The Latin American Studies Book Series

Agustina Scaro
Clarisa Otero
Maria Beatriz Cremonte
Editors

Pre-Inca and Inca Pottery

Quebrada de Humahuaca, Argentina

Springer

The Latin American Studies Book Series

Series editors

The Latin American Studies Book Series promotes quality scientific research focusing on Latin American countries. The series accepts disciplinary and interdisciplinary titles related to geographical, environmental, cultural, economic, political and urban research dedicated to Latin America. The series publishes comprehensive monographs, edited volumes and textbooks refereed by a region or country expert specialized in Latin American studies.

The series aims to raise the profile of Latin American studies, showcasing important works developed focusing on the region. It is aimed at researchers, students, and everyone interested in Latin American topics.

More information about this series at http://www.springer.com/series/15104

Agustina Scaro · Clarisa Otero
Maria Beatriz Cremonte
Editors

Pre-Inca and Inca Pottery

Quebrada de Humahuaca, Argentina

Springer

Editors
Agustina Scaro
Centro Regional de Estudios Arqueológicos, Facultad de Humanidades y Ciencias Sociales
Universidad Nacional de Jujuy
San Salvador de Jujuy
Argentina

Clarisa Otero
INECOA
Universidad Nacional de Jujuy, CONICET
San Salvador de Jujuy, Jujuy
Argentina

and

Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras
Universidad de Buenos Aires
Tilcara, Jujuy
Argentina

Maria Beatriz Cremonte
Instituto de Ecorregiones Andinas-CONICET
Universidad Nacional de Jujuy
San Salvador de Jujuy
Argentina

ISSN 2366-3421 ISSN 2366-343X (electronic)
The Latin American Studies Book Series
ISBN 978-3-319-50573-2 ISBN 978-3-319-50574-9 (eBook)
DOI 10.1007/978-3-319-50574-9

Library of Congress Control Number: 2016959964

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

Pottery production, as one of the most widespread productive activities in the past, allows us to approach different aspects of people's lives. Therefore, the analysis of archaeological settlement pottery provides information about human behavior and social practices linked to its production, distribution, and consumption, both in everyday and ritual activities.

In the province of Jujuy (the northernmost sector of Argentina) Quebrada de Humahuaca is one of the most widely recognized archaeological zones and one of the most widely studied. An important reason for this is undoubtedly the particular topography of the Quebrada, a semi-arid valley stretching between 1800 and 2800 masl (Fig. 1). This topography has facilitated its functioning as a natural corridor linking nearby desert-like, high-altitude regions in the west (*Puna*) to lower altitude, humid valleys located to the east (*Yungas*) in what is today the Province of Jujuy.

Similarly to what has been found for other Andean regions, permanent settlements occurred over time and those settlements were transformed into highly complex productive societies since the thirteenth century, corresponding to the Regional Developments Period (RDP; Late Intermediate Period in the Andes). During that period, the development of pottery styles reflected the materiality of the *Omaguaca* groups identity. During the fifteenth century Quebrada de Humahuaca was incorporated into the *Tawantinsuyu* (the Inca Empire). The Inca Empire extended over 5000 km in western South America, from Ecuador to Chile, incorporating different environments and ethnicities with varying levels of political complexity. A range of direct or indirect strategies of domination were performed in the provinces as revealed by Spanish chronicles and the study of archaeological records. Relations between the state and subject groups had to be tailored to the existing organizations, capabilities, and interests of both the central powers and the provinces, with different existing scales of control in productive activities, such as pottery production. On the other hand, within the frame of the state political and economic strategies, some foreign pottery styles may be partly attributable to the Inca practice of *mitmaqkuna*, the displacement and relocation of entire subject populations.

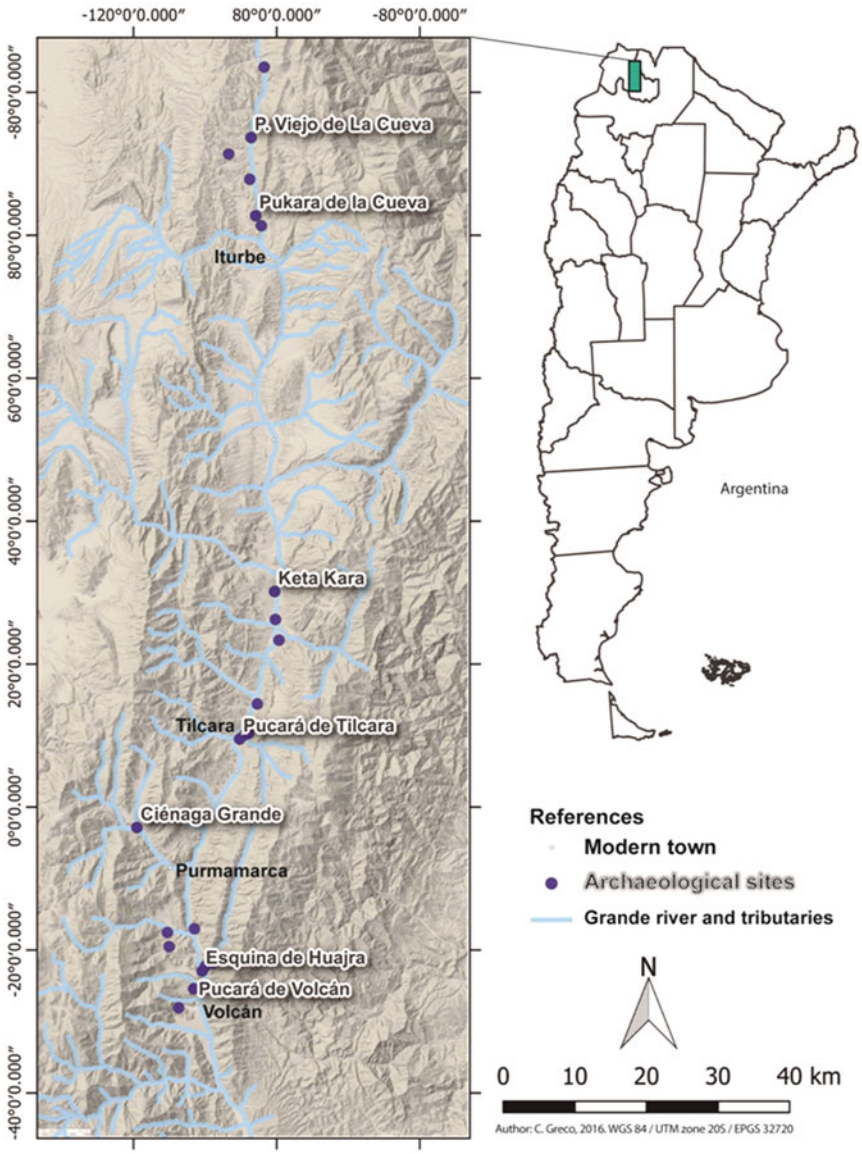


Fig. 1 Map of Quebrada de Humahuaca with the location of the sites mentioned in the text

The richness and abundance of ceramic material evidence in the landscape of the Quebrada awoke the interests of archaeologists very early on, promoting extensive excavations of the most conspicuous settlements. The results of these interventions have served not only to characterize these pre-Hispanic agricultural societies and

construct chronologies of northwestern Argentina, but also to elaborate models of trans-Andean population dynamics.

Since 2003 Quebrada de Humahuaca was made a UNESCO World Heritage Site. Numerous tracks, roads, and settlements testify its history from pre-ceramic to colonial times. Due to its strategic position, Quebrada de Humahuaca has been colonized by both the Inca and the Spaniards. It also has been a stage for many battles during the Argentine War of Independence.

A selection of articles that reflect part of the results obtained within the Project of the Agencia Nacional de Promoción Científica y Tecnológica (ANPCYT) PICT 01538 *Cerámicas arqueológicas de Jujuy (Quebrada de Humahuaca, yungas y valles templados). Prácticas sociales y arqueología aplicada* are included in this book. Through these articles, different perspectives for archaeological pottery studies are presented, regarding the understanding of pre-Hispanic social practices. Moreover, applied archaeology tasks carried out provided experiences linked to contemporary perceptions of local communities about archaeological cultural heritage. As study cases, pottery contexts of different archaeological settlements researched at Quebrada de Humahuaca in northern, central, and the central south sectors are analyzed. Also within the Appendix is included a selected ceramic sample from the site Esquina de Huajra. The aim of this book is to contribute to Quebrada de Humahuaca's archaeological knowledge and promote its inclusion in current discussions about Andean and worldwide past pottery production.

Lucas Pereyra Domingorena and María Beatriz Cremonte analyze the San Francisco pottery tradition, one of the most important and widely distributed Formative cultural expressions in northwestern Argentina. This chapter contributes to the characterization of this pottery tradition by reviewing the information and interpretations reached to date and providing new evidence from two sectors of northwestern Argentina: the San Francisco River Basin and the central south sector of Quebrada de Humahuaca (Jujuy Province). Pottery materials recovered from these areas were analyzed through the application of petrographic techniques and statistical analysis of the quantitative variables. The main goal was to answer two questions: Is the identity of San Francisco, reflected in the forms and iconography of their vessels, also expressed in their pastes as a distinct manufacturing tradition? Can technical and textural characteristics of the pastes set trends that reflect a local production of San Francisco vessels in the central south sector of Quebrada de Humahuaca? These studies corroborate the existence of the four groups of pastes previously defined and propose that vessels of the same ceramic type have different types of fabrics. The same type of fabrics are present both in the San Francisco Basin sites as well as in the central south sector of Quebrada de Humahuaca's sites, therefore we cannot state differences in the manufacturing patterns of these two areas. Nevertheless, a slight tendency towards pastes with a common presence of slate and phyllites was registered in the central south sector of Quebrada de Humahuaca's sites. Finally, the adding of grog, present in most of the San Francisco pastes, is undoubtedly the *hallmark* of this pottery tradition. This trait is shared by other cultural traditions from the eastern slopes of the Andes and it is also an idiosyncratic feature of the pottery assemblages of the Chaco area, establishing a

notable difference with other pottery traditions from the Formative Period of northwestern Argentina.

María Clara Rivolta, Clarisa Otero, and Catriel Greco propose to include new evidence, such as unpublished radiocarbon dating and the analysis of material context elements from sites located in the central sector of Quebrada de Humahuaca, considered in classical proposals as part of the Middle Period (600–900 AD). As a result of these studies radiocarbon datings were obtained, repositioning Isla manifestations in the interval between the twelfth and fourteenth centuries. This implies the proposal for interpretive schemes about the interrelation of small conglomerates such as La Isla de Tilcara with villages in domestic terraces, given that they were contemporaries according to this new evidence. In this sense, the strong contrast between landscape elements and materiality—mainly ceramics—leads to the formulation of hypotheses concerning the possibility that, after the fall of Tiwanaku and during later times, there was a shift of small groups coming from the Altiplano towards Quebrada de Humahuaca, a region that did not have a significant population density at that time.

Paola Ramundo presents the spatial distribution of pottery in Quebrada de La Cueva (Humahuaca, Jujuy, Argentina) as a useful hint to understand consumption relations. In this study, consumption is mainly viewed on a stylistic level, both at an intra- and inter-site scale in the area. Furthermore, the evaluation of this practice through time could contribute to the study of past social practices in the area. Considering this region as part of the northern Quebrada de Humahuaca, it is suggested that the place suffered similar change processes at different levels. The starting point is thus defined by the general hypothesis that consumption of pottery in Quebrada de La Cueva varied through time. From this, a number of minor hypotheses may be derived: (a) during the Late Formative Period, consumption of pottery in the area had a more foreign nature; and (b) during the Regional Developments Period II (RDPII) and Inca Periods, its consumption was more locally based than during previous and probably later occupational events. Hence, this chapter considers pottery at a stylistic level, using the concept of goods consumption being understood as a kind of symbolic action. In order to analyze the consumption of pottery on a style level, a number of analyses are performed: (1) decorative analysis of complete vessels and sherds recovered from past and recent excavations; (2) study of space and time variability in styles at inter- and intra-site scales in the area; and (3) preliminary outline of some of the ways pottery was consumed in Quebrada de La Cueva.

In order to contribute to the knowledge of the RDP of Quebrada de Humahuaca (Período de Desarrollos Regionales), Agustina Scaro and Lautaro López Geronazzo address the study of El Pobladito's Enclosure 2 through pottery and zooarchaeological analyses. El Pobladito was the only site exclusively occupied during that period in the central south section of Quebrada de Humahuaca. Thus, studying the materiality of this settlement provides an opportunity to understand social dynamic processes prior to Inca domination. The contextual analysis of Enclosure 2 allows recognizing diverse activities as well as understanding its role within settlement functionality. Based on these analyses, the authors consider that different activities

were carried out at Enclosure 2, such as the preparation of food, the storage of food and other goods, and resting. Considering the presence of a high concentration of zooarchaeological remains and fragmented pottery vessels in such a small enclosure (22 m^2), and that of "special" elements, rarely recovered in other contexts in Quebrada de Humahuaca, such as a bird skull, a bone trumpet, a group of camelid phalanges, and a probable mollusc ornament, suggests a non-domestic space. It is stated that Enclosure 2 was linked to communal activities developed at the community participation space or "plaza" where it is located.

