

Late Horizon Pottery and Social Identity in the Lurin Valley: Report on LA-TOF-ICP-MS Analysis¹

Krzysztof Makowski (PUCP)
Ivan Ghezzi (Yale, PUCP)
Hector Neff (IIRMES, CSULB)
Daniel Guerrero (UNMSM)

Introduction

Our understanding of the central coast of Peru during the Late Horizon is changing rapidly thanks to the long-term research undertaken in the last few years. Recent large-scale excavations reveal, among other important results, a remarkable variety of ceramic wares and styles. This variety in pottery can occur within a single archaeological site, and even within a single primary context, posing interesting questions about the identity of the people producing, distributing, and consuming such a diverse body of ceramics.

Too often, researchers in the area assume a parallel between a ceramic style and the ethnic identity of the population. A direct relationship between the degree of political centralization in the region and its stylistic uniformity is assumed as well. Accordingly, the spatial distribution of stylistic attributes is believed to reveal the territories of prehispanic polities.

We propose instead that the imperial domination of the region by the Incas produced the conditions of a mini world-system, in which the networks of production and distribution weave together populations of a most varied origin. Moreover, the Inca empire practiced as an official policy the forced displacement of artisans. Even whole groups specialized in certain crafts were relocated. For instance, such forced settlers, or *mitimaes*, from the nearby highland region of Huarochirí, probably composed the population of Pueblo Viejo, a site where the “Lomas de Lurin Archaeological Project and Field School” is carrying out long-term research. These population movements would foster an intense regional circulation of pottery. Thus, the assumed relationship between the degree of political centralization in the region and its stylistic uniformity would have been inverse rather than direct.

Under the dynamic conditions created by the empire and its resettlement policies, the identities of pottery producers, distributors, and consumers would rarely coincide. Whereas the imperial ideology is materialized in ceremonial architecture and official state cult paraphernalia, the pre-existing vernacular architecture and crafts remain sometimes indifferent to the imperial style, and continue to express local and regional styles and technologies. In the case of pottery, it is in these traditional spheres that identity is ultimately expressed.

¹ Presentado en The Society for American Archaeology (SAA) Conference, Puerto Rico 2006.

To test this interpretation of the rich ceramic variety present in the central coast during the Late Horizon, we carried out a conventional ceramic analysis of over 6500 diagnostic fragments from the archaeological sites of Pueblo Viejo, Huaycan de Cieneguilla, and Pachacamac, in the Lurin valley.

There is a comparable range of ceramic wares and styles in the three sites. However, each one occupied a different position in the imperial administrative hierarchy, with the corresponding variations in rank and status of its inhabitants. This would have determined their access to the imperial networks of redistribution and exchange.

Pueblo Viejo is a naturally fortified urban settlement built by highland *mitimaes* within the *loma* ecosystem. It includes palatial residences and residential sectors, built in typical highland architectural style. The settlement was primarily built for defense and camelid herding. Its inhabitants had access to prestige goods, such as *spondylus*, cinnabar, and objects made of bronze, gold, silver, and lead, yet there is no the local production of pottery.

Huaycan de Cieneguilla is an administrative and ceremonial center located at the entrance to the middle section of the valley. It has typical coastal Inca adobe architecture, comparable to that of Pachacamac and other sites. Finally, our Pachacamac ceramic samples come from a gate-keeping and workshop area between the second and third perimeter walls, or *murallas*, along the access road to this prime coastal ceremonial center.

Through macroscopic attribute and paste analysis, we have identified 16 wares and five major stylistic traditions in the sites mentioned:

- "Ychsma," a local, coastal style of the lower Lurin valley
- "Serrano," as the upper valley brown pottery is known in literature
- "Puerto Viejo," a coastal style with influences from outside Lurin
- "Chimu-Inca," with imitations or stylistic influences from Chimu
- "Inca Policromo A," local imitations.

