dark red. We also recovered what we interpret as true Estrella sherds from Sector A's northwestern corner (Unit 36) and the court center (Unit 20). Like Nasca wares, both Carmen and Estrella materials are rare at Huaca Soto and represent one individual vessel apiece.



Figure 94: Bowl sherds pertaining to a local tradition, possibly Estrella.

Seventeen sherds from Huaca Soto exhibit motifs linked to south coast Wari finewares (Fig. 95). We recovered all Wari-related sherds from the center of Sector A (Units 17-22, 38, 40, 43) in association with CC-bowls, pedestal cups, cream-slipped spout-and-bridge bottles, and painted jars. Wari sherds from Soto appear in the form of at least one slightly-flaring straight-

sided bowl, one closed globular vessel, and a few *kero*-like narrow and flaring cups. One well-preserved sherd from the bowl shows a bird's head on the interior, similar to the 'Pachacamac Griffin' motif (see Menzel 1964). Dark red, purple, white, and cream fill in black-outlined fields to depict the figure's curving beak, neck, eye, and head feathers. Two rays topped with circular discs provide an 'antenna' effect around the head. A second sherd from the same vessel exhibits a feather design and a vertical band with black and white alternating chevrons. Anders illustrated a similar chevron design from her excavations at Maymi (1990:37 Figure 13-f). Additional Wari sherds recovered at Soto from different vessels depict similar 'antenna' rays, notched feathers, chevrons, and like color schemes. We refit four sherds from a second Wari vessel (a *kero*-like cup) that were recovered from Unit 18 and Rasgo 8 (Unit 21-22). As these are non-contiguous units, this demonstrates that notable degree of intermingling and scattering of post-Paracas ceramics in the center of the Sector A court. I estimate that our assemblage represents no more than five distinct vessels bearing Wari motifs.



Figure 95: Sherds from the Sector A court bearing Wari motifs.

Discussion

Ceramic data from Huaca Soto cover nearly two millennia, including Early Paracas to Middle Paracas (Cavernas), Late Paracas (Necropolis/Topará), and several distinct post-Paracas contributions. Results of this analysis support the long held but little celebrated hypothesis that Paracas groups were autochthonous to Chincha (Canziani 1992, 1993; Lumbreras 2008; Wallace 1971, 1972, 1985, 1986; Lanning 1960). They also point to a major discontinuity in court use during Late Paracas times, with a new emphasis on quotidian use of the Sector B court. Post-Paracas ceramic data indicate a series of major feasting events dating to the late first to early second millennium CE, based on associated radiocarbon dates (see Chapter 9). The few non-local finewares recovered from these post-Paracas events (Nasca and Wari) most likely reached Huaca Soto as down-the-line prestige goods.

Ceramic evidence indicates that each of the three major periods examined here (Early/Middle Paracas, Late Paracas, and post-Paracas) utilized Huaca Soto's sunken courts in distinct ways that parallel marked changes in architecture and non-ceramic data (see Chapters 7 and 9). The site's oldest fineware ceramics resemblant of the Early Paracas tradition at a time when the structure was significantly smaller and contained only a single sector. The transition to post-fire resin painted styles accompanied continuous additions and renovations to the structure, including the construction of the lower two courts and the inauguration of the structure's processional layout. Late Paracas (Topará) monochromes appeared alongside a new tension between Huaca Soto's prior role as a well-maintained ritual space and its potential for vernacular use. Post-Paracas phases rededicated the Sector A court as a place for feasting events and ceremonial offerings while ignoring the other courts entirely. Overall, ceramic evidence supports the general argument of this dissertation – that lower Chincha was a major center of Paracas

sociopolitical development from the early first millennium BCE into the Paracas 'Cavernas' period, and that this early activity had a major influence on local history during subsequent eras of antiquity. The following discussions reconcile our observations on Huaca Soto's ceramic data with other reported assemblages from the south coast, highlighting salient developments in form, aesthetics and technology between periods of interest, and linking assemblage profiles to specific kinds of court activities.

Discussion: Early/Middle Paracas Ceramic Evidence

Finewares from Huaca Soto's deepest strata share characteristics with the earliest recognized Paracas wares dating prior to the 5th century BCE. Levels 8-9 exhibit thick-walled, burnished to high-polished brown-wares (bowls and neckless ollas) featuring geometric incised designs of varying width and depth, minimal use of paints, and application of red slip around the rim of some open bowls. The closest geographical analog is the Pozuelo style defined a few kilometers south of the Soto Complex. Pozuelo likewise featured low-fired, exterior high-burnished black to brown serving ware bowls and neckless ollas with thickened rims (Lanning 1960:413-414). Farther south, the Early Paracas Cerrillos style of upper Ica exhibits high exterior burnishing, application of red slips on open bowl forms, a spout-and-bridge form similar to the spout portion recovered from Sector A Level 8, and firing in low-temperature low-oxygen environments producing dark brown pastes (Wallace 1962:306-7, Fig. 3 and Fig. 5). Cerrillos serves as a basis for Menzel et al.'s definition of the Ocucaje 3 phase for lower Ica (Menzel et al. 1964:20) and other regional styles linked to Ocucaje 3. Recent identification of Early Paracas brown wares at Mollake Chico in Palpa (Isla and Reindel 2006) extend this constellation of Early Paracas features into Nasca.

It is parsimonious to suppose that Huaca Soto's early brown-wares were influenced by antecedent groups from littoral sites less than 40 km to the south. The earlier Puerto Nuevo and Disco Verde ceramic traditions exhibit several comparable characteristics – dark brown to reddish-brown pastes, incised geometric motifs, low-temperature firing environments, well burnished to polish exteriors, and relatively little painting compared with subsequent Paracas periods (Dulanto 2013[2015]; Dulanto and Accinelli 2013:2015:141). These characteristics are also linked to a constellation of 'foreign' (central coast) styles that reached Puerto Nuevo (Dulanto 2013[2015]:122-123, Fig. 20). Indeed, Early Paracas ceramics have long been considered partial amalgams of Chavínoid, Curayacu, and Cupisnique traditions (Garcia and Pinilla 1995; Lanning 1960:415; Menzel et al. 1964:21), though recent examinations emphasize endogenous development (Garcia 2009). While Huaca Soto's Level 8-9 assemblage does not match any of these brown-ware traditions exactly or exclusively (and while our sample remains small), the site's deepest layers express the general profile of this period. Radiocarbon assay on Palpa samples suggests that this Early Paracas phase extends from 840-500 BCE (Unkel et al. 2012:2300-2301), a range roughly anticipated by Garcia and Pinilla (1995) and expressed in radiocarbon dates from Huaca Soto's secure layers (see Chapter 9). The presence of both serving ware bowls and neckless ollas in Soto's Early Paracas contexts suggests a combination of production and consumption related activities on the structure during this time. That nearly all serving wares were finely made may indicate special purpose events over quotidian functions.

Subsequent Paracas phases at Huaca Soto, represented in Levels 2-7, present changes in firing technology and aesthetic preferences that anticipate Middle Paracas (Cavernas) fineware traditions. These developments are gradual rather than stark. Sherds from Levels 6-7 continued to exhibit high-burnished brown-wares, use of interior red slip, and similar vessel forms to

Levels 8-9. Now, however, sherds exhibited carefully executed incision designs of regular width and depth and the first post-fire resin painted designs to appear in the Huaca Soto assemblage. These shifts parallel with regional developments in Paracas finewares. To provide just one example, one fineware sherd from Levels 6-7 shows part of a quadruped in profile, similar to feline motifs illustrated by Menzel et al. and purportedly associated with the Ocucaje 7-8 phases (1964:355-7, Fig. 37a, 39a). This is not to suggest a directionality of influence, only that Huaca Soto was not isolated from regional-scale trends.

Although a limited number of brown ware sherds are still present in Levels 3-5 – for instance, examples of thick-walled curving bowls with incised rectangular panels containing geometric motifs similar to pieces recovered from upper strata at Disco Verde (Dulanto and Accinelli 2013[2015]:144, Fig. 11) – we now observe a heavy emphasis on post-fire resin painted designs. This was paralleled by a diversification of vessel forms in Levels 3-5, a further reduction of incompletely oxidized specimens, and better-controlled incision techniques. Highly decorated open bowls and utilitarian neckless ollas come to be distinguished by distinct surface treatment regimes and the elevated levels of post-fire charring on ollas. Negative resist decorative techniques appear for the first time in Levels 3-5. This technique is common to Middle Paracas styles, including the local Pinta tradition at Cerro del Gentil and El Mono (Wallace 1985; Isla 1992; Tantaleán et al. 2013[2015]), Cavernas wares from the Cerro Colorado cemeteries (Tello 1959:209-210, Fig. 16-17; Tello and Mejia 1979:113), the Tambo Colorado phase in Pisco (Engel 1957:41, Fig. 10), Ocucaje 7-8 wares in lower Ica (Menzel et al. 1964:357, Fig. 39c, Plate 7), Mollake Chico and Early/Middle Paracas sites in Palpa (Xesspe 1972), Isla-phase finewares from Cerrillos (Wallace 1962:310), and the Patos style in Cañete (Lanning 1960:391). Although negative resist techniques have clear roots in Puerto Nuevo (Dulanto

2013[2015]:117-118, Fig. 16) and Disco Verde traditions (Garcia and Pinilla 1995), the combination of negative resist and post-fire painting on the same vessel reaches its apex in Middle Paracas designs. It is important to note that negative resist sherds at Huaca Soto never appear alongside post-fire painting – the two are always separate. Thus these pieces do not mirror the 'Pinta' style found elsewhere in the valley, which presumably date between the 5th to 3rd centuries BCE based on corroborative dates from the mid-valley cluster. Rather, the lack of true Pinta style at Huaca Soto suggests a hiatus during this period, a scenario that is supported by radiocarbon dates (see Chapter 9).

Post-fire painted designs in Levels 3-5 continue to exhibit motifs found in the Level 6-7 phase, including painted horizontal bands near the rims of open bowls and vertical bands forming large, unadorned panels. New motifs include small incised and post-fire painted circles that fill zone-incised areas, closed vessels featuring 'fishtail' motifs identified in lower Ica as part of Ocucaje phase 8 (Menzel et al. 1964:356, Fig. 38h, Fig 42a), interlocking carnivore figures and concentric 'step' motifs similar to the Paracas Cavernas pieces and several Middle Paracas Ocucaje phases (Tello 1959:448-9, Figs. 16-21; Menzel et al. 1964: Fig a-3, Fig. 35g, Fig. 36f, 37j, Fig. 39j). Level 2 also presents a general continuation of Cavernas features from Levels 3-5, including a predominance of post-fire painted decoration, comparable levels of incomplete oxidation, and the same suite of open serving ware bowls and neckless ollas distinguished by specific regimens of surface treatment and use-wear. Red to reddish-yellow pastes continue to increase and brown-wares disappear almost entirely. Unlike earlier phases, the Level 2 excavation exposure is broad enough to observe patterns in sherd distribution across courts. We noted disproportionate accumulation of sherds against court walls, supporting the hypothesis that the court center was regularly swept out during Middle Paracas times, leaving

some debris trapped against the standing architecture. Level 2 demonstrates substantial carry-over of iconography from the prior Level 3-5 period, including representation of carnivores and specific anatomical features, horizontal and vertical bands framing open areas, and small 'polka-dot' circles filling in empty space. New motifs include a narrow band containing right triangles similar to one 'atypical' piece illustrated from upper layers at Puerto Nuevo (Dulanto 2013[2015]:124, Fig. 23), a set of rhomboids with a single punctuate dot at the center of each, and a narrow horizontal band formed by interlocking 'Y'-shapes in alternating red and white. One piece depicting a feline in profile is identical to an Ocucaje 8 design illustrated by Menzel et al. (1964:357, Fig. 39a).

Vessel forms remained consistent over Huaca Soto's Early-to-Middle Paracas phases, suggesting that the site's original period of construction and use was associated with a similar suite of events. Charred neckless ollas and finely made servingware bowls suggest both preparatory and consumption-related activities. Paired with the relative lack of plainware bowls, quotidian tools, and other debris that might suggest quotidian use, these data provisionally support the hypothesis that Huaca Soto's earliest structures were non-vernacular spaces that hosted public events.

Discussion: Late Paracas (Topará) Ceramic Evidence

The appearance of Topará monochromes marks the beginning of the Late Paracas period at Huaca Soto. Unlike the gradual development of fineware traditions over the Early-to-Middle Paracas phases, Topará fineware styles appear abruptly following a hiatus in the use of sunken courts. This transition was not accompanied by a dedicated occupation surface, as we saw throughout prior phases. Rather, Late Paracas ceramics appear within aeolian debris that

accumulated above the Level 2 floor (Levels 1, 1B, and Superficial) and in conjunction with new minor architectural features that sealed off the Sector B court. The Sector B ceramic assemblage is denser than that of Sector A, suggesting a divergence in the use of the two courts during this time. Accompanying non-ceramic evidence suggests that Sector B was repurposed as a small domestic area during this time (see Chapter 9). An increase in plainware vessels during this period - unadorned bowls, ollas, cántaros, and neckless ollas - supports this hypothesis. The relative lack of variation *within* the Late Paracas fineware assemblage is notable, suggesting either a brief period of use or a calculated emphasis on stylistic homogeneity. In any case, Late Paracas finewares at Huaca Soto are more akin to serving wares for a household, rather than ritualized deposits.

Huaca Soto presents two types of Topará monochrome finewares: reduction-fired pattern-burnished blackware bowls and finely made orangeware bowls. Compared with Early/Middle Paracas phases, both types are remarkably thin, lack incision or painted designs, present a uniform distribution of well-sorted fine temper particles within the ceramic matrix, and express a greater control of timing, temperature, and oxygen levels in the firing environment. This indicates a specific Late Paracas approach to pottery production that placed new demands on potters in terms of material inputs and technical skills. Prior Middle Paracas investments in carefully incised designs, pigment preparation, and post-fire painting were replaced by a new production process that favored the creation of thin gracile vessels, uniform and well levigated pastes, removal of visible impurities, and well-controlled firing environments that allowed for even-hued monochromes. Our observations align with a general recognition of new 'technical-technological' and production practices that are evident in Late Paracas (Topará) finewares (Shimada 1999:397-398; Wallace 1986:44; Menzel et al. 1964:211).

Blackwares and orangewares are identical in all formal and technical aspects with the exception of reduction-firing on blackwares. Both bowl types present gentle and evenly curving walls of a similar range of thickness, sharp tapering rims that give the appearance of the slightest inward curve, nearly flat bases, identical presentation of fine burnishing on the interior and exterior surfaces conducted with the same size pebble tool and stroke, and a nearly standardized bowl size between 19-22 cm in rim diameter. Both blackwares and orangewares exhibit the same use-ware patterns, including similar fragmentation patterns, a tendency to be repaired and reused, and low-occurrence of post-fire charring. The two types cannot be distinguished based on spatial location in Soto's courts; they are collectively common in certain units and rare in others. They appear in the same contexts containing domestic debris, including household tools and notable quantities of hearth ash, which suggests that they served as part of a quotidian regime and were deposited as refuse, rather than offerings. Thus, blackwares and orangewares were produced in similar environments using similar conventions, served similar functions, and met a similar fate at the end of their use-lives. These appear to be household serving wares.

The only viable distinction between Soto's black and orange monochromes – reduction firing and pattern burnishing on blackwares – required specific modifications to the firing environment and was certainly intentional. This allowed for pattern burnishing, the only type of graphic decoration reported for Topará finewares (Wallace 1986:37). Designs clearly resemble those depicted on blackware fired sherds from the Jahuay site (Lanning 1960: Plate XIII), Chongos (Peters 1997:499, Fig. 7.14), Cantayo Cax Grave 12 in Nasca (Kroeber and Collier 1998:242, Fig. 387), and as far south as Cahuachi (Tinteroff Gil 2008: 323, Fig. 112; Strong 1957:19, Fig. 7, Fig. 9). Lanning's descriptions suggest that Huaca Soto's Topará wares best fit into his Chongos phase based on the predominance of fully blackware fired bowls, thin

monochrome orange wares, and prevalence of pattern burnishing (Lanning 1960:407-9). This is in agreement with Peters' description of Topará finewares recovered from the Chongos site. Juxtaposing our assemblage against her sub-division of Chongos types suggests that the 'Topará Smudged - Chongos Blackware' variety best describes blackwares from Huaca Soto (Peters 1997:911). Pattern burnishing on pieces from Huaca Soto approximates designs on her Chongos Blackwares, Interior Smudged, and Jahuay Interior Smudged types extremely well (Peters 1997:497-499). In terms of bowl form, we agree with Peters (1997:496) that Chongos vessels do not fall neatly into exclusive categories, and thus I do not attempt define the Soto assemblage in terms of the Chongos sample. I can be noted, however, that Topará fineware bowls from Huaca Soto typically lack basal angles, carinations, waists, gadroons, or any variety of angular form-feature, such as Peters illustrates from some Chongos specimens (Peters 1997:498, Fig. 7.13a) and Lanning describes for the Chongos phase (1960:408-9). In short, Topará finewares at Huaca Soto are notably homogeneous and practically standardized in comparison to other assemblages at the site. One hypothesis is that the Late Paracas occupation of Huaca Soto was a relatively short-lived reuse event, rather than a long-term habitation that might go through variations, experimentation, or other developments in monochrome production. It is also possible that these wares were centrally produced under standardized dimensions, perhaps somewhere in Pisco or Chincha.

Grater bowls sherds first appear at Huaca Soto in Late Paracas reuse strata alongside Topará finewares. This confirms an earlier hypothesis by Lanning that grater bowls and Chongos wares were contemporaneous in Chincha (Lanning 1960:410). It is curious that no grater bowls are present in Early/Middle Paracas contexts at Huaca Soto, as they are in the Cavernas peninsula cemeteries (Yacovleff and Muelle 1932:56; Tello 1959:270-271), at Cerro del Gentil

alongside Pinta wares (Tantaleán et al. 2013[2015]), and in Ocucaje wares as early as phase 3 (Menzel et al. 1964:22). It is notable that all of the examples cited above are funerary contexts. Cases where grater bowls appear during Late Paracas (Topará) times also include non-funerary contexts – for example the Jahuay site (Lanning 1960:401), Chongos and Pachinga (Peters 1997:491), and Alto del Molino (Silverman 1997). One hypothesis is that grater bowls originally served as dedicated funerary offerings during earlier Paracas periods, later gaining a role as non-funerary prestige objects during Late Paracas times. It is unclear whether and how Paracas grater bowls develop through time; to my knowledge there is currently no dedicated analysis on this subject. Published drawings and photographs depict visually similar design features across Paracas phases, with the most recognizable variation occurring in the method and shape of the incisions themselves (lines, stabs, dragging, point-punching, etc.).

Late Paracas (Topará) plainwares are recognized as indistinguishable from earlier Early/Middle Paracas plainwares elsewhere on the south coast (Paul 1991:25), an observation that holds true at Huaca Soto. We can say, however, that utilitarian wares increase in proportion in Late Paracas contexts and express a greater diversify of forms. This supports the hypothesis that the Sector B court transitioned into a domestic zone during this time. Vessels consist primarily of neckless ollas (exhibiting high levels of post-fire charring) and unadorned open bowls. Smaller quantities of cántaros, jars, tazónes, and cups are also present. Overall variety in firing characteristics, paste colors, and surface treatment regimes suggests that the Late Paracas assemblage was the product of multiple batches or firings – a hodge-podge of practical cookware acquired in piecemeal fashion. In comparison, the near-standardization of pastes, tempers, firing characteristics, and surface treatments in Topará black and orange finewares suggests a specific and limited number of producing kilns that held to a specific procedure. I suspect that some of

the plainwares recovered in Sector A's near-surface strata (particularly neckless ollas) may also be Late Paracas vessels – the deposit is too commingled today to tell decisively from stratigraphy alone.

Discussion: Post-Paracas Feasting Wares

Post-Paracas ceramic data from the Sector A court suggest a series of dedicated consumption events that involved large groups of people. In contrast, we recovered almost no post-Paracas ceramic from the Sector B court. The majority of the assemblage consists of small shallow bowls with a variety of painted concentric-arc designs on the interior (CC-bowls). Other common servingwares include cream-slipped goblet-shaped cups, cream-slipped spout and bridge bottles with black painted spouts, and medium-sized jars with geometric black line motifs on the exterior. None of these specific vessel types are reported in prior investigations from Chincha, and only a few coarse analogs exist from the region at large. I suggest that local communities produced this serving ware tradition sometime during the late first millennium CE. This hypothesis seems logical given that: 1) these specific wares are so far unique to Huaca Soto, and therefore it is parsimonious to suppose that they developed locally; 2) few field data exist for the suggested period in Chincha, and thus this assemblage fills a gap in the site's long term history; and 3) the closest design comparisons at a regional level fall between Late Nasca and the Middle Horizon, a period somewhere between 600-1000 CE.

Post-Paracas vessels form a complimentary assemblage for feasting activity. CC-bowls are single-serving vessels, about the size of a human hand, decorated on the interior and without significant evidence of charring or harsh use. The near-standardized size of these bowls and their shared set of technological and formal characteristics suggest that they were produced *en masse*

for these events. A common vessel size would visibly communicate equal distribution of consumables. Pedestal-cups served a similar role with regards to liquids. Like bowls, these cups exhibit common dimensions and formal characteristics that suggest they were produced in batches. Spout-and-bridge bottles may have served for pouring liquids. Large jars with geometric motifs were perhaps offering vessels or containers for special-purpose objects or consumables. Cántaros, large plainware bowls, and short-necked ollas served to transport and store food and drink. Unlike earlier neckless ollas that were set into the ground and exhibit almost universal charring (evidence for production of foodstuff *in situ*) post-Paracas plainwares exhibit little burning. On one hand, this may suggest that participants prepared foodstuffs off-structure and brought it into sunken courts. On the other, it may suggest that preparation techniques evolved over time, with ollas set above a heat source rather than partially buried and surrounded by one.

While our estimates suggest that pedestal cups, spout-and-bridge bottles, and jars were relatively similar in quantity, CC-bowls are disproportionately numerous by an order of magnitude. One explanation is that these vessels were available to most attendees. Perhaps less numerous vessels like pedestal cups or spout-and-bridge bottles were passed between individuals, or available only to individuals of a particular status or identity group. An alternative hypothesis is that CC-bowls were intended to be disposable, while other forms were reused across multiple events.

The fact that CC-bowls come in several distinct design variants raises the possibility that the post-Paracas assemblage represents a series of independent events, rather than a single massive gathering. However, design variants could also be dictated by other factors – for example, they may pertain to specific host communities, or to an event's position within a broader ritual cycle. Another possibility is that distinct participant communities, social segments,

or interest groups contributed specific bowl variants to a given event. In any case, the sheer number of shallow bowls suggests that any one event included dozens of individuals.

We can estimate the chronological position of these major post-Paracas events by comparing the servingware assemblage to known traditions from Chincha and the south coast at large. To begin, it is clear that this assemblage is post-Formative, based on stratigraphic position at Huaca Soto and a suite of characteristics that are common to Early and Middle Paracas wares – for example, pre-fire painting, regular and full oxidation of vessels, lack of incised decoration, etc. The assemblage is also unrelated to Late Paracas (Topará) finewares. CC-bowls, pedestal cups, and spout-and-bridge bottles are visually and metrically distinct from the thin blackware and orangeware monochrome bowls that define the Jahuay and Chongos phases. The post-Paracas vessel forms found in Huaca Soto's near-surface strata are absent from well-studied Topará assemblages elsewhere (e.g. Peters 1997:905-920). Furthermore, Huaca Soto presents a clear spatial distinction between Late Paracas and post-Paracas events, wherein Late Paracas activity heavily utilized the Sector B court while post-Paracas feasting events occurred exclusively in Sector A. These factors together support the hypothesis that the Sector A feasting assemblages post-date Paracas periods.

The feasting assemblage from Sector A also appears to be distinct from known Early Intermediate Period traditions in Chincha. The Campana style (a late Topará phase) appears in upper Ica, Pisco, Chincha and Cañete (as Wallace's 'Quebrada' variant) in parallel with Nasca 1-2 to the south (ca. 100-200 CE) (Menzel 1971:69; Silverman 1997:443; Velarde 1998:421; Wallace 1972:1; Massey 1985:28). It sustains several characteristics from the Chongos phase, exhibits new instances of pre-fire painting on vessel rims and exteriors, and includes a new emphasis on basal angles that anticipates the subsequent Carmen phase (Menzel 1971:70). While

suitable illustrations are largely lacking for the Campana style, those that exist demonstrate little formal parity with Huaca Soto's post-Paracas assemblage (Massey 1986:113-115, 124, Fig. 3.6-3.7, Fig. 3.9).

