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Sociopolitical transformations during the late pre-Hispanic times as revealed by the archaeological record from the Culebras Valley, north coast of Peru

Patrycja Prządka-Giersz and Miłosz Giersz

Abstract

Since 2002 the Culebras Valley has been the focus of an extensive archaeological surface survey and limited excavations in selected sites carried out by Polish and Peruvian scholars. Over one hundred previously unknown archaeological sites have been recorded so far, and tentative interpretations of their chronology, functions and settlement patterns have been suggested. In this article, we report results of the nine field seasons and discuss their implications. We employ fieldwork data from the archaeological sites of the Culebras Valley to reconstruct settlement patterns, subsistence and craft production, focusing on post-Middle Horizon components, as well as the impact of Chimú and Inca cultures on local pre-Hispanic societies.

Key words: Central Andes, pre-Hispanic Peru, archeology of frontiers and borderlands.

Resumen

LAS TRANSFORMACIONES SOCIOPOLÍTICAS DURANTE LOS PERIODOS PREHISPÁNICOS TARDÍOS SEGÚN LO REVELADO POR EL REGISTRO ARQUEOLÓGICO DEL VALLE DE CULEBRAS, COSTA NORTE DEL PERÚ

Desde el año 2002, arqueólogos polacos y peruanos están realizando prospecciones y excavaciones arqueológicas en el valle del río Culebras, en la costa norte del Perú. Hasta la fecha se han descubierto más de cien sitios arqueológicos hasta ahora desconocidos. Se han propuesto también algunas interpretaciones en cuanto a su función, su cronología y los patrones de asentamiento. En el presente artículo presentamos los resultados de las investigaciones llevadas a cabo durante nueve temporadas subsiguientes, analizando sus implicaciones. A partir de los hallazgos arqueológicos provenientes del valle de Culebras, reconstruimos los patrones de asentamiento, la subsistencia y la producción artesanal de las sociedades prehispánicas, poniendo énfasis en los componentes post-Horizonte Medio, así como el impacto Chimú e Inca en las sociedades precolombinas locales.

Palabras claves: Andes Centrales, Perú prehispánico, arqueología de las fronteras y las zonas limítrofes.

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1. Introduction

Some of the least researched aspects of Andean archaeology are the socio-cultural and political transformations that occurred on the north-central coast of Peru in the beginning of the eleventh century A.D., that is during the last epoch of the Middle Horizon and in the beginning of the Late Intermediate Period. As this region has never been investigated by regular archaeological exploration, it is the subject of numerous discussions and polemics, often unsupported by empirical evidence. In particular, this concerns the issue of defining the southern boundary of the Chimú culture's expansion. One may often find in the literature an assertion that the Chimú Kingdom extended its influence over the larger part of the northern and central coast with a southern boundary defined by the Chillón River. Such assertions were mainly based on entries in colonial chronicles (e.g., Anónimo 1936 [1604]; De Zárate 1968 [1555]; De la Calancha 1976 [1638]; Cieza de León 2005 [1553]). An additional argument supporting the thesis that the Chimú rulers gained control over an extensive coastal strip was a widespread incidence of Chimú style ceremonial black ceramic ware. It is only in the recent years that there has been a noticeable enlivenment of the ongoing discussion. Many researchers began to point out more frequently that large centers of Chimú authority stop at the Casma Valley and south from the Huarmey Valley one may only talk of this culture's «influences» and «imports». (Makowski 2006; Dulanto 2008; Moore and Mackey 2008; Vogel 2011, 2012; *inter alia*). A certain impetus was given to this new outlook by discussions about the presence of local pottery styles developing in this area after the fall of the Wari Empire and commonly present during the Late Intermediate Period. One of the distinctive styles in this part of the coast is the *Casma Incised* style of utilitarian pottery. One characteristic feature of this pottery is the rich ornamentation covering nearly the entire surface of the vessel, the leading motif being small circles with a dot in the center, incised with a reed in soft clay. This style was defined for the first time by Collier (1962: 415) on the basis of material gathered in the Casma Valley. Despite the many years that went by since then, this ceramic has not been thoroughly investigated even today. In consequence, various investigators used –for their own purposes– various different terms to designate ceramic ware ornamented in a similar way (e.g., *Casma style*: Tello 1956; Koschmieder 1997, 2003; *Sechin style*: Collier 1962; *Huarmey Incised style*: Thompson 1964). The occurrence of this ceramic ware was recorded in many sites within the coastal strip, between the Virú and Fortaleza valleys. Some scientists also pointed to the existence of a separate ethnic group that created its own distinct pottery style and established a local statehood with a capital in El Purgatorio, in the Casma Valley (e.g., Tello 1956: 290-294; Fung and Pimentel 1973: 77; Mackey and Klymyshyn 1990; Wilson 1995: 203-204; Koschmieder 1997: 32-42, 2003; Vogel 2011, 2012). Due to the absence of regular excavation-based research a matter remains unresolved, namely a chronology for

this part of the coast. To most investigators the Casma Incised pottery style is a result of cultural transformations happening during the later epochs of the Middle Horizon and lasting into the Late Intermediate Period (Proulx 1973; Daggett 1983; Wilson 1988; Mackey and Klymyshyn 1990; Moore and Mackey 2008; Vogel 2011, 2012). Only a few investigators have contended that this style of pottery developed only during the Late Intermediate Period and was manufactured until the colonial times (Cárdenas 1969; Koschmieder 1997, 2003).

Taking advantage of this unique situation, The Culebras Valley Archaeological Project carried out by Polish and Peruvian scholars conducted an extensive surface survey and excavations with the objective of examining the domestic, ceremonial and political lives of Late Pre-Hispanic complex societies of the Peruvian north-central coast. Over one hundred previously unknown archaeological sites have been recorded so far, and tentative interpretations of their chronology, functions and settlement patterns have been suggested. In this article, we report the results of eight field seasons and discuss their implications. We employ fieldwork data from the archaeological sites of the Culebras Valley to reconstruct settlement patterns, subsistence and craft production, focusing on post-Middle Horizon components, as well as the impact of Chimú and Inca cultures on local pre-Hispanic societies.