Clarisa Otero's chapter aims to present a synthesis of the wide variety of stylistic manifestations registered in the ceramic assemblage of Pucara of Tilcara, established as the capital of a *wamani* on the previous settlement. The pottery of this site allows characterizing styles from other regions of the Andes that circulated during the last late pre-Hispanic period, as well as recognizing morphological and decorative transformations in ceramics manufactured locally. The author mainly focuses on changes resulting from the Inca conquest that led to consideration being given to the fact that the pottery of this region—defined for decades as abstract or geometric—was an important visual resource to express identity messages and to impose new narratives by the State. In this context Otero highlights the use of two rhetoric figures: metaphor and metonymy, also detected in other non-ceramic supports, reflecting the existence of religious beliefs related to the supernatural and to fertility cults.

Agustina Scaro discusses the Humahuaca-Inca site of Esquina de Huajra regarding the morphological and decorative protocols of its pottery, based on a stylistic perspective. This, in order to understand regularities in shape–decoration identified for each style present in the site repertory. However, the protocol also accounts for Esquina de Huajra's morphological and decorative pottery variability. This variability, as well as the high incidence of foreign vessels, is significantly higher than that observed at the nearby and contemporary settlement of Pucara de Volcán. This situation suggests that Esquina de Huajra would have played a significant role within the new landscape created by the Inca administration, related to the status of its inhabitants and to their participation in interaction networks that extended well beyond northwestern Argentina.

Catriel Greco presents a compilation and review of radiocarbon dates from different archaeological sites in the central south of Quebrada de Humahuaca. These include those made by Beatriz Cremonte and her team in recent years, as well as those previously available for the region. After reviewing each radiocarbon dating and its context, conventional statistics and Bayesian modeling techniques are used to evaluate temporal trends. Temporal lapses determined by Greco allow adjusting pottery styles trajectories during pre-Inca and Inca times.

In their chapter, Mónica Montenegro, Elisa Aparicio, and Nicolás Lamberti share experiences developed in Quebrada de Humahuaca about the use of archaeological ceramic as a device for social memory. In the field of public archaeology the authors provide an extensive and thorough discussion about the role of archaeology in the construction of counter-hegemonic discourses about local past, and the necessity to ponder the pedagogic dimension in relation to the

transference of scientific knowledge in the paths of inter-cultural collaboration. This research, as a link between past and present, encourages the planning of new intervention strategies in contexts of tension and reflexivity where inter-ethnic and inter-cultural relationships are constantly being reconfigured.

Finally, Valeria López and Agustina Scaro made up an Appendix formed by the illustration and brief description of 14 fragmented vessels and 30 selected potsherds from Esquina de Huajra. Almost 7000 potsherds were excavated at this site, a settlement only occupied during Inca times in Tumbaya. As Humahuaca-Inca pottery and related types are little known in the region we decided to show the most conspicuous decorative and morphological attributes present in the ceramic contexts, which are described in the chapter written by Scaro in this book.

Every chapter published in this book was evaluated. We give thanks to those on the evaluation committee, formed by Fabiana Bugliani (IDECU-Universidad de Buenos Aires-CONICET-Museo Etnográfico), Javier Nastri (CONICET-Universidad Maimónides), Gustavo Barrientos (CONICET-Universidad Nacional de La Plata), María Amalia Zaburlín (Universidad Nacional de Jujuy), María Clara Rivolta (Universidad Nacional de Salta-Universidad de Buenos Aires), Verónica Puente (CONICET-Universidad Nacional de Mar del Plata), and Paola Bolados (Universidad de Valparaiso). We also thank Catriel Greco for the elaboration of the maps used in this book.

San Salvador de Jujuy, Argentina

Agustina Scaro
Clarisa Otero
Maria Beatriz Cremonte

Contents

Contributors

María Elisa Aparicio Universidad Católica de Santiago del Estero, DASS, San Salvador de Jujuy, Jujuy, Argentina

María Beatriz Cremonte INECOA, Universidad Nacional de Jujuy, CONICET, San Salvador de Jujuy, Jujuy, Argentina

Lucas Pereyra Domingorena IDECU, Universidad de Buenos Aires, CONICET, Buenos Aires, Argentina

Lautaro López Geronazzo INECOA, Universidad Nacional de Jujuy, CONICET, San Salvador de Jujuy, Jujuy, Argentina

Catriel Greco Departamento de Geología, Universidad Nacional de San Luis, CONICET, San Luis, Argentina

Nicolás Lamberti Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy, San Salvador de Jujuy, Jujuy, Argentina

Mónica Montenegro Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, Universidad de Buenos Aires, Tilcara, Jujuy, Argentina; Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy, San Salvador de Jujuy, Jujuy, Argentina

Clarisa Otero Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, Universidad de Buenos Aires, Tilcara, Jujuy, Argentina; INECOA, Universidad Nacional de Jujuy, CONICET, San Salvador de Jujuy, Jujuy, Argentina

Paola Silvia Ramundo CONICET, Facultad de Ciencias Sociales, Departamento de Historia, Pontificia Universidad Católica Argentina, Buenos Aires, Argentina

María Clara Rivolta Facultad de Humanidades, Universidad Nacional de Salta, Salta, Argentina; Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, Universidad de Buenos Aires, Tilcara, Jujuy, Argentina

Agustina Scaro Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy, San Salvador de Jujuy, Jujuy, Argentina

The Same Way of Doing Pottery. San Francisco Ceramic Fabrics from Tumbaya (Quebrada de Humahuaca) and San Pedro (San Francisco River Basin)

Lucas Pereyra Domingorena and María Beatriz Cremonte

Abstract The San Francisco pottery tradition is one of the most important and widely distributed cultural expressions of the Formative Period in northwestern Argentina. Its chronology goes from the eighth century BC to the fifth century AD approximately. This chapter contributes to the characterization of this pottery tradition by reviewing the information and interpretations reached, to date, and providing new evidence from two sectors of northwestern Argentina: the San Francisco River Basin and the central south sector of Quebrada de Humahuaca (Jujuy Province). Pottery materials recovered from these areas were analyzed through the application of petrographic techniques and statistical analysis of quantitative variables. The main goal was to answer two questions. First, is the identity of San Francisco, reflected in the forms and iconography of their vessels, also expressed in their pastes as a distinct manufacturing tradition? Second, can the technical and textural characteristics of these pastes set trends that reflect a local production of San Francisco vessels in the central south sector of Quebrada de Humahuaca? This study corroborate the existence of the four groups of pastes previously defined, and proposes that vessels of the same ceramic type have different types of fabrics. The same type of fabrics are present both in the San Francisco Basin sites as well as in the sites in the south central sector of Quebrada de Humahuaca, therefore we cannot state that there are differences in the manufacturing patterns from these two areas. Nevertheless, a slight tendency towards pastes with a common presence of slate and phyllites was registered in the sites of south central Quebrada de Humahuaca. Finally, the addition of grog, present in most of the San Francisco pastes, is undoubtedly the *hallmark* of this pottery tradition. This trait is shared by other cultural traditions from the eastern slopes of the Andes and it is also an idiosyn-

L. Pereyra Domingorena (✉)
IDECU, Universidad de Buenos Aires, CONICET, Moreno 350, (1091),
Ciudad Autónoma de Buenos Aires, Argentina
e-mail: lucasdomingorena@gmail.com

M.B. Cremonte
INECOA, Universidad Nacional de Jujuy, CONICET,
Av. Bolivia 1661, (4600), San Salvador de Jujuy, Jujuy, Argentina
e-mail: cremontebeatriz@gmail.com

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_1

cratic feature of the pottery assemblages of the Chaco area, establishing a notable difference with other pottery traditions from the Formative period of northwestern Argentina.

Keywords Formative period · San Francisco Basin · Quebrada de Humahuaca · San Francisco Pottery · Petrography

The San Francisco tradition is one of the most important and widely distributed Formative cultural expressions from northwestern Argentina. The San Francisco spatial dispersion is known through a defined ceramic style present in a number of early settlements, indicating in most cases the long-distance exchange with llama caravans. By means of these, other societies from different regions in northwestern Argentina and even in the oasis of San Pedro de Atacama in northern Chile (Llagosteras and Costa Junqueira 1999) could have obtained goods from the *Yungas*. Besides contact with groups from different environments, in the past few years some have argued for an San Francisco effective occupation in the central South sector of Quebrada de Humahuaca (2000 masl), underneath the late installation of Pucara de Volcán (Cremonte and Garay de Fumagalli 2001; Garay de Fumagalli and Cremonte 2002). Such occupation, dated at the beginning of the Christian Era (Beta 119669: 1940 ± 40 BP, 1 sigma: 5–135 AD and 2 sigma: 5 DC–145 AD; Beta 119670: 1940 ± 70 BP, 1 sigma: 5–135 AD and 2 sigma: 60 BC–240 AD), could have had as an objective the widening of economic resource exploitation. Likewise, it could have favored short- and long-distance interactions with other societies from Quebrada de Humahuaca and Puna, from the headers of Quebrada del Toro (Salta Province) and with the oasis in the Atacama Puna.

Recently, Scaro (2013) found San Francisco pottery in the agricultural area of Raya-Raya in Quebrada de Tumbaya Grande similar to that excavated in Volcán regarding pastes and surface treatments. This evidence allowed the inclusion of Raya-Raya and Volcán potsherds as part of the same territorial occupation process (Cremonte et al. 2016). In the following pages we intend to test these initial arguments and deepen the knowledge regarding the technical decisions used in the making of San Francisco vessels. Furthermore, we seek to identify the internal variation presented by this tradition at a pottery production level. In order to achieve these goals we conducted comparative petrographic studies between ceramic samples from the archaeological sites of Volcán and Raya-Raya in Quebrada de Humahuaca and at the sites of Pozo de la Chola and Finca Santa María in the middle-upper sector of the San Francisco River Basin (Fig. 1). The previously performed comparisons with a few specimens from the San Francisco River Valley had shown strong resemblances. However, it was necessary to carry out a systematic comparative study of the pastes belonging to different ceramic types within this pottery tradition, preferably from excavated contexts. Given this opportunity, to the fragments provided by Ortiz from Finca Santa María site, we added a representative sample of the different San Francisco types from Pozo de la Chola, also located in San Pedro Department (Jujuy).

Fig. 1 Location of the archaeological sites from where the studied ceramics were recovered: Raya-Raya and Pucara de Volcán (southern sector of Quebrada de Humahuaca); Pozo de la Chola and Finca Santa María (San Francisco River valley), and other mentioned sites in this work (Image Landsat, Google Earth 2016)

With the selected sample, we procure to answer the questions that guided this research: is San Francisco identity, reflected in the shapes and iconography of their vessels, also expressed in their pastes as a manufacturing tradition? Can technical and textural characteristics of the pastes set trends that reflect a local production of San Francisco vessels in the central-south sector of Quebrada de Humahuaca?

1 The Core Territory of San Francisco Settlements

The territory of the San Francisco settlements is primarily related to the humid, low valley environments from the western Jujuy and the prolongation of these over the contiguous territory of the province of Salta. The archaeology of low, sub-tropical land is still poorly known due to the low visibility of the settlements, the alteration affected by modern agriculture and the scarce stratigraphic development of such occupations. However, it is remarkable that, in general, the Andean eastern slope seems to have been the gateway for cultural flows which in such new environments originated new, early ceramic developments. These societies must have had an even bigger territorial expansion and diversity regarding occupation and resource exploitation than the one traditionally considered, inhabiting different environments

than just the San Francisco River Basin and making use of those resources present. We cannot overemphasize the existence of very direct natural access between this basin and the central-south sector of Quebrada de Humahuaca. It is a fact that, towards this zone, the prolongation of *Yungas*, contributes to the conformation of a corridor with a lower altitude and more humid environment (Fig. 2) (Raboretti 2003).

Some important advances achieved by Ortiz in the past few years have revealed the existence of a mixed economy with an optimum exploitation of the environment based on a broad dietary spectrum (Ortiz 2007; Ortiz and Heit 2013). Moreover, her investigations in the San Francisco River Basin revealed a diversified use of the space, indicated by settlements located in lands near to streams, structures with stone walls on the foothills of the Santa Bárbara Sierra and artificial mounds (Ortiz 2003). Additional evidence of the economic diversity of these populations would be the occupation in Volcán and Raya-Raya, emplaced in the pre Puna border, in contact with the *Yungas* strip that runs through the Río Grande near the town of León.

San Francisco communities may have transcended the level of single village cores, practicing an economy based on horticulture, hunting and gathering, and one which was restricted to the area of the homonymous river, as has been traditionally conceived. Considering this, the development of an elaborated pottery style and the evidence of short- and long-distance interaction processes lets us assume that the San Francisco tradition should be included in current discussions about the growing complexity showed by some societies from the Formative period of northwestern Argentina (Núñez Regueiro and Tartussi 1999).