Post-Paracas wares from Huaca Soto are also unlike the Carmen fineware style. This tradition is contemporaneous with Nasca 3-4 (ca. 200-300 CE) (Silverman 1997:443; Velarde 1999:69; Menzel 1971:70-71) and is common in early EIP contexts from Chincha and Pisco (Pérez et al. 2015; Wallace 1971; Canziani 2009:292-295). It is best recognized in low bowls with a black painted exterior featuring alternating red and white diagonal lines (Velarde 1999: 69; Menzel 1971:71). Peters (1997) provides useful illustrations from Pachinga in Pisco (Peters 1997:553, Fig. 7.42). Velarde's excavations of *in situ* contexts at Pampa de Gentil in the upper valley cluster (PV57-64) demonstrate that the style is well-rooted in Chincha (Velarde 1998, 1999, 2006), and PACH investigators recovered a substantial number of Carmen sherds from post-Paracas phases at Cerro del Gentil (see Chapter 5). While we recovered two small Carmen fragments at Huaca Soto, these were not associated with the post-Paracas feasting deposit. Nor do these sherds resemble post-Paracas feasting wares in form, design, or technical aspects.

Chincha's final Early Intermediate Period ceramic phase, Estrella, is regarded as contemporary with Nasca 6-7 in the south (Menzel 1971:72-73). This style is not illustrated for reference in publication (Peters 2013[2015]:79-80). Alcalde et al. (2001:544) describe it as sharing features with Carmen wares, including similar alternating diagonal lines on the exterior of carinated bowls, while favoring a white or natural paste-hues for exterior base color. They suggest that the style expresses new links to south-central highland traditions (Alcalde et al. 2001: 544-545). Menzel suggests strong continuity from the Carmen phase on the basis of bowl forms and geometric designs, and notes that some design features bridge the gap to local Middle

Horizon styles including Cerro del Oro in Cañete (Menzel 1971:72-75). Others (Wallace 1972:2-3) suggested a melding of Carmen and Nasca styles. Santa Cruz (2007:72) notes the contemporaneity of Estrella, Nasca 7 and Loro styles in mid-valley Pisco. We may have a few isolated examples of this style at Huaca Soto, which I have illustrated in this chapter for the reader's consideration. Furthermore, while not strictly Estrella designs, some of the geometric black-line patterns on post-Paracas jars are indeed identical to the 'flowering staff' motif illustrated by Blasco and Ramos (1991: Fig. 439) and interpreted by Proulx (2006:186) as a contemporary highland Huarpa design that reached the south coast during Nasca 7 times. This motif thus places these jars sometime around the 7th-8th centuries CE.

Pendant-arc designs on CC-bowls are reported elsewhere in the south-central Andes during the transition from the Early Intermediate Period into the Middle Horizon. These appear on shallow bowls described for the late 'Nasca Y2' phase of the Kroeber sequence[49]. In particular Kroeber and Collier (1998) illustrate one bowl from Soisongo B Grave 9 (Kroeber and Collier 1998:231, Fig. 368), two bowls from Majoro Chico E Grave 1 (Kroeber and Collier 1998:235, Fig. 376-377), and one bowl from La Huayrona Grave 1 (Kroeber and Collier 1998:236, Fig. 380) with pendant arcs similar to those recovered at Huaca Soto. Additional pendant arc shallow bowls are part of Kroeber's 'Post-Nasca Culture', for example specimens from Soisongo B Graves 6-7 (Kroeber and Collier 1998:250, Figs. 398-399), Agua Santa Grave 2 (Kroeber and Collier 1998:256, Fig. 412), and Majoro Chico B Grave 1 (Kroeber and Collier 1998:254-255, Figs. 408-409). As noted above, pendant arcs are also depicted on Middle Horizon shallow bowls from Beringa in the Majes Valley (Owen 2007: 352-354, Fig. 8-10).

[49] Kroeber's Nasca Y phases may be roughly translated to the Nasca 8 (Loro) phase of the Dawson seriation (Silverman and Proulx 2002:21-23). In any event, these wares represent a terminal Nasca style that turns towards highland Middle Horizon stylistic tropes.

Owen points out the further examples of pendant arc motifs on vessels labeled as Early Ica (Strong 1957:42, Fig. 18e) and Pinilla (Paulsen 1968: Plate IV, Fig. 12a-12b). Radiocarbon assay of Beringa's Middle Horizon occupation returns dates of 650-850 CE (Tung 2007:264), which would overlap in the 7th century with Kroeber's Nasca Y phases. This suggests that pendant arcs on shallow bowls, though a relatively simple motif, are indicative of the terminal Nasca period and early Middle Horizon when reported on the south coast.

The best parallels for Soto's pedestal cups come from Kroeber and Collier's illustrations of waisted goblets. Not coincidentally, these are also features of Nasca Y Phase styles. Examples include goblets from Majoro Chico A Grave 8 (Kroeber and Collier 1998:215, Fig. 333), Soisongo C Grave 1 (Kroeber and Collier 1998: 223, Fig. 352), Ocongalla West B Grave 11 (Kroeber and Collier 1998:220, Fig. 345), and Soisongo C Grave 13 (Kroeber and Collier 1998:227, Fig. 360). These are the closest illustrated approximations to Soto pedestal cups, though it should be noted that they are different in a few major aspects – namely rounded bases on Nasca Y types and less emphasis on pinched waists. Another comparable form is a Chakipampa vase from the Museum für Völkerkunde in Berlin illustrated by Llanos Jacinto (2009:279, Fig. 12.5a). He also illustrates a squat spout-and-bridge bottle from the Nasca 8/Loro period that best approximates examples from Huaca Soto's post-Paracas assemblage (Llanos Jacinto 2009:279, Fig. 12.5b). In these comparisons I am referring to vessel shape, not painted designs.

The recovery of a few Wari fineware sherds in association with Huaca Soto's post-Paracas feasting assemblage supports the hypothesis that these events took place sometime around the end of the first millennium CE. Motifs include a set of stacked, alternating black and white chevrons also depicted on sherds from the Maymi site in Pisco, a site that bridges the late

Nasca to early Wari period on the south coast (Anders 1990:37-38, Fig. 13f). Huaca Soto's Wari-related pieces share a step-motif with sherds from the heavily Wari-influenced site of La Cantera site in Chincha (Alcalde et al. 2001:552, Fig. 8b). I noted above links between the complex bird ('griffin') motif recovered at Huaca Soto and coastal Wari finewares elsewhere. These vessels cohere to new forms of materialized ideology that swept across the south central Andes during the early formation and expansion of the Wari Empire. Far from any sort of direct state involvement, these pieces likely appeared at Huaca Soto as down-the-line prestige goods.

Taken together, these comparisons suggest that Huaca Soto's dense post-Paracas events date to the end of the Early Intermediate Period and early centuries of the Middle Horizon. This is supported by radiocarbon dates for these contexts, reported in the following chapter. From later antiquity we can rule out Late Intermediate Period Chincha Kingdom and Chincha-Inka traditions that dominate the valley from ca. 1200 CE onward, as extensive reports and illustrations of these ceramic traditions show no parity with Huaca Soto assemblages in either form or design (Menzel 1966, 1977). A more detailed discussion of south coast LIP and Inca finewares is beyond the scope of this chapter and I urge the readers to draw comparisons from Menzel's work to rule out these possibilities for themselves.

Chapter 9: Offerings and Deposits at Huaca Soto

This chapter looks at discrete events that took place within Huaca Soto's courts. It focuses on non-ceramic materials, ranging from high-value idiosyncratic offerings to large scattered assemblages like animal bone and shell. These data demonstrate that over its 2,300-year history, ritualized events at Huaca Soto involved ceremonial deposits, feasting, divination, and animal sacrifice. During certain periods, inhabitants used courts for household activities like basic food preparation and incineration of domestic debris. Finally, post-depositional events like architectural collapse and modern intrusions have had a major impact on our ability to interpret the courts today. Together these data allow us to compare the site's evolution from its initial phase of Early/Middle Paracas construction and use, through Late Paracas reappropriation, and into post-Paracas times.

Distinguishing Events at Huaca Soto

Chronological resolution is not uniform across Huaca Soto's long depositional history. On one hand, the intact series of floors and fills that make up the site's Early-to-Middle Paracas occupations provides impeccable stratigraphic control. As a result, Soto's initial centuries can be parsed into four chronological units (Levels 9-8, 7-6, 5-3, and 2). Ironically, however, this same process of repeated floor renewal and reconstruction also involved extensive clearing and replastering of each court (see Chapter 7). Thus, we have high chronological resolution for Huaca Soto's Early and Middle Paracas phases, but lack substantial amounts of material culture to compare across these iterations. Conversely, stratigraphy is poorly defined for Late Paracas

(Topará), EIP, Middle Horizon, Chincha, and Inca reuse events. None of these installed major floor surfaces that might help to distinguish them from one another. Moreover, natural accumulation at Huaca Soto is slow and ephemeral[50]. As cultural debris accumulated in sunken courts throughout time, older refuse was pushed aside, crushed underfoot, dredged up, and redeposited, resulting in significant commingling of assemblages from these later events. For example, we recovered Middle Horizon ceramics at the same stratigraphic depth as Late Intermediate period and Inka period figurines – they can only be distinguished from one another based on design and comparison with known assemblages. This situation obviously presents a major challenge for comparing post-Paracas activities at Huaca Soto, particularly for assemblages of objects like floral and faunal material that are not stylistically diagnostic.

We do know for certain that there was strong differential use of the Sector A and B courts beginning in Late Paracas times. Sector B hosts the majority of Late Paracas (Topará) diagnostic materials. Similarly, we recovered nearly all diagnostic post-Paracas materials from the Sector A court. Thus, we can isolate Late Paracas activity patterns by looking at the near-surface strata of Sector B. Likewise, we can consider post-Paracas events as a group by focusing on the uppermost strata of Sector A. Post-Paracas events may be distinguished from one another based on diagnostic markers associated with specific deposits and radiocarbon dating of particular features. Activity at Huaca Soto can therefore be envisioned as three broad phases. The first is the period spanning the Early/Middle Paracas construction and use, which can be further subdivided by considering each sealed stratum as an independent chronological context. The

[50] Accumulation was entirely windblown dust and sand. The problem is that these light materials are blown out of the court as readily as they blow in, tending to accumulate to any depth only in court corners. There is no vegetation on Huaca Soto that might help hold down aeolian deposits, nor is there any flowing water that could lay down sediments.

second phase comprises the reuse of Sector B during Late Paracas times. The third phase covers reuse of the Sector A sunken court during post-Paracas times.

I begin by considering complex depositional features (*rasgos*) found within each of these phases. These are discrete events that represent a moment or a short period in time, for example a ceremonial offering or a hearth. Next, I look at specific material assemblages to account for scattered objects that do not clearly fall within a discrete *rasgo* (including vertebrate and invertebrate fauna, botanical remains, human remains, ornamental objects, metals, and figurines). Finally, I discuss results of AMS radiocarbon dating from analysis of 30 samples, covering each of Huaca Soto's discrete phases as well as important individual deposits. Alongside architectural and ceramic evidence, these data are key for modeling the long term evolution of Huaca Soto.

Early and Middle Paracas Phase Rasgos

During excavation we recorded a number of activity features (*rasgos*) that evidence spatially and temporally discrete events. These features manifest as minor modifications to the structure and stratigraphy, including pits and hearths for fires, left over depressions from large *ollas* embedded in floors, offering deposits, and major structural failures. These features provided opportunities to collect organic material for radiocarbon dating that could be associated with these discrete events and the objects that they contained.

Data on Early/Middle Paracas events is quite limited in comparison to later phases. Regular removal of court debris in antiquity is a major contributing factor. Likewise, heavy replastering of surfaces prior to remodeling events concealed physical markers of activity that

might be detectible on Early/Middle Paracas floors – for example scars from ignition events or evidence for intrusive sub-floor deposits. Methodologically, our ability to access deep stratigraphy was also a limiting factor. Exposing deep levels in a single unit usually required weeks of excavation through later strata containing dense concentrations of post-Paracas material culture. Our directive to preserve as much standing architecture as possible limited our ability to open broad exposures of these deeper strata. We recorded a single Cavernas-era depositional 'feature' in Sector A and two in Sector B.

Rasgo 11A, located against Sector A's innermost northeastern corner, was a sequence of small rubbish lenses pushed up against the court's walls in concert with each Early/Middle Paracas floor (Levels 2, 5, 7, 9). This suggests a similar depositional process across the site's initial phases of use. These deposits commonly include elevated amounts of marine shell (mostly *Donax sp.*), small amounts of charcoal, fragmented animal bone, and post-fire resin-painted ceramic sherds. Elevated accumulation in court corners probably reflects the natural tendency of deep corners to trap loose debris that would otherwise be removed or destroyed. We can hypothesize that other (unexcavated) deep corners also contained elevated assemblages.

In the final Middle Paracas stratum of R11A (Level 2), we recorded the imprint of a large olla in the Level 2 floor in the court's northeastern corner in association with large plainware sherds from a globular vessel (Fig. 96). A few negative-resist decorated fineware sherds associated with this feature clearly place it within Early-to-Middle Paracas phases. This suggests preparation or temporary storage of consumables in the court's innermost corners, while the court center remained clear of debris and heavily maintained. We observed an identical feature in the same corner of Sector B (R19B), which also included a concentration of edible marine shell (Fig. 97). This second olla feature was associated with post-fire resin painted wares.



Figure 96: Large ollas were set into the northeastern corner of the Sector A court during the final Early-to-Middle Paracas phase.



Figure 97: Large ollas were also set into the northeastern corner of the Sector B court during the final Early-to-Middle Paracas phase.

Rasgo 9B was a single ignition event located at the center of the Sector B court and sandwiched between the Level 3 sand fill and the Level 2 floor. We interpreted this Early-to-Middle Paracas feature as part of a small *pago*[51] associated with the construction of the subsequent floor. Excavators recorded the remains of a small and shallow fire (wood charcoal, ash) approximately 40 cm in diameter and between 1-3 cm deep. We recovered marine shell, fragmented animal bone, earthen adobe clods exposed to fire, a single obsidian projectile point and half of a *mano de moler* (grinding stone) in association with this event. Vertebrate remains were too badly burnt and fragmented to identify the specific taxa; likewise, we could not observe evidence for butchery or other manipulation. Invertebrate remains consisted almost entirely of edible *Donax sp.* bean-clams from the nearby littoral. The obsidian point is about 2 cm across at its widest point and 0.5 cm thick at its center. The base has broken off at the hafting point, suggesting practical use in antiquity (Fig. 98). At the same time, the obsidian matrix is visually striking - cloudy grey, translucent at the edges, with streaks of red near its center – and thus may have been included in this deposit for its aesthetic qualities. This large basalt *mano* features a clearly worn grinding surface, indicating its clear use before deposition. It is approximately 8 cm wide and 6 cm thick. Only 15 cm of the stone's length survives, though an original length of 25-30 cm is a reasonable estimate based on comparison to other grinding stones recovered in later court reuse events.

[51] A class of ritualized deposits typically involving a small ignition event around or upon which objects are placed.



Figure 98: Projectile point recovered from pago in the center of the Early/Middle Paracas Sector B court, Level 3.

Late Paracas Rasgos

We defined several important features associated with Late Paracas habitation of the Sector B court. These include two dedicated hearths in the Level 1 stratum that intruded part way into the older Level 2 floor. These features sit at the edges of the perishable wooden-post structures that occupy the center of the court and are directly associated with Late Paracas monochrome serving wares (Fig. 99). The hearths are similar in dimensions, content and depth. Each is ellipsoid in shaped, with average dimensions of 50 cm long, 30 cm wide, and reaching between 20-30 cm deep (Fig. 100). Contents consist entirely of charcoal and ash in a solid deposit more than 15 cm thick, and both lack incompletely burnt materials. This suggests that

they were used repeatedly. These may be hearths for basic food preparation, or serve as a heat source for Late Paracas residents.

Apart from dedicated hearths, we also identified several shallow depressions within perishable structures that indicate shorter-term ignition events. Shallower fires perhaps represent *ad hoc* activities that occurred once or only a few times. These features contained few associated materials, and tended to be located towards the inside of perishable structures. Finally, we uncovered part of a burnt domestic midden in the southern half of the Sector B court. We exposed a little more than 10 square meters of this feature, which ranged from 10 to 30 cm thick, contained high densities of ash, charcoal, burnt utilitarian ceramic and bone. It seems that household debris that was occasionally incinerated in this area

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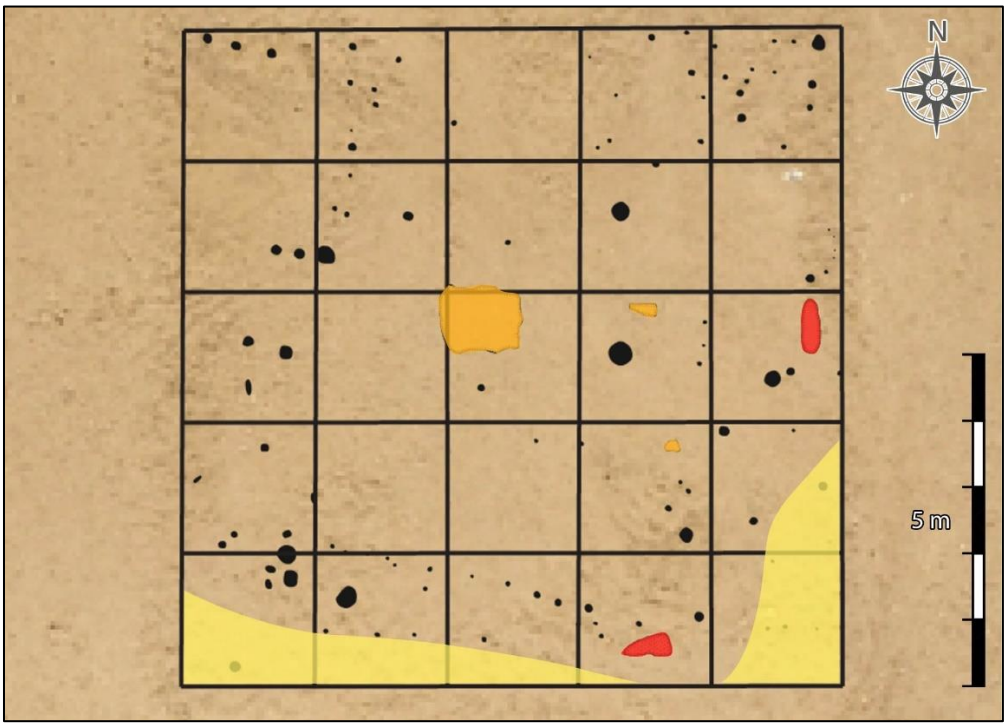


Figure 99: Late Paracas domestic structures in the Sector B court, with dedicated elliptical hearths in red, ad hoc ignition events in orange, and incinerated midden in yellow.



Figure 100: Dedicated elliptical hearth feature in Late Paracas domestic contexts at the center of the Sector B court after partial excavation.

We recovered evidence to suggest that portions of the Sector B court were regularly exposed to elevated quantities of liquid during the Late Paracas phase (Fig. 101). As no parallel feature exists in Sector A or elsewhere in Sector B, I suggest that this is related to intentional human activities rather than climatic events. We observed localized desiccation-cracking of the Level 1 matrix in specific areas, suggesting that these zones experienced wet-dry cycles. This was the case in and around Units 53 and 65, both of which show a telltale cracked surface in association with Late Paracas debris. Surface liquid drained through the Level 2 floor via an intrusive post-hole in Unit 53 (R10B), a low point in the center court, carrying with it finely levigated clay particles that coalesced into a web of irregular channels in the loose Level 3 matrix (R13B). An upside-down gourd bowl atop of this posthole may be an intentional cap,

raising this possibility that this was a drain or ‘sump’ into which quantities of liquid were intentionally introduced. The most reasonable suggestion would be water – perhaps waste left over from cooking, brewing, or some like household activity. Because the post-holes themselves are intrusive in the center of the Sector B court, I suggest that this is a Late Paracas feature.

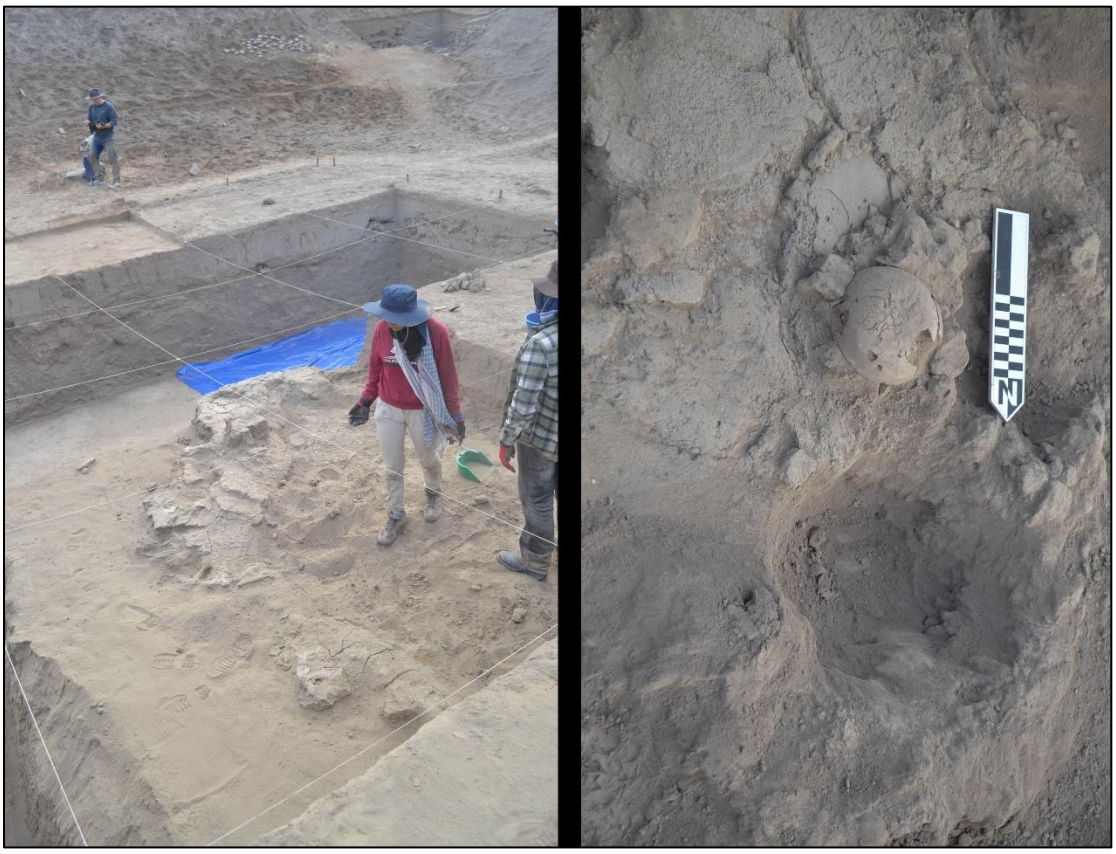


Figure 101: At left, excavators examine evidence for water draining through the Level 2 floor via intrusive postholes. At right, an overturned gourd cap associated with the chief drain.

Late Paracas inhabitants embedded at least four large ollas to the north of perishable domestic structures (Fig. 102). These are all associated with Late Paracas monochromes and do not overlap, making contemporaneous placement a possibility. Distribution over time cannot be ruled out with available evidence. One of these features, Rasgo 5B, is a cone-shaped deposit

embedded in the tier above the eastern side of the court and abutting a Late Paracas architectural modification (Unit 72). This feature is approximately 30 cm wide at its mouth and 40 cm deep, tapering off sharply towards its base. R5B begins in Level 1 and partially intrudes into the older Level 2 stratum. We recovered a high density of burnt olla fragments, marine shell, and a few *Spondylus* disc beads from inside this deposit. Likewise, Rasgo 7B was a conical deposit of similar size on the same tier and intruding through the same strata (Units 77 and 72). It contained utilitarian ceramic sherds, marine shell, and fragments of animal bone. The area immediately around this feature's border was strewn with Topará-style ceramic sherds, a large *mano* grinding stone measuring 36 cm long and weighing more than 8 kg, and fragments of a spindle whorl. The third feature, Rasgo 15B, sit on the court floor exactly in its northeastern corner (Unit 86) and exhibits the remains of a large burnt olla and a surrounding debris field approximately 40 cm deep. The vessel contained fragments of gourd bowl, marine shells, portions of vegetal basket, fragments of a lithic cutting tool, scraps of textile, and vegetal and animal fiber cords. While this is clearly an assemblage of useful tools, the feature also contains comestibles including 16 maize cobs and several large pits from lucuma fruit (*Pouteria lucuma*). Similarly, Rasgo 16B was a triangular-shaped intrusive pit at the foot of the short staircase connecting the center court to the eastern tier (Unit 87). This feature contained a thick deposit of botanical material, fragments of gourd bowl, marine shell, and utilitarian ceramic sherds. While there is no clear circular depression as in R5B, 7B, or 15B, utilitarian sherds from a large, globular suggest that this deposit once contained an olla.