2. The study area and previous work

The Culebras Valley is situated at the southern edge of Peruvian North Coast, between the valleys of Casma and Huarmey. The western slopes of the Cordillera Negra are cut by two large *quebradas*: Huanchay and Cotapuquio. The streams flowing through them join their course near the Quían settlement, giving birth to the Culebras River. Its valley can be divided into two sharply dissimilar zones –a lower section extending from the Pacific Ocean to the present-day Laguna settlement, and a middle section stretching between the Laguna and Janca settlements. The valley encompasses parts of the Huarmey, Aija and Huaraz provinces in the Ancash Department. It is one of the smallest river valleys of the entire Peruvian coast, with a length not exceeding 40 km.

This section of Peruvian coast features vast desert areas, crisscrossed only from time to time by the valleys of rivers flowing from the High Andes. In the closest vicinity of the lower section of the Culebras Valley occur three different types of deserts: Subtropical desert, Tropical desert scrub and Hyperarid tropical desert scrub. The valley itself is very narrow and closed at both extremities by steep mountain slopes with ravines rich in scree and rubble. In only some sections the valley opens up to allow cultivation of plants on alluvial terraces and in alluvial soil-rich areas.

The Culebras River, like most North Coast rivers, is periodic in its flow. Its regime is highly irregular and totally depends on the rainfall in mountains

and on the El Niño phenomenon. Agriculture in the valley is irrigation-dependent. During the dry period, local farmers draw water from natural springs – *puquios* – or from wells they have excavated. From a hydrographic aspect, the Culebras River system extends over ca 695 km² (Oficina Nacional de Evaluación de Recursos Naturales 1972: 12). Despite its diminutive size and problems resulting from the lack of permanent access to water, the Culebras Valley was densely populated in pre-Hispanic times.

Although initial research within the Culebras Valley carried out by Antonio Raimondi (1873, 2006 [1873]), Julio César Tello (1919), Edward Lanning, Frédéric-André Engel (1957a, 1957b, 1958), Ernesto Tabío (1977) and the Japanese Expedition of 1956 (Ishida *et al.* 1960) brought to light the existence of several archaeological sites, the valley is still one of the few areas of Peruvian North Coast that was not the subject of systematic archaeological investigations. This was despite the strategic importance the valley had in many ways during pre-Hispanic times. On one hand, a convenient trail leads through it to the Callejon de Huaylas mountain area, which played a key role in the process of shaping Andean cultures. On the other hand, the Culebras Valley –jointly with the neighboring Huarmey Valley– constituted one of the most important cultural boundaries of the pre-Hispanic Peruvian coast.

We find the first indication of the existence of archaeological sites in the Culebras Valley in the journal of the Italian naturalist Antonio Raimondi (1873), who visited several times this region of Peru. This author enumerates three sites situated in the lower section of the Culebras River: sites PV34-2, PV34-18 and PV34-34 according to the Culebras Project classification (Raimondi 1873: 148-150). The first archaeological investigation of the Culebras Valley area was carried out by Engel and Lanning, who discovered in 1955-1958 the first important settlement from the Preceramic period, situated near the Culebras River's estuary on the Pacific Ocean (Engel 1957a: 65-68, 1957b: 77-78; 1958: 22-23). The desert coastal strip stretching between the Casma and Huarmey river valleys was the subject of studies by Ernesto Tabío (1977), who confirmed in 1955 the existence of a Preceramic settlement and visited another site mentioned in Antonio Raimondi's work, situated at the northern extremity of the wide maritime bay. However, Tabío's publication does not contain any map, site plan, or archaeological artifact documentation. Short descriptions of several archaeological sites from the Culebras Valley area can also be found in the report from the Eiichiro Ishida-led University of Tokio Expedition of 1956. The Japanese scientists visited eight sites located on both sides of the river, but the information contained in the report they published is incomplete and, in most cases, it is missing detailed information on the location of the sites (Ishida *et al.* 1960: 447-448).

In 1987, for the first time the Culebras Valley became a subject of interest for Polish researchers. During a brief visit, Krzysztof Makowski and Karol Piasecki

carried out anthropometric measurements of a series of human skulls abandoned by grave looters on the grounds of several pre-Hispanic cemeteries situated in the vicinity of today's Culebras harbor (Piasecki 1999). In 1999, Juan Paredes and his collaborators signaled the presence of several pre-Hispanic cemeteries dated to the Middle Horizon period and situated in the lower and middle sections of the Culebras River (Paredes *et al.* 2001). The archaeological sites listed in Antonio Raimondi's journals (1873) and examined by Engel and Lanning (Engel 1957a, 1957b, 1958) were reproduced in the inventories of Peru's archaeological sites by García Rosell (1942: 15, 1964: 17, 64) and Hans Horkheimer (1965: 37), although the information included in these inventories is based mainly on the work of previously cited authors, and site localization data is rather imprecise.

3. The Culebras Valley Archaeological Project

The Culebras Valley Archaeological Project is a long-term, international and interdisciplinary investigation that aims to shed a new light on the discussion of complex pre-Columbian societies on the North Coast of Peru. The project began in 2002 as a cooperative effort between the Center for Pre-Columbian Studies of the University of Warsaw and the Pontifical Catholic University of Peru in Lima under a bilateral agreement between the two universities. It is co-directed by Miłosz Giersz and Patrycja Prządka-Giersz from the University of Warsaw and by Krzysztof Makowski from the Pontifical Catholic University of Peru in Lima and supported by grants the Polish Ministry of Science and Higher Education, the National Science Center and by private sponsors.

During field explorations carried out between 2002 and 2012 within the scope of the *Culebras Valley Archaeological Project* (2002-2008) and *Cuenca Culebras-Huarmey Archaeological Project* (2011-2012), the Polish-Peruvian team of archeologists inventoried 152 sites, of which 140 were previously completely unknown. Preliminary results of these investigations, especially those concerning the lower Culebras Valley, are available in book form (Prządka and Giersz 2003; Giersz *et al.* 2004, 2005, 2006) and accessible on a related web site (www.culebras.mth.pl).