2 The San Francisco Pottery Tradition

It is considered that the existence of San Francisco settlements covered a time span between 800 BC and 500 AD approximately. First mentions to San Francisco pottery were made by Nordenskiöld (1903) and Boman (1908). Palavecino (1977 [1948]), towards the end of the 1940s, established the so called "*Grupo Cultural Subandino*" on the basis of the cultural traits in the sector and whilst considering the work of Boman and Nordenskiöld.

Serrano, in the 1950s, argues for a division of the sub-Andean area, identifying the northern sector with the culture he called "*San Francisco*", which he also called "*Cultura Subandina del Chaco Occidental*" or "*Cultura de San Francisco*" (Serrano 1962). He established two ceramic types: *Arroyo del Medio* and *El Infante*, and defines the latter as a coarse ceramic posterior to the first.

Towards the end of the 1960s, Heredia describes the existence of a "*Complejo San Francisco*", which he further divided in two different temporal stages: *San Francisco I*, dated between 0 and 200 AD, related to the Arroyo del Medio type,

Fig. 2 Panoramic views from the southern sector of Quebrada de Humahuaca. Superior: Quebrada de Tumbaya Grande and gateway to the agricultural area of Raya-Raya. *Central* the ellipse indicates the placement of Pucara de Volcán, 100 m above the valley bottom. *Inferior* view of the eastern Yungas vegetation entering semi-arid valley of Humahuaca

and *San Francisco II*, which reached 700 AD, corresponding with the El Infante type proposed by Serrano (Heredia 1968).

Subsequently, Dougherty thoroughly investigated the San Francisco River Valley and surrounding regions. Regarding pottery analysis he established two large groups: *San Francisco Pulido*, equivalent to some extent to Serrano's Arroyo del Medio group, and *San Francisco Ordinario*, also partly equivalent to the El Infante group. He proposed a close and complex connection between both of them. Furthermore, Dougherty obtained a radiocarbon date of 2.570 ± 80 BP for the ceramics in the site of Agua Negra (Santa Bárbara Department, Jujuy) (Dougherty 1975, 1977).

Since 1992, Ortiz has been reviewing the ceramic classification proposed by Dougherty. She simultaneously proposes a new approach with emphasis in the use of space, the economy, and the funerary practices in the San Francisco Valley (Ortiz 2007; Ortiz et al. 2012).

Based on these investigations we can distinguish that, within the San Francisco Pulido group, the most common forms correspond to everted shallow bowls with simple and composed outlines; everted bowls with inflexed outlines; and sub-globular bottles and cylindrical or sub-cylindrical glasses. Generally, the bases are flat and it is common for rims to exhibit an external thickening. Moreover, we registered jugs with ovoid bodies and anthropomorphic and zoomorphic modeled faces (used for the burial of children); angled smoking pipes with high chambers and modeled decoration; and hollow figurines incised and/or painted in red over white or yellow colors.

Regarding the techniques employed in actual designs, we find incised geometric and repetitive parallel lines forming meanders, chevrons, and diamonds, as well as angles and triangles filled with points or incisions in their interiors. These incised designs are frequently painted in red, and are characteristic of the San Francisco Pulido group. Painted motifs are similar to incised ones; generally red and most of the time outlined by incisions, creating a contrast with the natural color of the vessel or with the white, yellowish, buff, or light brown slips. The modelings were applied both on the body and the handles and, in general, they represent animals or fantastic animals with a dual anthropo-zoomorphic morphology (González 1977), with round or "coffee grain" eyes, distended nostrils, highlighted teeth or pouting lips, and protruding ears as the ones present in some funerary vessels and some tattoo representations.

In the San Francisco Ordinario the external surfaces are red, orange, brown, or black. They can show a watered-down coating, which is yellowish or whitish. Generally, the surfaces are fairly rough, sometimes covered in a thick plaster, with pastes presenting grog as temper. The basic forms correspond to globular and sub-globular pots, bowls with flat bottoms and straight everted walls, and spheroidal vessels with small mouths (*tecomates*). Decoration can be corrugated, unguiculated, or depicting imprinted threads and cords under the rim (Fig. 3).

Previously, we made advances on the recognition of San Francisco pottery manufacturing patterns by means of the textural and technological petrographic analysis of their pastes (Cremonte and Garay de Fumagalli 2001; Garay de

Fig. 3 San Francisco Tradition pottery examples. **a**, **e**, **f**, and **g**: pieces from Moralito site, López Pasquini Museum Collection [photographs taken by Lucas Pereyra Domingorena]; **b**, **c**, and **d**: pieces from Pozo de la Chola site [images taken from Ortiz and Nievas 2014]; **h** piece from Aguas Negras site [image taken from Ortiz 2007]

Fumagalli and Cremonte 2002; Cremonte et al. 2016). These analyses allowed us to identify the employed raw materials at a regional level, and argued for the existence of possible manufacture traditions and technical styles following the "same ways of doing" (Lechtman 1977; Druc 1996; Pereyra Domingorena 2010, 2012).

The appearance of a new and abundant assemblages of San Francisco potsherds in the sites of Tumbaya contrasts the sporadic presence registered in other sectors from Quebrada de Humahuaca and Puna in the province of Jujuy. From the beginning, the recurrence of San Francisco pottery types scattered across the wide surface areas of Pucara de Volcán caught our attention. This evidence led us to perform excavations underneath the levels belonging to the Late Intermediate and Inca Period occupations at the Tum1 B3 midden of the site. Here, we found 594 fragments corresponding to approximately forty vessels, with a total absence of Quebrada de Humahuaca Formative ceramic types. The pottery corresponds to the types defined for the San Francisco Valley, and petrographic studies of the pastes were conducted establishing preliminary comparisons with other pastes from the San Francisco region. Recently, we incorporated a sample from the sub-Andean Chaco, obtained at the site of El Retiro (Orán Department, Salta). So far, this sample is the most eastern San Francisco pottery registered (Couso et al. 2008). Four groups of San Francisco pastes have been identified presently, as evidence of several manufacturing behaviors regarding the preparation of the clay. These groups are present in the different ceramic types and are fundamentally based upon the adding of grog and sand as temper in variable amounts. The sand varied with smaller and larger amounts of components such as quartz, granitic stone fragments, and sandstone or quartzite. Also, elsewhere we argued for local manufacturing variations among San Francisco pastes originating from El Retiro site (Cremonte et al. 2016).

3 Sample and Petrographic Analysis

The analyzed sample for this work is composed of 44 potsherds, 22 from Tumbaya and 22 from the San Francisco River Basin (Figs. 4 and 5; Table 1). The former were selected from the excavated materials belonging to grids A and B, placed under the Tum1 B3 midden of Pucara de Volcán ($N = 14$), and from surface materials recently found by Scaro in the agricultural area of Raya-Raya ($N = 8$), located in Quebrada de Tumbaya Grande, 7 km away from Pucara de Volcán. These 22 potsherds were selected after making paste descriptions using different magnifications (in stereo microscope) and assigning the fragments to different ceramic types.

The potsherds from the San Francisco Basin were provided by Ortiz and belong to Pozo de la Chola ($N = 18$) and Finca Santa María ($N = 4$) sites. Both sites are located in San Pedro Department (Jujuy), the former beside the current stream of the San Francisco River, on a fluvial terrace. This site presents a sector used for burials and a domestic area from which come all the studied samples, comprising examples of every ceramic type found in the excavation. Finca Santa María is located near the town of Santa Clara, corresponding to the accidental discovery of an adult inhumation (Ortiz and Nieva 2011). The 4 potsherds studied correspond to vessels primarily associated with this burial.

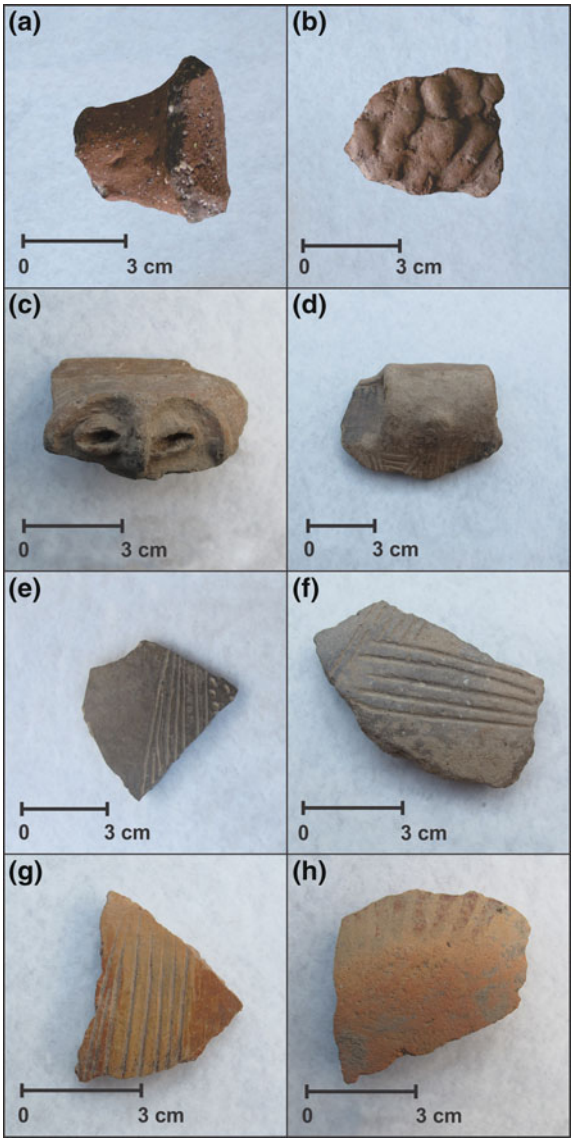


Fig. 4 Potsherd analyzed from the southern sector of Quebrada de Humahuaca. **a** SF Ordinario; **b** SF Corrugado; **c** SF Pulido Modelado; **d**, **e**, and **f** SF Pulido Gris Inciso; **g** SF Pulido Bicolor Inciso; **h** SF Pulido Bicolor

In Table 1 we present a list of the analyzed thin sections indicating the provenance and typological assignment of each sample. Figures 4 and 5 illustrate representative fragments of vessels corresponding to the following types: SF Ordinario, SF Pulido Bicolor, SF Pulido Inciso Gris, SF Modelado, SF Pulido Marrón Claro, SF Pulido Marrón, SF Corrugado, and SF Alisado.

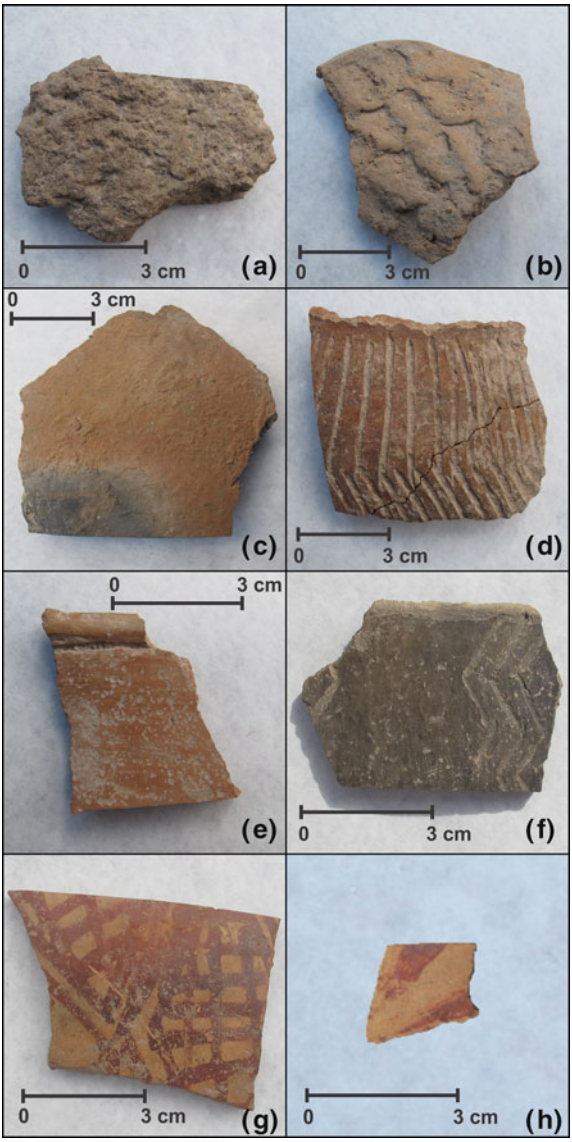


Fig. 5 Potsherd analyzed from San Francisco River valley. **a** SF Ordinario; **b** SF Corrugado; **c** SF Alisado Marrón; **d** SF Alisado Marrón Inciso; **e** SF Pulido Marrón Claro; **f** SF Pulido Gris Inciso; **g** and **h** SF Pulido Bicolor