The southwestern corner of the Sector B court contained an additional three distinct olla deposits. Rasgo 17B (Unit 82) was a circular feature approximately 30 cm in diameter and reaching 45 cm deep. Unlike features in the northeastern corner, R17B contained pure refuse

rather than serviceable goods, including fragments of marine shell, utilitarian ceramic sherds, and scraps of vegetal matter. Garbage may have been introduced into this feature at the end of its use-life. Nearby Rasgo 18B (Unit 88) was a similarly shaped feature containing elevated amounts of shell debris. Rasgo 6B, located on the second tier of the southwestern corner (Unit 74), was embedded as an intrusive event. This feature included maize cobs, lithic debitage, and textile scraps. Additionally, this feature contained fragments of human bone (see below), which suggests that this was an offering deposit rather than a practical feature. Again, these objects may have been introduced after this feature served a more practical purpose.



Figure 102: Remains of embedded olla features in the Sector B court, associated with Late Paracas reuse.

Overall, Late Paracas *rasgos* in Sector B exhibit a range of activities. These include ignition events for production and preparation activities, intentional disposal of liquid waste, incineration of trash in a dedicated midden area, disposal of household tools, and areas for storing foodstuffs and other objects. All of these features surrounded perishable domestic structures in the court's center. Major ignition events took place outside of these structures, while smaller controlled fires were located inside. Associated household objects included grinding stones, spindle whorls, lithic tools, baskets, cord, and utilitarian wares. Midden deposition occurred in the southern part of the court away habitable spaces. Embedded olla features occupied the northeastern and southwestern corners. All features described in this section were associated with Topará style monochrome ceramics and occur in Levels 1, 1B, and the Superficial, with occasional intrusion into the Level 2 floor.

Post-Paracas Phase Rasgos

Post-Paracas phases witnessed a renewal of ceremonial activity in the Sector A court. Evidence testifies to a diversity of ceremonial practices. However, unlike the clear and well-preserved features of Formative phases, we recorded few post-Paracas features *in situ*. Commingling of debris is due to continuous and heavy traffic in the Sector A court during post-Paracas times and heavy modern looting of near-surface strata. Many of the *rasgos* we defined in this phase pertain to taphonomic activity that helps us to understand the state of the court's assemblage today – looters' pits, layers of fallen architectural rubble, and a few surviving depositional events intruding through earlier features.

The earliest post-Paracas *rasgos* at Huaca Soto are associated with activities that took place on the ridge separating Sectors A and B. Several objects tumbled into the western side of Sector B and were deposited along the central staircase. Among them are fragments of a tall jar painted in characteristic Nasca polychrome style and a complete *florero*, previously discussed in Chapter 8. Nearby we recovered a thick deposit of reed matting, parts of which we also found strewn up and down the staircase (R22B). This feature consists of cane posts (1-2 meters in length) tied together with woven vegetal cord to form a lightweight screen. This is some sort of covering – perhaps a part of a roof or partition that once covered the bulk between the courts. On the uppermost stair we recovered a single large *Spondylus* shell bead, probably from a large collar. This bead is 10 cm long and nearly 5 cm wide, tapering on one end. The tapered end has a drilled hole that could receive a fiber cord. This specimen is similar to others recovered from a complete *Spondylus* collar in the northeastern corner of the Sector A court (see below). This set of features, clearly not in their original position, demonstrate that inter-court areas were accessible for activity during post-Paracas periods.

The remainder of post-Paracas features in Sector A were sealed beneath a major layer of architectural debris resulting from multiple structural failures. Most of this material once formed part of the court's northern and eastern walls. Other portions resulted from the collapse of the small post-Paracas structure at the court's center. Intrusive looting events punctured this thick sheet of wall-fall at several locations throughout the Sector A court, as indicated by deep holes, cigarette butts, bottle glass, plastic, and factory-made textiles. In some cases, these deposits terminate within rubble layers; in others, they reached major pre-Columbian deposits. Rasgo 9A, for example, was an intrusive pit that hit a density of Middle Horizon feasting debris in the center of the Sector A court. Further looting events partially destroying an articulated camelid

sacrifice associated with the onset of the Late Intermediate Period (see analysis of vertebrate fauna, below). Taken together, this evidence indicates that the court was reasonably clear of architectural debris throughout most of its post-Paracas history – I suggest that major structural failures occurred in the Republican or modern periods.

We encountered a deposit of fourteen fragmented pre-Columbian textiles within Level 1 (R14A) in the southwestern corner of Sector A. These were distributed horizontally over an area of four square meters, had no obvious internal order, and did not appear to be intentional offerings. All specimens were small scraps and fragments, some more complete than others. One specimen exhibited black feathers sewn into it. Most were simple plain-weave types, with some evidence for a red colorant. This assemblage will be studied in detail at a future date. While the exact chronological and cultural association of these textiles is unclear, they are clearly post-Paracas and pre-modern based on stratigraphic position and visible characteristics. Samples from these textiles are being studied under an ongoing comparative project by Barnard et al. (2016).

Invertebrate Remains

Marine shell is ubiquitous in all loci at Huaca Soto. Jordan Dalton (University of Michigan) conducted a preliminary analysis of shell materials recovered from the Sector A court[52]. Her analysis accounted for 84% of the invertebrate shell recovered from this sector, including the majority of post-Paracas loci and all secure Early/Middle Paracas strata (Levels 2-9). The total sample included 5098 individual shell specimens. Analysis of remaining shell material, including Sector B, will be conducted at a future date. For now, it is clear that Sector A

[52] This analysis excludes *Spondylus* shell imported for ornamental purposes, which are reported separately below.

exhibits elevated levels of shell (5.043 kg in total) in comparison to Sector B (3.148 kg in total. Resolution in the following section is therefore binary – we can compare Early/Middle Paracas use of invertebrate fauna in the Sector A court with combined Late Paracas and post-Paracas use.

Dalton chose to quantify shell data by frequency rather than shell-weight because of the sample's manageable size and overall high degree of preservation. She compiled a minimum number of individuals (MNI) rather than number of individual specimens (NISP), as this is more suitable for dealing with different species that may fracture at different rates. For example, we observed that mussel shells were likely to fragment at much higher rates that non-mussel bivalves or marine gastropods, which tended to remain whole. Most species recovered at Huaca Soto were bivalves with diagnostic elements suitable for an MNI analysis.

Dalton arrived at an overall MNI of 2286 individual mollusks recovered from the Sector A court. She identified 97.99% of those individuals (n=2240) to the family level or below (Table 9.1). Huaca Soto presents 18 taxonomic families that include at least 27 distinct species. Shells of the *Donacidae* family were by far the most common, representing 59.11% of the identified sample (n=1324). Edible *Donax sp.* bean-clams are prevalent on the nearby beach and their shells are common in sandy soils near the littoral. Marine gastropods (snails), representing 9 taxonomic families and 14 species, were the second-most common feature in the assemblage (together n=520, 23.21% of the assemblage). The most common snail species included *Prisogaster niger* (n=200, 8.93%), snails of the genus *Crepidula* (n=88, 3.93%), *Mitrella buccinoides* (n=78, 3.48%), and *Tegula tridentada* (n=73, 3.26%). Other significant taxa include an edible saltwater mussel, *Semimytilus algosus* (n=271, 12.10%), and venus clams of the *Veneridae* family (n=67, 2.99%). A number of low-quantity species and families comprised the remaining sample. Elevated levels of marine snails may be due to robustness of these species'

shells, as opposed to more fragile bivalve species. Similarly, MNI analysis of bivalves only counted the frequency of shells with an umbo or hinge in order to avoid double counting, whereas all whole snail shells can be considered a complete individual. As a consequence of these factors, the overall MNI counts of *Donax*, *Semimytilus*, and other small bivalves are probably underreported in comparison to gastropods.

MNI data allow us to investigate the distribution of invertebrate taxa horizontally across the court for post-Paracas levels (Tables 9.2, 9.3). These loci yield an overall MNI of 1475 individual mollusks spread across 25 Units[53]. Units 9, 13, and 23 stand out as having the largest overall assemblages, seconded by Units 6 and 18 (all with MNI>100). These units all abut court corners or court walls, and during excavation it was immediately clear that shell debris was densest when pushed up against these features (e.g. R11A). One explanation for this is that architectural features trapped debris and aided in its preservation, while debris from the court center was swept out, trampled, or otherwise destroyed. In terms of species distribution, *Donax* is the most prevalent taxa in all but one unit. Near-surface strata emphasized edible taxa and showed disproportionate aggregation of shell in corners and near walls.

Paracas and post-Paracas shell data can be juxtaposed in Unit 21, a vertical column that includes all Early-to-Middle Paracas strata as well as subsequent post-Paracas layers. This column yielded an MNI of 428 specimens; all but 23 of those specimens were recovered from Early/Middle Paracas contexts. Level 8 shows a disproportionately higher density of shell compared to other levels (37.22 specimens per square meter), followed by Level 4 (20.24 specimens per square meter) and Superficial/Level 1 (13.07 specimens per square meter). Each

[60] I only included Units for which more than 90% of shell specimens were processed. This eliminated Units 29, 26, 19, 7 and 8 from this analysis. I also eliminated outlier taxa with an overall MNI of less than 10; these are included in Table 9.1.

of these layers sits directly above a floor surface. Logically, thick floor strata themselves showed lower densities (Level 2 = 2.5 specimens per square meter) as did fill layers deposited as single events (Level 3 = 9.55 specimens per square meter; Level 6 = 7.02 specimens per square meter). *Donax* shells remained the most common taxa in all strata by large margins, with only small amounts of other locally available taxa. Level 8 and Level 6 showed slightly greater taxonomic diversity than other levels, although several taxa were represented by single specimens. Overall there is a common emphasis on locally available edible taxa over the course of the structure's history, particularly *Donax* bean-clams.

In both Paracas and post-Paracas phases there was no significant evidence for shell-working apart from a two white-shell disc beads (unidentified to the species level) and *Spondylus* items imported from Ecuador for ornamental purposes (see analysis of beads below). We found no shell-working tools, drills, or flawed beads that might suggest a focus on production activities. While the majority of species recovered at Huaca Soto are indeed edible (see Alcalde 2012:87), the available evidence does not suggest abnormally large consumption events based on shellfish. Indeed, we found no evidence for mass preparation or cooking involving shells. Shell densities instead suggest opportunistic consumption. This is sensible given Soto's proximity to the littoral and the availability of this species on Chincha beaches (Alcalde 2012:86). While we have not yet formally analyzed the Sector B shell assemblage, our visual observations suggest a similar distribution of taxa, lack of evidence for shell-working, and similarly elevated levels of shell push up against standing architecture.

TABLE 9.1: SECTOR A INVERTEBRATE REMAINS, FREQUENCY

Invertebrate Taxa	MNI	% of Sample
Family: Calyptraeidae (Slipper Snails)		
Unidentified Genus: Crepidula	87	3.88
Crepidula onyx	1	0.04
Total	**88**	**3.93**
Family: Columbellidae (Dove Snails)		
Unidentified Columbelidae	1	0.04
Mitrella buccinoides	78	3.48
Total	**79**	**3.53**
Family: Donacidae (Bean Clams)		
Unidentified Donacidae	17	0.76
Donax mancorensis	123	5.49
Donax peruvianus	1184	52.86
Total	**1324**	**59.11**
Family: Fissurellidae (Keyhole Limpets)		
Unidentified Fissurelidae	4	0.18
Fissurella asperella	2	0.09
Fissurella peruviana	40	1.79
Total	**46**	**2.05**
Family: Glycymerididae (Dog Cockles)		
Glycymeris ovatus	2	0.09
Total	**2**	**0.09**

Invertebrate Taxa	MNI	% of Sample
Family: Hippidae (Sand Crabs)		
Emerita Analoga	3	0.13
Total	**3**	**0.13**
Family: Mactridae (Duck Clams)		
Unidentified Mactridae	1	0.04
Total	**1**	**0.04**
Family: Modulidae (Modulid Snails)		
Modulus catenulatus	1	0.04
Total	**1**	**0.04**
Family: Muricidae (Rock Snails)		
Unidentified Muricidae	6	0.27
Concholepas	1	0.04
Xanthochorus buxea	23	1.03
Thais chocolata	10	0.45
Thais delessertiana	4	0.18
Total	**44**	**1.96**
Family: Mytilidae (Saltwater Mussels)		
Unidentified Mytilidae	13	0.58
Choromytilus chorus	1	0.04
Semimytilus algosus	257	11.47
Total	**271**	**12.10**
Family: Nassariidae (Mud Snails)		
Nassarius dentifer	1	0.04
Total	**1**	**0.04**

Invertebrate Taxa	MNI	% of Sample
Family: Pectinidae (Scallops)		
Unidentified Pectinidae	5	0.22
Total	**5**	**0.22**
Family: Psammobiidae (Sunset Clams)		
Gari Solida	1	0.04
Total	**1**	**0.04**
Family: Ranellidae (Tritons Snails)		
Argobuccinum rude	1	0.04
Total	**1**	**0.04**
Family: Tegulidae (Tegulid Snails)		
Unidentified Genus: Tegula		
Tegula atra	11	0.49
Tegula corvus	1	0.04
Tegula tridentada	73	3.26
Total	**85**	**3.79**

Invertebrate Taxa	MNI	% of Sample
Family: Trochidae (Top Snails)		
Unidentified Trochidae	4	0.18
Total	**4**	**0.18**
Family: Turbinidae (Turban Snails)		
Unidentified Turbinidae	9	0.40
Prisogaster elevatus	8	0.36
Prisogaster niger	200	8.93
Total	**217**	**9.69**
Family: Veneridae (Venus Clams)		
Unidentified Veneridae	23	1.03
Chione peruviana	15	0.67
Periglypta multicostata	1	0.04
Protothaca columbiensis	1	0.04
Protothaca ecuadoriana	26	1.16
Transennella pannosa	1	0.04
Total	**67**	**2.99**
TOTAL SAMPLE IDENTIFIED	**2240**	100.00

TABLE 9.2: TAXONOMIC DISTRIBUTION PER UNIT FOR POST-PARACAS STRATA (FREQUENCY)

	Caly.	Colu.	Dona.	Fiss.	Muri.	Myti.	Tegu.	Turb.	Vene.	TOTAL
U1	2	2	18	0	1	0	0	3	1	**27**
U3	6	0	41	3	0	2	2	1	1	**56**
U4	1	2	73	2	1	6	1	5	3	**94**
U5	0	0	4	0	0	1	1	0	0	**6**
U6	7	1	78	2	0	9	3	8	2	**110**
U9	10	6	73	3	2	157	5	20	2	**278**
U10	0	2	3	0	0	1	0	3	0	**9**
U12	0	0	18	1	1	0	0	2	0	**22**
U13	1	9	121	1	7	5	0	32	6	**182**
U17	1	3	19	0	2	3	5	3	3	**39**
U18	5	6	35	5	5	12	3	33	3	**107**
U20	5	3	47	0	0	9	6	6	8	**84**
U21	0	2	10	0	0	6	2	2	1	**23**
U22	0	0	18	0	0	0	0	9	1	**28**
U23	10	8	90	1	3	11	0	12	3	**138**
U24	6	6	29	2	0	6	8	9	3	**69**
U25	0	1	10	0	0	1	3	3	1	**19**
U28	3	1	32	1	1	6	3	4	3	**54**
U31	0	0	2	0	0	0	1	0	0	**3**
U38	1	2	27	0	3	0	4	2	1	**40**
U39	0	1	11	2	0	0	2	3	0	**19**
U40	1	0	2	0	0	0	0	0	0	**3**
U41	0	1	12	1	0	1	2	0	1	**18**
U42	0	3	6	1	0	0	1	0	1	**12**
U43	0	1	1	0	0	0	0	1	0	**3**
Rasgo 6	1	1	8	0	0	1	1	0	0	**12**
Rasgo 9	1	0	13	1	3	2	0	0	0	**20**
TOTAL	**61**	**61**	**801**	**26**	**29**	**239**	**53**	**161**	**44**	**1475**

TABLE 9.3: TAXONOMIC DISTRIBUTION PER UNIT FOR POST-PARACAS STRATA (%)

	Caly.	Colu.	Dona.	Fiss.	Muri.	Myti.	Tegu.	Turb.	Vene.	TOTAL MNI
U1	7.41	7.41	66.67	0	3.7	0	0	11.11	3.7	27
U3	10.71	0	73.21	5.36	0	3.57	3.57	1.79	1.79	56
U4	1.06	2.13	77.66	2.13	1.06	6.38	1.06	5.32	3.19	94
U5	0	0	66.66	0	0	16.67	16.67	0	0	6
U6	6.36	0.91	70.91	1.82	0	8.18	2.73	7.27	1.82	110
U9	3.6	2.16	26.26	1.08	0.72	56.47	1.8	7.19	0.72	278
U10	0	22.22	33.33	0	0	11.11	0	33.33	0	9
U12	0	0	81.82	4.55	4.55	0	0	9.09	0	22
U13	0.55	4.95	66.48	0.55	3.85	2.75	0	17.58	3.3	182
U17	2.56	7.69	48.78	0	5.13	7.69	12.82	7.69	7.69	39
U18	4.67	5.61	32.71	4.67	4.67	11.21	2.8	30.84	2.8	107
U20	5.95	3.57	55.95	0	0	10.71	7.14	7.14	9.52	84
U21	0	8.7	43.48	0	0	26.09	8.7	8.7	4.35	23
U22	0	0	64.29	0	0	0	0	32.14	3.57	28
U23	7.25	5.8	65.21	0.72	2.17	7.97	0	8.7	2.17	138
U24	8.7	8.7	42.03	2.9	0	8.7	11.59	13.04	4.35	69
U25	0	5.26	52.63	0	0	5.26	15.79	15.79	5.26	19
U28	5.56	1.85	59.26	1.85	1.85	11.11	5.56	7.41	5.56	54
U31	0	0	66.67	0	0	0	33.33	0	0	3
U38	2.5	5	67.5	0	7.5	0	10	5	2.5	40
U39	0	5.26	57.89	10.53	0	0	10.53	15.79	0	19
U40	33.33	0	66.67	0	0	0	0	0	0	3
U41	0	5.56	66.67	5.56	0	5.56	11.11	0	5.56	18
U42	0	25	50	8.33	0	0	8.33	0	8.33	12
U43	0	33.33	33.33	0	0	0	0	33.33	0	3
Rasgo 6	8.33	8.33	66.67	0	0	8.33	8.33	0	0	12
Rasgo 9	5	0	65	5	15	10	0	0	0	20
TOTAL (MNI)	61	61	801	26	29	239	53	161	44	1475

Vertebrate Fauna

Remains from non-human vertebrates were the second most common type of material recovered at Huaca Soto, after ceramic sherds. We recovered 20.53 kg of non-human bone from Sector A and 3.35 kg from Sector B, a marked contrast between the two courts. Early-to-Middle Paracas layers (Levels 2-9) contained fewer vertebrate remains in comparison to Late Paracas and post-Paracas layers (Superficial, Level 1, and Level 1B in Sectors B and A, respectively). This reflects the tradition of maintenance and periodic clearing of courts during Huaca Soto's earliest periods, but also indicates heavy use of vertebrates during later events.

Jo Osborn (University of Michigan) conducted an analysis of the vertebrate faunal assemblage during the 2014 and 2015 seasons. Her investigation focused on identifying the general distribution of taxa at Huaca Soto, the specific uses of each species, and detailed demographic and butchery profiles for select food species when possible. She covered approximately 80% of the Sector A assemblage and all of Sector B. The remaining unstudied portion of the assemblage is the subject of ongoing analysis. Osborn's studied sample accounted for 7910 individual bone fragments for which more than 50% of each element was preserved.

Several species represent non-cultural deposits related to the local ecosystem. For example, the Southwest Peruvian burrowing owl (*Athene cunicularia nanodes*) makes its nests within Huaca Soto's earthen architecture. We observed live owls, their burrows, regurgitated pellets containing rodent bones, and remains of the birds, particularly in softer superficial stratigraphy. Small rodent bones belonging to the genus *Phyllotis,* which includes small field mice, are clearly a prey species. This same is true of small local lizards (*Microplophus sp.),* frogs (*Anura sp.*), and small birds (*Aves sp.*). Mice and lizards nest within the structure independent from their role as prey species.

Sector B contained a total of 892 vertebrate bone fragments related to cultural activity. We recovered 340 of these specimens from secure Early/Middle Paracas strata (Levels 2-9). Remains embedded within the latest Middle Paracas floor (Level 2) indicate at least one canid (either *Canis lupus familiaris*, the domestic dog, or *Lycalopex culpaeus*, the Andean fox), two guinea pigs (*Cavia porcellus*), and a single camelid (*Lamini sp.*). The second youngest Middle Paracas segment (Levels 3-5) likewise contained remains from a single canid, at least five guinea pigs, and at least one camelid. Level 6 and 7 contained evidence of a single camelid. In all Early/Middle Paracas cases, these elements are well-scattered with no clear evidence for articulation or association with other features. While deep quantitative data from Sector A are forthcoming, we observed a nearly identical profile of cultural taxa. The only non-local species in both Early/Middle Paracas courts, camelids, probably arrived on the coast as part of seasonal pastoralism. Guinea pigs were most likely raised locally. What is notable about these early assemblages are lack of local wild fauna – no seabirds, marine mammals, deer, or small mammals. Equally notable is a major absence of fish, with the exception of a few stray vertebrae.

Sector B's remaining 552 specimens are associated with reuse events during the Late Paracas period. Again, lack of other post-Paracas material in this court allows us to make the reasonable assumption that this assemblage did not include post-Paracas elements. Remains associated with the Late Paracas domestic midden included at least five guinea pigs, one large sea bird, a single camelid, and part of a small fish. Of these elements, only three were burnt (all unidentified mammal bone). There was no evidence of butchery or further modification within this assemblage. Again, camelid remains are the only non-local fauna that were likely brought in during specific times of year. In sum, Sector B's Late Paracas shows a general continuation from Early-to-Middle Paracas levels in terms of overall intensity and choice of taxa.

Post-Paracas strata in Sector A exhibited the largest overall faunal assemblage (n=7018) with clear indicators for multiple uses of taxa including consumption, sacrifice, and divination. Vertebrate bone was densest near the court center, where it is commingled with post-Paracas ceramic and other debris. Association with local Middle Horizon feasting wares and clear butchery marks on some elements suggest consumption of vertebrates as part of these events. Other parts of the assemblage may be more closely associated with LIP-Inca Period structure at the center of the court, and appear as offerings rather than comestibles. Overall, there is no clean distinction between chronological period and type of activity, given the highly intermingled and disturbed nature of near-surface strata. One of the major challenges of this analysis was to untangle these relationships as thoroughly as possible without stretching the data.

Guinea pigs were the most common taxa in Sector A post-Paracas strata, with 4392 individual elements returning an MNI of 578 individuals (based on right mandibles; left mandibles provided a comparable number of 552 individuals). We recovered no droppings or other evidence to suggest that these animals were raised in the court or kept there for significant periods of time. Osborn also noted a complete lack of evidence for butchery or charring of guinea pig bones, either of which would suggest a primary function as a food species; boiling may still be a possibility. Furthermore, we excavated a number of guinea pigs with significant amounts of fur, skeletal articulation, and attached insect casings suggesting that these animals were not cooked (Fig. 103). These data support a scenario in which guinea pigs were used as divination instruments or simply as sacrifices (e.g. Sandweiss and Wing 1997:50). Osborn noted that only 13.1% of guinea pig distal humeri were fused (n=26 out of a sample of 196 specimens). Following Zuck (1938) this suggests that the majority of these individuals were less than 8 weeks old – well below full-grown size.

The large majority of guinea pig remains are commingled with the Middle Paracas feasting assemblage in the center of the court, and thus we hypothesize that some of these animals were involved, in some capacity, in these events. However, we also recovered guinea pig remains from inside the LIP-Inca-Period structure, particularly those specimens with significant amounts of articulation and attached fur portions. This suggests that guinea pigs were also involved in these later events, and we get the sense that this was purely divinatory or sacrificial use. These were likely locally available animals raised by communities in the lower-valley.



Figure 103: At left, a small sample of guinea pig mandibles from post-Paracas levels in the Sector A court. At right, a guinea pig skull with attached hair.

Camelids comprise the second most common taxa in Sector A's post-Paracas levels by NISP (n=1457), returning an MNI of 12 (based on right ischia). Like guinea pigs, camelids were intentionally brought into Huaca Soto's sunken courts rather than being corralled within the structure. Osborn noted that 15.2% (n=222 elements) of the camelid sample showed clear evidence for butchery consistent with ethnographically and ethnohistorically known practices (i.e. Miller 1979). This is clear evidence for consumption. Additionally, the camelid assemblage shows no systematically underrepresented elements, suggesting that the animals were slaughtered and processed *within* the court. A few specimens show evidence for burning (all of which were recovered from within the LIP-Inca Period structure at the court's center) in addition to elements with clear butchery (both within the central structure, and intermingled with local Middle Horizon servingwares). Epiphyseal fusion of long bones indicates that all the camelids in this assemblage were younger than 24 months.