4. Settlement patterns and chronology of the Culebras Valley during the Late Pre-Hispanic periods

Interpretations regarding the chronology of Peru's northern coast have been a subject of discussion and controversy from the very beginning of the investigations carried out in this region. Until now many chronological divisions were used with respect to the Central Andean Cultural Area, based on stylistic criteria (e.g., Rowe 1962; Proulx 1985; Pozorski and Pozorski 1987; Silvermann 1993, 1996; Isbell 1997; Burger 1998), socio-economic criteria (e.g., Lumbreras 1981; Shady

Solís 2001a, 2001b, 2004; Amat Olazábal 2003), as well as on «mixed» criteria. In the latter case the following criteria are taken into consideration: the style of ceremonial ceramic ware, utilitarian pottery's manufacturing technology, the characteristic features of the settlement pattern, the architectural style, the burial pattern, as well as many other aspects of material culture attesting to its identity (e.g., Larco Hoyle 1948; Ford and Willey 1949; Strong and Evans 1952; Willey 1953; Donnan 1973, 1978, 2003; Donnan and Mackey 1978; Castillo and Donnan 1994a, 1994b; Franco *et al.* 1994, 2003, 2004; Shimada 1985, 1994a, 1994b, 1995; Bawden 1996; Uceda *et al.* 1997, 1998, 2000, 2004, 2006; Wilson 1988, 1995). The abovementioned chronological divisions, constructed on the basis of local archaeological contexts often originating from very distant regions of the Andes, do not fully reflect the cultural dynamics of the area being investigated by us.

Taking this into consideration, we began our research focusing primarily on the development of a local chronological sequence. For that reason, we choose a research methodology based on an intensive surface survey including collections of surface ceramics and complementary excavations of key sites so as to maximize the acquisition of data. Studies of architectural features and ceramic, textile, wood, metal and subsistence collections allowed us to assess both cultural affinities and a tentative chronology for the associated occupations.

A particular importance is attached to the technological analysis of ceramics based on paste composition. The conventional macroscopic and microscopic analysis of ceramic wares in the sample comprising 4863 diagnostic fragments chosen out of 20581 sherds enabled us to define 32 different technological traditions of pottery making and numerous artistic styles (Giersz 2007: 44-132). Radiocarbon dates of samples from reliable archaeological contexts (Giersz 2007: 137-144), mainly associated with diagnostic artifacts, provided the basis for an absolute chronology and helped refine the local sequence.

4.1. The Middle Horizon: the impact of Wari Empire on local pre-Hispanic societies

Between the eighth and the ninth centuries A.D. the North coast of Peru saw the decline and final collapse of the Moche culture; this obviously did not happen suddenly, nor was it the same throughout the land the Moche occupied. There are different proposals in the scientific literature regarding this issue. One of them considers that the Wari cultural phenomenon was the major dynamic element in the process of reorganization that took place inside the Late Moche groups. The proponents of this interpretation support this proposal with the arrival of highland and Central Coast stylistic elements to the North Coast (Menzel 1964; Donnan 1973) as well as the apparent introduction of architectural models supposedly of highland origin (Schaedel 1951). The second proposal instead views the process of social and

political reorganization that the North Coast experienced in the Middle Horizon as a result of the reestablishment of the Moche socio-political structure (Bawden 1994, 1996; Shimada 1994a; Castillo Butters 2001a; *inter alia*). Other scholars tried to explain the decline of the Moche culture as a result of changes in the climate brought about by a paleo-ENSO (Shimada 1994a). For the scholars who work on the northern part of Peru's North Coast, the scenario suggested for this area, where the Wari inserted themselves in the midst of a presumed gradual transition from Moche to Sicán—two great local traditions—suggests that the presence of artifacts decorated using techniques and iconography from Ayacucho is explainable only as a result of the process of pre-industrial Andean globalization, and not as a result of the establishment of the political mechanisms that characterize an empire (Castillo Butters 2001b).

Our recent research at Culebras and Huarmey valleys, especially those at Castillo de Huarmey archaeological site, clearly showed that this North Coast border-area had a major role in the attempt to incorporate this region into the Wari Empire. In the Culebras Valley, the Wari episode is marked by a sharp increase in cultural activity and population as compared to the previous periods. We found a total of 54 discrete sites belonging to the this period, including 2 primary center, 4 secondary centers, 20 settlements, 21 cemeteries and 2 hilltop settlements, and 5 hilltop watchtowers (Fig. 1). These sites are distributed widely across the valley in both branches of the Culebras River.

In 2012 we excavated the Wari imperial mausoleum with largest intact burial chamber of all the graves found at Castillo de Huarmey, in the Huarmey Valley (Giersz 2014). Castillo de Huarmey is the first excavated example of a large Wari mausoleum and site of ancestor worship on the Peruvian North Coast, an area that lies on the borders of the world controlled by the first Andean empire. The burial chamber contained fifty-eight funerary bundles of noble women, six human sacrifices, two royal grave guardians, and over one thousand three hundred exceptionally rich objects that formed the ceremonial offerings and grave goods (Giersz and Pardo 2014). The artifacts found include unique pieces that have no parallel in pre-Hispanic art in general, and provide important data regarding the identity of high-status women and the political structure of the Wari Empire (Giersz 2014; Prządka-Giersz 2014).

A diversity in styles and manufacturing techniques is characteristic of all of the artistic media present in the context found. The ceramic pieces in styles from the imperial heartland (Chaquipampa B, Viñaque, Huamanga) are in the same archaeological context with bottles in styles from the South Coast (Atarco), the Central Coast (Nievería, Teatino), and even the Northern highlands (Cajamarca Serrano), as well as with the local prevailing mould-stamped ceramic style, which is often decorated with simple polychrome designs derived from the classic Wari styles, and which occasionally combines with survivals of North Coast forms and motifs. The

presence of exotic pottery, the stone-carved *kero*, the *kipus*, the *tupus*, the wari four point hats, the valves or objects made out of *Spondylus* sp. shells, obsidian, turquoise and fine metals (Giersz and Pardo 2014: 128-186), all indicate a strong long-distance interaction that was probably facilitated by the early expansion and the economic organization of the Wari Empire. The same is envisaged in the diversification of textile and metalworking styles and techniques.

Castillo de Huarmey has parallels with the most complex funerary contexts known in the heartland of the Wari Empire, being a mortuary compound that comprises chambers of varied shapes and which is directly associated with a palatial building, as is the case of the «royal» mausoleums in Ayacucho. According to Isbell (2004), in Huari the burials of this category contained the bone remains of several individuals placed in several adjacent structures inside the same room or building. At least one of the chambers or mortuary enclosures was the main tomb, whilst the others seem to have been of lower rank. Bearing in mind the number of *chullpas* and subterranean chambers, the planning and the finish given to the floors, the mausoleum of Castillo de Huarmey – that materializes the hierarchies and the relations of power: those of the ruling lineage and other lower-ranking *curaca* families – is comparable with the more complex Wari tombs at Huari, like those large mausoleums with mortuary galleries of Monjachayuq (Isbell 2004).