Table 1 List and provenance of the samples

S	TS	Provenance	Ceramic Type	M	TS	Provenance	Ceramic type
1	PV01	Tum1 B3 CA-III-3	SFP Marrón Claro	23	SM01	Surface	SF Ordinario
2	PV02	Tum1 B3 CA-III-195	SFP Bicolor	24	SM02	Surface	SFP Bicolor
3	PV03	Tum1 B3 CA-III-22.1	SFP Modelado	25	SM03	Surface	SF Ordinario
4	PV04	Tum1 B3 CA-30.3-116	SFP Marrón	26	SM90	Surface	SFP Bicolor
5	PV05	Tum1 B3 CA-31.5-209	SFP Marrón	27	PCH01	PCHUPA 11-18 NV11	SFP Gris Inciso
6	PV06	Tum1 B3 CA-VII-31.2-238	SFP Negro	28	PCH02	PCHUPA 5/7 N4-17	SFP Gris Inciso
7	PV07	Tum1 B3 CA-VII-291	SFP Negro	29	PCH03	PCHUPA 16 N° 1	SFP Gris Inciso
8	PV08	Tum1 B3 CA-30.3-87	SF Ordinario	30	PCH04	PCHUPA 9-15-16	SFP Gris Inciso
9	PV09	Tum1-B3 CA-III-1	SFP Bicolor	31	PCH05	PCHUPA5/5 N4-89	SFA Gris
10	PV10	Tum1 B3 CB-1-26.7	SF Ordinario	32	PCH06	PCHUPA 1-3-8 a 12-254	SFP Bicolor
11	PV11	Tum1 B3 CB-IV-23.7	SFP Gris Inciso	33	PCH07	PCHUPA 6/4 II 21	SFP Bicolor
12	PV12	Tum1 B3 CB-V-23.6	SFP Gris Inciso	34	PCH08	PCHUPA 6/4 II 21	SFP Bicolor
13	PV13	Tum1 B3 CB-V-24.3	SFP Negro Inciso	35	PCH09	PCHUPA 9 a 16 NIII 43	SFP Marrón Claro
14	PV14	Tum1 B3-37.1	SFP Gris Inciso	36	PCH10	PCHUPA4/6 III-63	SFA Marrón
15	RR01	Surface	SFA Rojo Inciso	37	PCH11	PCHUPA 5/6 IV-17	SFA Marrón
16	RR02	Surface	SFP Gris Inciso	38	PCH12	PCHUPA 5/6 IV-17	SFA Marrón
17	RR03	Surface	SFP Gris	39	PCH13	PCHUPA 16 NII 9	SFA Marrón Inciso
18	RR04	Surface	SF Corrugado	40	PCH14	PCHUPA 5/6 III	SF Corrugado
19	RR05	Surface	SFP Bicolor	41	PCH15	PCHUPA 5/6 III	SF Corrugado
20	RR06	Surface	SF Ordinario	42	PCH16	PCHUPA 576 III 268	SF Ordinario
21	RR07	Surface	SFP Gris Inciso	43	PCH17	PCHUPA 5/7 N2-82	SF Ordinario
22	RR09	Surface	SFP Bicolor?	44	PCH18	PCHUPA 5/5 IV-163	SF Ordinario

References:
S sample
TS thin section
PV Pucara de Volcán; *RR* Raya-Raya; *SM* Finca Santa María; *PCH* Pozo de la Chola
SF San Francisco; *SFP* San Francisco Pulido; *SFA* San Francisco Alisado

4 Petrographic Analysis and Data Processing

A thin section of the paste (approximately 30 μm wide) was made for each one of the 44 fragments in order to be analyzed using a Leica DM 750P polarization microscope with a photographic accessory and a graduated platen for point counting.

The petrographic study included mineralogical identification of the non-plastic inclusions (Kerr 1965), classification of the matrix structure (Courtois 1976), and textural analysis of both (Middleton et al. 1991), recording sizes, forms, and the proportions of different types of non-plastic inclusions by means of point counting.

For point-counting analysis we applied the multiple interception method with an average of 300 measured points by thin section. This amount of points provides the necessary information to address subsequent statistical comparisons directed towards a classification of the pastes by identifying different clusters. Each thin section was "scanned" from left to right with an interval of 1 mm, recording each aplastic inclusion present in the intersection of the crosshair at a magnification of 100x. In the same way clay matrix, voids and non-plastic inclusions were registered. Non-plastic inclusions were measured starting from ≥15 μm size (i.e., medium silt grain size). Counting was performed manually using a Vernier scale added as an accessory to the rotating polarization microscope stage. Shapes and measures of the inclusions and the voids were registered during point counting, considering the maximum axis of each, adjusted to available sedimentology charts (Adams et al. 1997 [1984]).

Cluster analysis and principal component analysis (PCA) were performed using PAST software, version 2.17 (Hammer et al. 2001). For such statistical tests, we used the percentage values obtained by point counting. We considered 11 quantitative variables for each paste corresponding to the percentages of quartz (Qz), potassium feldspar (KF), plagioclases (Plag), biotite (Bi), muscovite (Mu), amphiboles and/or pyroxene (Am/Px), and opaque minerals (Op), in addition to granitic or granodiorite lithoclasts (Gr), sandstone lithoclasts (Sd), slate and/or phyllite lithoclasts (Sl-Ph), and grog (Tm) (Tables 2 and 3). Other variables such as volcanic lithoclasts, volcanic glass, claystone, quartzite, and microcline were not considered as they exhibited a sporadic or ephemeral presence in some of the samples.

Cluster analysis was performed using a paired group algorithm with a Euclidean similarity measure (Shennan 1992 [1988]). In this test we obtained a cophenetic correlation coefficient of 0.8428, resulting in a dendrogram which accurately represents the distance matrix.

The four above mentioned paste groups were tested by quantitative data multivariate analysis (point counting) of the 44 analyzed pastes, including as new information, the 18 thin sections from Pozo de la Chola site.

Table 2 Point counting in ceramics thin sections from Tumbaya

S	TS	Ceramic type	Mtx	Cav	Inclusion types										
					Qz	KF	Plag	Bi	Mu	Am/Px	Gr	Sd	Sl-Ph	Op	Tm
1	PV 01	SFP Marrón Claro	70.80	3.30	4.12	0.47	0.47	–	0.47	0.47	–	1.40	4.70	0.47	11.60
2	PV 02	SFP Bicolor	52.61	7.57	28.02	–	2.27	1.50	–	1.89	2.00	–	3.00	0.76	–
3	PV 03	SFP Modelado	49.05	11.61	7.74	0.32	0.64	0.32	0.32	0.32	0.32	17.09	4.83	0.64	6.80
4	PV 04	SFP Marrón	72.24	4.85	10.98	0.37	1.12	0.37	0.37	0.37	–	3.36	–	0.37	5.60
5	PV 05	SFP Marrón	62.79	9.30	2.71	0.39	–	0.39	0.39	0.39	–	2.32	–	0.39	20.93
6	PV 06	SFP Negro	56.90	5.65	10.05	2.40	4.20	0.80	0.40	0.80	17.60	0.80	–	0.40	–
7	PV 07	SFP Negro	44.40	5.82	18.98	2.20	3.32	2.07	0.41	0.41	21.16	–	–	0.41	0.82
8	PV 08	SF Ordinario	54.95	9.82	7.24	0.30	2.68	0.89	0.30	0.30	0.30	6.25	0.30	0.30	16.37
9	PV 09	SFP Bicolor	80.32	3.64	2.60	0.40	1.00	–	–	–	–	0.40	0.40	0.40	10.84
10	PV 10	SF Ordinario	45.33	6.54	14.69	2.60	3.74	5.14	–	0.93	20.09	–	–	0.47	0.47
11	PV 11	SFP Gris Inciso	62.49	9.59	11.00	0.37	1.84	0.37	–	0.37	1.84	1.84	1.10	0.37	8.82
12	PV 12	SFP Gris Inciso	60.85	14.00	3.83	–	0.84	1.27	–	0.42	–	4.68	2.54	0.42	11.15
13	PV 13	SFP Negro Inciso	60.86	6.13	9.43	–	–	–	–	0.47	–	2.83	6.13	0.47	13.68
14	PV 14	SFP Gris Inciso	54.58	11.11	11.11	–	–	–	–	–	0.97	1.93	–	–	20.30
15	RR 01	SFA Rojo Inciso	68.51	4.00	18.03	1.00	0.83	0.16	0.33	0.33	1.17	0.66	–	0.50	2.00
16	RR 02	SFP Gris Inciso	56.97	5.58	18.52	1.11	0.66	0.22	0.22	0.22	1.34	0.22	–	0.22	13.83
17	RR 03	SFP Gris	78.61	2.69	4.18	0.60	0.30	–	–	0.10	–	1.49	0.89	–	11.04
18	RR 04	SF Corrugado	56.50	4.14	18.50	3.66	0.63	0.30	0.15	0.15	13.53	0.45	–	0.79	0.15
19	RR 05	SFP Bicolor	78.98	3.39	7.75	0.48	0.48	0.96	0.48	0.48	0.72	–	–	0.72	5.32

(continued)

Table 2 (continued)

S	TS	Ceramic type	Mtx	Cav	Inclusion types										
					Qz	KF	Plag	Bi	Mu	Am/Px	Gr	Sd	Sl-Ph	Op	Tm
20	RR 06	SF Ordinario	59.73	6.95	9.32	1.58	0.63	0.31	0.16	0.16	18.96	1.10	0.63	0.47	–
21	RR 07	SFP Gris Inciso	77.76	5.64	6.26	0.31	0.31	0.31	0.31	0.31	–	0.94	–	0.31	3.13
22	RR 09	SFP Bicolor?	66.14	5.85	12.12	0.20	1.00	0.60	1.00	0.20	2.42	0.60	1.21	0.60	6.46

References
S sample
TS thin section
PV Pucara de Volcán. *RR* Raya-Raya
Mtx Clay matrix; *Cav* Cavities; *Qz* quartz; *KF* potassium feldspar; *Plag* plagioclases; *Bi* biotite; *Mu* muscovite; *Am/Px* amphiboles/pyroxene
Gr granitic stone; *Sd* sandstone. *Sl-Ph* slate-phyllite; *Op* opaque minerals; *Tm* grog
SF San Francisco
SFA San Francisco Alisado
SFP San Francisco Pulido
SFP Modelado San Francisco Pulido Modelado (motif: owl face)

Table 3 Point counting in ceramics thin sections from the San Francisco River Basin

S	TS	Ceramic type	Mtx	Cav	Inclusion types										
					Qz	KF	Plag	Bi	Mu	Am/Px	Gr	Sd	Sl-Ph	Op	Tm
23	SM 01	SF Ordinario	73.65	7.34	6.26	–	0.21	0.21	–	–	–	0.43	–	0.21	11.69
24	SM 02	SFP Bicolor	84.72	4.07	1.11	0.10	0.37	–	0.37	0.37	0.37	–	–	0.37	8.15
25	SM 03	SF Ordinario	65.21	5.01	4.75	1.58	0.26	0.52	0.26	0.26	21.63	–	–	0.26	–
26	SM 90	SFP Bicolor	74.06	6.94	5.14	–	0.25	0.25	–	–	–	–	–	0.25	13.11
27	PCh 01	SFP Gris Inciso	72.09	3.06	2.26	0.16	0.16	0.16	0.16	0.16	–	–	–	0.32	21.47
28	PCh 02	SFP Gris Inciso	72.37	4.24	9.69	0.32	0.32	–	0.16	0.16	0.32	0.16	0.64	0.32	7.75
29	PCh 03	SFP Gris Inciso	77.52	6.79	6.27	0.52	0.18	0.35	–	0.18	1.04	0.52	0.18	0.35	5.92
30	PCh 04	SFP Gris Inciso	67.43	5.96	6.88	0.69	0.23	0.23	0.23	0.23	–	7.57	1.38	0.46	8.71
31	PCh 05	SFA Gris	70.78	5.13	2.57	0.42	0.14	0.14	0.14	0.14	0.42	0.85	–	0.14	18.99
32	PCh 06	SFP Bicolor	70.12	7.01	8.84	1.83	0.61	0.30	0.30	0.30	2.13	0.30	–	0.61	6.74
33	PCh 07	SFP Bicolor	70.81	8.13	5.83	0.21	0.21	0.63	0.63	0.21	1.04	–	–	0.21	11.88
34	PCh 08	SFP Bicolor	87.08	4.40	4.62	0.44	0.10	0.10	0.10	0.10	0.66	0.10	–	0.22	1.98
35	PCh 09	SFP Marrón Claro	77.67	2.27	7.95	0.45	0.45	0.68	0.45	0.22	–	–	–	0.45	9.09
36	PCh 10	SFA Marrón	61.32	5.47	25.28	0.75	0.75	0.19	0.19	0.19	1.13	1.51	–	0.75	2.09
37	PCh 11	SFA Marrón	70.36	9.15	5.68	0.91	0.18	0.55	0.18	0.18	0.55	1.46	1.10	0.55	8.97
38	PCh 12	SFA Marrón	61.87	2.60	21.66	0.87	0.69	0.35	0.69	0.35	0.87	1.21	–	0.69	7.81
39	PCh 13	SFA Marrón Inciso	50.15	5.66	11.94	0.30	0.45	–	0.15	0.30	0.45	1.53	–	0.76	26.33
40	PCh 14	SF Corrugado	72.06	6.37	11.58	0.38	0.38	0.96	0.57	0.19	0.19	1.16	–	0.96	4.24
41	PCh 15	SF Corrugado	66.77	5.76	1.57	0.26	–	0.52	–	–	–	1.05	–	0.26	23.29