In addition to disarticulated camelid elements we recovered two intact camelid sacrifices in the Sector A court (Fig. 104). The first was placed inside the court's northeast corner (R6A, Units 13 and 23, Level 1), facing west and lying in a prone position with legs tucked beneath in a natural resting position. A cairn of adobe clods covered the sacrifice. A second sacrifice, partially complete, was placed just outside the northwest corner of the central post-Paracas structure (R9A, Units 21 and 22, Level 1). This individual was likewise oriented towards the west, and exhibited extensive evidence for cutting and scraping, indicating that it was partially defleshed. In this case, sacrifice and consumption were not mutually exclusive. Both of the sacrificed camelids were juveniles, the R6A individual estimated between 3-6 months and the R9 individual between 0-1 month based on dentition. The implications of this age profile are interesting for understanding the timing of these migrations. The former animal may have been

born in the highlands and brought to the coast as part of seasonal pastoralist strategies, while it seems logical that the latter was born on the coast.

Radiocarbon dates from the R6A sacrifice indicates that it was deposited between the 10th and 13th centuries CE, and thus we assume an association with LIP events. As noted above, all charred camelid elements were recovered from the central structure, which likewise returned LIP-Inca period dates (see below). Due to massive commingling, it is unclear whether loose and butchered camelid remains found outside of this structure also pertain to this period, or date to the earlier local Middle Horizon events. Either case would present a plausible scenario.



Figure 104: Full-sacrificed camelid in post-Paracas strata from the Sector A court

Human Remains

We recovered 75 fragments of human bone from Huaca Soto's sunken courts, representing 53 individual skeletal elements and three individuals. Sector A yielded 11 individual elements and Sector B yielded 42.

No *in situ* human remains were recovered from secure Early-to-Middle Paracas strata in either court. However, we did recover specimens associated with intrusive events that punctured the Level 2 floor into the Level 3 sand fill in the center of the Sector B court. This intrusive burial was carved into existing architecture, and thus we expect that it post-dates the Early/Middle Paracas phase. Units 48, 50, 53, 56, 58, 59, 63 and 64 all contained isolated human remains that likely came from this even. A total of fifteen specimens included a molar, pre-molar, and canine belonging to an adult (Units 49, 50, 58), the glenoid fossa of a right scapula (Unit 48), the left distal terminus of a fibula (Unit 48), a single cervical vertebra (Unit 53), the head of a right femur (Unit 54), and portions of parietal bone (Unit 53). Together these specimens represent no more than a single adult individual. It seems most plausible that this represents an intrusive Late Paracas burial that was later disturbed, its contents thrown up onto the court surface.

The best evidence for the original context of this burial comes from the intrusive pits themselves. Rasgo 1B (Level 1), for example, was a large intrusion in Unit 58 measuring almost a meter in diameter (Fig. 105). This pit punctured half a meter into the Level 2 floor and reached the sand fill below. From this feature we recovered the superior portion of a human coccyx, a fragment of the left distal epicondyle of a human femur, a complete left zygomatic bone, and the mid-shaft portion of a right human femur. In nearby Unit 50 (Level 1) we recovered a single thoracic vertebra. We identified a second intrusive pit in Level 1 of Unit 56 (R4B). This feature

contained part of a human mandible and several phalanges. We also recovered several badly fragmented human skeletal elements from the court center, including several teeth. Despite two intrusive pits, however, when we consider the human remains recovered in Sector B together we are still left with the remains of a single adult individual.



Figure 105: An intrusion into the Level 2 floor in Sector B associated with a human burial.

We recovered remains of a second adult from the corners of the Sector B court on the internal tier above the court floor. These were recovered from deposits embedded in Late Paracas strata, were accompanied by Late Paracas monochromes, and appear to be distinct from the individual in the center of the court. Rasgo 6B, located on the southwest corner of Sector B's internal tier, presents remains of a burnt olla containing part of a human maxilla and a full right humerus broken in three places (Fig. 106). It also contained a variety of additional materials including maize fragments, lithic debitage, fragments of gourd bowl, textile, and *Spondylus* shell.

These remains were intentionally deposited as part of this feature. Nearby in the southwest corner of the lowest tier (Unit 88) we recovered the shaft of a right human tibia and part of a human rib. Likewise, in the northwest corner, we recovered the left portion of a human mandible with its first and third molars intact (Unit 80), portions of human parietal and frontal bone (Unit 80), the right distal portions of an ulna (Unit 89), a human rib (Unit 89), and part of a maxilla with intact adult dentition (Unit 111). The eastern two corners held a single human element apiece. In the northeast corner we recovered a fragment of human ischium (Unit 86) and in the southeast corner several portions of parietal bone (Unit 114). Together these remains only represent a single individual who was perhaps dismembered and deposited into the four corners of the second tier during Late Paracas times.



Figure 106: Human remains recovered from an intrusion containing olla sherds, southwestern corner of Sector B

Post-Paracas strata in Sector A also contained the remains of a third adult individual. These specimens were restricted to the court's southeastern corner (Unit 34). Remains include a single thoracic vertebra, a single lumbar vertebra, a portion of left maxilla, a nearly complete mandible with adult dentition and unerupted third molar, rib fragments, the medial end of a right clavicle, and a medial phalanx. As in the other two cases, there is not enough information to determine this individual's biological sex. Dentition suggests that this was a young adult. We did not identify any features or objects near Unit 34 that might represent grave goods or indicate an original depositional context for this individual.

Macrobotanicals

Macrobotanical specimens recovered from Huaca Soto's courts include foodstuffs (maize, peanuts, etc.), architectural materials (reed-and-cord panels), and utilitarian objects like fragments of vegetal basketry and gourd bowls. We recovered 7.076 kg of macrobotanical remains from the Sector A court. Of this assemblage a mere 58 grams pertain to Early/Middle Paracas strata (0.008%). The remainder are from post-Paracas contexts in near-surface post-Paracas strata. Similarly, excavations in Sector B recovered 22.240 kg of macrobotanical remains, of which only 202 grams came from Early-to-Middle Paracas strata (0.009%). While this disparity between Early/Middle Paracas phases and later periods clearly reflects the fact that excavation exposed much more of the latter contexts, they also reflect the use of the courts in antiquity. For example, of all macrobotanical remained recovered in Unit 21 of Sector A (a deep-sounding that exposed Levels 1-9), only 25 grams pertain to Levels 2-9. In contrast, we recovered four times as much in Level 1 alone. The vast majority of Early/Middle Paracas macrobotanical remains in Sector A are charcoal fragments unidentifiable to the species level.

We recovered carbonized wood in all strata in similar quantities. This material serves as the basis for radiocarbon samples taken from deep court layers. Likewise, Early-to-Middle Paracas strata in Sector B contained a majority of charcoal, but also included half a dozen maize cobs, fragments of gourd bowl, and tufts of cotton (Units 53, 54 and 58, Level 3). Much like other material types, management and clearing of courts in antiquity may have removed most macrobotanical evidence from Early/Middle Paracas floors.

Late Paracas (Topará) macrobotanical remains can be assessed by looking at the uppermost layers of Sector B (Levels Superficial, 1, and 1B). A large portion of these remains by weight pertain to architectural features, including wood posts embedded into the Level 2 floor, woven reed matting that likely served as portions of wall or roof, and fragments of totora sedge (*Schoenoplectus californicus tatora*). These locally available construction materials, alongside household features like middens and hearths, support the idea that the Late Paracas reuse of the Sector B court was domestic in nature. Apart from construction materials we recovered a minimum of 63 maize cobs (*Zea mays*) from Late Paracas contexts in the Sector B court. With the exception of two cobs recovered from the court center (Unit 66) maize was deposited along Sector B's court walls and corners. We recovered three specimens from inside the northwestern corner (Unit 85) and two specimens from that corner's second tier (Units 90 and 111). Another seven cobs were recovered on the court floor against the western wall (Units 92 and 97). The southeast corner (near the Late Paracas midden) contained 21 maize cobs, some of which were burnt (Units 113 and 114), and Unit 109 along the eastern wall contained one specimen. The highest density of maize remains in Sector B (n=32) are associated with several *rasgos* in the northeastern corner. R15B, an olla deposit (Unit 86), contained 16 cobs alongside several lucuma pits (*Pouteria lucuma*) and a handful of peanuts (*Arachis hypogaea*). Additional Late Paracas

macrobotanical remains include a wooden bottle stopper from Sector B's southwestern corner (Unit 88), fragments of basketry and vegetal rope spread throughout the court's center, and 65 fragments of gourd bowl scattered evenly throughout the court center and corners. All botanical specimens found Formative contexts were locally available on the south coast.

Post-Paracas macrobotanical remains from Sector A exhibit a much higher degree of fragmentation compared to Late Paracas contexts. Most are difficult to identify to the species level. One exception was a 3-meter high wooden post, about 15 cm in diameter, recovered from adobe rubble within the central rectangular-adobe post-Paracas structure[54]. This post evidently collapsed northward into the structure and was associated with fragments of reed roofing material. The generally good state of preservation of this post and total lack of additional wood-post specimens suggested that this piece served a major structural role, perhaps as a main piling surrounded by smaller secondary supports. Another interpretation is that this pole was a central focus for post-Paracas sacrificial or divinatory events in Sector A's post-Paracas structure. Moore (1996b:792) cites Augustinian chroniclers in mid-16th century Huamachuco, who describe an anointed wooden pole inside a large plaza that received libations of sacrificed camelid and guinea pig blood in association with feasting activity. While there is no data supporting a direct connection between Chincha and Huamachuco in late antiquity, the idea that post-Paracas groups used a large post as a focal point for ritualized activity is not entirely unreasonable. Indeed, this structure contained the remains of hundreds of guinea pigs interpreted as sacrifices and divinatory offerings.

[54] This was not included in the prior assessment of the assemblage's total weight

Additional post-Paracas botanical materials in the post-Paracas Sector A court include 3 maize cobs (Unit 18) one of which was carbonized (Unit 23), basketry remains near the center adobe structure (Units 18, 39, and 41), a limited number of pacae fruit recovered from the court center (Unit 22), and 103 fragments of gourd bowl (all undecorated) spread evenly throughout court center and corners. All in all, these are entirely locally available taxa. Taken together, plant and animal remains at Huaca Soto bear little evidence for non-local inputs.

Metals

Huaca Soto's courts contained a small quantity of metal objects. The most common are fragments of copper-alloy pins. We recovered two near-complete pins from Early/Middle Paracas strata and several partials. One well-preserved specimen from Sector B (Unit 60 Level 3) measured 13.85 cm long with a shaft diameter of 3.09 mm (Fig. 107). Its proximal end terminates at a broad, flat metal face with a small hole in it. This area was likely once decorated or finished in an elliptical shape. We recovered a second pin in the center of Sector A (Unit 22, Level 3). Elemental analysis on this pin (pXRF) by field conservator Colleen O'Shea concluded that it consists of a *tumbaga*-like alloy that included copper, silver and gold[55]. We did not recover any metal objects from secure Late Paracas (Topará) contexts.

[55] According to a personal communication from O'Shea: "X-ray fluorescence spectra of the metal flakes were collected using a Bruker Tracer III-SD handheld energy dispersive X-ray spectrometer. The excitation source was a Rhodium (Rh) target X-ray tube, operated at 40 kV and 17 mA current. A yellow filter was used to reduce the background radiation and enhance the sensitivity in the energy range of interest. The X-ray beam interacted with sample at approximately a 4x5 mm oval. X-ray signals were detected using Peltier cooled XFlash silicon drift detector (SDD) with a resolution of 146.4eV. Spectra were collected over 60 seconds in real time. Spectral interpretation was performed using the Artax Control Software".

Post-Paracas strata in Sector A yielded a variety of small flakes of green copper oxide throughout the center of the court (totaling 62 grams). These were apparently once part of a larger object, now decomposed. Flakes are extremely fragile and tended to pulverize into green dust when moved. These showed no obvious organization between them that might indicate the nature of the original object. We also recovered several copper beads formed by folding over a thin ellipsoid-shaped sheet (see section on beads below). Finally, we recovered a metal Inca figurine that appears similar to *capacocha* sacrifices (see full description in Figurines below). We recovered this object from inside the court's post-Paracas adobe structure.



Figure 107: Top, a tumbaga alloy pin from Early/Middle Paracas contexts in Sector A, Level 3. Bottom, a tupu pin recovered from Early/Middle Paracas contexts in Sector B, Level 3.

Textiles

In Sector A we recovered 14.142 kg of textile remains represented by 173 individual fragments. This includes the 14 large post-Paracas specimens recovered from R14A in the southwest corner of the Sector A court. Other post-Paracas *rasgos* in Sector A tended to include small portions of textile (R2A, R4A, R7A, R8A, R10A R12A, R13A), including one of the camelid sacrifices (R6A). With the exception of one specimen from R14A that exhibited attached bird feathers and a few specimens with evidence for a red colorant, we observed no evidence for decoration. Two standalone textile objects, what may be a miniaturized undecorated tunic and a small 'handkerchief', were recovered from the post-Paracas structure at the center of the court.

In Sector A's Early/Middle Paracas strata we recovered only three very small textile fragments totaling 6 grams, and in Sector B's deep strata we recovered only one scrap weighing no more than a gram. In Late Paracas strata of Sector B we recovered 711 grams of textile material represented by 53 individual fragments. The most notable of these was dyed with red pigment, folded neatly, and deposited in a small depression carved into the Level 2 floor alongside several chrysocolla disc-beads (Unit 68). Apart from red colorant we observed no outward decoration. All specimens appear to be unadorned plain weaves. Late Paracas textile remains are evenly distributed between the center and all four corners of the court. Future analysis of textile remains at Huaca Soto could focus on identifying the distribution of fiber types (camelid vs. cotton), looking at weave patterns to probe for diagnostic techniques, and sampling for pigments not visible to the naked eye by utilizing LC-MS residue analysis techniques.

Lithics

There are no stone components in the architecture of Huaca Soto. Thus it is reasonable to suggest that all lithic materials of substantial size were introduced into Soto's courts for specific purposes. We identified 40 individual fragments of lithic tools in the Sector A court (3.175 kg) and 134 fragments in Sector B (25.027 kg). These do not include chrysocolla and sodalite materials used as ornaments (see section on beads below). All lithics discussed below consist of locally available basaltic material unless otherwise noted.

We recovered eight lithic specimens from Early/Middle Paracas strata in Sector A and 36 specimens from similar layers in Sector B. Sector A specimens include three pieces of a broken *metate* embedded in the Level 2 floor (Unit 25), three small and irregular chunks of debitage swept into the northeastern corner (R11A, Level 4), and two small lithic fragments recovered from the court's deepest layers (Unit 21 Level 8, R11A Level 9). All of these specimens were once part of larger grinding tools; we identified no edged lithic tools in Sector A's deep strata. Sector B's Early/Middle Paracas levels also emphasized grinding tools over cutting tools. Aside from the obsidian projectile point described from R9B, we also recovered part of a large *mano* (R9A Level 3, Unit 54 Level 3), portions of a *metate* (Unit 56 Level 3), and two egg-sized spherical stones that closely resemble sling ammunition (Unit 82 Level 2). The remaining 29 specimens are small (<100 grams) related fragments spread throughout the center of the court in Levels 3 (n=7) and Level 4 (n=2), embedded in the Level 2 floor of the southwestern corner (n=2), and on the second tier above the southwestern corner (n=18).

Late Paracas strata in Sector B contain 98 lithic artifacts. The best-preserved of these testify to regular food or beverage preparation. These include seven different *mano* grinding stones with well-worn surfaces, some more than 25 cm long and weighing up to 2 kg (Fig. 108).



Figure 108: Three different mano grinders recovered from Late Paracas domestic contexts in the Sector B court.

We recovered three of these specimens from Level 1 in the northeast corner, one pressed against the northern court wall (Unit 100 Level 1) and two associated with olla deposit-features (R7B and R15B). We recovered at least three other partial specimens from the center of the court in association with perishable structures and quotidian activities (Units 60, 53, 56, Level 1). We also recovered part of a large *metate* and associated fragments in the southwestern corner (Unit 79 Level 1), perhaps associated another nearby *mano* fragments (Unit 82 Level 1). Unlike the

previous phase we also recovered edged lithic tools, including several examples of informal choppers, roughed blades, and numerous debitage flakes from the southwestern corner and center of the court. Additionally, we recovered a number of fist-sized cobbles, some well-sized to be sling projectiles (Units 55, 94, 82, 74) while others were large enough to serve as hammer-stones (Units 60 and 74).

We recovered 82 lithic elements from post-Paracas strata in the Sector A court. Activity involving lithic tools focused on the northeast portion of the court's center and its southwestern corner. Specimens included least three *mano* grinders (Units 25 and 33, Level 1), several hammerstones (Units, 18, 24, 33, Level 1; Unit 13 Level 1B), egg-shaped projectile stones (Unit 18 Level 1), and various flakes and fragments from ground-stone tools. We did not recover any complete edged tools, but several flakes suggest that informal blades may have played a role in post-Paracas activities in Sector A.

Beads and Ornaments

Each of Huaca Soto's major phases contained ornamental objects, including a variety of stone and *Spondylus* shell beads, unfired clay figurines, and miscellaneous objects like coral and quartz crystal. This section provides context for these finds and offers a brief description of each.

Excavations at recovered a total of 144 ornamental beads from Sectors A and B. These finds are restricted to Surface and Level 1 strata; we did not recover Early/Middle Paracas specimens. Overall bead materials ranged from *Spondylus* (red), chrysocolla (green), sodalite (blue), marine shell (white), and copper (Fig. 109). Spondylus and chrysocolla are the most common materials overall (n=100, 69.4% of the sample and n=32, 22.2% respectively).



Figure 109: Stone and Spondylus shell beads recovered at Huaca Soto.

Medium-sized circular disc beads are the most common morphological form overall (n=82, 59.9%), ranging between 3-8 mm in diameter and between 2-4 mm thick. We cataloged 10 additional bead forms, most of which we recovered as part of an intact *Spondylus* collar consisting of 56 beads. This single locus accounted for 38.89% of the total assemblage; the remainder of beads were recovered independently or in small clusters.



Figure 110: A full Spondylus beaded collar recovered in post-Paracas near-surface contexts in Sector A

Sector A contained 110 specimens (75.7% of the sample) including the intact *Spondylus* collar (Fig. 110). The collar was deposited on the northern side of Sector A's second tier (Unit 5 Level 1). The collar lay interspersed with debris from the northern wall, suggesting that it reached its current position by falling from an above area – perhaps a wall niche or from the top of the wall itself. Included in this collar were at least nine different bead forms. The largest were three trapezoidal *Spondylus* plaques, measuring from 7-9 cm long and between 3-5 cm wide. The red exteriors were polished to a smooth and even shine. Three holes punctured the short-axis of each plaque. These were likely worn with the flat side against the body and appear to form the collar's centerpiece. The collar's other bead forms included long, thin blades of *Spondylus* with a single hole perforating the short axis, cubic and rectilinear beads with holes through one or more axes, oblong rectilinear beads with multiple holes through a singular axis, and long tubular beads with a hole through the long axis. In some cases, beads were carved into 'serrated' or 'feathered' shapes.

Apart from the collar, post-Paracas strata in the center of the Sector A court contained 54 disc beads made predominantly of chrysocolla and *Spondylus*. These are generally intermixed with adobe debris in the court center, outside and to the north of the post-Paracas adobe structure (Units 17-22). This may indicate the scattering of one of more complex ornaments in this area. Sodalite disc beads recovered nearby (Unit 18) were notably thicker than *Spondylus* and chrysocolla counterparts, suggesting that they may be part of a distinct ornament. Disc beads did not appear in association with the aforementioned *Spondylus* collar. This leads us to suspect that the assemblage of disc beads recovered from Sector A's center represent a different event than the deposition of the collar. I suggest that several ornaments were deposited in Sector A's upper strata – at least the full *Spondylus* collar (Unit 5), an ornament composed of medium-sized

chrysocolla and *Spondylus* disc beads (Units 17-22), and an ornament consisting of notably thicker sodalite beads (Unit 18).

Sector B contained 34 bead specimens (23.61% of the total sample). These likewise fall into distinct spatial clusters. The first are a set of three *Spondylus* disc beads, a tubular *Spondylus* bead, and a large *Spondylus* plaque similar to those from the Sector A collar. We recovered these specimens at the top of the western staircase, on the ridge between Sectors A and B (R25B). Second, we recovered a cluster of five beads from Sector B's the northwestern corner (Units 80, 83, and 111). These consist of three tubular *Spondylus* beads, one rectangular *Spondylus* bead, and one white shell bead. A second white shell disc bead was recovered from the northeastern corner (Unit 72). We recovered the remaining 24 beads from the court's center. Nineteen of these are chrysocolla disc beads that cluster in Units 62, 67, and 68. The remaining five beads (4 *Spondylus* and one chrysocolla disc beads) clustering within Units 53 and 54. The spread of beads across the court suggests multiple ornaments.

In all contexts, these carefully *Spondylus* and crysacolla-beaded ornaments are high-value non-local materials. These are present in large quantities for post-Paracas events, and in smaller quantities associated with Late Paracas reutilization of the Sector B court. Neither *Spondylus* nor crysacolla was found in Early-to-Middle Paracas levels.

Figurines

We recovered 20 human and animal figurines from Huaca Soto's sunken courts. Nineteen of these samples were recovered from post-Paracas contexts in Sector A, with a single figurine recovered from a Late Paracas stratum in Sector B. We did not recover Early/Middle Paracas

figurines. Eighteen of the total sample consist of unfired clay. One of two Inka period figurines was carved in *Spondylus* shell; the second was made from a copper-alloy metal. Additionally, we recovered two applique ceramic figures that were once attached to larger ceramic vessels, associated with local Middle Horizon feasting debris in the Sector A court.

We recovered the head of an unfired clay figurine from an architectural fill on the second tier of Sector B's northwest corner (Unit 85 Level 1). This fill also contained Topará-style Chongos blackwares, thus securely dating the specimen to the Late Paracas period. The head is conical in shape, coming to a sharp point at its crown (Fig. 111). It is approximately 5 cm high and 4 cm in diameter at its base. It is hollow and broken off at the neck, indicating that it was once part of a larger piece. The face has two identical eyes formed by two shallow almond-shaped incisions and point-incisions forming pupils. It includes a thin applique nose with two point-incision nostrils. A terse, down-turned mouth is indicated by a single thin incision.

The remainder of unfired clay figurines (n=17) were recovered from within the late rectangular adobe brick structure in Sector A. They are clearly post-Paracas in date. All were interspersed with fallen adobe debris and collapsed roofing material. Unit 38 held six figurines found at varying orientations and vertical positions, suggesting that they were deposited in multiple events (Fig. 112). In at least one case we recovered two figurines together (Lote 6557). These specimens share a similar set of features, including a broad, squared-off forehead, shallow eye sockets formed by lightly pressing thumbs into wet clay, and long sharp noses molded out of the head. They lack detailed facial features like pupils, nostrils, ears, etc. The first figurine has a stocky, short rectangular body and no apparent appendages; it measures 4.5 cm tall, about 3 cm wide and 1 cm from front to back. The second has an elongated, more curvaceous body with small molded half-spheres for arms and feet. The matrix of the second figurine is notably less

dense and darker colored than that of the first. A third figurine (Lote 6600), recovered nearby, shows identical formal characteristics, facial shape, design techniques and dimensions to the first figurine from Lote 6557. All three figurines lack flat bases and cannot stand upright. There were no accompanying materials associated with these specimens.



Figure 111: The head of a ceramic figurine recovered in Late Paracas strata in the Sector B court.

A fourth figurine recovered from Unit 38 (Lote 6587) is approximately the same dimensions as Lote 6600. It has a slightly thicker flat base, giving it an irregular cylinder shaped-body that stands upright. Its facial features differ markedly from other specimens. It has two

punctuate eyes executed by pressing a hollow tube into wet clay (likely a reed) and lacks concave eye sockets. The nose is broken off, though it is clear that it was once molded from the head in the fashion of Lotes 6600 and 6587, rather than an applique. This figurine lacks limbs. It exhibits traces of white paint on its body. Curiously, the top of the figurine is hollow, as if a thumb had been pressed deeply into the top of the head; it could thus hold a small object.



Figure 112: Six figurines found in the post-Paracas structure at the center of the Sector A court. Left to Right: 6557-1, 6587-1, 6600-1, 6557-2, 6601-1, 6558-1.

Lote 6601 (Unit 38) is a medium-sized unfired earthen figurine similar to the second specimen from Lote 6557. It shows identical body posture, including a slight rearward lean and upturned sculpted nose. It shares the same small additive nubs for arms and feet. Beyond the nose and two curiously protruding ears, similar to a feline, it lacks further facial features. It is significantly larger than similar shaped examples, however, measuring 7.5 cm tall, 4 cm wide and 3 cm deep. It stands upright due to a flattened base.