4.2. The Late Intermediate Period: the rise of the new polity

Following the collapse of the Wari Empire, the Central Andean area went through a series of crucial sociopolitical and cultural transformations. New state structures were developed, new ceramic styles were created, and the iconographic program was modified, as well as the settlement pattern. The commencement of this period is also characterized by an intensification of interregional contacts, including – a first in American pre-Hispanic times – the establishment of indirect maritime contacts between the Andean region and Mesoamerica (Western Mexico).

Settlement distribution and changes in architectural forms and building techniques are significant sources of information on social and political transformations during the Late Intermediate Period and the Late Horizon. Several features of the settlement pattern suggest that the valley reached its maximum sociopolitical complexity during that time (Fig. 2). We found far more sites dated to this period than to any other time in the entire sequence – with a total of 63 occupations (including 2 primary centers, 1 secondary center, 25 settlements, 15 cemeteries, 12 hilltop settlements, 5 hilltop watchtowers, and 3 non-classified sites) distributed throughout both branches of the Culebras River. A majority of them are located in strategic locations: in entrances to dry ravines, on hill slopes, and on natural flattened heights with a commanding view of the valley. An increased density of settlements is also related to the road network created during this period. The basic

Figure 1. Settlement pattern map of the Middle Horizon Period.

Figure 2. Settlement pattern map of the Late Intermediate Period.

Figure 3. Settlement pattern map of the Late Horizon.

Figure 4. Plan and 3D models of Ten Ten (Pv34-74) site.

building material of this period was rough stone joined with mortar. In the administrative and ceremonial centers and in the palatial and residential complexes there are also buildings erected with *adobe* bricks or with stones joined with *adobe*. Also characteristic of this period were simple *quincha* constructions, mainly destined for habitations and artisanal workshops.

The nearly continuous distribution of sites appears to support an argument for valley-wide sociopolitical integration, with Ten Ten I (Pv34-74) being the primary ceremonial-civic center. The pottery of the Ten Ten Period is a predominantly utilitarian Casma Incised redware, decorated with combination of incisions, punctuations, stamped circles and dots, appliqué bumps and welts, as well as zoomorphic adornments. The mold-pressed, late Middle Horizon-influenced pottery represents a minute part of Late Intermediate Period's assemblages.

4.3. The Late Horizon: Culebras Valley under the control of Inca Empire

During the Late Horizon and Inca influence in the Culebras Valley we found a total of 56 discrete sites belonging to this period, including 5 primary centers, 1 secondary center, 18 settlements, 10 cemeteries, 11 hilltop settlements, 5 hilltop watchtowers, and 6 non-classified sites. The sites are distributed widely across the valley, in both branches of the Culebras River, although the greatest concentration of settlements with Inca diagnostics is located in the uppermost part of the valley, at the entrance to the highlands (Fig. 3). In most cases these are sites originating from the Late Intermediate Period, adapted and transformed during Inca times. New sites arose mainly in the upper part of the valley, particularly around local copper and silver deposits in the vicinity of Cerro Llippli. These were mainly administrative centers, with workshops and imposing warehouses built according to new architectural canons typical of Inca constructions.

All the sites from the Late Horizon still contain Casma Incised ceramic ware, although the range of ornamental motifs as well as the form of the vessels underwent slight modifications. A strong highland influence on the style and technology is noticeable. On the other hand, the Inca Imperial and Chimú-Inca ceramic styles represent no more than one percent of all assemblages.

5. Ten Ten: the primary ceremonial-civic center in the Culebras Valley during the Late Pre-Hispanic Periods

There appears to be a distinct hierarchy of site size and function during the Late Pre-Hispanic Periods – with Ten Ten (Pv34-74) being the primary site in both Late Intermediate and Late Horizon period systems. This center is situated on the northern border of the valley, at the entrance of a small adjacent dry canyon, some 16 km directly east of the Pacific Ocean. The site extends over 100 hectares (Fig. 4). Archi-

tectural compounds at Ten Ten are clearly multifunctional, incorporating space for public, domestic, and ritual activities. Constructions are still visible on the surface. Six minor hilltop sites surround the main center. The results of GIS viewshed analysis suggest that all of the fortified sites must have served as sentry points for the main North-South inter-valley road system.

During six field seasons that occurred between 2003 and 2007 within the scope of the Culebras Valley Archaeological Project, we have realized archaeological excavations in various sectors of the Ten Ten site. The vertical stratigraphy observed at the site is relatively complex. In general, we observed three crucial moments in the development of the site (Fig. 5).

The earliest phase of the site is related to simple *quincha* architecture. During this phase Casma Incised pottery appears for a first time in the archaeological record, together with late Middle Horizon, decadent reduced-fired blackware and ceremonial vessels of Wari-Santa/Tanguche derivative style. According to radiocarbon dates this phase dates to A.D. 980-1315 (Table 1).

Quincha architecture was soon replaced by monumental constructions of sun-dried *adobe* bricks. Buildings of a public or sacred character prevailed, forming a compact group of structures along a system of passages and corridors (Sector B). An additional feature of these buildings was the use of a novel construction technique, which consisted of a series of chambers filled with rubble and organic matter. Due to this technique, the construction achieved monumental dimensions. It is also noteworthy that construction of public architectural compounds was accompanied by ritual practices linked to agrarian and fertility cults. Among the offerings laid in small cavities under the floor were frogs (*Bufa* sp.), sometimes adorned with braids made of human hair and dyed with cinnabar, as well as plants of various species, i.e. the *Luffa operculata*. On the basis of radiocarbon dating it appears that the period of this increased development of Ten Ten took place between A.D. 1270 and A.D. 1410. It is thus a period directly linked to the development of many cultures of the Late Intermediate Period, including the Casma culture. It must also be pointed out that during that time in Ten Ten, Casma Incised style ceramics were manufactured on a large scale, and that despite the presence of many various ceramic wares, there are no fragments connected with the Chimú style.

Another important moment in the development of the center at Ten Ten happened in the fifteenth century, when the Culebras Valley fell under the influence of Inca authority. The site became an important administrative and manufacturing center located on a trail linking the northern and southern territories of today's Peru. During this period Ten Ten achieved its greatest spatial development accompanied by the rise of new residential, housing and manufacturing compounds. Stone was the basic building material, sometimes used together with *adobe*, particularly in constructions destined for administrative purposes. An important role belonged to *quincha* constructions erected on stone foundations, accommodating habitations

Figure 5. Vertical stratigraphy at Ten Ten (Pv34-74) site.