The macroscopic attribute and paste analysis was followed by a compositional analysis of a sample of 267 sherds from these three sites. The sherds were analyzed by Neff at IIRMES with a laser ablation time-of-flight ICP-MS instrument, following standard procedures.

Results of Compositional Analysis

Thirty-nine chemical elements were used in the initial stage of pattern-recognition, which included hierarchical cluster analysis, principal components analysis, and inspection of bivariate plots of both elemental concentrations and principal components scores. The provisional groups were refined by calculating Mahalanobis distances of group membership and by continuing to review bivariate plots of the data. This led to the identification of a four-group structure in the elemental data, and the assignment of 79% of the sherds to one of these groups.

The four-group structure is partly visible in a plot of the first two principal components. The element coordinates identify two co-varying sets of elements, with very low correlations with each other, as indicated by the ~90 degree angles between vectors connecting

elements with the origin. Elements in the set to the right tend to discriminate the sherd groups very well, whereas the other set tends to elongate the four groups along parallel axes.

The structure inferred from the PCA plot is observed clearly on elemental concentration plots. Rubidium and cesium discriminate three chemical groups very effectively. Group 4, meanwhile, is marked by a correlated enrichment of zirconium and hafnium, due to minute particles of these weathering-resistant minerals. Thus, Groups 1-3 represent compositionally distinct clay sources within Lurin, whereas sherds in Group 4 may derive from siltier portions of local clay beds.

Discussion

An in-depth exploration of the data suggests that the chemical groups vary consistently in their frequency across sites, wares, vessel forms, and ceramic styles in Lurin.

Each major chemical group is associated with a specific group of wares. For instance, 85% of sherds in Group 1 belong to Ware 5, with only four other wares—1 sherd each—present. As for Group 2, 86% of Ware 10 sherds belong to this group. Likewise, 80% of Ware 2 sherds associate with Group 3. Thus, each ware in the sample belongs to a specific chemical group, indicating the close association between composition and technological choices.

There is also a strong correlation between chemical group and style. Of all the sherds assigned to Group 1, 82% belong to the Serrano style, which is practically absent in other chemical groups. Groups 2 and 3 are more stylistically complex, yet show specific associations. For Group 2, 51% of the sherds are Ychsma, with other styles also represented in small amounts. As for Group 3, the Ychsma and Inca Costeño sherds comprise 76% of the sample. The latter is virtually absent in other groups. The Ychsma style, present in both Group 2 and 3, is absent in Group 1. Even less-represented styles in our sample show patterning: 71% of Chimu-Inca sherds and 90% of Puerto Viejo sherds belong to Groups 2 and 3. Of all Inca Policromo A sherds, 80% belong to Group 2.

Similarly, vessel forms vary consistently across chemical groups. For instance, 52% of Group 1 sherds are *cantaros*, which is twice as expected. In Group 2, 49% are *ollas*, and there are small amounts of *cantaros*, spoons, and bowls. Group 3 has the greatest formal variety, including all the *aribalos*, bottles, plates, and spindle-whorls, 45% of the bowls, and *ollas* and *cantaros* as well.

Likewise, there is also frequency variation from site to site. For instance, 65% of samples in Group 1 come from Pueblo Viejo; 49% of sherds in Group 2, almost twice what is expected, come from Huaycan; finally, 35% of samples in Group 3 come from Pachacamac, which is almost twice what is expected.

Finally, we can summarize the patterns just discussed. It is clear that there is an association of spatial, formal, and stylistic dimensions of ceramic variation in our sample with chemical composition. Group 1 comprises the formal and functional taxa of the Serrano stylistic tradition, while the wares in Group 2 comprise a similar set of mainly utilitarian pottery in the Ychsma and Inca Policromo traditions. In return, Group 3 has high numbers of fine, decorated, specialized ceremonial wares and forms such as *aribalos*, bottles, bowls, etc. in the coastal Ychsma and Inca stylistic traditions.