Two figurines are significantly larger than the rest of the assemblage. Lote 6558 is similar to 6601 and 6557 in its arch-backed pose, but in all other regards presents a unique style. It is a fragmented, disembodied head with a round face, an upturned molded nose, and deeply trenched elongate eye sockets. It has a clearly defined neck separating the head from the shoulders, although the majority of the body is missing. This specimen appears to have a small, wing-like left arm crossing the upper portion of the chest. Lote 5533 likewise exhibits a unique form (Fig. 113). This figurine is similar in general dimensions to Lote 6558 (11 cm high, 5.5 cm wide, 4 cm deep) but has cylindrical body with two short thick legs, no arms, and no neck. It exhibits concave, spherical eye sockets that are large in comparison to its face. These were produced by pressing a single digit into wet clay. The mouth is a short and terse incision. Lote 6558 is notably simpler and more crudely executed than other figurines, showing less overall detail. It appears to be hastily made.

A deposit just inside the western wall of the post-Paracas structure contained an offering of ten unfired earthen figurines (R12A). These include both human and animal forms and were clearly deposited as a single event. Together the set represents a group of pastoralists with animals in tow (Fig. 114). The human figures consist of a woman and two men (presumably adults). The formal traits of the adult figurines are identical in several regards. All have

cylindrical bodies with short, thick legs (most similar to Lote 6558). They exhibit round, flat faces separated from the body by a thick neck. Each face is painted red and outlined in white. Sculpted eyes and noses are raised and marked by white paint. The female figurine has a horizontal slit for each pupil, while both males lack pupils. Mouths on the three adult figures are small and terse, executed by shallow incision.



Figure 113: 5513, a large figurine that stands apart from the others.

There are several significant differences between the adult figurines that break down along gendered lines. One figurine has small clay breasts and clear female genitalia (Fig. 115). We did not recover any accoutrement associated with her. The other two adult figurines do not feature clear genitalia. Each wears a two-tiered, wide-brimmed hat, painted black. The upper portion of each hat shows a hollow depression in which a small object might be placed. Each is

wrapped in a brown plain-weave textile that is securely attached to the clay matrix, and each carries a reed staff across the left shoulder (embedded into the chest). One of these is significantly taller than the other adults (16 cm high, 7 cm wide, 5 cm deep) and has clear protrusions representing ears. The smaller figurine is equal size to the female (11 cm tall, 6 cm wide, 3.5 cm deep). I interpret these two specimens as males based on juxtaposition with the clear female example. A fourth human figurine is the smallest recovered at Huaca Soto, only 4 cm tall by 2 cm wide. The facial features and limbs of this diminutive figurine are executed in minimal detail. This may represent a small child, possibly a child.



Figure 114: The three adult figurines recovered from the post-Paracas structure in Sector A.

This family cluster was accompanied by five quadruped figurines. I interpret these as camelids based on body form and head shape (Fig. 116). The largest is 8.5 cm tall by 14 cm long and was painted in black and white. It has four clear legs, a short, stumpy tail, a long neck and facial features depicting eyes, ears, and an incised mouth. The remaining four camelids are much smaller – averaging 3.5 cm high by 6.5 cm long. Some of these smaller examples are painted in black and red. They show small protrusions for ears, but no additional facial features. Finally, this cluster included an unfired earthen figurine of a snake, approximately 8 cm long by 1.5 cm wide. It has an undulating body, two clear punctuate eyes, and a simple horizontal incised mouth. Radiocarbon dating of fibers taken from one of the male's tunics places this 'family' deposit between 1200-1275 CE, coeval with the onset of the Late Intermediate Period Chincha Kingdom (see below).

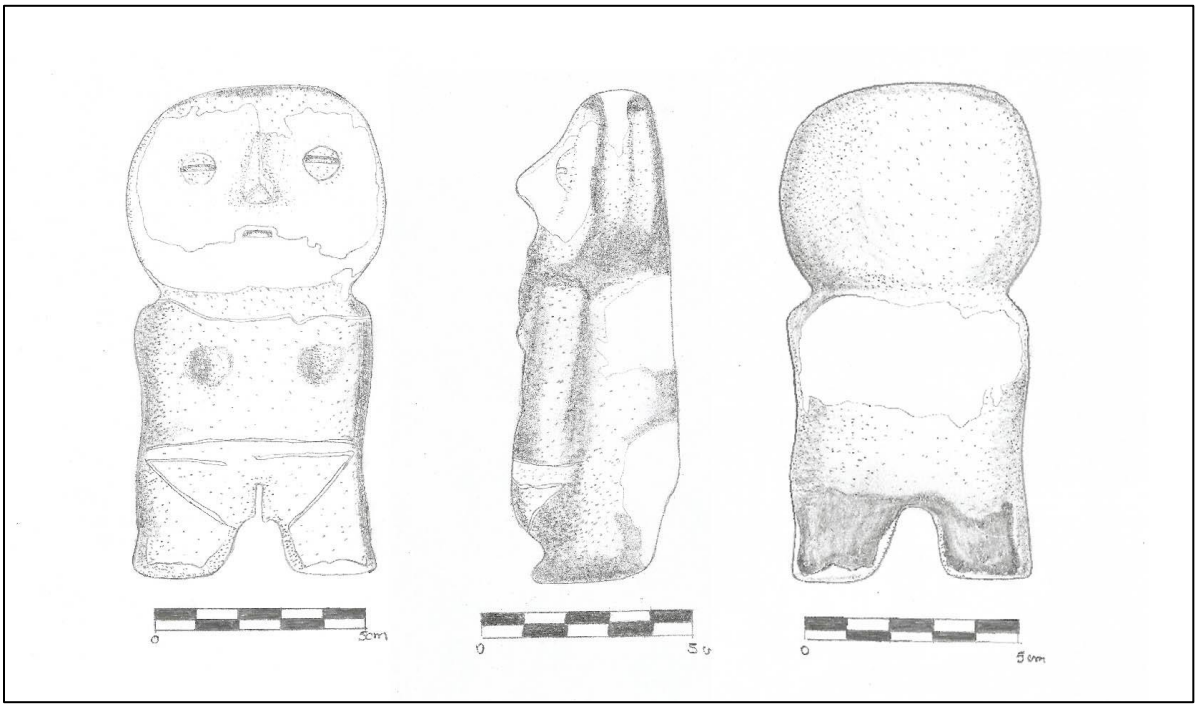


Figure 115: Drawings of the female figurine by Jose Tumbalobos

We recovered two additional figurines within Sector A's post-Paracas structure, both of which are clearly associated with Inca forms known from ritualized offerings elsewhere in late Andean antiquity. In Unit 39 we recovered a camelid figurine carved from *Spondylus* shell (Lote 6706). This is identical to several examples observed in the Museo Inca (UNSAAC) in Cusco, as well as other museums that hold substantial Inca collections (Fig. 117). One side of the figurine expresses the shell's white interior, which the other is presents the brilliant red *Spondylus* exterior. Both sides received a similar amount of detail, including an elongate diamond-shaped eye, small carved incisions for nostrils and mouth, erect ears, a distinct tail, and detailed lower legs depicting pasterns and hooves. There was no indication that this figurine was previously attached to an additional object or worn in any fashion.



Figure 116: Three of five camelids that accompanied the 'family' of figurines.



Figure 117: Spondylus camelid figurine of Inca provenience, from two sides. Recovered from the post-Paracas structure in the Sector A court.

The second Inca figurine was recovered from Unit 39 abutting the western interior wall of the post-Paracas adobe structure at the center of the Sector A court (Lote 6621). This specimen was wrapped in a poorly preserved polychromatic textile bundle featuring fine geometric motifs in yellow, red, and green (Fig. 118). The textile wrapping was secured with a woven cord. The wrapping pinned a small wooden staff to the figurine's left breast. The figurine within made entirely of solid metal (likely copper-alloy, given its green patina). The figure was naked beneath the textile and exhibits male genitalia (Fig. 119). It stands 4 cm tall on flat feet and is narrow – less than 1 cm wide. The head is disproportionately large, though compared to neighboring unfired clay figurines it is a more realistic depiction of the human body. The

figurine's arms are held to each side with hands folded upward towards the shoulders. His legs are straight and his heels touch. Facial features are well defined, including a pointed chin, a thin neck, jowl-like wrinkles around the mouth, and slight lips. Large, almond-shaped eyes are featured on either side of a straight nose. The ears are disproportionately large, forward-facing, and dangling; they are punctured and clearly reference the use of ear-spools. The forehead is wrapped in a cloth with the top of the scalp exposed. This finely crafted figurine and its extraordinary wrappings represent an unparalleled investment in skill and materials among the many offerings at Huaca Soto.



Figure 118: A metal Inca figurine wrapped in polychrome textile, from the post-Paracas structure in Sector A.



Figure 119: Metal Inca figurine before conservation and reattachment of the textile wrapping.

Idiosyncratic Objects in Early/Middle Paracas phases

We recovered a few standalone objects in Early/Middle Paracas strata that do not neatly fall into assessment by material type. These include relatively large fragments of quartz crystal (3-5 cm long) from the centers of both courts (Units 21, 50 and 57). In all cases these specimens were retrieved from the sandy Level 3 fill layer. The size of these crystals makes it unlikely that they were natural inclusions – we would expect them to be pulverized like the majority of the sand fill. The fact that they appear in the same relative position in both courts suggests intentional placement. We also recovered a complete spindle whorl from the earliest Early Paracas stratum in Sector A (Unit 21, Level 8), exhibiting an incised circle design on its body, as fragments of at least one spindle whorl from the center of the court (Unit 49 Level 3). The whorl was broken into two pieces in antiquity and exhibits three shallow circles incised onto its body,

similar to the example from Sector A. In Sector B, at the transition between the Level 3 fill and the Level 2 floor (Unit 55), we recovered a bone pin measuring 9.35 cm long with a shaft 3.45 mm in diameter (Fig. 120). The taxon of bone remains unidentified. The pin flairs and broadens at its proximal end to form a small head with a hole which could be threaded. We recovered this object alongside one well-preserved copper *tupu* pin, described above.



Figure 120: Idiosyncratic objects from Early/Middle Paracas strata.

Idiosyncratic Objects in the Late Paracas Phase

Late Paracas contexts above the Level 2 floor in Sector B also contained standalone objects. Most of these are utilitarian tools with specific purposes, including a scrap of cotton fishing net (Unit 74), a stone wrapped in corn husk potentially used as a weight (Unit 86), a small circular basket made from rough vegetal fiber (Unit 86), several spindle whorls with

incised circle designs (Units 65, 69, 72, 77, 83, 87), the blade of a ceramic spoon (Unit 55), and a ceramic sherd ground down and used as a polisher (Unit 74). We recovered a few small panpipe fragments from the western side of the court floor (Unit 88 and 89). The only clear prestige item associated with Late Paracas strata was the beak of a large parrot, species unidentified, from an intrusive Late Paracas post-hole in the court's center (Unit 70). This is clearly a non-local species, probably endogenous to the Amazon basin. Finally, we recovered three large chunks of marine coral from Late Paracas deposits in Unit 60, 66, and 68 (Fig. 121). Perhaps these served a yet unidentified practical function. Alternatively, they may be ritualized deposits. Fragments of corals are locally available along the littoral.



Figure 121: Idiosyncratic objects from Late Paracas strata in Sector B.



Figure 122: Idiosyncratic objects from post-Paracas phases

Idiosyncratic Objects in Post-Paracas Phases

Post-Paracas contexts in Sector A contains a variety of idiosyncratic objects associated with ritualized deposition. We recovered four identical pinch-pots (unfired) from a small offering deposit at the center of the court (Unit 21 Level 1). Each was approximately 4 cm tall, 3.4 cm at the widest and with a mouth of 2.1 cm in diameter (Fig. 122). These stood upright in a small cluster and all were empty. Nearby we recovered a flute fragment made from the long-bone of a fairly large bird (perhaps a sea-bird) (Unit 23, Level 1B). The flute shows two finger holes spaced 3.5 cm apart; each hole is 4.4 mm in diameter and were clearly drilled into the bone. We

recovered a second bone pin, approximately 5 cm long by 3 mm thick, from the southwestern corner of the court (Unit 33 Level 1). From the southeastern corner we recovered a small rectangular basket forming a low open box (Unit 41, Superficial). This basket consists of vegetal fibers wound around a reed-frame skeleton.



Figure 123: A complete Spondylus shell found alongside Inca figures in the Sector A court.

A complete and articulated *Spondylus princeps* shell accompanied figurines from the post-Paracas center structure (Fig. 123). The shell was unworked and entirely intact, measuring some 13 cm in length, about 11 cm wide and 7 cm thick. Fragments of small wooden sticks tied with brightly colored red and blue thread also appeared in and around the structure. These may be the remains of small *maquetas* (textile figurines) or other ornamental objects. Nearby lay what appears to be a miniaturized plainweave tunic, undecorated, perhaps associated with an unfired clay figurine (Unit 19, Level 1). This object is rectangular, measuring 10 by 11 cm with a small neck opening. Nearby textile objects include a small handkerchief-sized wrapping with strings attached at 45 degrees to each corner. This piece is finely woven from camelid hair.

Radiocarbon Dating

We recovered samples for radiocarbon dating from each of Huaca Soto's Early-to-Middle Paracas floor and fill layers (both sunken courts), as well as specific Late Paracas and post-Paracas depositional features. Samples pertaining to the structure's Formative layers were drawn from a deep sounding in the center of the Sector A court (Unit 21), a sounding in its northeastern corner of the Sector A court (R11 – Units 9 and 13), and a sounding at the center of the Sector B court. These samples were typically charcoal fragments. Although shell was a more common organic material in these deep contexts, we decided not to submit shell samples for dating due to additional complications associated with marine carbon calibration. Samples pertaining to Late Paracas contexts were collected from the domestic reuse area in the center of the Sector B court (in direct association with Topará-style monochromes). Samples pertaining to post-Paracas events were collected from specific *rasgos* in Sector A's near-surface strata. Late Paracas and

post-Paracas samples included a variety of materials more desirable for AMS dating, such as annual grasses like maize cobs and cane.

We selected and exported thirty radiocarbon samples in March 2017. We submitted samples to the W.M. Keck Carbon Cycle AMS Laboratory at the University of California, Irvine, for analysis. We calibrated each ^{14}C age measurement using OxCal 4.3.2 protocols (Bronk Ramsey 2017) under the SHcal13 dataset. A single-interval 2σ range calibration value was expressed for intercepts with >0.95 of the relative area under the probability distribution. When multiple intercepts occurred, 2σ ranges with >0.05 of the relative areas under the probability distribution were noted in parentheses. Ranges were rounded to the nearest five-year interval (Table 9.4).

Fifteen samples returned dates associated with Early-to-Middle Paracas phases. These cover all four major construction episodes at Huaca Soto, from Level 9 through Level 2. Results cluster tightly between 2490-2450 BP. In other words, each of these fifteen calibrated samples returned comparable ranges despite clear stratigraphic differentiation (Fig. 124). Thus we are justified in proposing a mean value of 2470 +/- 15 years BP for Early-to-Middle Paracas activity at Huaca Soto. Calibration of this mean returns a general range of 747-405 BCE +/- 15 years. This makes sense considering ceramic finewares recovered from these contexts (i.e. Chapter 8). Our inability to differentiate more clearly between construction episodes on the basis of radiocarbon (i.e., why this range is so broad) is the result of multiple intercepts within the calibration curve – a scenario produced by a calibration plateau associated with the second largest Holocene *de Vries* effect (sometimes referred to as the 'Halstatt Plateau') (Unkel et al. 2012:2295; León Canales 2007:36; see also Taylor et al. 2010). Samples from Huaca Soto's Early-to-Middle Paracas strata fall near the mid-point of this calibration plateau. In short, Huaca

Soto's four principal construction episodes could have occurred anywhere between a few years and a few hundred years, and anywhere from the mid-8th century BCE to the late 5th century BCE.

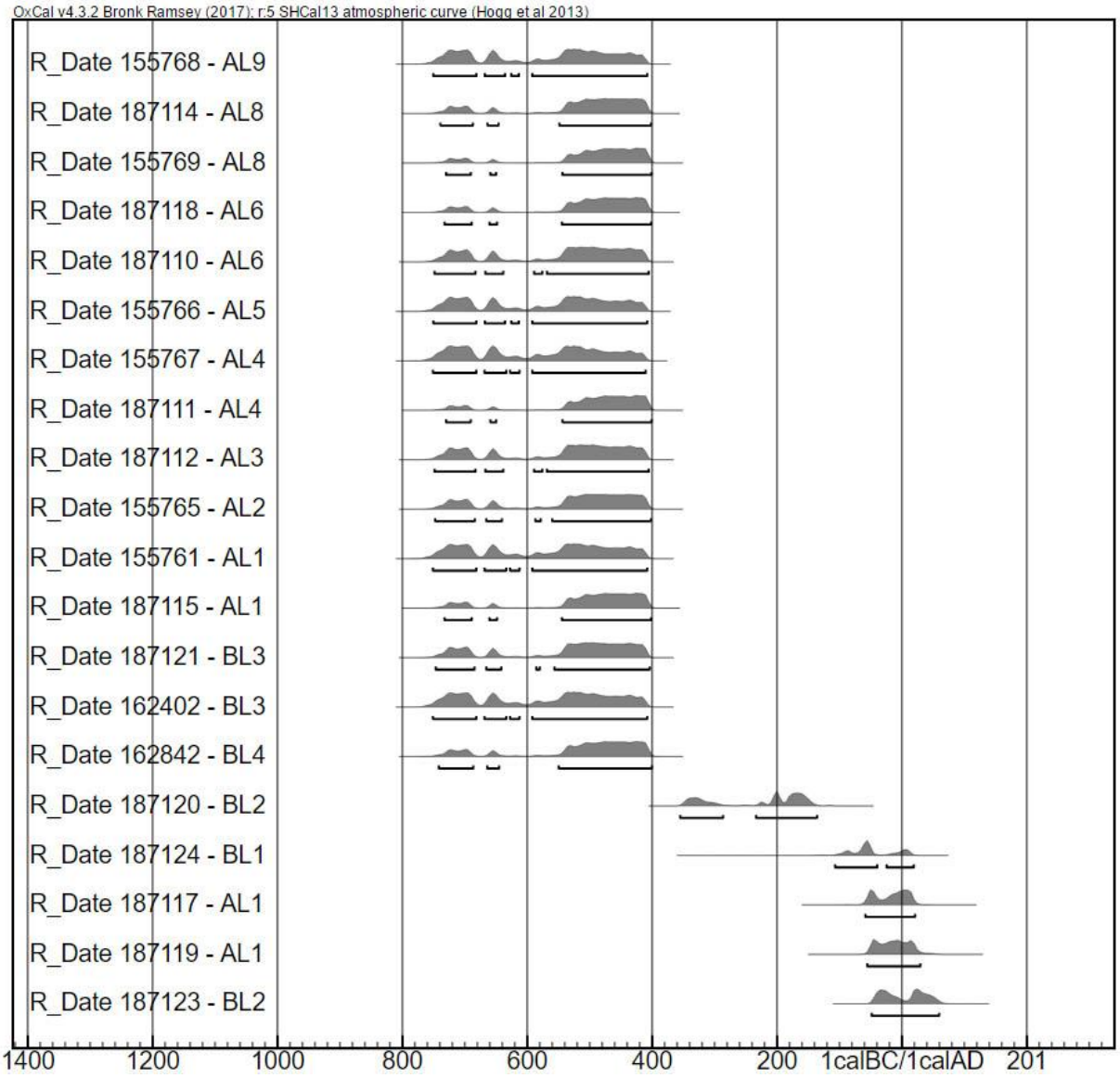


Figure 124: Carbon dates from the Early/Middle and Late Paracas Periods at Huaca Soto. OxCal v4.3.2 (Bronk Ramsey 2017); r:5 SHCal13 atmospheric curve (Hogg et al. 2013).

A few important considerations should be noted. First, two samples returning dates within the Early-to-Middle Paracas group were recovered from Level 1 of Sector A. This suggests that either 1) activity during this period did occur *after* the final major construction episode (the Level 2 floor), or 2) these specimens were churned up into later levels during intrusion events. We had anticipated the former based on the presence of post-fire resin painted wares in this stratum (including undisturbed areas) but could say little more due to massive commingled deposits that included elements from Late Paracas and post-Paracas phases. Second, while this broad set of early dates makes clear that the architecture of the Sector A and Sector B courts evolved within the same three-century timeframe, these dates do not by themselves confirm absolute contemporaneity of the courts. Based on radiocarbon alone, we have to consider the possibility that construction of each sector was chronologically distinct. Comparative analysis of floor-and-fill architecture in the two courts is therefore key to my argument that Sectors A and B evolved throughout the site's history (i.e. Chapter 7).

Six samples returned ranges associated with the Late Paracas period. The first two express multiple calibration intercepts. The earliest (UCIAMS-187120) comes from the bottom of one of the hearth features located within perishable domestic structures in the Sector B court (cal. 356-287 BCE at 31.3% distribution, 234-137 BCE at 64.1% distribution). The second oldest sample (UCIAMS-187124), a maize cob recovered from an embedded olla associated with Topará-style blackwares, expresses a range between the late 2nd to 1st centuries BCE (108-40 BCE at 67.2% distribution, 25 BCE-20 CE at 28.2% distribution). The remaining samples produced single-interval 2σ calibration values with >0.95 of the relative area under the probability distribution. Two of these (UCIAMS-187116 and UCIAMS 187117) were recovered just above the Level 2 floor in Sector A (49 BCE-60 CE and 59 BCE-22 CE, respectively). The

third (UCIAMS-187119) was recovered from beneath collapsed rubble in the northeastern corridor of Sector A (U28 R16), indicating that this passage remained open during Late Paracas times (56 BCE-30 CE). The final Late Paracas sample (UCIAMS-187123) was taken from an intrusive wooden post that supported a perishable structure at the center of the Sector B court (49 BCE-60 CE). Together, these dates meet our general expectations for Late Paracas (Topará) contexts based on research in neighboring drainages.

The remaining samples returned post-Formative dates (Fig. 125). Two samples returned dates associated with the Middle Horizon. The first (UCIAMS-187109) was a large chunk of charcoal embedded within a layer of CC-bowl and pedestal cup debris in the center of Sector A court (541-630 CE). This supports our interpretation of this servingware tradition as a local Middle Horizon ware. The second date (UCIAMS-187106) had multiple calibration intercepts. It was based on a piece of cane roofing material found at on the bulk between Sectors A and B, associated with two complete *florero* vessels (777-814 CE [11.2%], 840-902 CE [52.1%], 924-965 CE [32.1%]).

Five samples associated with post-Paracas features in the Sector A court returned dates ranging from the terminal Middle Horizon and the Late Intermediate Period. The earliest of these (UCIAMS-187125) was a portion of camelid skin and hair that survived on one of the intact sacrifices. It returned a date of 1002-1150 CE, which would appear to distinguish these sacrifices from earlier feasting events. A second date associated with a portion of cane roofing material buried within Sector A's central post-Paracas structure (UCIAMS-187107) returned dual calibration intercept ranges of 1046-1087 CE (31.0%) or 1135-1207 CE (64.4%). This raises the possibility that the camelid sacrifices took place at the same time that this structure was active. A third sample, a small branch also recovered beneath rubble within the central post-Paracas

structure (UCIAMS-187122) returned a range of 1161-1229 CE. The fourth sample, a separate piece of cane roofing material from post-Paracas structure, returned a late date of 1486-1628 CE. Thus it appears that the post-Paracas context was active for several centuries. The fifth sample, a cotton textile fiber attached to one of the robed earthen figurines recovered from the structure, returned a range of 1200-1275 CE.