(continued)

Table 3 (continued)

S	TS	Ceramic type	Mtx	Cav	Inclusion types										
					Qz	KF	Plag	Bi	Mu	Am/Px	Gr	Sd	Sl-Ph	Op	Tm
42	PCh 16	SF Ordinario	60.25	9.79	6.84	1.66	0.37	0.55	0.18	0.18	13.12	–	0.37	0.37	6.14
43	PCh 17	SF Ordinario	67.50	9.06	3.63	0.70	0.98	0.42	0.42	0.14	0.83	0.28	0.98	0.42	14.64
44	PCh 18	SF Ordinario	57.76	10.84	5.79	0.37	0.19	0.37	0.19	–	8.60	–	–	–	15.89

References
S sample
TS thin section
SM Finca Santa María; *PCh* Pozo de la Chola
Mtx Clay matrix; *Cav* Cavities; *Qz* quartz; *KF* potassium feldspar; *Plag* plagioclases; *Bi* biotite; *Mu* muscovite; *Am/Px* amphiboles/pyroxene
Gr granitic stone; *Sd* sandstone; *Sl-Ph* slate-phyllite; *Op* opaque minerals; *Tm* grog
SF San Francisco
SFA San Francisco Alisado
SFP San Francisco Pulido

5 Results

As a result of the conducted multivariate statistical processing, we have so far distinguished 6 clusters reflected in the cluster analysis dendrogram (Fig. 6) and the PCA graph (Fig. 7). Below, we will describe the variables that allowed us to discern such paste clusters.

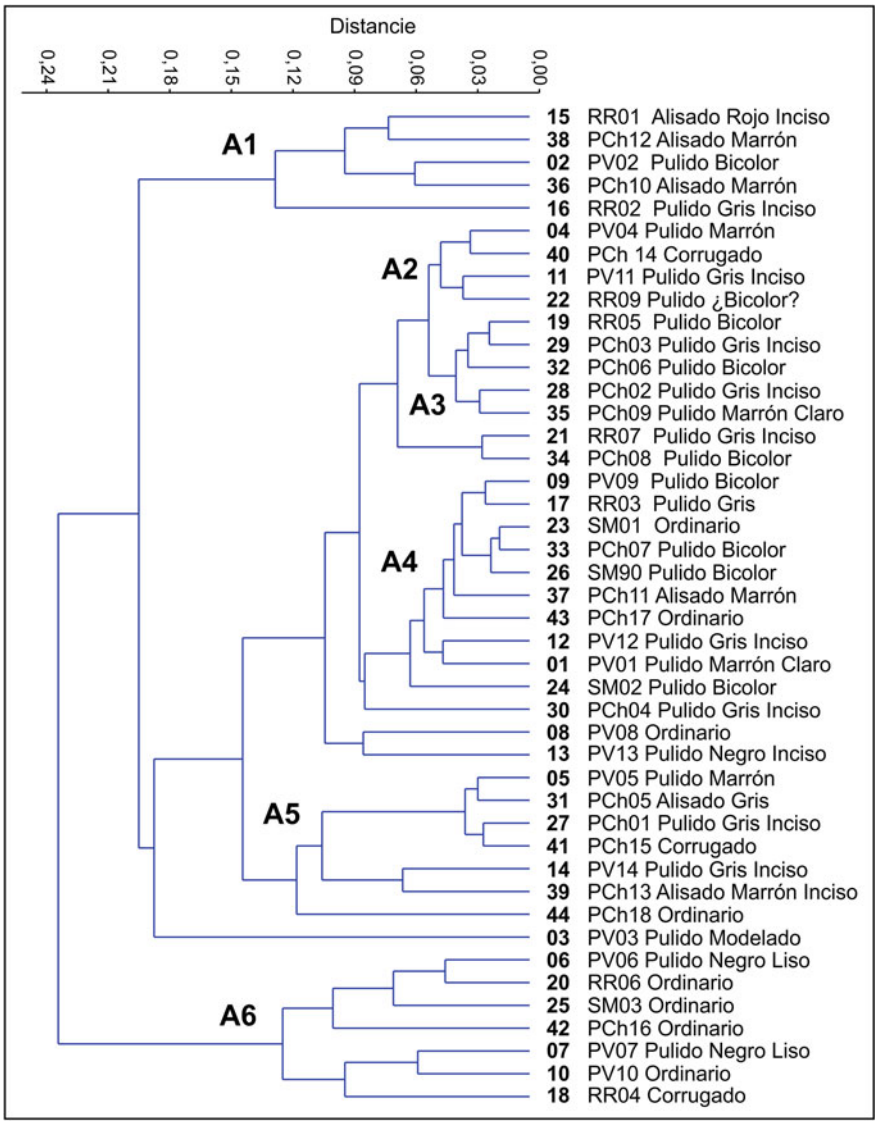


Fig. 6 Cluster analysis dendrogram of the 44 thin sections analyzed. Software PAST version 2.17 (Hammer et al. 2001)

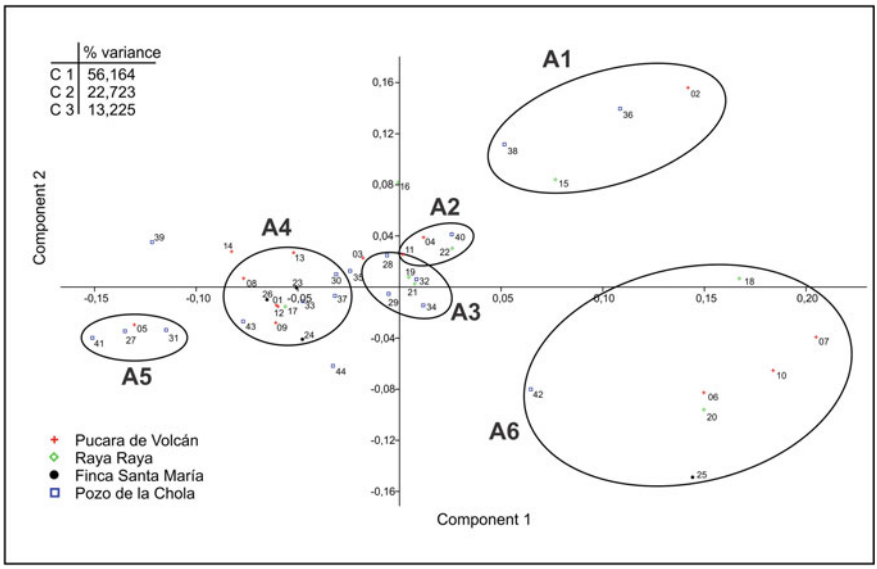


Fig. 7 Principal Component analysis graph with the resulting distribution of the 44 thin sections analyzed. Software PAST version 2.17 (Hammer et al. 2001)

Cluster 1 (*N* = 5 [11%]; Samples 15, 38, 2, 36, and 16) is characterized for the presence of abundant non-plastic mineral clasts, mainly represented by **quartz** (18–28%) and a minority of plagioclase, biotite, and amphiboles or pyroxenes. Grog can be completely absent or represent up to 14% of the paste total as in the case of the Sample 16, which explains its intermediate position in the PCA graph. Sample 2 presents coarse quartz, plagioclases, amphiboles, and biotite clasts. These crystals correspond to disaggregated granitic fragments which led us to think that the vessel corresponding to Sample 2 was elaborated by the incorporation of granitic elements (see below).

Cluster 2 (*N* = 4 [9%]; Samples 4, 40, 11, and 22). These pastes share abundant **grog** (5–10%) and **quartz** (6–12%) and a small amount of **sandstone** lithoclasts (0.60–3.36%). The general inclusions percentage is below 30%.

Cluster 3 (*N* = 7 [16%]; Samples 19, 29, 32, 28, 35, 21, and 34). This cluster presents a similar behavior to the former but with a slightly lower amount of grog (2–9%), quartz (5–9%), and a low presence of sandstone in some of the samples. The clay matrix percentage is above 77%.

Cluster 4 (*N* = 13 [30%]; Samples 9, 17, 23, 33, 26, 37, 43, 12, 1, 24, 30, 8, and 13). This consists of a heterogeneous set of pastes combining, in different proportions, **quartz** (1–10%) and **grog** (2–15%) inclusions. It is also characterized for presenting slate and/or phyllite inclusions combined with sandstones in proportions that can reach 7%.

This cluster (C4) is placed at the left of the PCA graph, which confirms that the relevant variables of the group are grog, slate and/or phyllite, sandstone, and quartz. Unlike the situation depicted in the dendrogram, grog appears to be obscuring the

slate/phyllite and sandstone petrographic association, present in Samples 43, 12, 1, 30, 8, and 13.

Cluster 5 (N = 7 [16%]; Samples 5, 31, 27, 41, 14, 39, and 44). These pastes show the addition of abundant **grog** (15–27%) from sizes between 100 and 4000 µm. It is worth mentioning the presence of quartz (1–11%), granite (0.40–8.60%), and sandstone (0.70–2%). In most of the cases, mineral inclusions in the pastes are below 9%, but Samples 14, 39, and 44 present pastes which are slightly more dense (14–18% of mineral inclusions). In the PCA graph, this cluster is represented on the left side, and similar to the dendrogram, Samples 14, 39, and 44 show an isolated behavior.

Cluster 6 (N = 7 [16%]; Samples 6, 20, 25, 42, 7, 10, and 18) groups together those pastes with a great amount of **granitic** clasts (13–22%) with a grain size between 500 and 4000 µm. The remaining non-plastic elements (quartz, potassium feldspar, biotite, plagioclases, and amphiboles) present a grain size between 15 and 250 µm. In the PCA graph, Cluster 6 is located in the bottom right corner and groups all of these samples, yet presents variable distances between them due to the higher or lower quartz or grog presence.

Finally, in both the dendrogram and the PCA graph, Sample 3 which corresponds to a light brown polished modeled fragment ("owl") from Pucara de Volcán site, shows an isolated position. This is due to its high sandstone (17%) and slate/phyllite (5%) percentage. At the same time, it is the only modeled zoomorphic fragment in the sample.

To these 6 clusters, exclusively obtained by the function of the types and frequencies of their non-plastic inclusions, we added paste textural information (both the clay matrix structure and the sizes and densities of inclusions and voids) contained in contingency tables with qualitative and quantitative data. As a result, we observed that 80% of the samples (N = 35) could be included in the four groups defined previous to this study, while only 16% of the samples (N = 7) presented a somewhat different behavior. However, this does not justify the creation of new paste groups at the moment.[1] In summary, the combination of petrographic and textural data validates the existence of these four paste groups as the chosen "ways of doing" by the San Francisco potters in the manufacturing of their vessels.

Thus, Group 1 is associated to a technical mode that could have implied the intentional adding of non-plastic inclusions with a grain size varying between coarse sand and granules. Very poorly sorted quartz sand containing coarse and abundant granitic–granodioritic clasts could have been used as tempering. Some specimens of this group are related to Cluster 6. Also, as we already mentioned, Sample 2 is considered as part of this group. In Fig. 8 we show the diagnostic characteristic of this group.

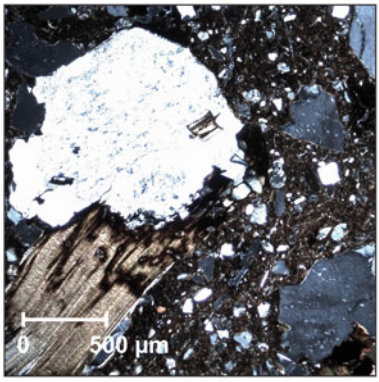
Group 2 corresponds to a technical mode that implied the adding of large grog fragments to a clay with scarce natural mineral inclusions. Nevertheless, some of

[1]Thin sect. 2 (N = 1 [2% of the sample] was incorporated to Group 1. Thin sect. 3 (N = 1 [2% of the sample] corresponds to the isolated specimen described in Fig. 10.

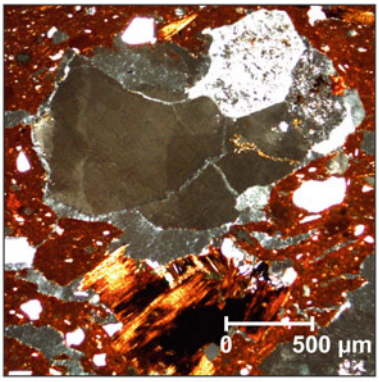
Group 1 [S 6, 7, 10, 18, 20, 25, 42]

Aplastic inclusions:
Granitic clasts: 13 - 21%; Qz: 5 - 18%; Kf: 1 - 4%; Plag: 0,3 - 4%; Bi: 0,3 - 5%; Mu: ≤ 0,5%; Am-Px: 0,1 - 0,9%; Sd: ≤ 1%; Sl-Ph: 0,9%; Op: ≤ 0,9%; Tm: 0 - 6,14%
Density of inclusions: > 30%
Size of inclusions:
Granitic clasts: 500 - 4000 µm (coarse sand - granule).
Others: 15 - 250 µm (medium silt - fine sand).