Conclusions

The patterning in these results suggests each chemical group represents a *technological tradition*, that is, a constant of clay sources and technological choices, closely related with functional and formal preferences over a relatively long period.

During the Late Horizon occupation of Lurin, the relationship between tradition and style, as defined by archaeologists, is complex. Our research suggests that a technological tradition usually relates to a local style of utilitarian pottery and several styles of potentially ceremonial, decorated pottery, including local imitations of foreign styles. It follows that a number of related workshops make up a tradition. Well-known social and cultural mechanisms of learning are behind the sharing of technological knowledge by these workshops.

We have defined and studied wares through the macroscopic analysis of paste, finish, and surface wear, combined with formal and functional typologies, to get an approximation at the number and characteristics of pottery production centers in the Lurin valley. We define each ware as a *repertoire* of forms, uses, and technical choices determined by the intended uses (v.g. shock- and fire-resistant pastes, impermeable pastes, thickness proportional to size, etc.), as well as the choice of finish and style of decoration. Unlike a technological tradition, a ware may correspond to a particular workshop, or a few closely related workshops.

The paste preparation choices in a technological tradition will determine the composition and chemistry of their output. Thus, we may interpret the main chemical groups in our sample as distinct traditions of paste preparation practiced by at least three workshops. However, it is likely that the actual number of active workshops at the time was larger. For instance, in one residential sector at Pueblo Viejo, the demand for utilitarian pottery was supplied through the output of potentially several different workshops producing:

1. Ware 5, closely related to the Serrano style and technological tradition 1
2. Ware 2, related with the Ychsma style and technological tradition 3,
3. Wares 1, 6 and 8, related to the Puerto Viejo style from the neighboring Chilca valley, and associated with technological tradition 3
4. Ware 10, of the Inca Costeño style, associated with technological tradition 2

All of these wares have a frequency that ranges from 5 to 20% out of a sample of 3500 fragments from Pueblo Viejo alone.

When the strong patterning of variation in our sample is considered, it is evident that each technological tradition exploits a particular clay source or clay mixture to produce a specific set of local and/or foreign-influenced forms and styles supplied to specific social spaces. While one tradition, represented by Chemical Group 1, is mainly associated with the Pueblo Viejo site, the Serrano style, a few wares, and fewer vessel forms, the other two technological traditions have a broader spatial distribution and a greater range of ceramic variability. Even among these two, there is a cline of variation: Chemical Group 2 is associated with the Inca Policromo ceramic style, a few wares and vessel forms, while Chemical Group 3 is associated with the Coastal Inca style, a variety of vessel forms—including most of the potentially ceremonial and decorated, non-utilitarian forms—, and more than half the wares.

How do we explain the marked differences among them? The stylistic and technological variety of Late Horizon pottery in Lurin was not the result of local, small-scale exchange at the individual or community level. Rather, it reflects the movement of goods as part of the imperial tribute system. Thus, the political complexity brought about by the Inca conquest and the presence of an imperial administration, with the resulting forced displacement of artisans, as well as the partial acculturation of local populations, had a direct expression in the variety of the pottery.

Specifically, the forced displacement of *mitimaes* settlers, including specialized potters, to the central coast had some immediate effects: new styles, forms, and designs appeared. It created a co-occurrence of local traditions with the production of objects that imitate the imperial style. Rather than provoke the demise or decadence of local styles, the technological choices of potters, their forms and designs before the Inca conquest survived and remained widely in use after the incorporation of this region into the empire. In many cases, it fostered an affirmation of their stylistic identity, which is compatible with the simultaneous adoption of foreign stylistic influences.

Nevertheless, the local traditions were not immune to the political junctures. Each new or pre-existing ceramic workshop had a particular position in the imperial administrative hierarchy and exchange networks, with the corresponding variation in their output. While some workshops retained the ways of their place of origin, others were far more cosmopolitan in their choices.