Lab ID No.	Unit & Level	14C Age (Years B.P.)	1σ calibrated age range (p=68%) cal A.D.		2σ Calibrated age range (p=95%) calcal A.D.	
Gd-12751	Ten Ten (Pv34-74), Sector A, Operation A/1, Level 2	160 ± 55	1660 – 1700	11.60%	1650 – 1960	95.40%
Gd-11775	Ten Ten (Pv34-74), Sector C, Operation C/1, Burrit refuse on floor	270 ± 40	1720 – 1820 1830 – 1880 1910 – 1960	30.40% 13.30% 13.00%	1480 – 1680 1760 – 1800 1940 – 1960	85.00% 8.20% 2.10%
Gd-12750	Ten Ten (Pv34-74), Sector A, Operation A/1, Level 1	300 ± 55	1520 – 1580 1620 – 1670 1780 – 1800	31.50% 31.20% 5.50%	1450 – 1700 1750 – 1800	92.40% 3.00%
Gd-15810	Ten Ten (Pv34-74), Sector D, Operation D/1, Burrit refuse F1	370 ± 60	1490 – 1660	68.20%	1430 – 1650	95.40%
Gd-15799	Ten Ten (Pv34-74), Sector B, Operation B/1, Level 8	585 ± 65	1300 – 1370 1380 – 1420	47.20% 21.00%	1280 – 1440	95.40%
GdS-645	Ten Ten (Pv34-74), Sector B, Operation B/1, Level 34	645 ± 55	1285 – 1235 1345 – 1395	30.80% 37.40%	1270 – 1410	95.40%
Gd-12758	Ten Ten (Pv34-74), Sector B, Operation B/1, Level 9	650 ± 55	1280 – 1320 1340 – 1400	32.00% 36.20%	1270 – 1410	95.40%
Gd-19067	Ten Ten (Pv34-74), Sector B, Operation B/2, Level 37	845 ± 110	1045 – 1095 1120 – 1270	15.60% 52.60%	980 – 1315 1355 – 1390	93.30% 2.10%

Table 1. Radiocarbon Dates from Ten Ten (Pv34-74) site.

and manufacturing workshops (Prządka-Giersz 2009: 116-220). All these new compounds were built at the same moment and were occupied for a relatively short period of time. Two palatial and residential complexes situated in two separate sectors of the site (Sectors A and B), with their corresponding dwelling terraces situated on the slopes of nearby hills are also noteworthy. Another important architectural complex erected during this period is the huge *cercadura* dwelling situated in the central part of the site, inside the dry ravine (Sector C). It is characterized by a compact structure that is 120m long and 52m wide. The main area of this compound is enclosed by a thick *adobe* wall erected on a foundation of large stone blocks. This compound was probably intended for administrative purposes. Within its perimeter were storage and administrative facilities, as well as public squares with remnants of enormous stone mortars. Archaeological excavations carried out inside one of the recessed storage premises have shown that one of the substances stored therein was probably some kind of organic fertilizer obtained from guinea-pig excrement laced with food leftovers (i.e., fish) (Prządka-Giersz 2009: 198-199).

Casma Incised pottery appears together with Chimú-Inca and Inca Imperial ceremonial wares. The pottery, as well as embellished textiles, are of local manufacture. Both the style and the technique of these textiles reveal a strong kinship to the Peruvian North Coast tradition. Cotton was the main raw material used in structural wefts and warps, in characteristic dark brown color. Camelid fibers were used mainly in the decoration and repeated a chromatic range, wherein red and dark green were the most important colors. Other colors that sometimes occur are: black, red and dark brown (Prządka-Giersz 2009: 301-310). Calibrated radiocarbon dates from different archaeological contexts date this phase to after A.D. 1430.

On the basis of a detailed analysis of the organic matter it was possible to establish that the Ten Ten population's diet consisted mainly of vegetal produce and was supplemented with products of animal origin. It is worth emphasizing that preservation is excellent at Ten Ten and that plant and animal remains are extremely abundant. In the course of the excavations we identified 31 species of plants as well as 36 marine and terrestrial animal species. Marine animals included mainly shellfish, but fish were also an important component (Prządka-Giersz 2009: 311-333).

6. Conclusion

According to the evidence we have submitted, the Culebras Valley –so far deemed to be a zone of little archaeological importance– played a significant role in the pre-Hispanic cultural development of Central Andes, especially during the last several centuries before the Spanish conquest. Following the downfall of the Wari Empire, this area underwent profound sociopolitical and cultural transformation evident in the abrupt modification of settlement patterns and the emergence of

new decorative styles and techniques of ceramic production. As a result, around the ninth century A.D. the north-central coast witnessed the rise of a new cultural and political entity. It is marked by specific diagnostic elements, such as Casma Incised style pottery, textiles and architecture, all of them casting doubt on the alleged direct presence of the Chimú culture in this part of the Peruvian coast. It must be stressed that the absence of data that would confirm the conquest of the Culebras Valley by Chimú rulers casts a new light on the discussion about the sociopolitical situation reigning in this part of the coast, including the Chimú territorial expansion strategy in respect to Peru's north-central coast. The results of our research confirm the concept that was recently advanced by Moore and Mackey (2008) regarding the Chimú kingdom's southern border. The abovementioned authors reported that the direct influence of the rulers from Chan Chan was severely curtailed in the area between the valleys of the Virú and Casma rivers, where there was no well organized network of administrative centers typical of the Chimu culture. However, it is not possible to exclude the existence of strong contacts between the area investigated by us and the Kingdom of Chimor, substantiated by the numerous northern influences noticeable in both the ceramic ware and the textiles. Archaeological data demonstrate that the expansive Chimú culture was unable to gain full territorial control over the north-central coast of Peru. One may thus suppose that the Chan Chan rulers had chosen a model of conquest involving political deals and peaceful mediations with local chieftains of particular valleys, as well as alliances and a dexterous manipulation of the institution of the «Andean system of reciprocity», well known from later periods of Peru's pre-Hispanic prehistory and described by Spanish chroniclers in early colonial texts.