Texture:
Structures: pseudo-lepidoblastic, something micro-granular; crypto-phyllitic.
Matrix: 43 - 65%
Inclusions are sub-angular and sub-rounded.
Voids: 4 - 7%
Firing: oxidizing and partially oxidizing atmospheres.
Coarse and compact pastes.



Sample 20 (RR 06)



Sample 42 (PCh 16)

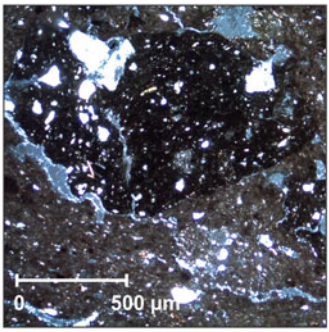
Fig. 8 Petrographic description of the ceramic pastes conforming group 1 with granitic inclusions

the samples present a larger amount of small mineral clasts. This is probably due to the selection of a different type of clay with a higher content of natural inclusions, or even a clay without inclusions which had well-sorted fine sand added. These samples have a correspondence with Cluster 5, established by means of the conglomerate analysis of petrographic data. In Fig. 9 we show the specific variables of this paste group.

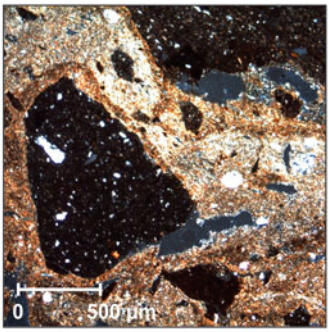
Group 2 [S 5, 14, 27, 31, 39, 41, 44]

Aplastic inclusions:
Grog: 16 - 26%; Qz: 1,5 - 11%; Kf: ≤ 0,4%;
Plag: ≤ 0,5%; Bi: ≤ 0,5%; Mu: ≤ 0,4%; Am-Px: ≤ 0,4%;
Gr: 0,4 - 8,6%; Sd: 0,7 - 2%; Op: ≤ 0,8%
Density of inclusions: 24 - 44%
Size of inclusions:
Grog: 100 - 4000 μm (fine sand - granule).
Others: 15 - 250 μm (medium silt - fine sand).

Texture:
Structures: crypto-phyllitic; pseudo-lepidoblastic, something micro-granular.
Matrix: 50 - 72%
Inclusions are sub-angular and sub-rounded.
Voids: 3 - 11%
Firing: oxidizing, parcially oxidizing, no oxidizing.
Compact and resistant pastes.



Sample 5 (PV 05)



Sample 31 (PCh 05)

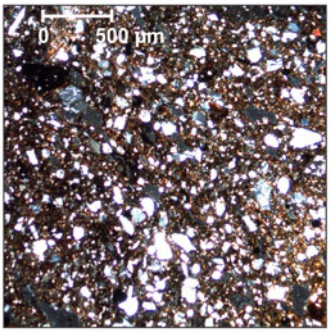
Fig. 9 Petrographic description of the ceramic pastes conforming group 2 with abundant grog

The samples belonging to Group 3 led us to think there had been an intentional adding of well-sorted quartz sand. This hypothesis has as its origin the density and homogeneous sizes of aplastic inclusions registered. This group is related to the samples from Cluster 1, excluding Sample 2 which presented bigger and denser inclusions, perhaps as a result of a sand containing disaggregated granitic elements. Due to fabric, Samples 4 and 11 from Cluster 2 were also added to this group. In Fig. 10, we describe the petrographic composition of the ceramic pastes that define this group.

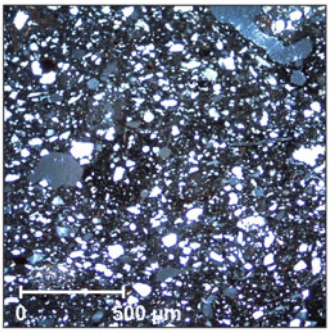
Group 3 [S 4, 11, 15, 16, 36, 38]

Aplastic inclusions:
Quartz: 10 - 26%; Kf: 0,4 - 1,10%; Plag: 0,7 - 1,8%;
Bi: 0,1 - 0,5%; Mu: ≤ 0,7%; Am-Px: 0,2 - 0,4%; Gr: ≤ 1,8%;
Sd: 0,2 - 3,4%; Sl-Fh: ≤ 1,1%; Op: 0,2 - 0,8%; Tm: 2 - 14%
Densty of inclusions: 23 - 38%
Size of inclusions:
Quartz sand: 30 - 250 μm (coarse silt - fine sand).

Texture:
Structures: micro-granular, something pseudo-lepidoblastic or something cripto-phyllitic.
Matrix: 50 - 72%
Inclusions are sub-angular and sub-rounded.
Voids: 3 - 11%
Firing: oxidizing, no oxidizing.
Resistant pastes.



Sample 11 (PV 11)



Sample 36 (PCh 10)

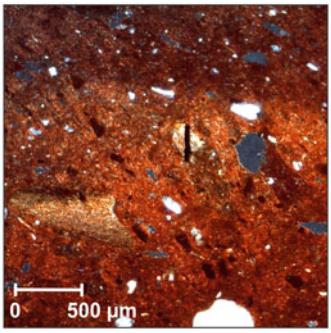
Fig. 10 Petrographic description of the ceramic pastes conforming group 3 with quartz sand inclusions

Finally, Group 4 corresponds to fine pastes. If we exclude the grog present in these pastes, we can infer that some of the vessels could have been manufactured with clays naturally presenting the non-plastic inclusions found in the pastes. In Fig. 11 we list the diagnostic characteristics of this group. This group's samples are

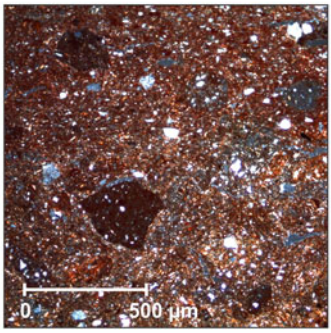
Group 4 [S 1, 9, 17, 19, 21, 23, 24, 26, 28, 29, 32, 33, 34, 35, 37]

Matrix: 67 - 87%
Aplastic inclusions:
Qz: 1 - 10%; Kf: ≤ 0,9%; Plag: 0,1 - 0,8%; Bi: ≤ 0,7%;
Mu: ≤ 0,6%; Am-Px: ≤ 0,5%; Gr: 0,3 - 2%; Sd: ≤ 1,5%;
Sl-Fh: ≤ 5%; Op: ≤ 0,7%;Tm: 2 - 15%
Density of inclusions: 9 - 26%
Size of inclusions:
Quartz sand: 15 - 250 μm (medium silt - fine sand).

Texture:
Structure: cryto-phillitic; pseudo-lepidoblastic,
something micro-granular.
Inclusions are sub-angular and sub-rounded.
Cavidades: 2 - 9%
Firing: oxidizing, parcially oxidizing.
Compac pastes.



Sample 9 (PV 09)



Sample 35 (PCh 09)

Fig. 11 Petrographic description of group 4, consisting of pastes with scarce non-plastic material

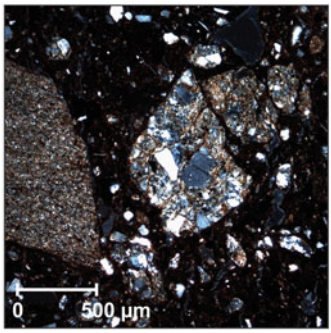
related to the pastes from Cluster 3 and most of Cluster 4, excluding Samples 8, 12, 13, 30, and 43. These pastes present variations regarding the amount of grog, sandstone, and slate/phyllite which for the moment are insufficient for the conformation of a separate group. Perhaps further petrographic studies considering a greater number of samples will allow the determination of a new group.

Sample 3 remains isolated and, as shown in Fig. 12, the paste presents different attributes from the rest of the studied sample.

Sample 3

Aplastic inclusions:
Sandstone: 17,09%; Qz: 7,64%; Kf: 0,32%; Plag: 0,64%;
Bi: 0,32%; Mu: 0,32%; Am-Px: 0,32%; Gr: 0,32%;
Sl-Ph: 4,83%; Op: 0,64%; Tm: 6,80%
Density of inclusions: 39%
Size of inclusions:
15 - 4000 μm (medium silt - granule).

Texture:
Micro-granular structure.
Matrix: 49,05%
Inclusions are angular, sub-angular, sub-rounded and rounded.
Voids: 11,69%
Firing: parcially oxidizing.
Resistant paste.



Sample 3 (PV 03)

Fig. 12 Petrographic description of simple 3 (fragment with zoomorphic modeled), unique specimen due to sandstone and slate/phyllite proportion in the paste

6 Conclusions

The study of 44 pastes from San Francisco ceramic vessels allowed us to contrast and expand previous results and also to define a representative sample of the paste types present in vessels both from Quebrada de Humahuaca and the San Francisco Basin. The statistical analysis of the quantitative variables corresponding to the different aplastic components allowed us to corroborate the preliminary results previously obtained, and to argue that vessels belonging to a same ceramic type can present different paste types. Samples analyzed so far do not reflect direct linkages between a determined set of pastes and the morphometric variables regarding, for

example, the size of the vessels. Below we detail the contributions we consider most important in the hope that they can lead to a future characterization of the organization regarding this pottery production, as new technological and contextual information is incorporated and integrated.

The same types of fabrics are present both in San Francisco Basin sites as in Tumbaya sites, so that we cannot state differences in the manufacturing patterns. Nevertheless, we registered a slight tendency in the sites of Tumbaya to pastes with the presence of slate and phyllites. This would be consistent with local geology with its predominance of slates, phyllites, and sandstones from the Puncoviscana Formation, from which it can be proposed—very tentatively—that there was possibly a local manufacturing of these vessels in Quebrada de Humahuaca. A similar situation arises when discussing pastes with abundant granitic–granodioritic lithoclast inclusions. The latter are also common at the sites in Tumbaya, yet there are no granitic outcrops in that area. That is to say that if these are local manufactures we must think about the intentional addition of sand with granitic components originating in the area of Cerro Chañi (Puna of Jujuy).

Fine pastes (Group 4) reflect—in somewhat similar proportions—two different manufacturing behaviors. On the one hand, we have pastes combining scarce quartz and abundant aggregated grog and, on the other hand, pastes with scarce grog and abundant quartz (added quartz sand). For the moment, and due to shared textural characteristics, we maintain this group conformation but acknowledging its variability, reflected both in the dendrogram and in the PCA graph.

Isolated paste from Sample 3, from the modeled fragment Tum1B3 CA-III-221 (Figs. 4c and 12), likely does not belong to a San Francisco vessel. The paste is even different to the ones from the Paraje El Retiro site in the sub-Andean Chaco region (Cremonte et al. 2016), not included in this work. We do not know the probable origin and cultural affiliation of this sample.

Several pastes from the sites of Pozo de la Chola and Finca Santa María present a little higher grog percentage than the ones from Tumbaya confirming evidence related to a greater representation of fine pastes with scarce mineral inclusions. If we were discussing a local manufacture variant then the elaboration of vessels using very compact and resistant pastes (due to the abundant grog or *chamote*) would be characteristic of more eastern areas. Regardless of the latter, the adding of grog, present in most of the San Francisco pastes, is undoubtedly the hallmark of this pottery tradition. This trait is shared by other cultural traditions from the Andean eastern slopes and it is also an idiosyncratic feature of the pottery assemblages from the Chaco area, establishing a notable difference with other early pottery traditions from northwestern Argentina. As we discussed elsewhere (Cremonte et al. 2016) as well as being expressed by different authors, grog, besides its technological function, when appearing in high proportions, may be conveying a symbolic or identity meaning which could explain its repeated presence in different ceramic types, sometimes in amounts even lower than 5%.

Certainly, regarding their stylistic and technological traits, San Francisco pottery appears as a cohesive unit that epitomizes a cultural identity and a strong symbolic meaning. The pastes analyzed here strengthen this identity beyond the slight

tendencies commented before that could be reflecting some local manufacture modalities. In general terms, there are no differences regarding pastes, surface treatments, and textures between the assemblages found in Tumbaya and the ones from San Francisco River, studied by Dougherty and Ortiz. Nor are there any chronological discrepancies since the dates from Volcán at the beginning of the Christian Era, are contemporary to most of the dated occupations from the middle and upper sections of the San Francisco Basin (Ortiz 2007). On account of these evidences, for the moment we are still sustaining the hypothesis initially proposed (Cremonte and Garay de Fumagalli 2001; Garay de Fumagalli and Cremonte 2002) about the territorial expansion of San Francisco societies towards a higher environment of contact between the pre-Puna and the depleted *Yungas*. In these processes of territorial expansion to the west, the conditions of higher relative humidity detected in Jujuy and across northwestern Argentina could have had a certain influence. This period of increased climatic prosperity corresponds to the Sub-Boreal/Sub-Atlantic Transition *ca*. 4000–1000 BP (Lupo 1998; Alcalde and Kulemeyer 1999). This situation could have favored the economic-productive diversification, expanding and emulating the conformation of circulation and interaction circuits into the highlands.