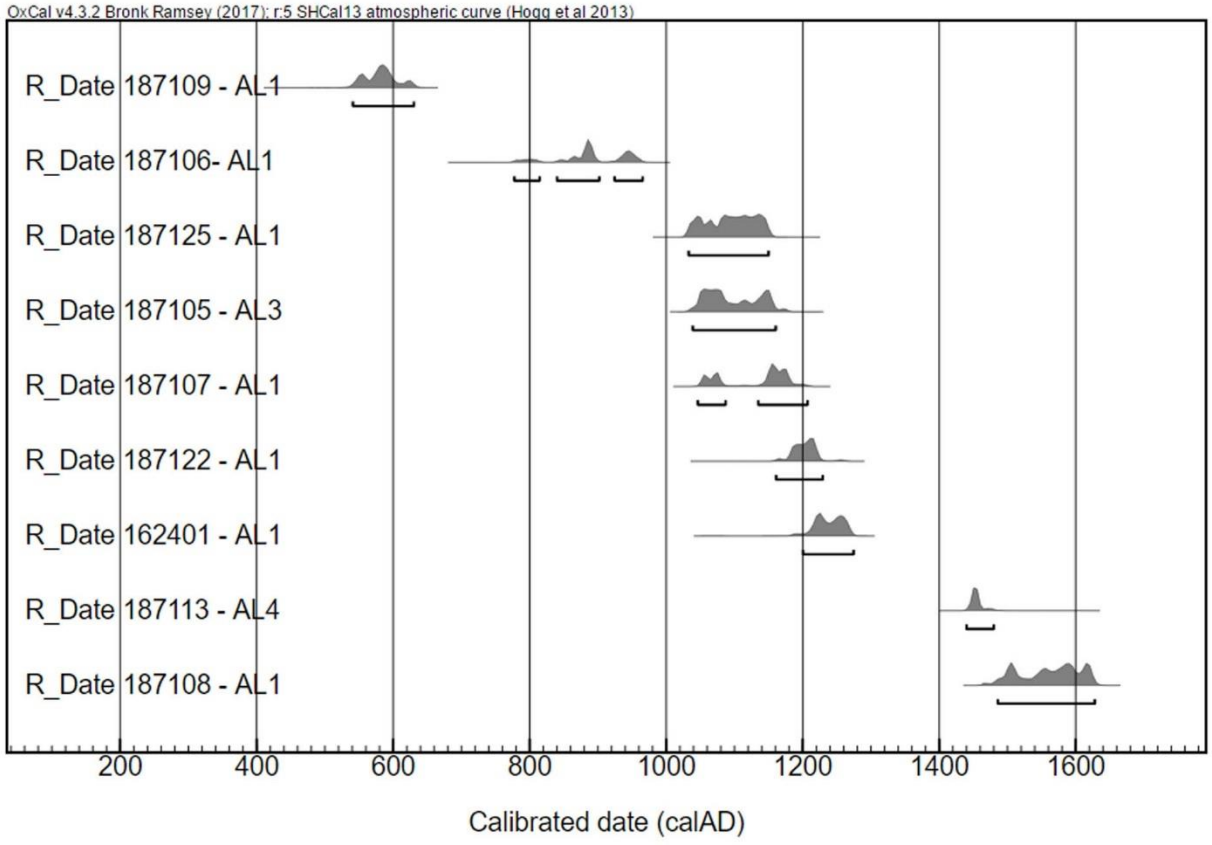


Figure 125: Carbon dates from post-Paracas features at Huaca Soto. OxCal v4.3.2 (Bronk Ramsey 2017); r:5 SHCal13 atmosphtaberic curve (Hogg et al. 2013).

The remaining two samples were recovered from Early-to-Middle Paracas strata in the center of the Sector A court but returned very late dates. The first (UCIAMS-187113) was

recovered from Unit 22 in Level 4, but returned a range of 1440-1480 CE. The second (UCIAMS-187105) was recovered from Unit 21 in Level 3, but returned a range of 1039-1160 CE. There are two explanations for these problematic dates. The first is human error on the part of excavators. This could have occurred during recovery, bagging and labeling, or during photography of samples as required by our export permit. The second explanation has to do with the context itself. Near-surface strata in Units 21 and 22 were badly churned up by post-Paracas activity, and we recorded much damage to the Level 2 floor. It is possible that older materials entered Levels 3 and 4 (between the uppermost Early-to-Middle Paracas floors) in association with intrusive events.

TABLE 9.4: RADIOCARBON DATES FROM HUACA SOTO

UCIAMS #	Context	PACH #	Material	14C (years BP)	+/-	Calibrated 14 C
155768	A, U21, L9	#6231	charcoal	2485	15	765-540 BCE
187114	A, R11, L8	#6350	charcoal	2460	15	740-688 BCE (12.4%) 664-647 BCE (3.2%) 549-403 BCE (79.8%)
155769	A U21, L8	#6262	charcoal	2450	15	750-685 BCE (39%) 660-640 BCE (13%) 590-415 BCE (48%)
187118	A R11, L6	#6282	charcoal	2455	15	733-690 BCE (9.9%) 661-649 BCE (2.1%) 545-402 BCE (83.4%)
187110	A U21, L6	#6182	charcoal	2475	15	747-784 BCE (20%) 668-639 BCE (6.5%) 590-577 BCE (1.3%) 569-406 BCE (67.6%)
155766	A U21, L5	#6130	charcoal	2485	15	765-540 BCE
155767	A, U21, L4	#5960	charcoal	2490	15	770-540 BCE
187111	A R11, L4	#6144	charcoal	2450	15	731-691 BCE (7.9%) 660-651 BCE (1.4%) 544-402 BCE (86.1%)
187112	A R11, L3	#6134	charcoal	2475	15	747-784 BCE (20%), 668-639 BCE (6.5%) 590-577 BCE (1.3%) 569-406 BCE (67.6%)
155765	A U21, L2	#5803	charcoal	2465	20	760-485 BCE
155761	A U21, L1	#5469	charcoal	2485	20	765-540 BCE
187115	A U13, L1	#5515	charcoal	2455	15	733-690 BCE (9.9%) 661-649 BCE (2.1%) 545-402 BCE (83.4%)
187121	B U54, L3	#7648	charcoal	2470	15	747-685 BCE (17.6%) 666-642 BCE (5.3%) 586-581 BCE (4%) 557-405 BCE (72.1)
162402	B U58, L3	#7396	charcoal	2485	20	750-615 BCE (37%) 595-410 BCE (63%)
162842	B U58, L4	#7883	charcoal	2455	20	740-645 BCE (16%) 550-400 BCE (84%)
187120	B U 55, L2	#7291	charcoal	2195	15	356-287 BCE (31.3%) 234-137 BCE (64.1%)
187124	B U 86, L1	#7914	maize	2085	15	108-40 BCE (67.2%) 25 BCE - 20 CE (28.2%)
187117	B U39, L1	#6687	charcoal	2060	15	59 BCE - 22 CE

TABLE 9.4: RADIOCARBON DATES FROM HUACA SOTO (cont'd)

UCIAMS #	Context	PACH #	Material	14C (years BP)	+/-	Calibrated 14 C
187119	B U28, L1	#6383	charcoal	2045	15	56 BCE - 30 CE
187123	B U50, L2	#7302	wood	2020	15	49 BCE - 60 CE
187116	B U23, L1	#5429	charcoal	2020	15	49 BCE - 60 CE
187109	A U20, L1	#5967	charcoal	1535	15	541-630 CE
187106	A 116, L1	#8336	cane	1210	15	777-814 CE (11.2%) 840-902 CE (52.1%) 924-965 CE (32.1%)
187125	A U13, L1	#5516	skin	990	15	1002-1150 CE
187105	A U 21, L3	#5849	charcoal	970	15	1039 - 1160 CE
187107	A U42, L1	#6774	cane	945	15	1046-1087 CE (31.0%) 1135-1207 CE (64.4%)
187122	A U38, L1	#6634	wood	885	15	1161-1229 CE
162401	A U22, L1	#6105	cotton textile	850	20	1200-1275 CE
187113	A U22, L4	#5991	charcoal	465	15	1440-1480 CE
187108	A U38, L1	#6602	cane	375	15	1486-1628 CE

Discussion

Architectural and ceramic analyses in prior chapters suggested that Huaca Soto's history of events could be separated into three general phases. The earliest phase, associated with Early-to-Middle Paracas post-fire resin painted polychrome ceramics, covers four major construction episodes. During this time the structure was a unified processional space. These contexts present high stratigraphic resolution and are distinguished from later periods by virtue of a final thick floor in both courts. The subsequent Late Paracas phase witnessed a series of minor architectural modifications to the Sector B court, the addition of perishable domestic structures, and a thick deposit of Topará orange and blackware monochromes. Finally, the near-surface strata of Sector

A contain more than a millennium of post-Paracas depositional events, associated with post-Paracas pottery covering local EIP and MH traditions. This final period included the addition of a small adobe brick structure added to the court's center. This chapter looked at other material assemblages recovered for each of these three phases.

Of the assessments by material type treated here (shell, vertebrate fauna, macrobotanical remains, textiles, metals, and lithics) all deserve expanded analysis and full chapters in their own right. This is clearly beyond the scope of this dissertation and must be the subject of future work. Here I have provided basic descriptions of each lot, focusing on the types of activities that took place in each phase, the local and non-local materials associated with these events, and whether particular activities were linked to specific spatial areas within Huaca Soto's sunken courts. It is clear that the Early-to-Middle Paracas, Late Paracas, and post-Paracas phases witnessed a markedly different use of Huaca Soto's internal space.

Discussion: Early/Middle Paracas Activity

Huaca Soto's initial set of Early-to-Middle Paracas events was marked by repeated and careful maintenance of sunken courts. Clearing of the court center and replastering of floors and enclosure walls testifies to a regular dedication of community labor and a shared set of expectations regarding how ritualized space should be conserved and renewed. On one hand, this management is clearly responsible for the low quantity of Early/Middle Paracas refuse observed in both the Sector A and B courts today. It is logical that debris was purposefully removed in antiquity. On the other hand, we should still question whether accumulation during Early-to-Middle Paracas phases ever reached levels comparable to later periods. If Huaca Soto's courts were originally designed as stages of a procession, as I suggested in Chapter 7, rather than cul-

de-sacs for feasts or major offering deposits, then overall accumulation may have been relatively light to begin with. Perhaps consumption and exchange activity associated with Early-to-Middle Paracas public events took place nearby – in the lower Sector C court, for example, or outside of the structure entirely. It should also be kept in mind that our exposure of these deeper levels was limited compared to Late Paracas and post-Paracas contexts, and thus we have a limited window into these events.

Even so, we have a basic idea of the kind of activities that impacted Early-to-Middle Paracas courts. Some activity may be related to ceremonies accompanying major architectural renovations. For example, rasgo 9B was a small *pago* in the Level 3 fill layer associated with the construction of the final Middle Paracas floor (Level 2). A *pago* can be described as a payment event associated with a new dedication or cycle of renewal (Celestino 1997:11). The basic features of these events include a small fire, deposition of offerings into that fire, and sometimes small amounts of consumption by attendants and practitioners. More specific to the early south coast, DeLeonardis (2013:206-211) defines an analogous class of Paracas burning rituals as a feature of Middle Paracas ceremonialism. These events involved the creation, placement, and incineration of a specifically selected group of objects, including fineware ceramic and items referencing both land and sea comestibles. This aptly describes R9B – a single ignition event with small amounts of animal bone, edible shellfish, a broken non-local obsidian point, a broken grinding stone, and several post-fire resin painted ceramic sherds. Other objects recovered nearby at the transition between Levels 2 and 3 include a long copper-alloy *tupu* pin and a bone counterpart, perhaps linked to the R9B event.

Early-to-Middle Paracas courts contained at least three types of non-local goods, although samples of each are small. The first is the single obsidian point mentioned above, for

which numerous sources are available throughout the nearby central and southern highlands (Glascock et al. 2007). Obsidian was well-distributed through decentralized long-distance trading networks well before the first millennium BCE and appears throughout Paracas contexts on the south coast (DeLeonardis and Glascock 2013). Appearance of obsidian at Huaca Soto is thus fairly unremarkable when compared to the universe of Formative sites in the region. The second, a fragment of *Spondylus* shell, became recognized as a prestige good prior to the first millennium BCE across parts of the north and central Andes (Burger 2012; Pillsbury 1996:313; Marcos 1980). *Spondylus* in Early/Middle Paracas ritual contexts would have been an exotic prestige good. We should be mindful that this is a single fragment – it is not a full ornament, nor is there an extensive assemblage. For now, we cannot say how this small fragment arrived in Chincha, or what this means for the political and economic structure of Paracas 'Cavernas' communities. At most, we can keep an eye out for further evidence. Finally, camelid remains found in three of the Early/Middle Paracas courts (MNI of one camelid per each deep court) suggest a regular reliance on this non-local taxon for events. Again, the movement of camelid pastoralists between the highlands and the coast was well established prior to the first millennium BCE (Bonavia 2008:82-83) and is not necessarily indicative of a prestige economy. Acquiring camelid products in Chincha likely did not require complex investment on the part of local Paracas communities beyond low-level general demand and a few direct transactions, at specific times of year, when herders arrived on the coast to trade. While these important non-local objects in Soto's courts help to indicate a non-quotidian space, they are not robust enough to support the hypothesis that incipient Paracas elites sought out these goods for wealth-financing strategies or made significant investments in obtaining them. Rather than seeking these objects out, it is more than likely that they arrived in local Paracas communities simply because the valley was a resource-rich

destination for pastoralists and travelers making seasonal journeys between the coast and highlands and N-S the coast – a scenario now well supported by data from nearby Early Paracas sites (Dulanto and Accinelli 2013; Dulanto 2013).

The remainder of Early and Middle Paracas materials at Soto – small quantities of locally available shell, animal bone, edible plant species, and charcoal - all suggest modest consumption activities accompanying court events. Shell fish remains in Sector A's deep strata were denser than in post-Paracas levels. In contrast, the amount of terrestrial animal bone was quite minimal for Early/Middle Paracas strata when compared to later phases. This tentatively indicates an emphasis on abundant and readily available marine-based comestibles during earlier Paracas periods. In terms of plant use we recovered maize cobs, gourd bowl fragments, and cotton – all well-established locally in the first millennium BCE. Again, these assemblages point to an array of locally available resources that could acquired by communities at relatively low-cost.

Thus, there is little evidence to suggest that heavy investment in non-local resources or a marked prestige economy was involved at ritualized events during Early and Middle Paracas phases. Local participating groups, organized as small villages or extended households, could easily organize and provision the types of material assemblages that we recovered from Huaca Soto's earliest phases. An argument for centralized leadership, marked distinctions in rank or status, or permanent social inequality would need to provide additional evidence to demonstrate a counter-claim. Secure radiocarbon dates recovered from these earliest assemblages suggest that Huaca Soto's four major construction episodes occurred sometime between 747-405 BCE. I suggest that somewhere in the middle of this range is most plausible for the earliest iteration of Huaca Soto, given polished brownwares similar to the Pozuelo, Ocucaje 3, and Cerrillos styles.

Discussion: Late Paracas Reuse

The Late Paracas period at Huaca Soto marks a transition away from holistic and carefully managed use of the structure and towards concentrated quotidian use of the Sector B court. It was a clear reuse event that demonstrates little continuity with the structure's original phases of use. The phase is defined by the appearance of Topará-style black and orange monochromes. These wares appear in near-surface strata in both the Sector A and B courts, but concentrate in the latter. Radiocarbon dates for Late Paracas contexts place this phase between the 2nd century BCE and the first century CE – a period in line with chronologies developed for neighboring zones.

Late Paracas refuse quickly accumulated in the Sector B court due to dense quotidian activity. Unlike earlier phases, there were minimal attempts to remove refuse from the court en masse. Instead, spatial distribution of objects suggests that limited space was managed strategically in order to allow for segregation of specific tasks. The southern side of the court, abutting the enclosure wall, consisted of a thick burnt midden containing fragmented ceramics, charcoal, ash, and other organic debris – this was evidently a disposal area that was occasionally set alight. The center of the court supported a series of perishable structures made from wooden posts and cane coverings, clearly a basic shelter that would protect against southwestern simooms. An intrusion at the center of these structures provided a sump for pouring off liquids and was capped with a gourd bowl. Deep but narrow hearths on the eastern side of the structures, protected from the wind, provided a controlled heat source. To the northeast, embedded *ollas* served as repositories for vegetal foodstuffs including notable quantities of maize. While this arrangement was far from spacious, it represents an orderly, self-contained environment in which tasks were distributed and performed according to practical considerations. Unlike the

Early/Middle Paracas phase, there was no visible attempt at regular purification, renewal, or conservation of the court's original architecture.

Recovery of a set of basic household tools supports the hypothesis that Sector B was a domestic zone during the Late Paracas Period. These included numerous undecorated containers, for example basketry, gourds, and the variety of ceramic vessels described in Chapter 8. Other objects are related to food procurement and preparation – for example scraps of fishing net, and *mano* and *metate* grinding stones. Rough lithic choppers and blades, ceramic sherds repurposed as tools, cordage, weights, polishers and hammerstones could serve a variety of general-purpose functions. Spindle whorls testify to basic preparation of fibers for weaving. Together these items form a complimentary set of activities ranging from subsistence procurement, preparation, consumption and disposal, to household-level production of basic tools and non-food items.

Subsistence products from Late Paracas contexts demonstrate a regular reliance on both plant and animal taxa. Invertebrate analysis is yet to be quantified but is visibly similar to the earlier phase – all abundant and locally available taxa. Maize was clearly a major component of plant-based subsistence products and was stored in large embedded ollas. Peanuts and lucuma were also available in significant quantities. In terms of vertebrate fauna, we observed a continued use of camelid products, guinea pig, and now the addition of a few fish and large bird elements. The Chongos and Pachinga sites in Pisco (Peters 1997:359-390) provide the best comparison for Late Paracas period subsistence regimes. These also demonstrate notable quantities of peanuts, corn, and lucuma present in domestic sectors, suggesting a general availability of all three during Late Paracas times. Huaca Soto's macrobotanical assemblage exhibits a disproportionate presence of maize, but less overall taxonomic diversity when compared to the Pisco sites. In terms of fauna, Chongos and Pachinga contained marked

assemblages of fish bone, while Soto contained only a few scattered vertebrae. Based on the data at hand, it appears that the Late Paracas occupants of Huaca Soto focused on exploiting a few notable plant products and terrestrial taxa, whereas the Pisco sites are skewed towards a more diverse plant base.

Despite an emphasis on quotidian activities, the Sector B court exhibits a few clear ritualized deposits. Some of these relate to the construction of new perishable structures in the court center. For example, we recovered ornamental objects from intrusive post-holes, including chrysocolla beads and the large parrot beak. Other ritualized features are more difficult to interpret, for example the disarticulated human remains found in the court's corners, in one case from inside of an embedded olla. This deposit also included maize, fragments of *Spondylus* shell and other objects and thus was clearly not incidental. Human remains scattered in the remaining corners in association with Topará-style ceramics also suggest some form of patterned ritual deposition. Perhaps these deposits were part of closing or de-sanctification events that purified the earlier court and paved the way for secular use. Alternatively, they could post-date domestic use of the court. It appears that at least one intrusive burial was introduced into the center of court during Late Paracas times, in addition to the human remains found in court corners.

Ornamental objects in Late Paracas contexts exhibit a mixture of local and non-local goods. Chrysocolla is locally available in copper-rich deposits along the desert coast and thus can be acquired via regional networks. The parrot beak, however, is a clear example of a non-local prestige good that would have been transported under special conditions, probably from the Amazon Basin. Again, while this singular piece of evidence should be taken with a grain of salt, we can ask whether this indicates a wider general availability of extra-regional products on the late Formative south coast. This is certainly the case with Late Paracas Necropolis burials on the

Peninsula, which exhibit a variety of high-value non-local goods (Tello 1959; Tello and Mejia 1979). Spondylus shell in Late Paracas contexts is also clearly non-local. It was recovered in the form of disc-beads alongside chrysocolla types. Camelid bone in the Late Paracas assemblage supports the idea that this period saw continued interaction with mobile highland populations who likely played a central role in these exchange networks. These non-local objects were probably set into motion by networks associated with new Late Paracas elites, perhaps arriving in the Sector B court incidentally as local Late Paracas communities began to encounter these items through local exchanges. What is clear is that the residents of the Sector B court had some access to sumptuary goods.

I have interpreted the available evidence to indicate the reuse of the Sector B court as domestic space. The de-sanctified court would have been an advantageous location for a household; it is somewhat private, defensible, provides an aesthetically pleasing and unimpeded view of the surrounding landscape, does not take up available farmland, and is within a few kilometers of the ocean. Indeed, a modern family utilizes Huaca Soto's Sector C court for many of the same reasons today. There was perhaps a degree of prestige associated with living on the older *huaca*. The variety of behaviors identified in the court form a full complement of domestic activities. As a final consideration, it is worth asking whether this occupation was related to support activities for ritualized events elsewhere on the site or nearby – perhaps in a neighboring court. Activities might have included production of ceremonial consumables, like beverages – thus we see a proliferation of grinding stones, stored maize, and major deposition of waste-water in the center of the Sector B court. Future research will expand upon this question in detail. For now, the most parsimonious interpretation simply views Late Paracas use of the Sector B court as the repurposing of public space for use by a small household.

Discussion: Post-Paracas Ritualized Events and Deposits

Huaca Soto's ultimate phase of use included a variety of post-Paracas events in and around the Sector A court. There seems to be minimal interest in Sector B. These activities spanned some 1000 years (ca. 6rd-15th centuries CE) and involved several recognized ceramic traditions. Some of these contributions as associated with known sociopolitical entities, while others appear to be little-known local traditions dating to the late first millennium BCE. Additionally, figurine styles demonstrate LIP and Inca deposits in the court. A variety of activities took place in the court center in association with these commingled contexts, including major consumption (feasting), deposition of high-value offerings, animal sacrifice, and at least one interred individual. Distinguishing between these individual events and linking them to specific stylistic groups is the principal challenge offered by this phase. In some cases, we can derive a clear cultural and chronological association for specific deposits and events based on radiocarbon dating of features.

A Nasca-style polychrome vessel recovered from the upper portion of the Sector B staircase was associated with *Spondylus* shell beads and reed-matting debris, suggesting post-Paracas activity on the ridge between Sectors A and B. Indeed, radiocarbon dating of cane from this matting returned a date between the 8th and 10th centuries CE; Indeed, the early part of this range would coincide with the terminal Nasca period. This indicates that post-Paracas events utilized architectural space between the courts, not simply the courts themselves. For now, there is little other evidence with which to interpret EIP contexts, and they appear to be idiosyncratic. There is no evidence for a direct connection between Huaca Soto and the Nasca heartland.

The second clear set of post-Paracas events were associated with massive concentrations of CC-bowls and related servingware vessels that I interpret as part of a local Middle Horizon

tradition (see Chapter 8). Radiocarbon dates for this deposit place it between the 6th and 7th centuries CE, supporting my hypothesis. This deposit was intermingled with remains of comestible taxa. Disarticulated camelid elements in this deposit (MNI=10) show signs of butchery, which supports the hypothesis that this was a feasting event. Most guinea pig remains in the surrounding area (MNI=578) are also well-disarticulated, but it is unclear whether they were also consumed during these events, served separate divinatory functions apart from feasting events, or pertain to later periods entirely. There are few notable macrobotanical specimens from this assemblage and unimpressive amounts of local invertebrate taxa. On the contrary, terrestrial animals seem to be a major focus. Ritualized offerings in the center of this assemblage included miniaturized pinch-pots, part of a bone flute, and rare Wari-style finewares. This pottery was perhaps acquired from nearby Wari compounds in upper Chincha and Pisco (Alcalde et al. 2001; Anders 1990). Altogether, this series of local Middle Horizon events account for the largest overall deposit in the history of Huaca Soto's sunken courts, forming a blanket of solid debris in places more than half a meter thick. These events were clearly organized in advance and would have involved substantial numbers of people.

Late post-Paracas events included the construction of the small structure formed of rectangular adobe bricks at the center of the Sector A court, which persisted from the 11th century into potentially the early 17th century. This structure was built after the introduction of feasting debris from earlier post-Paracas events, which can be found on all sides of the structure and embedded into the matrix below it. A few objects are clearly associated with this building by virtue of their exclusive placement within it. These include a cache of Late Intermediate Period unfired clay figurines, including both human and animal forms. The most notable is the 'family' of pastoralists with a herd of camelids in tow, perhaps introduced by seasonal pastoralists from

the nearby highlands. More than half a dozen additional figurines recovered from the small building (particularly Unit 38) are stylistically distinct from the 'family' cluster. This suggests that deposition of figurines perhaps occurred as multiple events and involved a number of communities or individuals. In addition to radiocarbon dating the 'family' cluster, returning dates between 1200-1275 CE, some figurines are stylistically similar to specimens associated with the Late Intermediate Period south coast by Morgan (2012:399). The central structure also contained a number of partially articulated guinea pigs, some with fur and abundant pupae, which indicate that they were left whole in the courts. They were evidently used as sacrifices or divination instruments. It is unclear whether disarticulated guinea pig remains found throughout the court suffered a similar fate to these articulated specimens. Similarly, dates from two laid-out camelid sacrifices also present clear links to LIP events, returning a range between 1000-1150 BCE. This would appear too early to be associated with the Chincha Kingdom (ca. 1200-1475 CE) and would thus represent the activity of a local Middle Horizon-LIP transitional culture. These sacrifices appear to be distinct from the disarticulated camelid remains with clear butchery evidence found in association with local Middle Horizon feasting debris.