As regards the Culebras Valley, the local dominant center of the Casma polity was Ten Ten (Pv34-74). Archaeological excavations carried out at the site provided the first data regarding the nature and chronology of this important administrative and ceremonial center of the Casma culture. The master stratigraphic column registered in cultural profiles of principal monumental public structures, complemented by a series of radiocarbon dates, shows that the site had three crucial phases in its history (Prządka-Giersz 2009). A relatively small settlement (3.5 ha) with simple architecture developed into a ceremonial, residential and administrative center with 22.5 ha of monumental architectural remnants scattered over an area of 100 hectares. What may seem surprising is the relatively late timing of its development and territorial expansion, with its onset in 14th c. AD – according to radiocarbon dates – and reaching its peak during the Inca period. This latest discovery incites us to reconsider the former ideas of Tello (1956) and Wilson (1995) about the chronology of the Casma cultural phenomenon and the time of emergence of its proposed regional state. Further studies promise to reveal new insights into the processes and relations of sociopolitical change in the ancient societies of the north-central coast of Peru in Late Pre-Hispanic times.

References cited

Amat Olazábal, Hernán

- 2003 Huarás y Recuay en la secuencia cultural del Callejón de Conchucos, valle del Mosna. In *Arqueología de la sierra de Ancash: propuestas y perspectivas*, edited by Babel Ibarra Asencios, pp. 97-120. Instituto Cultural Runa, Lima.

Anónimo

- 1936 [1604] Fragmento de una historia de Trujillo. *Revista Histórica* 10 (2): 229-239.

Bawden, Garth

- 1994 La paradoja estructural: la cultura Moche como ideología política. In *Moche: propuestas y perspectivas*, edited by Santiago Uceda and Elías Mujica, pp. 389-412. Universidad Nacional de la Libertad/Instituto Francés de Estudios Andinos/Asociación peruana para el fomento de las ciencias sociales, Lima.
- 1996 *The Moche*. 392 pp. Blackwell Publishers, Cambridge/Oxford.

Burger, Richard L.

- 1998 *Excavaciones en Chavín de Huantar*. 460 pp. Pontificia Universidad Católica del Perú, Lima.

Cárdenas, Mercedes

- 1969 Informe del recorrido de superficie del cementerio-ruina de Buenos Aires (Cerro Buenos Aires) – Fundo Muña, Jaihua Baja, Casma, 30-31 agosto de 1969. *Boletín del Seminario de Arqueología* 4: 73-80.

Castillo Butters, Luis J.

- 2001a The last of the Mochicas, a view from the Jequetepeque Valley. In *Moche art and archaeology in ancient Peru*, edited by Joanne Pillsbury, pp. 307-332. Studies in the History of Art 63. National Gallery of Art/Center for advanced study of the Visual Arts, Washington, D. C.
- 2001b La presencia de Wari en San José de Moro. *Boletín de Arqueología PUCP* 4 (2000): 143-179.

Castillo, Luis J. and Christopher B. Donnan

- 1994a Los mochica del norte y los mochica del sur. In *Vicús*, edited by Krzysztof Makowski, Christopher B. Donnan, Iván Amaro Bullón, Luis J. Castillo, Magdalena Diez Canceco, Otto Eléspuru R. and Juan A. Murro, pp. 143-181. Colección Arte y Tesoros del Perú. Banco de Crédito del Perú, Lima.
- 1994b La ocupación Moche de San José de Moro, Jequetepeque. In *Moche: propuestas y perspectivas*, edited by Santiago Uceda and Elías Mujica, pp. 93-146. Universidad Nacional de la Libertad/Instituto Francés de Estudios Andinos/Asociación peruana para el fomento de las ciencias sociales, Lima.

Cieza de León, Pedro

2005 [1553] *Crónica del Perú. El señorío de los Incas* (Selección, prólogo, notas, modernización del texto, cronología y bibliografía de Franklin Pease G.Y.). 497 pp. Colección Clásica 226. Fundación Biblioteca Ayacucho, Caracas.

Collier, Donald

1962 Archaeological investigations in the Casma Valley, Peru. *Akten des 34 Internationalen Amerikanistenkongresses, Wien, 1960*, pp. 411-417. Verlag Ferdinand Berger, Horn, Wien.

Daggett, Cheryl

1983 Casma Incised pottery: an analysis of collections from the Nepeña Valley. In *Investigations of the Andean Past*, edited by Daniel H. Sandweiss, pp. 209-225. Cornell University, Ithaca.

De la Calancha, Antonio

1976 [1638] *Crónica Moralizada del Orden de San Agustín en el Perú con Sucesos Ejemplares Vistos en Esta Monarquía*. Barcelona.

De Zárata, Agustín

1968 [1555] *Historia del descubrimiento y conquista del Perú*. Biblioteca peruana, primera serie, tomo I. Lima.

Donnan, Christopher B.

1973 *Moche occupation of the Santa Valley*. 144 pp. University of California Publications in Anthropology Vol. 8. University of California, Los Angeles, Berkeley.

1978 *Moche art of Peru. Pre-Columbian symbolic communication*. 205 pp. University of California, Los Angeles, Berkeley.

2003 *Moche portraits from ancient Peru*. 202 pp. University of Texas, Austin.

Donnan, Christopher B. and Carol J. Mackey (editors)

1978 *Ancient burial patterns of the Moche Valley, Peru*. 412 pp. University of Texas Press, Austin.

Dulanto, Jalh

2008 Between horizons: diverse configurations of society and power in the late pre-hispanic Central Andes. In *Handbook of South American Archaeology*, edited by Helaine Silverman and William H. Isbell, pp. 761-782. Springer, New York.

Engel, Frédéric-André

1957a Sites et établissements sans céramique de la côte péruvienne. *Journal de la Société des américanistes* 46: 67-155.

1957b Early sites on the Peruvian coast. *Southwestern Journal of Anthropology* 13 (1): 54-68.