References

Adams AE, Mackenzie WS, Guilford C (1997) [1984] Atlas de rocas sedimentarias. Masson, Barcelona

Alcalde JA, Kulemeyer JJ (1999) The holocene in the south-eastern region of the province Jujuy, North-West Argentina. Quat Int 57(58):113–116

Boman E (1908) Antiquités de la région andine de la République Argentine et du désert d´ Atacama. París

Cremonte MB, Garay De Fumagalli M (2001) Una ocupación temprana en el Pukará De Volcán (Dto. de Tumbaya, Jujuy). Actas del XIII Congreso de Arqueología Argentina Tomo 1:157–171. Córdoba

Cremonte MB, Pereyra Domingorena L, Scaro A (2016) San Francisco, pastas cerámicas de una tradición alfarera de las yungas jujeñas. In: Alconini S (ed) Entre la vertiente tropical y los valles. Sociedades regionales e interacción prehispánica en los Andes Centro-Sur. Plural, La Paz, pp 241–261

Couso G, Cremonte MB, Balbarrey G (2008) Estudio preliminar de las cerámicas arqueológicas del Paraje El Retiro. Departamento de Orán, Salta. Actas del 28 Encuentro de Geohistoria Regional. Resistencia, Chaco

Courtois L (1976) Examen au microscope pétrographique des céramiques archéologiques. Notes Et Monographies Techniques 8. CNRS, Paris

Dougherty B (1975) Nuevos aportes al conocimiento del complejo arqueológico San Francisco (sector septentrional de la región de las Selvas Occidentales. Subárea del Noroeste Argentino). PHD Dissertation. Universidad Nacional de La Plata

Dougherty B (1977) Análisis de la variación medioambiental en el Complejo San Francisco. Obra del Centenario del Museo de La Plata. Tomo 2:237–252

Druc I (1996) De la etnografía hacia la arqueología. Boletín Del IFEA 25(1):17–41

Garay de Fumagalli M, Cremonte MB (2002) Ocupaciones agropastoriles tempranas a sur de la Quebrada de Humahuaca (Jujuy, Argentina). Chungara 34(1):35–52

González AR (1977) El arte precolombino de la Argentina. Introducción a su historia cultural. Filmediciones Valero, Buenos Aires

Hammer Ø, Harper DAT, Ryan PD (2001) Past: Paleontological Statistics Software Package for education and data analysis. Palaeontologia Electronica 4(1):9

Heredia O (1968) Arqueología de la subárea de las Selvas Occidentales. Actas y Memorias Del XXXVII Congreso Internacional de Americanista. Vol. 2:295–353

Kerr PF (1965) Mineralogía Óptica. Mcgraw-Hill Book Company, New York

Lechtman H (1977) Style in technology: Some early thoughts. In: Lechtman H, Merrill R (eds) Material culture. Styles, organization, and dynamics of technology. West, Minessota, pp 3–20

Llagosteras A, Costa Junqueira MA (1999) San Pedro de Atacama antes de 1.000 A.D. Actas del XII Congreso Nacional de Arqueología Argentina. Tomo 1:92–101. La Plata

Lupo LC (1998) Estudio sobre la lluvia polínica actual y la evolución del paisaje a través de la vegetación durante el Holoceno en la Cuenca del Río Yavi. Borde oriental de la Puna, Noroeste Argentino. PHD Dissertation. Fakultat Fur Geschichts-Und Geowissenschaften Universitat Bamberg

Middleton AP, Leese MN, Cowell MR (1991) Computer assisted approaches to the grouping of ceramic fabrics. In: Middleton A, Freestone I (eds) Recent development in ceramic petrology. Occasional Paper nº 81, British Museum, pp 265–276

Nordenskiöld E (1903) Pracolumbische wohn-un begrabnisplazte Andder Sud-Westgrenze von Chaco. Kgl. Sveska Vetenskaps Akademiens Handlingar 36. Stockholm

Núñez Regueiro VA, Tartussi MR (1999) Análisis de la problemática del estudio de las sociedades agropastoriles del área Centro-Sur Andina. Actas del XII Congreso Nacional de Arqueología Argentina. Tomo 1:107–112. La Plata

Ortiz G (2003) Estado actual del conocimiento del denominado complejo o tradición cultural San Francisco, a 100 años de su descubrimiento. In: Ortiz G, Ventura B (eds) La mitad verde del mundo andino. Investigaciones arqueológicas en la vertiente oriental de los Andes y las tierras bajas de Argentina. Ediunju, Jujuy, pp 23–72

Ortiz G (2007) La evolución del uso del espacio en las tierras bajas jujeñas (subárea del Río San Francisco). PHD Dissertation. Universidad Nacional de Córdoba

Ortiz G, Nieva L (2011) Prácticas mortuorias en las poblaciones tempranas del valle del Río San Francisco (Prov. de Jujuy, Argentina). Comechingonia 14:55–73

Ortiz MG, Seldes V, Bossio L (2012) Evidencias de trauma en el Periodo Formativo en el valle de San Francisco, Jujuy, Argentina. Archaeobios 6(1):33–52

Ortiz G, Heit C (2013) Nuevos avances en relación con las prácticas económicas de los grupos pedemontanos de la cuenca del San Francisco (Noroeste de Argentina, 800 A.C.-500 D.C.) a través de marcadores biomoleculares y microrrestos vegetales. Revista Española de Antropología Americana 43(2):369–384

Palavecino E (1977) [1948] Áreas y capas culturales en el territorio argentino. Museo de Historia Natural de San Rafael, Mendoza

Pereyra Domingorena L (2010) Manufacturas alfareras de las sociedades aldeanas del primer milenio d.C. al sur de los Valles Calchaquíes. PHD Dissertation. Universidad De Buenos Aires

Pereyra Domingorena L (2012) Manufacturas alfareras al sur de los Valles Calchaquíes entre el siglo primero al quinto D.C. Relaciones de la Sociedad Argentina de Antropología 37(2):387–412

Raboretti C (2003) La Quebrada. Geografía, historia y ecología de la Quebrada de Humahuaca. La Colmena, Buenos Aires

Scaro A (2013) Hacia las tierras altas. Cerámicas de la Tradición San Francisco en Tumbaya (Quebrada de Humahuaca, Jujuy). Tanoa 3. En Prensa Libro

Serrano F (1962) Investigaciones arqueológicas en el valle del Rio San Francisco (Prov. de Jujuy). Salesianos, Salta

Shennan S (1992) [1988] Arqueología Cuantitativa. Crítica, Barcelona

Reconsidering Isla Occupation. Pottery, Chronology, and Settlement

María Clara Rivolta, Clarisa Otero and Catriel Greco

Abstract This chapter presents new evidence, such as unpublished radiocarbon dating and the analysis of material context elements from sites located in the central sector of Quebrada de Humahuaca, considered in classical proposals as part of the Middle Period (600–900 AD). As a result of these studies, radiocarbon datings were obtained, repositioning Isla manifestations in the interval between the 12th and 14th centuries. This allows the proposal of interpretive schemes about the interrelation of small conglomerates such as La Isla de Tilcara with villages in domestic terraces, given that they were contemporaries according to this new evidence. In this sense, the strong contrast between landscape elements and materiality—mainly ceramics—leads to the formulation of hypotheses concerning the possibility that, after the fall of Tiwanaku and during later times, began the arrival of small groups from the Altiplano towards Quebrada de Humahuaca, a region that did not have a significant population density at that time.

Keywords Isla ceramic · Altiplanic influence · Population dynamic

M.C. Rivolta (✉)
Facultad de Humanidades, Universidad Nacional de Salta,
Av. Bolivia 5450 (4400), Salta, Argentina
e-mail: rivoltaclara@gmail.com

M.C. Rivolta · C. Otero
Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras,
Universidad de Buenos Aires, Belgrano 445 (4624), Tilcara, Jujuy, Argentina
e-mail: clarisaotero@yahoo.com.ar

C. Otero
INECOA, Universidad Nacional de Jujuy, CONICET,
Av. Bolivia 1661, (4600), San Salvador de Jujuy, Jujuy, Argentina

C. Greco
Departamento de Geología, Universidad Nacional de San Luis, CONICET (5700),
San Luis, Argentina
e-mail: catrielgreco@gmail.com

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_2

Since the beginning of investigations regarding archaeological pottery from Quebrada de Humahuaca, emphasis has been placed on the characterization of different styles used mainly for establishing typological sequences. Beyond the generated contributions in only a few cases has the cause been explained for substantial transformations between the styles from one period to another. This fact inspired us to advance on the analysis of Isla's stylistic assemblage and its repositioning in regional chronology taking new radiocarbon dates as a base. On the other hand, we sought to generate a hypothesis that allowed us to define the specific moments in which these styles developed in order to articulate the social dynamic between the XII and XIV centuries. With this idea in mind we analyze landscape conditions and features as well as the modifications appreciated in the settlements located in the middle sector of Quebrada de Humahuaca, with chronology obtained through Bayesian statistical analyses, and materiality, emphasizing local pottery assemblages. For the purpose of conducting an integrated study, the considered archaeological sites are: La Isla de Tilcara (Debenedetti 1910), Huacalera (Rivolta 2003b), Keta-Kara (Pelissero 1995), Puerta de Juella (Casanova 1937; Raffino 1991), Banda de Perchel (Rivolta 2003b), Puerta de Maidana (Schuel 1930; Aleksandrowicz 1987b; Rivolta 2003b), Alto de La Isla (Rivolta 2000, 2003b), El Manzano (Otero and Mercolli 2008; Otero and Rivolta 2015), and Hotel Las Marías (Otero and Rivolta 2015) (Fig. 1). In order to analyze the problem we will work with key issues such as landscape, materiality, and chronology, dissociating them but at the same time generating a discussion regarding the posed problem (The posed problem is the position of La Isla and its adscription to Middle Period in clasical chronology) by the end of this chapter.

1 Regional Chronologies

Several chronological proposals regarding the development of complex societies in the Argentine northwest have been generated, among which we find that elaborated by Bennett et al. (1948). That investigation, based on collection analysis from different sites, outlined regionalized schemes which considered not only periods but also pottery styles. In that paper, Bennett mentions five periods: Early, Middle (in this case represented by Isla Polychrome and Alfarcito Polychrome styles), Late, Inca, and Colonial; dividing the Argentine northwest into sections or areas for their study.

It was not until the 1960s that archaeologists were able to establish more precise sequences thanks to radiocarbon dating (González 1963). Nevertheless, the Quebrada de Humahuaca chronology remained a controversial issue, considering the fact that original proposals were elaborated for the Hualfín Valley (González 1955). Subsequently, and after the revision and adequacy of the master sequence, having considered the now available radiocarbon dates, González and Pérez (1972) developed a wide-ranging scheme in which they defined the following intervals: Early (0–650 AD), Middle (650–850 AD), Late (850–1480 AD), Inca (1480–1536 AD),

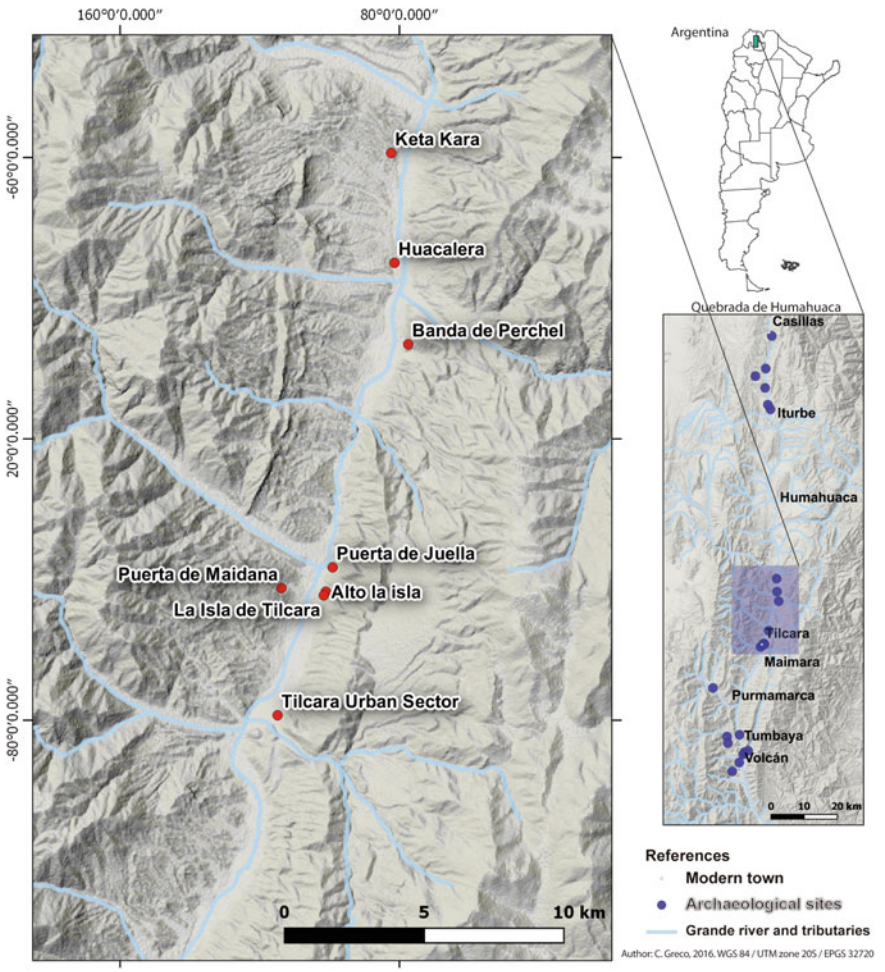


Fig. 1 Location of the archaeological sites in the middle sector of the Quebrada de Humahuaca