The small adobe structure was in use for centuries before the arrival of Inca influence to Chincha (ca. 1475 CE), and clearly remained active afterward. Within the structure we recovered a copper-alloy figurine wrapped in brightly colored textile bundle, a llama figurine carved from *Spondylus* shell, and a complete *Spondylus* shell. This small assemblage of seemingly distinct Inca materials is surprisingly similar to *capacocha* offerings from mountain peak sacrifices. Reinhard and Ceruti show an identical camelid figurine (2010:143, Fig 7.14) and male textile-wrapped metal figurine (2010:140, Fig 7.9) associated with a sacrifice at the Llullaillaco volcano (Argentina). We recovered no Inca pottery. Male figurines, representations of camelids, and low-

emphasis on pottery are typical of male *capacocha* burials in various peak burials (Reinhard and Ceruti 2010:128-129). We did recover decontextualized human remains in the southeastern corner of Sector A, as well as other fine objects that may be related to an interment (a *Spondylus* shell collar, *Spondylus*, sodalite and chrysocolla beads, and flakes of poorly-preserved metal objects). If there was indeed an Inca period burial in Sector A, then that burial appears to have been sacked and its contents removed and scattered. Alternatively, this may be a ritual analog that references important Inca ceremonies elsewhere that included some, but not all, of expected *capacocha* elements. Third, these objects may have been deposited by local people who received them in exchanges. This evidence raises new questions for research on the Inca period Chincha.

Overall, Huaca Soto's post-Paracas periods witnessed a variety of ritualized activities pertaining exclusively to the Sector A court. The nature of these events changed significantly over time, reflecting the interests of participant communities. In some cases, such as the EIP, LIP, and Inca periods, we observed specific small-scale deposition probably carried out by individuals or small groups. In others, such as the local Middle Horizon, we observed large public events defined by consumption and massive deposits. Some characteristics appear to be conserved through time. Sector A, and no other court, was recognized as Huaca Soto's predominant sacred space. All post-Paracas events shared a focus on terrestrial taxa and a surprising disinterest in locally available marine resources or edible plant taxa. It is clear that the structure was recognized as a classic *huaca* for millennia after its original Paracas phases of use.

Chapter 10: Conclusion

Many of the fundamental questions raised by Julio Tello nearly a century ago remain central to Paracas archaeology today. Do Paracas Cavernas and Paracas Necropolis represent two phases in an evolving sociopolitical tradition, as I have suggested, or two unrelated and distinct entities? Were the Peninsula dead carried in from neighboring settlement zones, or did they reside nearby? What was the relationship between Paracas Cavernas, Chavín de Huántar, and the earliest 'horizon' of Andean civilization? Did Formative communities across the geographically circumscribed valleys of the south coast interact regularly with one another, and if so, what form did these interactions take? What social and material conditions prompted the appearance of incipient political complexity and the appearance of Necropolis elites? A renewed push for subsurface excavations in important Paracas sites, new interest in areas outside of Ica and the Peninsula, and a recent emphasis on radiocarbon control put archaeologists in an excellent position to reengage with these important questions.

Since the early 20th century, archaeologists have called attention to clusters of monumental Formative structures in the Chincha Valley that hosted deep sunken courts. Recent excavations at three of these sites – Cerro del Gentil, El Mono, and La Cumbe – by members of the Programa Arqueológica Chincha (PACH) are fundamentally changing the way that we envision the development of early south coast complex societies. PACH research reveals that construction and principal use of these non-vernacular structures took place during the Middle Paracas (Cavernas) period, between the 5th and late 3rd centuries BCE in association with post-fire resin-painted Pinta wares. This was a time of notable settlement expansion and innovative politico-ceremonial activity elsewhere in the region, and Chincha was clearly no exception.

These investigations raise the logical hypothesis that Chincha's monumental politico-ceremonial tradition was autochthonous to the valley and highly influential in the development of neighboring settlement zones. They also reignite the notion that later Necropolis elites were closely tied to this ritualized landscape, perhaps deriving their authority from roles as ritual specialists – a hypothesis raised by early investigators like Kroeber and pursued through the most recent INDEA research of the 1980s. Overall, they suggest that Chincha was central to the long term evolution of political complexity among Paracas peoples – a process that set the stage for subsequent complex societies like Nasca.

In order to further pursue these interests, I conducted a major investigation at Huaca Soto, a monumental Paracas structure in lower-valley Chincha. I proposed a set of four formal hypotheses[56] and tested them by conducting a large scale excavation in two of the site's sunken courts. Excavation focused on a diachronic analysis of architecture and configuration of court space, determination of the types of activities that took place within courts, assessment of local vs. non-local material inputs, and retrieval of deep samples for radiocarbon dating. With regards to each respective hypothesis, the following is now clear:

1) Huaca Soto contained an Early-to-Middle Paracas occupation (dating between the 8th and 5th centuries BCE), followed by a Late Paracas (Necropolis/Topará) reoccupation (occurring anywhere between the 3rd century BCE and the first century CE). There was a major hiatus between these periods.

[56] These hypotheses were laid out in Chapter 6 and are as follows: 1) Huaca Soto contains at least two discrete phases - a Paracas 'Cavernas' occupation (Early or Middle Paracas) followed by Paracas 'Necropolis'/Topará phase (Late Paracas); 2) The principle function of Huaca Soto's sunken courts was to host non-quotidian, politico-ceremonial events; 3) The evolution of ritual architecture and practice at Huaca Soto paralleled the emergence of social inequality across the region; 4) Huaca Soto contains evidence for regular interaction with non-local communities.

2) Huaca Soto was a non-vernacular structure that hosted politico-ceremonial events during Early-to-Middle Paracas times. It adhered to the general canon of Paracas ritual architecture in Chincha. During Late Paracas times, however, it was repurposed for a basic suite of household-related activities. It later regained ceremonial status as a *huaca* in post-Formative periods.
3) While ritualized events at Huaca Soto intensified across its Early-to-Middle Paracas iterations, there is no standout evidence for marked social inequality, individualizing leaders, or evidence to suggest that court spaces became more exclusive through time. Domestic reuse during Late Paracas times suggests general access to new forms of prestige wealth, but not in quantities that definitively suggest an elite household.
4) Materials recovered in Huaca Soto's Early-to-Middle Paracas contexts are overwhelmingly of local origin, with the exception of consistent camelid remains throughout its history. A few new non-local wealth objects appeared in Late Paracas times. Overall, however, materials recovered in Huaca Soto's Formative contexts were available in Chincha. Likewise, there is no evidence for major conflict or other indicators of regular interaction with far-flung groups. This suggests that Huaca Soto developed primarily in dialog with local social and material conditions in the valley.

I conclude this dissertation by offering three summary discussions. The first synthesizes Huaca Soto's deep history as a monumental structure and important local *huaca*. The second considers the long term development of Paracas communities in Chincha and their role in the regional evolution of Paracas society. Finally, I suggest that future endeavors can build upon these data.

The Evolution of Huaca Soto

Huaca Soto's monumental architecture was constructed in at least *four major episodes* dating to the Early Paracas period and the beginning of the Middle Paracas period. Fifteen radiocarbon dates from secure floor-and-fill strata suggest that these four episodes took place within a window of a few centuries – *sometime between the mid-8th and 5th centuries BCE*. At the time of writing, this makes Huaca Soto the oldest reported archaeological site in Chincha for which we have absolute dates.

Absolute chronology is supported by the presence of Early Paracas incised brown-ware sherds in the structure's earliest occupation strata. These pieces are poorly-oxidized, burnished to a low shine, represent shallow bowls and neckless ollas with thickened rims, and include a mixture of broad-and-shallow and irregular incision as described for Pozuelo phase wares (Lanning 1960:413-414), the Cerrillos style (Wallace 1962:306-7), and Ocucaje 3 wares (Menzel et al. 1964:20). The second, third, and fourth iterations of the Soto's monumental architecture are associated with a class of post-fire resin painted finewares that can be described as incipient Middle Paracas styles. Incision techniques now favored thin (1-2 mm), sharp, linear patterns of regular width and depth with all excess material carefully removed. Figural representations of profile and front-face felines are present alongside simple geometric motifs. Motifs included small incised and post-fire painted circles that fill zone-incised areas, closed vessels featuring 'fishtail' icons, interlocking carnivore figures, and concentric step designs. These motifs are similar to those described for Cavernas finewares (Tello 1959:448-9, Figs. 16-21) and several middle Ocucaje phases (Menzel et al. 1964). The local Pinta style is absent at Huaca Soto. It was apparently a later development in the valley, and thus is found at sites like Cerro del Gentil, El Mono, and La Cumbe that post-date Huaca Soto.

The earliest iteration of Huaca Soto was rather unremarkable. This was a small earthen structure located in the core of the westernmost tier, perhaps no more than thirty-by-thirty meters and rising a few meters above ground level. It may have been a flat-topped mound rather than an enclosed sunken court. A second major construction episode involved the addition of the middle tier, as well as the masonry ridge separating the two sectors. From this point forward, Sector A and Sector B developed in tandem, acquiring new floor and fill layers of identical thicknesses and similar composition. Each new floor was accompanied by the construction of new enclosure walls, gradually reducing the overall plan of both courts. As enclosure walls grew higher and court space narrower, courts became deeper and more cavernous spaces. This was most pronounced in Sector A, which always remained slightly elevated above Sector B and maintained its position as Huaca Soto's apex space. Because we did not excavate in Sector C we cannot say when this tier appeared. It is reasonable to propose that it was built either alongside Sector B, or as part of a subsequent construction episode.

Although Huaca Soto increased markedly in size over time, technical and design features remained constant. Construction consisted entirely of modular earthen materials, principally paraboloid adobe units, poured mud-slurry caps and floors, and loose sand fills. We did not observe stone or wooden elements in the substructure, nor did we observe *tapia* or *quincha* techniques. Production of adobes remained the same over Huaca Soto's construction history. It seems the optimum size of adobes was simply the amount of material that could be manipulated comfortably between adult hands – a practical convention that would allow for mass participation in building events. Exposed surfaces were constantly re-finished with mud plasters, a useful practice for minimizing wind erosion to the substructure. Sand fills allowed for the pouring of level floors, and perhaps also preventing water from pooling within the core of the

structure. Taken together, these techniques are well-adapted to the local seismological and climatic environment.

Huaca Soto's sunken courts formed a united processional environment during Early-to-Middle Paracas times. Axial movement from court-to-court was made possible by steep, narrow staircases that ascended the masonry bulks on the eastern and western faces of each court. The architectural layout clearly adheres to a socio-spatial logic – it was meant to be experienced in specific ways. Whether all participants could actually proceed uninhibited through Soto's three tiers (or whether access was based on factors like age, or initiation status) is unclear, but there is no doubt that western staircases were a visible focal-point from inside the courts. One possibility is that Huaca Soto offered a 'circuit' from the lowest easternmost court, upwards through the Sector B and Sector A courts, exiting through the corridor in Sector A and returning along the northern exterior of the structure. Such a procession would emphasize a highly contrasting set of proxemic experiences, including aggregation of participant groups within deep enclosed courts, single-file ascent of steep staircases, and summiting of exposed inter-court bulks that present an unimpeded view of the surrounding landscape. This suggests that events at Huaca Soto were well-coordinated, likely with the aid of ritual specialists, and that movement was a critical component of these events.

We recovered few materials from Huaca Soto's Early-to-Middle Paracas sunken courts. Occupation surfaces are extraordinarily clean, testifying to careful maintenance and the structure's role as a non-quotidian space. Small *pago*-like burning events are indeed present beneath new floors, and were likely dedications made during major construction episodes. Other sub-floor deposits included large chunks of quartz crystal, hunks of coral, and metal and bone pins. Early-to-Middle Paracas courts exhibit no significant evidence for domestic debris,

household tools, or other factors that might indicate a residential or palatial function. Quotidian materials were limited to small and isolated fragments of animal bone, local marine shell, charcoal, and occasional ceramic sherds driven into floors and against court walls. These objects were probably related to consumption activity during large events. Apart from small amounts of food or beverage, there is no reason to believe that anything was being produced or exported from the courts – the structure itself was clearly not an industrial center. Nor was the structure intended as a mortuary monument. Overall, excavation data support the logical conclusion that Huaca Soto originally served as a forum for public, non-quotidian events during Early-to-Middle Paracas times. It was a dedicated, highly regulated, and carefully maintained ritual space.

Despite impressive coordination of labor, substantial engineering know-how, and a clear role for ritual specialists, the construction of Huaca Soto's monumental architecture could easily have been achieved by local communities working on an episodic basis. Construction could have taken place on a seasonal cycle, at times when large numbers of people gathered together for annual events that involved redistribution of surpluses, harvests, or other economic opportunities. It is reasonable to suggest that participant groups represented one or more co-dependent corporate segments, capable of coordinating large projects above the household but lacking evidence for permanent leaders with stable control over non-kin labor. This 'corporate' framework is commonly associated with "impressive public works, including large architectural spaces suitable for communal ritual, and a comparative egalitarianism in which individuals are 'faceless and anonymous'" (Blanton et al. 1996:6; Renfrew 1974). While such a corporate system is not entirely egalitarian – someone is mobilizing and coordinating non-kin labor – it lacks evidence for individualizing leaders, truly exclusionary spaces (i.e. all courts are massive and intended for large groups), or disproportionate availability of wealth goods.

Public events at Huaca Soto were local affairs. Evidence for non-local contact is minimal, including only a small broken obsidian point from the nearby highlands, a single fragment of *Spondylus* shell from the northern coast, and evidence for camelid remains in each of the Early-to-Middle Paracas sunken courts. The former two objects were entirely idiosyncratic, and were already widely in motion during the first millennium BCE. Camelid pastoralism was well-established between the Pacific Ocean and the highlands well-prior to the construction of Huaca Soto, and Chincha's rich resource base makes the valley a logical stopping point for itinerants and travelers. The most parsimonious hypothesis is that the structure was built and utilized by communities that resided in the nearby lower-valley, who bartered for camelid products at certain times of year, and who occasionally encountered non-local goods via down-the-line trade.

Huaca Soto was abandoned in the 5th century BCE, just as the Middle Paracas (Cavernas) period went into full-swing. This hiatus may have lasted for several centuries. Activity resumed in Late Paracas times with the appearance of Jahuay 3/Chongos style Topará monochromes in near-surface strata. The majority of radiocarbon samples associated with these secure contexts returned ranges between the 2nd century BCE and the first century CE. A single older date from a Late Paracas hearth may push this range back into the late 4th century BCE. Huaca Soto's middle tier, Sector B, was clearly the focal point for Late Paracas activity. Sector A was also reutilized, but so far exhibits a sparser concentration of Topará-related material culture.

Late Paracas reuse involved only minor modifications to the monumental architecture. These included new bulks that buttressed existing enclosure walls and court tiers, which also sealed off access to the Sector B court and eliminated the possibility of axial movement through the structure. Late Paracas builders utilized paraboloid adobes, but placed them horizontally and haphazardly within a slurry matrix – an informal bricolage rather than orderly masonry

coursings. These minor additions pale in comparison to the massive, coordinated, careful pre-planned construction episodes associated with Early-to-Middle construction episodes. There is no evidence for replastering, clearing of debris, or newly dedicated floor surfaces during this time – Late Paracas occupants simply reused the available space, carrying on atop of compacted debris and wind-blown sand left in the court.

Perishable post-and-wall structures appeared alongside Topará monochromes in the Sector B court. These quasi-rectilinear structures did not align with enclosure walls, but were oriented at a skew angle within the court. They were rebuilt several times but always expressed the same general pattern – one large room with a doorway to the west and minor circular enclosures around its exterior. The large room contained small hearths suitable for food preparation, as well as large grinding stones, a light variety of domestic debris and household tools including lithic choppers, spindle whorls, polishers, and copious amounts of utilitarian ceramic. An increase in plainware vessels in these contexts – unadorned bowls, ollas, cántaros, and neckless ollas – suggests that this was a domestic occupation. Waste liquids may have been poured into an intrusive sump in the center of the court. The area outside of perishable structures contained a burnt midden deposit, a high density of domestic trash, and a thick carpet of pottery sherds – all indicative of residential use.

Comestibles in Late Paracas contexts featured locally available plant taxa like lucuma, maize, and peanuts. Local marine shell was also emphasized. Camelid elements continue to be present in small amounts – too low to suggest intensification or targeted acquisition – but instead probably obtained during seasonal pastoral visits to the coast. Wealth objects entered these domestic contexts in small amounts. Most common are *Spondylus* and crysacolla disc beads scattered throughout Late Paracas contexts and sometimes intentionally deposited in post-holes.

Additionally, a large beak from a non-local species of parrot was recovered from one of these post-hole offerings. These objects may simply represent new forms of non-local wealth that became generally available in Late Paracas times.

We can ask *who,* exactly, inhabited these new domestic contexts. It is difficult to answer this question, as we have no basis of comparison with which to measure domestic affluence in lower-valley Chincha. There is no detailed study of what a 'typical' Paracas household contains, how large it is, or how it is organized. This data may soon be available, however. PACH researchers are currently undertaking deep excavations in the fields around Huaca Soto, and report evidence for ignition events and Formative ceramics some 2-3 meters below the modern surface (Kelita Pérez *pers. comm.*). This may provide a basis of comparison for understanding whether Late Paracas habitations of the Sector B court involved typical or distinguished households. For now, the closest analogs we have are from sites like Pampa de Gentil in the mid-valley cluster. Compared to this site, Late Paracas domiciles at Huaca Soto look rather commonplace.

Huaca Soto reemerged as an important local *huaca* during the 1,500 years following the close of the Formative Period. The structure once again received ritualized offerings and hosted intermittent public events. While some of this activity took the form of one-off deposits, other evidence suggests substantial, populous activities that occurred repeatedly. The unifying factor between this diverse set of post-Paracas activities seems to be an exclusive focus on the highest and westernmost tier. Sector A was clearly recognized as Huaca Soto's 'holy of holies', the ideal location to make a ritual offering or hold a ceremonial event. In contrast, we observed almost no evidence for post-Paracas activity in Sector B. Our discovery and characterization of these events provides important new insight on the reuse of sacred space in Chincha during late antiquity.

The largest post-Paracas events in the Sector A sunken court involved hundreds of standardized serving wares that were clearly part of a feasting assemblage. Vessels were predominantly serving wares of standardized sizes, including single-serving bowls, deep drinking vessels, spout-and-bridge bottles. Design variants on these wares were also standard. Comparison of these motifs to reported south coast assemblages suggests that these vessels were a local Middle Horizon tradition, probably associated with communities that occupied Chincha during the late first millennia CE. Indeed, radiocarbon samples associated with thick deposits of feasting ceramic returned dates ranging from 541-965 CE. It seems logical that butchered remains of nearly a dozen camelids recovered in these contexts were being consumed in the court. Camelids were probably non-quotidian comestibles – the assemblage has only minimal quantities of more readily available local foods, such as edible marine shell or coastal plant taxa.

A few non-local vessels dating to the Early Intermediate Period and Middle Horizon arrived at Huaca Soto as offerings, perhaps associated with aforementioned feasting events. These include a large Nasca jar and Wari finewares similar to those recovered from the Maymi site in Pisco. It should be noted that there is no evidence to suggest Nasca or Wari political entities took an interest in Huaca Soto directly. It is much more parsimonious to suggest that these items represent wealth objects that reached Huaca Soto via local populations, perhaps acquired in down-the-line exchanges and left as ceremonial deposits. A sample of cane roofing material from the masonry ridge between the courts returned a range between the 8th and 10th centuries CE, further testifying to ongoing reuse of the structure during this time.

The final period of pre-Columbian activity at Huaca Soto involved construction of a small structure at the court's center, composed of rectangular adobe bricks and roofed with woven cane. Radiocarbon samples recovered from roofing material and associated deposits

returned dates ranging from the 11th into the 15th centuries CE. This building was a focal point for dedications to the *huaca* during the Late Intermediate Period. Some of these offerings may have been opportunistic, left by visitors arriving or departing Chincha as part of seasonal cycles. The best example of this is a cache of figurines depicting a family of pastoralists with camelids in tow, for which radiocarbon dating of cotton textile fiber attached to one male figurine returned a date between 1200-1275 CE. These visits may be linked to several sacrifices of young camelids found adjacent to this structure, perhaps offered in thanks for an uneventful arrival or as offerings for a safe return journey. Radiocarbon analysis of these camelid sacrifices returned dates between 1002-1150 CE. We also recovered evidence for more than 500 guinea pigs left in and around the central structure. Whole and uncooked specimens were all recovered from inside the structure (but not outside), suggesting divinatory practices or small sacrifices. The majority of guinea pig remains, however, were completely disarticulated. It is unclear whether these represent similar offerings or whether they were consumed as part of earlier feasting events.

Inca Period offerings to Huaca Soto also took place exclusively within the new central structure in Sector A. These included a metal *capacocha* figurine, a full *Spondylus* shell, and a camelid figurine carved from *Spondylus*. Whether Inca objects were interred by direct associates of the Empire, acquired and deposited by members of the local LIP Chincha Kingdom, or whether they were deposited by unrelated individuals as non-local wealth goods remains to be resolved. Curiously, we recovered no finewares associated with either the Chincha Kingdom or Inca state at Huaca Soto. These late deposits seem to be small-scale affairs, quite distinct from massive Middle Horizon feasting events or Formative Period processions.

Overall, Huaca Soto was active for more than 2,000 years and continues to be a focal point of human activity. Built over a short period of time in first millennium BCE by Early and

Middle Paracas peoples, it later housed Late Paracas domestic contexts, hosted Middle Horizon feasting events, and eventually became a classic coastal *huaca* in late pre-Columbian antiquity. Today, the site serves important functions for the modern residents of the lower Chincha valley. This will be plainly visible to archaeologists in future centuries. The modern farmstead in the Sector C court will leave behind evidence of intensive animal husbandry, a multi-generational domestic occupation, heaps of trash, non-local flora and fauna, and modern objects mobilized through a globalized economy. Our scientific excavations in Huaca Soto's Sector A and B courts will also be evident to future archaeologists.

The Evolution of Paracas Communities in Chincha

It is now clear that Chincha was a major settlement zone for Formative peoples from Early Paracas times, through the Middle Paracas (Cavernas) phase, and into the close of Late Paracas (Necropolis/Topará) period. Indeed, the valley contained a unique tradition of non-vernacular structures that hosted sizable ritual events throughout most of this history. These monuments express a united architectural canon, formed multiple and distinct settlement clusters, and attained massive proportions that make them the largest structures on the Formative south coast. They occur at a geographic density and physical scale that is unprecedented in the region. PACH excavations at Huaca Soto, Cerro del Gentil, and El Mono, and La Cumbe now provide substantial data and more than 70 radiocarbon dates with which to model the local evolution of the Paracas communities in Chincha and the valley's impact on the Formative south coast. This has important implications for understanding the emergence of Paracas political complexity.

The Early Paracas period spans the first appearance of recognizable Paracas material culture in the early centuries BCE through the start of the 5th century BCE. This early period is typically defined on stylistic grounds – including a new local fineware that experimented with incised designs, incipient post-fire painting techniques, and iconography reminiscent of contemporary imagery stemming from Chavín de Huántar. During this time there was minimal evidence for multi-tier settlement hierarchies, specialized economic roles, or patterned socioeconomic inequality on the south coast. Instead, the region consisted of small-scale, politically independent communities that relied on a rich marine resource base and agriculturally productive drainages. Rather than a single 'Paracas' culture, these early groups may have conceived of themselves as distinct and unrelated peoples.

These Early Paracas communities formed a chain of small self-sufficient settlements running N-S along the littoral corridor, for example villages at Karwas, Puerto Nuevo, and terminal occupations at Disco Verde. Apart from an advantageous resource base, these sites were well-positioned to take advantage of trans-regional traffic passing along the coast. Indeed, they contain examples of distant ceramic and textile goods that originated in the northern and central coast or elsewhere within the Chavín sphere of influence. Early Paracas sites in upper Ica and Palpa were positioned on important thoroughfares that connected the south coast to the nearby highlands. Together, these sites captured the new florescence of objects and ideas set into motion during the late Formative Period, funneling them into the region. With least-cost routes connecting the central coast to the southern highlands, the south coast formed a natural channel for this commerce. It is the last convenient stopping point for coastal traffic turning eastward and upward towards Ayacucho, as terrain south of Acarí is comparably craggy and difficult to manage, drainages are smaller and less reliable, and known Formative populations are sparser.

Thus it is logical that we observe a build-up of non-local imagery, objects, and ideas in a zone full of rich natural resources and ample space to support growing communities – this is the context in which the first Early Paracas traditions appear.

The appearance of early politico-ceremonial centers during this period (for example, Cerrillos) makes it clear that ritual institutions played a major role in absorbing and reconfiguring these new economic and ideological influences to serve the interests of expanding indigenous populations. Chincha was no exception. The valley hosts at least two examples of ritualized architecture with Early Paracas components – Pozuelo and Huaca Soto. These structures are located in two separate settlement clusters, both of which lie in the southwestern corner of the lower valley along the coast. Radiocarbon samples from Huaca Soto's monumental phase returned dates between the mid-8th and early 5th centuries BCE, and stylistic assessment of Pozuelo's earliest finewares suggests a similar range (Dulanto 2013:104; Garcia and Pinilla 1995:56). The oldest architectural iterations in Pozuelo and Huaca Soto are quite similar – both were low, flat-topped mounds composed of compacted earthen materials and probably lacking formal sunken courts. Both sites were dedicated non-vernacular structures that lack typical assemblages of household debris. Each underwent multiple renovation episodes. In the case of Huaca Soto, it is clear that participation intensified through time, eventually leading to the latest and most monumental versions of the structure by the onset of the Middle Paracas period. This may suggest a growing body of adherents, either mirroring general population trends or simply attracting more participants from across the valley. As I suggest above, participating groups were likely organized as lineage or corporate groups. Whether Pozuelo and Huaca Soto served a single 'corporate' group apiece, or whether they involved congregation of several distinct groups,

remains unclear. For now, it appears that these groups were *local* populations, rather than pilgrims or itinerants – apart from a few camelid remains, we encounter few foreign objects.