1958 Algunos datos con referencia a los sitios precerámicos de la costa peruana. *Arqueológicas* 3: 1-52.

- Ford, James A. and Gordon R. Willey (editors)
1949 *Surface survey of the Virú valley, Peru*. 89 pp. Anthropological Papers of the American Museum of Natural History Vol. 43, Pt. 1: 29-87. American Museum of Natural History, New York.
- Franco, Régulo, César Gálvez and Segundo Vásquez
1994 *Arquitectura y decoración mochica en la Huaca Cao Viejo, Complejo El Brujo: resultados preliminares*. In *Moche: propuestas y perspectivas*, edited by Santiago Uceda and Elías Mujica, pp. 147-180. Universidad Nacional de la Libertad/Instituto Francés de Estudios Andinos/Asociación peruana para el fomento de las ciencias sociales, Lima.
- 2003 *Modelos, función y cronología de la Huaca Cao Viejo, complejo El Brujo*. In *Moche: hacia el final del milenio*, Vol. II, edited by Santiago Uceda and Elías Mujica, pp. 125-177. Pontificia Universidad Católica del Perú/Universidad Nacional de Trujillo, Lima.
- 2004 *Modelo, función y cronología del edificio D: Huaca Cao Viejo, Complejo El Brujo*. In *Desarrollo arqueológico costa norte del Perú*, Vol. 1, edited by Luis Valle Álvarez, pp. 159-176. Ediciones Sian, Trujillo.
- Fung Pineda, Rosa and Víctor Pimentel Gurmendi
1973 *Chankillo*. *Revista del Museo Nacional* XXXIX: 71-80.
- García Rosell, César
1942 *Los monumentos arqueológicos del Perú*. 199 pp. Imprenta La Cotera, Lima.
- 1964 *Diccionario arqueológico del Perú*. 419 pp. Centro de Estudios Históricos Militares de la Sociedad Geográfica de Lima, Lima.
- Giersz, Miłosz
2007 *La frontera sur del estado Moche y el problema de la administración wari en la costa norcetrál del Perú*. Ph. D. dissertation, Institute of Archaeology, University of Warsaw, Warsaw.
- 2014 *El hallazgo del mausoleo imperial*. In *El mausoleo imperial wari*, edited by Miłosz Giersz and Cecilia Pardo, pp. 68-99. Museo de Arte de Lima, Lima.
- Giersz, Miłosz and Cecilia Pardo (editors)
2014 *Castillo de Huarmey. El mausoleo imperial wari*. 348 pp. Museo de Arte de Lima, Lima.
- Giersz, Miłosz, Patrycja Prządka and Krzysztof Makowski
2004 *Proyecto de investigación Arqueológica Valle de Culebras. Informe de la temporada 2003*. Report submitted to Instituto Nacional de Cultura del Perú, Lima.
- 2005 *Proyecto de investigación Arqueológica Valle de Culebras. Informe de la temporada 2004/2005*. Report submitted to Instituto Nacional de Cultura del Perú, Lima.

- 2006 Proyecto de investigación Arqueológica Valle de Culebras. Informe de la temporada 2006. Report submitted to Instituto Nacional de Cultura del Perú, Lima.
- Horkheimer, Hans
- 1965 Identificación y bibliografía de importantes sitios prehispánicos del Perú. *Arqueológicas* 8: 1-51.
- Ishida, Eiichiro, K. Aki, Taiji Yazawa, Seiichi Izumi, Hisashi Sato, Iwao Kobori, Manuel Chávez Ballón, Kazuo Terada and T. Obayashi (editors)
- 1960 *Andes 1. Report of the University of Tokyo Scientific Expedition to the Andes in 1958*. 528 pp. Bijutsu Shuppansha, Tokyo.
- Isbell, William H.
- 1997 Reconstructing Huari. A cultural chronology for the capital city. In *Emergence and change in early urban society*, edited by Linda Manzanilla, pp. 181-227. Plenum Press, New York/London.
- 2004 Mortuary preferences: a Wari culture case study from Middle Horizon Peru. *Latin American Antiquity* 15 (1): 3-32.
- Koschmieder, Klaus
- 1997 Informe Final, Proyecto Arqueológico Puerto Pobre (1995-1996), Universidad Libre de Berlín. Informe presentado al Instituto Nacional de Cultura, Lima.
- 2003 *Siedlungsweise und ubsistenzstrategien an der südlichen peripherie des Chimú-imperiums (Ergebnisse der archäologischen Untersuchungen in Puerto Pobre, Casma-Tal, Perú)*. 748 pp. Freie Universität Berlin, Berlin.
- Larco Hoyle, Rafael
- 1948 *Cronología arqueológica del norte del Perú*. 87 pp. Sociedad Geográfica Americana, Buenos Aires.
- Lumbreras, Luís G.
- 1981 *Arqueología de la América Andina*. 278 pp. Editorial Milla Batres, Lima.
- Makowski, Krzysztof
- 2006 Pre-Hispanic societies of the Central Andes. In *Weaving for the afterlife. Peruvian textiles from the Maiman Collection*. Vol. II, edited by Krzysztof Makowski, Alfredo Rosenzweig, María Jesús Jiménez D. and Jan Szemiński, pp. 13-65. AMPAL/MERHAV Group of Companies, Herzliya Pituach.
- Mackey, Carol J. and Alexandra M. U. Klymyshyn
- 1990 The southern frontier of the Chimú Empire. In *The northern dynasties: kingship and statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 195-226. Dumbarton Oaks, Washington, D.C.

Menzel, Dorothy

1964 *Style and time in the Middle Horizon. Ñawpa Pacha* 2 (1): 1-114.

Moore, Jerry D. and Carol J. Mackey

2008 *The Chimú Empire. In Handbook of South American Archaeology*, edited by Helaine Silverman and William H. Isbell, pp. 783-807. Springer, New York.

Oficina Nacional de Evaluación de Recursos Naturales

1972 *Inventario, evaluación y uso racional de los recursos naturales de la costa. Cuencas de los ríos Casma, Culebras y Huarmey*. Vol. III. 303 pp. Oficina Nacional de Evaluación de Recursos Naturales, Lima.

Paredes, Juan, Berenice Quintana and Moisés Linares

2001 *Tumbas de la época wari en el Callejón de Huaylas, Ancash. Boletín de Arqueología PUCP* 4 (2000): 253-288.

Piasecki, Karol

1999 *Estructura antropológica del Perú prehispánico*. 183 pp. Instytut Archeologii, Uniwersytet Warszawski, Warsaw.

Pozorski, Shelia and Thomas Pozorski

1987 *Early settlement and subsistence in the Casma Valley, Peru*. 149 pp. University of Iowa City, Iowa.

Proulx, Donald A.

1973 *Archaeological investigations in the Nepeña Valley, Peru*. 292 pp. Research Report Number 13. Department of Anthropology, University of Massachusetts, Amherst.

1985 *An analysis of the early cultural sequence of the Nepeña Valley, Peru*. 359 pp. Research Report Number 25. Department of Anthropology, University of Massachusetts, Amherst.

Prządka, Patrycja and Miłosz Giersz

2003 *Sitios arqueológicos de la zona del valle de Culebras, Vol. I: Valle bajo*. 104 pp. Sociedad Polaca de Estudios Latinoamericanos/Misión Arqueológica Andina, Varsovia.