The 'Middle Paracas' period began around the 5th century BCE and extended to around the 2nd century BCE. It witnessed the appearance of sizable new villages across the region that suggest a burgeoning regional population, and is marked by the emergence of the Paracas 'Cavernas' mortuary tradition on the Peninsula, the spread of mature post-fire resin painted finewares, and new distinct textile traditions. Craft objects now expressed a locally-derived iconographic canon with a distinctive regional flavor. At the same time, non-local artisanal goods and imagery went into decline. The ceramic styles that appeared at this time now present 'classic' Paracas Cavernas themes and design profiles – including the Pinta, Tambo Colorado, and Ocucaje 5-8 traditions. Rather than spreading outward from a central point, these new aesthetic traditions were developing concurrently in multiple settlement zones that were clearly in regular dialog with one another.

Incipient settlement hierarchies emerged in multiple drainages during the Middle Paracas period, suggesting intensified political and economic cooperation that entrained larger groups of people and resources. Despite these changes, Paracas communities continued to be organized on the basis of corporate groups wherein collective representations were promulgated and individual aggregation of wealth was suppressed. This theory is supported by unranked lineage-based group-tombs at places like Cerro Colorado and an explosion of group-oriented politico-ceremonial architecture at places like Animas Bajas in Ica and Chongos in Pisco. A renewed emphasis on public religious ritual appears to be central to elevated levels of pro-social cooperation. Despite the fact that Middle Paracas sociopolitical entities were larger and more diverse than their predecessors, there is little evidence for permanent social inequality, strict task

specialization, or visible authority figures during this time. While communities now crowded against each other and perhaps competed for space and resources, they remained local-scale entities that could elicit adequate pro-social contributions without the need for permanent or hereditary leaders.

Settlement data suggest that Chincha's arable bottomland began to fill up during Middle Paracas times. There was clearly a major florescence of monumental construction throughout the valley, concurrent with the abandonment of earlier Paracas structures at Huaca Soto and Pozuelo. Furthermore, the emergence of the mid-valley cluster and the Pampa Carmen geoglyph field suggests that politico-ceremonial communities in Chincha began to actively seek out relationships with neighboring Paracas groups from outside of the valley. As in the case of neighboring zones like Ica, Chincha groups may have begun to compete internally for space and resources. Successful communities were the ones who could maintain per capita surplus production by encouraging pro-social behavior, supporting economies of scale, and limiting free-riding. Ritualized public events would have provided the basic foundation for greater scales of economic cooperation.

Deposition at Pozuelo and Huaca Soto ceased entirely during Middle Paracas times. Perhaps new monuments of unprecedented size rendered older politico-ceremonial structures obsolete, outcompeting them for adherents. For example, the earliest ceramic evidence available from Huaca Santa Rosa (Pinta) suggests that the site appeared around this time. This structure easily dwarfed Huaca Soto and Pozuelo many times over, and thus testifies to sizable participant groups from the lower-valley zone. Shortly afterward, in the early 4th century BCE, La Cumbe rose to prominence in the northern part of the lower-valley by taking advantage of preexisting topography to gain a commanding view over the littoral corridor. These new structures were

multi-tiered and contained a massive courts and plazas, and thus it is clear that they followed in the footsteps of earlier predecessors like Huaca Soto. There are a host of additional monumental sites that may have also appeared during the Middle Paracas period, if not earlier – for example, the underexplored structures at Huaca Limay (PV57-103), Litardo Bajo (PV57-80), Huaca Alvarado (PV57-10), and other components of the Soto, Pozuelo, and Santa Rosa Complexes. Like Early Paracas architecture at Huaca Soto and Pozuelo, I suspect that the builders of these new Middle Paracas monuments were also local Chincha populations. So far there is no non-local material culture from these sites to suggest that they were long-distance pilgrimage centers or received substantial inputs from outside of the coastal zone.

Cerro del Gentil and El Mono rose as principal components of a new Middle Paracas settlement cluster on the southeastern margin of the mid-valley. Radiocarbon dates from these sites fall between the late 5th and 2nd centuries BCE, and Pinta-style finewares are prevalent. Neighboring sites on the desert margin, for example PV57-136 and PV57-60, lack evidence for public architecture and therefore may be attached residential zones. Cerro del Gentil and El Mono, however, clearly contain non-vernacular structures used for politico-ceremonial events. Indeed, the principal structure at Cerro del Gentil exhibits a series of planned reconstruction episodes, plentiful evidence for careful maintenance and clearing of courts in antiquity, and numerous ceremonial offerings that place it in the same ritual tradition as Huaca Soto and La Cumbe. El Mono, on the other hand, presents a series of smaller structures that seem to work together as a complex of built spaces, rather than a single monumental edifice.

The appearance of Cerro del Gentil and El Mono was linked to intensifying relationships with contemporaneous groups from outside of Chincha. A landscape of additive geoglyphs on the Pampa Carmen literally draw a connection between the mid-valley cluster and Pisco

communities to the south. The vast majority of objects and taxa recovered from Cerro del Gentil and El Mono are of local origin (exceptions being camelid remains and remains of a non-local parrot), which suggests that any non-Chincha participants were from neighboring Paracas communities in the coastal zone. Orientation of both the Pampa Carmen geoglyphs and the El Mono structures suggests that ritualized events were scheduled on a solar calendar that would be predictable for participants. The establishment of reliable economic relationships with external settlement zones could have helped these mid-valley populations compete against larger and more resource-rich neighbors in the lower-valley who siphoned off much of the valley's local population – sites like Huaca Santa Rosa and La Cumbe.

The final use of Cerro del Gentil's sunken court involved copious ritualized offerings and the deposition of more than half a dozen Middle Paracas mummy bundles. This was a novel use of court space that directly preceded the abandonment of the structure. Material culture from these terminal events is strongly reminiscent of contemporaneous grave goods assemblages recovered in the Paracas Cavernas cemeteries. Both sites exhibit interment of multiple, flexed individuals, wrapped in bundles, and both featured similar basketry designs, pyroengraved gourds, and other decorated artisanal offerings. Other than clear differences in tomb architecture, Cerro del Gentil indeed provides the closest known parallel to the Cavernas burials. Final use of Cerro del Gentil, El Mono, and La Cumbe took place in the late 3rd millennium BCE, at which point Middle Paracas deposition ceased across the valley.

Overall, Middle Paracas settlement clusters in Chincha maintained the politico-ceremonial architectural canon developed in earlier centers like Huaca Soto. They continued to feature locally available objects rather than notable amounts of imported wealth. Given the formal similarities in ritual architecture and content at these sites, it is reasonable to suggest that

they also shared a set of basic religious principles and perhaps a general set of social norms. Following Stanish's model of the 'ritualized economy' described above, monumental Middle Paracas structures likely involved ritual specialists who were responsible for successfully coordinating super-household economic activity, enforcing fairness norms, and guaranteeing payoffs to pro-social cooperators. Those communities most able to secure surpluses ultimately prospered, while others failed and their populations dispersed. Huaca Soto and Pozuelo appears to have been 'losers' in this regard, perhaps as activity shifted to neighboring settlements. While current evidence suggests that competition was based on ideological and economic grounds, there is no strong evidence for inter-group violence among Chincha's Middle Paracas settlement clusters.

As archaeologists have observed elsewhere in the region, there is no evidence for strong socioeconomic differentiation within Chincha's Middle Paracas communities. Our excavations conclude that politico-ceremonial structures were not originally designed as monumental tombs, or elite residences. For now, a corporate model remains the most parsimonious hypothesis. The greatest difference between the Early and Middle Paracas structures is that the latter are much larger, more numerous, and begin to articulate directly with neighboring settlement zones. One way to describe Middle Paracas clusters in Chincha would be a heterarchy of interacting communities whose potential to become ranked in a number of ways (including ways that we cannot detect with available data) presents fertile ground for the later emergence of an inclusive hierarchical system (Spencer 1997:238; Crumley 1995:3).

During the Late Paracas (Necropolis/Topará) period in the final centuries BCE, south coast communities coalesced into two sociopolitical entities that exhibit unprecedented evidence for strong political centralization and permanent authorities. To the south, a multi-tiered

hierarchical settlement system intensified around the extraordinary politico-ceremonial center of Animas Altas, which some interpret to be an incipient urban phenomenon (Bachir Bacha and Llanos 2013). This settlement system encompassed a large portion of Ica's lower valley and seems to have exerted significant pressure on communities to the south in Nasca. New forms of ritualized architecture at Animas Altas emphasized ancestor veneration that would have legitimated new hereditary positions of authority. Associated post-fire painted Ocucaje 9-10 wares express new innovative designs which later became the foundation for Nasca fineware traditions. To the north, elites with elevated access to wealth appeared in the Necropolis cemeteries. The sheer quantity of high-value artisanal goods and non-local objects recovered in these burials imply new control over sources of craft production and monopolization of regional economic networks. Elite authority appears to have stemmed from a real or perceived connection to ideological sources of power. Indeed, new textile iconography during this period features priestly human figures, often in flight, wielding trophy heads, or undergoing a process of transformation. The production of these and other Late Paracas craft goods reached new heights, requiring unprecedented inputs of labor, raw materials, and specialist skillsets. Bringing together raw materials, preparing mordents and dyes, and physically manufacturing these objects was clearly beyond the capacity of a single small village. Additional technological innovations are evident, such as a total replacement of post-fire painted wares in Chincha and Pisco with new thin Topará monochromes. These new 'Necropolis' or 'Topará' elites clearly maintained permanent authority throughout their lives and wielded stable control over non-kin labor. Immense sites like Chongos and Pachinga in the Pisco valley thrived during this period, evolving in lockstep with the appearance of the Necropolis burials.

The Late Paracas period witnessed enormous changes for Formative communities in Chincha, but not the kind that we initially expected. Contrary to the long-held hypothesis that the valley's monumental platform structures were built during this time as part of a rising proto-urban environment or as seats of power for Necropolis elites, *PACH research has not encountered evidence for monumental construction in Chincha after the 3rd century BCE*. Indeed, we have not identified a single 'pure' Topará site beyond the agglutinated village of Pampa de Gentil (PV57-64). Instead, we observe only superficial reuse of the massive politico-ceremonial centers built in Early and Middle Paracas times. Reuse events do not appear to involve organized politico-ceremonial events, but instead take the form of opportunistic 'squatting' in and around defunct monumental structures. In other words, as far as we can tell based on the PACH excavation sample, Chincha's formidable ritual landscape was abandoned for ceremonial purposes with the onset of Late Paracas times and the emergence of political complexity in neighboring zones.

This contrast between Middle and Late Paracas occupations in Chincha is stark. Gone was the holistic use of structures and carefully arranged socio-spatial logic of earlier periods. Regular restoration events ceased and courts fell into disrepair. Jahuay 3/Chongos black and orange monochromes appeared in near-surface strata. This was the case at Huaca Soto, Cerro del Gentil, and El Mono. La Cumbe was also abandoned, although so far there are no characteristic Topará wares found at the site (Tantaleán *pers. comm.*). Site surveys report Topará monochromes strewn across the surface of additional Paracas structures in Chincha, including Pozuelo; many of these require subsurface testing to determine the nature of use (Canziani 1993; Wallace 1971; Engel 2010). Minor architectural modifications at Cerro del Gentil, La Cumbe, and Huaca Soto are visibly haphazard, utilizing salvaged adobe material and unworked cobbles

from the surrounding environment to buttress portions of the preexisting structure. Investment in these events and coordination of labor was diminutive compared to the Middle Paracas period.

It appears that sunken courts at several major structures, including Cerro del Gentil and Huaca Soto, became domestic spaces after their abandonment. The middle court at Huaca Soto was repurposed as a series of residences, evidenced by installation of intrusive perishable structures, dedicated hearths, and domestic debris. Radiocarbon dates from structural materials and hearths, associated with Topará-style monochromes, returned dates between the late 4th century BCE and the first century CE. The Late Paracas phase at La Cumbe likewise witnessed a sharp increase in utilitarian wares, small ignition events, and sealing off of court tiers. A blanket of Topará wares and edible marine shell were deposited across Cerro del Gentil, accompanied the appearance of low-intensity encampments around its southern and eastern flanks. Alongside the reuse of older platform structures, dedicated Late Paracas settlements emerged at mid-valley sites like Pampa del Gentil and a mirror image site, PV57-140. These new population centers perhaps absorbed the remnants of prior Middle Paracas communities.

The sudden appearance of 'Topará' finewares and the concurrent disappearance of Middle Paracas polychromes in the northern valleys of the south coast is sometimes taken to indicate an invasion/intrusion by an external state, a territorial ethnic group, or some other case of direct population displacement (Massey 1986:334-5; Wallace 1986; Peters 1997:891-904; Engel 1981:11; 1987:114-116; Proulx 2008:569). PACH excavations recover no data in support of this theory. We observe no evidence for violent incursion in platform structures – no weaponry, conflagrations, trophy heads, casualties, or fortifications. Furthermore, there is insufficient evidence for non-local objects and resources that might accompany a major demographic shift – even comparing Middle and Late Paracas contexts, the overall assortment of

invertebrate shell, vertebrate species, and plant taxa is very similar. With the exception of a few new non-local objects such as *Spondylus* disc beads, the few non-subsistence related objects found in Late Paracas contexts do not express a different cultural milieu in comparison to earlier phases. It is most parsimonious to hypothesize that Late Paracas 'Topará' groups are the very same populations that inhabited the valley in Middle Paracas times – albeit utilizing the settlement landscape in a markedly different way and exercising new fineware preferences.

What then does this shift represent, and what were the social and material conditions that contributed to it? PACH data do not provide a simple answer to these questions, which I suspect will require years of fieldwork to address. For now, I pose three scenarios that may help to explain the demise of Chincha's monumental politico-ceremonial tradition. Each could be tested at a future date (see below).

In the first scenario, the Middle Paracas monumental tradition in Chincha collapsed as a strong political core developed elsewhere in the northern valleys of the south coast. New Necropolis elites with exclusive access to sources of non-local wealth and monopolization of craft production labor likely operated out of a primary political center in which specialists could aggregate and resources be concentrated. Perhaps this was the Chongos or Pachinga sites in Pisco, both large enough to fill this role, located on a major corridor connecting Pisco to the Ayacucho highlands, within a dozen kilometers of the Peninsula necropolis. This would be a case of 'economic selection' as described by Stanish (2009) – Middle Paracas ritualized economies in Chincha simply could not compete with a new, centralized political entity that supported dedicated task specialists, benefitted from a much broader set of economic networks, and had access to more diverse and potentially more desirable wealth goods. In this case, Middle Paracas communities in Chincha became entrained to this new political system, perhaps making

regular pilgrimages to the political core and returning to Chincha with specially make Topará-style finewares. Reuse of Middle Paracas politico-ceremonial architecture in Chincha was simply opportunistic activity by local Late Paracas communities who no longer subscribed to earlier ideological tenets.

In a second scenario, some Middle Paracas politico-ceremonial structures transitioned from public ceremonial spaces into elite domiciles. These new inhabitants would have been the same ritual specialists that served as *de facto* leaders in Middle Paracas times, now executing a set of exclusionary power strategies in relation to evolving social or material circumstances. These may indeed be the same persons buried in the lavish Necropolis burials. As noted above, the difficulty in testing this model lies in the fact that we have no Middle Paracas households in Chincha with which to draw diachronic comparisons. Likewise, it is unclear whether Late Paracas residences at Pampa de Gentil can serve as comparative standards, given lack of comparable sites in the lower valley. While this scenario should be further tested, there are already several strikes against it – namely lack of abundant prestige goods in the Late Paracas reuse of Huaca Soto, Cerro del Gentil, and La Cumbe.

A third possibility considers the appearance of a centralized Late Paracas political center within Chincha that archaeologists have not yet identified. In this scenario, intensifying competition between Chincha's Middle Paracas settlement clusters eventually caused many monumental ritual structures to fail, while only one or a few prospered and grew. This would be the same kind of economic selection as described above, but with the successful parties local to Chincha. Most of the Middle Paracas politico-ceremonial centers would have been abandoned, afterwards being used for practical purposes by local communities. Surviving Late Paracas centers would wield evidence of new exclusionary leadership strategies, new forms of non-local

wealth associated with the Necropolis burials, and perhaps production contexts for new textile and ceramic styles. So far we have no evidence of such a feature, but we know that it did not occur at Huaca Soto, Cerro del Gentil, El Mono, or La Cumbe. There are a host of unexcavated Formative platform structures in Chincha that may yet fill this role, and thus this scenario remains an active possibility.

Moving Forward

The development of Paracas communities from a constellation of politically-independent villages in Early Paracas times, to sizable corporate groups in the Middle Paracas era, and eventually to two large-scale political entities with permanent elites in the Late Paracas period is one of the most significant evolutionary trajectories in the pre-Columbian Andes. Now beyond a singular focus on art objects, modern Paracas archaeology is dedicated to revealing the social and material conditions that gave rise to the region's early complex societies and remarkably specialized craft industries. Following in the footsteps of others, I have taken a data-driven approach rooted in modern anthropological theory and backed by an emphasis on absolute chronology. Within such a framework, I have approached the Paracas question by looking at one particular phenomenon – the construction and use of monumental politico-ceremonial architecture in the Chincha Valley. Our excavations at Huaca Soto represent only a fraction of the potential data that could be derived through future research at the site. Similarly, the broader conclusions offered in this chapter on the evolution of Chincha settlement systems are based on a sample of PACH excavations at only four out of more than a dozen Paracas monuments in the valley. While I believe that future research on Paracas in Chincha will confirm many of our working hypotheses, I also expect that it will require us to revise and revisit many of our current

models. It is fitting to end this dissertation by pointing out some areas where future work is most critical – at the site level, the valley-level, and the regional level.

There are aspects of Huaca Soto that should receive additional attention, and I encourage future researchers to revisit the site and critically test the conclusions offered here. Our current vision focuses heavily on the sunken courts, particularly the corners, centers, and innermost enclosure walls of those courts. There are a few important contexts that we did not extensively expose, including the high masonry bulks between the courts. It is a very real possibility that these features once supported additional architectural elements, or even free-standing structures that were critical components of ritualized processions during Early-to-Middle Paracas times. Most important may be the broad, westernmost ridge of the structure, which is certainly wide and deep enough to host substantial activity. It goes without saying that the third court and tier (Sector C) will provide crucial insight on how the site was accessed from the eastern floodplain; it may also contain entirely new activity profiles for Paracas and post-Paracas times.

There are still 'blind spots' in our data regarding movement through the structure during the Early-to-Middle Paracas phases. For instance, it is clear that individuals ascended through the structure via long central staircases in the center of each court's western wall, but it is yet unclear how they actually descended from bulks into the courts. We have some evidence for short staircases that make up some of this distance, typically between the court center and the first internal terrace, but not the total pathway. Likewise, we have not conducted extensive excavation in the 'atrium' on the northern side of Sector B. This feature may house activities that supported ritualized processions – perhaps production of necessary consumables, places where ritualized paraphernalia were kept, or areas where ritual specialists prepared themselves.

In terms of the court-centers, we have excellent coverage of the eastern and northern sides of both the Sector A and B courts. However, we exposed little of the southern sides of either court and are missing what may be one of the most important areas within in the structure – the western side of the Sector A court. As the terminus for events processing through Huaca Soto, this area might be expected to be a host a final staircase to the west, or perhaps a focal point for grand offerings – something akin to a shrine or alter. Future coverage of the Sector A court will certainly encounter major post-Paracas deposits, and will require a great amount of time in sifting through and reconstructing this complicated and commingled series of events. Given major Middle Horizon, Late Intermediate Period, and Inca Period activity in this area, Sector A will likely reveal additional information on the reuse of this sacred space in late antiquity. This, in its own right, is reason enough to revisit the Sector A court.

PACH researchers are currently recovering substantial evidence for a residential zone, including Formative and Early Intermediate Period components, in the fields adjacent to Huaca Soto. These contexts should provide important data on the household economies of the people that built the monumental structure and participated in Early-to-Middle Paracas events. They will also provide comparative domestic contexts with which to better understand whether the Late Paracas domestic reuse of the Sector B court was a typical or distinguished residence. The relative density of this residential zone is also extremely important. It is tempting to pursue the hypothesis that the Soto Complex was a proto-urban environment in which residents inhabited a crowded bottomland area centered around the non-vernacular structure. Overall, how we interpret and utilize these data will depend first and foremost on the results of radiocarbon and stylistic dating, which will determine their exact position within the structure's deep history.

It should not be forgotten that Huaca Soto is only one of three structures that make up a larger settlement cluster. The second largest structure in the Soto Complex (PV57-25) is less than 60 meters from Huaca Soto with a footprint covering an area of some 120 by 70 meters. This structure may have serious implications for understanding the how Early-to-Middle Paracas corporate groups distinguished themselves from one another. For instance, these two distinct structures express relatively similar surface layouts, architectural features, comparable dimensions, and identical E-W orientations. Were they contemporary components of a larger politico-ceremonial system, or separated from one another in time? Perhaps they served different functions entirely? We can imagine a scenario where these monumental structures were built and utilized by the independent corporate or lineage groups that made up the local inhabitants of the Soto Complex. This same scenario can be tested in Chincha's other Early and Middle Paracas lower-valley clusters, for instance the Pozuelo and Santa Rosa Complexes. Alternatively, Huaca Soto and its neighbors could be non-contemporaries – perhaps one of these sites was an active ritualized structure after the 5th century BCE, or even in the final centuries BCE during Late Paracas times.

Although Huaca Soto and Pozuelo are currently the oldest reported archaeological sites in Chincha, they may represent only the tip of the iceberg. It would not be surprising if other Early Paracas contexts lie at the heart of other lower-valley structures near the littoral – for instance Huaca Partida (PV57-9), a site that mirrors the dimensions and layout of Huaca Soto almost exactly. We cannot know for sure until we have sufficient radiocarbon dates and fineware assays from the deep core these structures. This will involve significant methodological challenges. Many structures in the lower-valley are badly damaged by water erosion, bull-dozing, and commercial farming operations. Contrariwise but equally as problematic, early strata at sites like

Huaca Soto are well-protected beneath centuries of Middle Paracas architecture. Any sizable exploration must weigh advantages of data to be gained against the preservation of later structures.

Dedicated excavations in the remainder of Chincha's Formative monumental platform structures will have major implications for modeling the development of the valley's ritualized landscape, providing details on ideological competition between site clusters and the conditions under which particular ritualized economies succeeded or failed. As an inductive science, archaeology relies on comparative cases to reveal the processes behind social change. Indeed, the more cases the better. In my opinion, the single most productive endeavor for furthering the models proposed by PACH researchers is to sample and date additional Paracas politico-ceremonial architecture in the valley. Of particular interest are the types of activities taking place at these centers – ritualized, domestic, or some other function – and whether material inputs express local vs. non-local subsistence regimes and wealth products. I hope that the conclusions offered in this dissertation will serve as the basis for new testable hypotheses.

Above all, it is abundantly clear that the evolution of Paracas societies can only be understood by turning towards those settlement zones that garnered little attention during the 20th century. We are now fully beyond the era of Ica and Peninsula-centric Paracas archaeology. PACH investigations demonstrate beyond a doubt that Chincha hosted a Paracas settlement landscape at a density easily comparable to neighboring settlement zones. Furthermore, the valley's monumental ritualized architecture occurs at an unprecedented scale for the region, and dates to an unexpectedly early period. Indeed, this is the second time since the turn of the 21st century in which Paracas archaeologists have been confronted with a complete game changer in Paracas regional geography. The first was work by Isla, Reindel and colleagues in Palpa, which

revealed an unexpectedly dense Paracas settlement system extending across the entire first millennium BCE. A major consideration for current Paracas research might be, "What other zones of the south coast lack adequate sub-surface testing and absolute dates for so-called Formative sites?". The answer to this question is *several locations*: Cañete, the Quebrada Topará, and Acarí, to start. It is also reasonable to assume that additional drainages in the Nasca region will reveal further vital data on Formative communities, particularly additional drainages in the NNR running into the highlands parallel to Palpa. Finally, classic data from Paracas cemeteries on the Peninsula, 'contemporary' centers like Chongos in Pisco and Animas Altas in Ica make clear that these areas were key to understanding the emergence of political complex in the Late Paracas period. These sites should be revisited and subjected to modern AMS radiocarbon techniques. Only when we have reliable absolute chronologies based on current methods will we be able to do advance diachronic archaeology on the Formative south coast.

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