Prządka-Giersz, Patrycja

2009 *Patrones de asentamiento y transformaciones sociopolíticas en la costa norcentral del Perú durante los Períodos Tardíos: El caso del valle de Culebras*. Ph.D. dissertation, Institute of Archaeology, University of Warsaw, Warsaw.

2014 *Ajuar personal: las mujeres de la élite wari y su atuendo. In Castillo de Huarmey. El mausoleo imperial wari*, edited by Miłosz Giersz and Cecilia Pardo, pp. 100-127. Museo de Arte de Lima, Lima.

Raimondi, Antonio

1873 *El Departamento de Ancachs y sus riquezas minerales*. 651 pp. Imprenta de "El Nacional" por Pedro Lira, Lima.

- 2006 [1873] *El departamento de Ancachs y sus riquezas minerales* (Compilación e introducción de Luís Felipe Villacorta). 591 pp. Colección Estudios Geológicos y Mineros para la obra El Perú 2. Universidad Nacional Mayor de San Marcos/Corporación Financiera de Desarrollo/Asociación educacional Antonio Raimondi, Lima.
- Rowe, John H.
 - 1962 Stages and periods in archaeological interpretation. *Southwestern Journal of Anthropology* 18 (1): 40-54.
 - Schaedel, Richard P.
 - 1951 Mochica murals at Pañamarca (Peru). *Archaeology* 4 (3): 145-154. [Reissued in John H. Rowe and Dorothy Menzel (editors), *Peruvian Archaeology. Selected Readings*, pp. 105-114. University of California, Los Angeles, Berkeley, 1967].
 - Shady Solís, Ruth
 - 2001a Caral-Supe y la costa norcentral del Perú: La cuna de la civilización y la formación del Estado prístino. In *Historia de la cultura peruana*, tomo I, pp. 45-87. Congreso de la República, Lima.
 - 2001b *La ciudad Sagrada de Caral-Supe y los orígenes de la civilización andina*. Museo de Arqueología y Antropología de la Universidad Nacional Mayor de San Marcos, Lima.
 - 2004 *Caral. La ciudad del fuego sagrado*. 259 pp. Centura Sab, Lima.
 - Shimada, Izumi
 - 1985 La cultura Sicán: caracterización arqueológica. In *Presencia histórica de Lambayeque*, edited by Eric Mendoza, pp. 76-133. Editorial e Imprenta DESA, Lima.
 - 1994a Los modelos de organización sociopolítica de la cultura Moche: nuevos datos y perspectiva. In *Moche: propuestas y perspectivas*, edited by Santiago Uceda and Elías Mujica, pp. 359-387. Universidad Nacional de la Libertad/Instituto Francés de Estudios Andinos/Asociación peruana para el fomento de las ciencias sociales, Lima.
 - 1994b *Pampa Grande and the Mochica Culture*. 328 pp. University of Texas Press, Austin.
 - 1995 *Cultura Sicán. Dios, riqueza y poder en la costa norte del Perú*. 219 pp. Fundación del Banco Continental para el Fomento de la Educación y la Cultura, EDUBANCO. Lima.
 - Silvermann, Helaine
 - 1993 *Cahuachi in the ancient Nasca world*. 387 pp. Univesity of Iowa Press, Iowa City.
 - 1996 The Formative Period on the South Coast of Peru: a critical review. *Journal of World Prehistory* 10 (2): 95-146.

Strong, William D. and Clifford Evans, Jr.

- 1952 *Cultural stratigraphy in the Viru Valley, Northern Peru: The Formative and Florescent epochs*. 373 pp. Columbia Studies in Archeology and Ethnology 4. Columbia University, New York.

Tabío, Ernesto E.

- 1977 *Prehistoria de la costa del Perú*. 268 pp. Academia de Ciencias de Cuba, La Habana.

Tello, Julio C.

- 1919 Cuadernos de investigación de la Primera Expedición Huaylas de 1919 en los valles de Huarmey y Culebras. Unpublished manuscript, Museo de Arqueología y Antropología de la Universidad Nacional Mayor de San Marcos, Archivo Tello, Lima.
- 1956 *Arqueología del valle de Casma. Culturas: Chavín, Santa o Huaylas Yunga y Sub-Chimú*. 344 pp. Publicación Antropológica del Archivo Julio C. Tello Vol. 1. Universidad Nacional de San Marcos. Lima.

Thompson, Donald E.

- 1964 Postclassic innovations in architecture and settlement patterns in the Casma Valley, Peru. *Southwestern Journal of Anthropology* 20 (1): 91-105.

Uceda, Santiago, Elías Mujica and Ricardo Morales (editors)

- 1997 *Investigaciones en la Huaca de la Luna 1995*. 242 pp. Universidad Nacional de Trujillo/Proyecto Arqueológico Huacas del Sol y de la Luna, Trujillo.
- 1998 *Investigaciones en la Huaca de la Luna 1996*. 252 pp. Universidad Nacional de Trujillo/Proyecto Arqueológico Huacas del Sol y de la Luna, Trujillo.
- 2000 *Investigaciones en la Huaca de la Luna 1997*. 334 pp. Universidad Nacional de Trujillo/Proyecto Arqueológico Huacas del Sol y de la Luna, Trujillo.
- 2004 *Investigaciones en la Huaca de la Luna 1998-1999*. 495 pp. Universidad Nacional de Trujillo/Proyecto Arqueológico Huacas del Sol y de la Luna, Trujillo.
- 2006 *Investigaciones en la Huaca de la Luna 2000*. 355 pp. Universidad Nacional de Trujillo/Patronato Huacas de Moche, Trujillo.

Vogel, Melissa A.

- 2011 Style and interregional interaction: Ceramics from the Casma Capital of El Purgatorio. *Ñawpa Pacha: A Journal of Andean Archaeology* 31 (2): 201-224.
- 2012 *Frontier life in ancient Peru. The archaeology of Cerro La Cruz*. 248 pp. University Press of Florida, Gainesville.

Willey, Gordon R.

1953 *Prehistoric settlement patterns in the Virú Valley, Peru*. 453 pp. Bureau of American Ethnology, Bulletin 155. Smithsonian Institution, Washington, D.C.

Wilson, David J.

1988 *Prehispanic settlement patterns in the Lower Santa Valley, Peru. A regional perspective on the origins and development of complex North Coast society*. 590 pp. Smithsonian Institution Press, Washington, D. C.

1995 Prehispanic settlement patterns in the Casma Valley of Peru, north coast of Peru: preliminary results to date. *Journal of the Steward Anthropological Society* 23 (1-2): 189-227.