Hispanic-indigenous (1536 AD), and Colonial (1640 AD) Periods (González and Pérez 1966, 1972). In Quebrada de Humahuaca, the Early Period was represented by the Estancia Grande site although investigators note that information is scarce due to a lack of research. The final phase of the Middle Period was represented by La Isla de Tilcara and Alfarcito, while several sites such as Pucaras de Tilcara, Yacoraite, and Hornillos y Juella were representative of the Late Period. The Inca Period was particularly identified in sites such as Pucara de Tilcara and La Huerta. This scheme was extensively used since the moment of its enunciation as a general proposal for the Argentinian northwest. Yet, once again, in the case of Quebrada de Humahuaca the application of this scheme was only partial due to inherent difficulties regarding lack

of radiocarbon dates as well as inconsistencies that appeared during the advancement of investigations.

From the 1980s it was possible to progressively increase the number of dates obtained in the Quebrada at the same time that investigations started to incorporate new sites and problems that resulted in the generation of unprecedented information. Since then new schemes have been proposed, some of them emulating the first one as in the case of the work by Raffino (1991: 4) who tried to develop a comprehensive overview taking the Argentinian northwest as the application scale. In that case the proposed periods were Formative, segmented into Lower (500 BC–400 AD) and Upper (400–900 AD); Local Development (900–1471 AD); Inca Horizon (1471–1532 AD), and Hispanic-indigenous (1535–1660 AD).

As regional investigations expanded, some discordance in the application of pre-existent chronology models started to be detected. This is the reason why Nielsen (1997, 2001) proposed a new scheme, using every piece of information produced for Quebrada de Humahuaca, in which he distinguished five periods: Formative, Local Developments I, Local Developments II, Inca, and Hispanic-indigenous (op cit. 2001: 181).

These models were proposed for different analytical scales—González and Pérez (1972) addressed the whole Argentinian northwest while more recent proposals (Nielsen 2001, 2007) focused on a regional and more precise scope. They achieved a correlative organization of pre-Hispanic occupation periods in the Quebrada considering spanning from first village developments to European conquest. Nevertheless, we consider it necessary to re-read these temporal schemes based on information derived from new radiocarbon results as well as other material variables which will be discussed below. The approach developed in this chapter, unlike the ones commented upon so far, presents a narrower analysis scale, since it focuses on a segment of the central sector of Quebrada de Humahuaca, thus allowing us to recognize specific processes that may have had a circumscribed occurrence. That is why our proposal is mainly centered on the discussion of these processes as a main axis and does not strictly speaking constitute a temporal scheme.

For a previously presented contribution (Otero and Rivolta 2015) we analyzed new radiocarbon results from the recognition of the Formative Period initial stages in the urban area of Tilcara. Having considering every piece of evidence recovered from systematic excavations from archaeological rescues, we assigned these sites a temporality between II and XII centuries AD. Scarcity of evidence regarding this timespan could be the result of dynamic processes such as mud flows, common in this sector of the Quebrada, with consequent covering of evidence which of course adds to sampling problems, along with the lack of investigations connected to these first village developments. The next occupation instance would have extended between XII and XIV centuries AD and, considering available information, it presented two clearly distinguishable set of settlements and materialities designated as Early Humahuaca and Isla. This is crucial for the understanding of the problem reflected in the radiocarbon date results which also poses a different view to that commonly offered. Regarding the so called Isla moment, previous investigations have considered the pottery recovered in La Isla de Tilcara, defined as the "type site" (Debenedetti

1910), as representative of the Middle Period in Quebrada de Humahuaca (Bennett et al. 1948; González and Pérez 1972; Pérez 1973), a position maintained through time despite the lack of radiocarbon dates. Nevertheless, and based on more recent research, it is becoming difficult to endorse this point of view considering that Isla's manifestations would be clearly posterior to the signaled lapse. Besides this, from repositioning Isla's moment in local chronologies, this statement forces us to rethink the dynamics after the XII century in the region, since the development initially proposed as belonging to the Upper Formative or Middle Period must currently be discussed as an event occurring later in time and, at the same time, contemporaneous to other local developments. In such a way, the current Isla's interval would be similar to an Early Humahuaca, which in the classic chronology corresponds to the Late and not Middle Period. In the following sections we shall discuss both contexts in order to develop a new hypothesis regarding this new scenario.

2 Landscape

Landscape is considered as a construction defined in time and space by communities with members who create and manipulate culture and material symbols in order to express ethnic or cultural boundaries based on manners or ways of thinking and shared expressions, which may not have other justification than tradition itself. If a living landscape is a relational entity formed by people and their commitment to the world, we can deduce that different peoples can experiment and comprehend the landscape in different ways. Thus, we could say that landscapes are multiple or fragmented. The notion of landscape is not then a synonym of the natural environment but it constitutes a world of cultural products, where communities transform the physical space in meaningful places, representing the stage of every communal activity. These landscapes are basic for the implementation of survival and support mechanisms in populations. They are dynamic constructions in which every community and generation imposes their own cognitive map over a world of meanings (Anschuetz et al. 2001). Therefore, different development moments are uniquely identified in relation with a landscape and that is the reason why we will now present a detailed overview of the Formative, Isla, and Early Humahuaca particularities in this new information context.

2.1 Formative

This occupation moment is represented in the region by exiguous archaeological evidence mainly concentrated, at least so far, in the Tilcara urban sector. The conducted investigations were part of rescue activities in the urban area of town, and that is why findings probably spatially correlated do not allow us to approach a definition of a village model, as is the case in other northwest regions. The sites

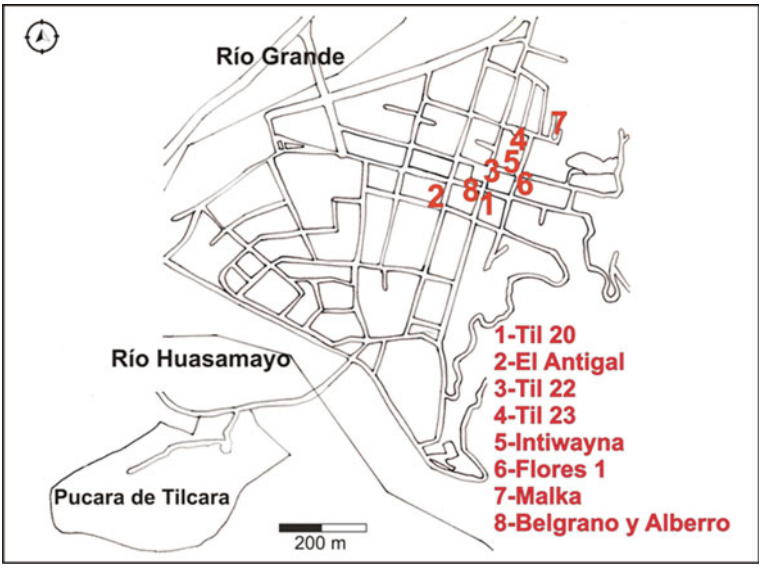


Fig. 2 Layout of Tilcara and location of the sites attributed to Formative Period

occupied between the II and XII centuries, among which we can highlight Til.20 (Mendonça et al. 1991), El Antigal (Madrazo 1968), Til.22 (Rivolta and Albeck 1992; Rivolta 1996), Til.23 (Aleksandrowicz 1987a), Intiwayna (Rivolta et al. 2010), Flores 1 (Mercolli et al. 2004; Seldes 2006), Malka (Nielsen 2001), and Belgrano y Alberro (Tarragó and Albeck 1997), account for settlements in the proximity of the Río Grande, all at similar altitudes, but presenting contexts altered by recent urbanization and flood phenomena (Fig. 2). The aforementioned sites exhibit diverse aspects of these kinds of societies, among which we detected domestic and funerary spaces when considering the results obtained through archaeological rescues performed at different moments.

2.2 Early Humahuaca

This set of sites constitutes one of the facets in the regional occupation between the XII and XIV centuries. From Early Humahuaca we start to register a clear predominance of occupations in the subsidiary quebradas as well as in the shores of the Río Grande, in terraced sectors slightly elevated, a condition clearly distinctive to Formative tendencies. The set of considered sites includes Banda de Perchel (Rivolta 2003b), Puerta de Maidana (Schuel 1930; Aleksandrowicz 1987b; Rivolta 2003b), and Alto de la Isla (Rivolta 2000, 2003b) among others, arranged on the slopes of low-altitude hills in a stepped way similar to cultivation terraces (Fig. 1). A shared feature between these settlements is the lack of internal organization of

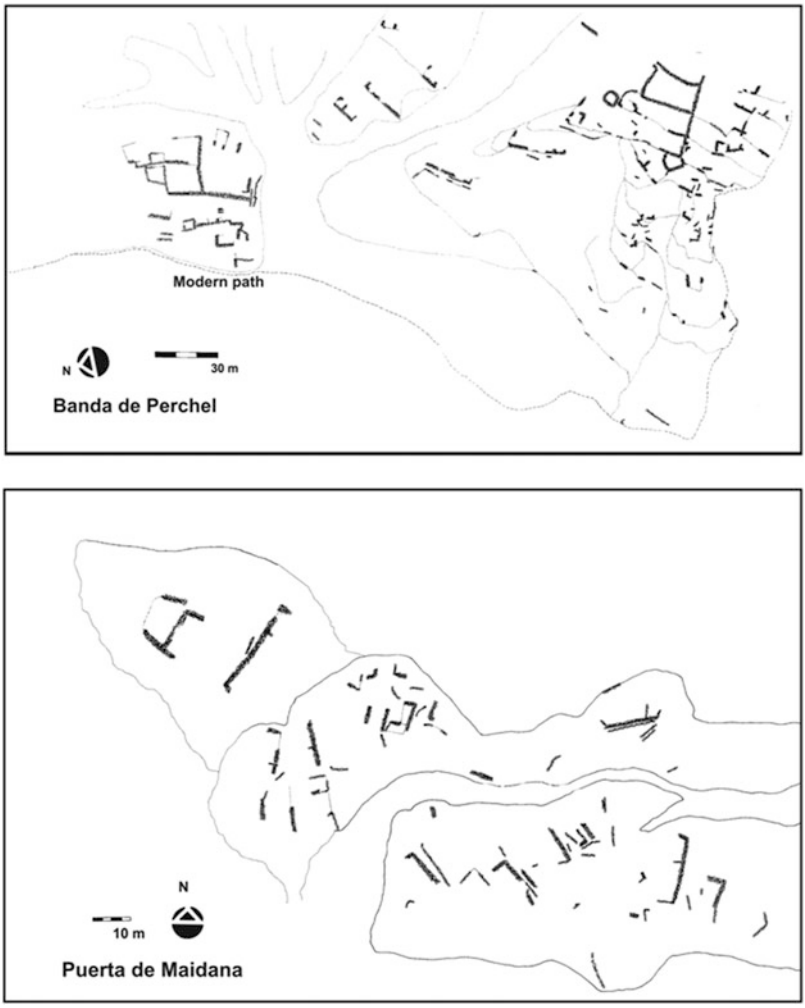


Fig. 3 Banda de Perchel and Puerta de Maidana's planimetry

enclosures, with terraces as their constructive unit and no presentation of *plazas*, secondary discard sectors, corrals, etc. (Fig. 3). This type of articulation with the landscape marks a clear distinction with Formative sites, but also represents a striking contrast with other contemporaneous sites, such as the ones belonging to Isla's occupations.

Fig. 4 Puerta de Juella and Keta-Kara's planimetry, taken from Raffino (1991) and Pelissero (1995) respectively

2.3 Isla

Unlike sites on domestic terraces, these settlements, not exceeding 2 acres in area, present a different type of internal organization, at least regarding the layout of their residential sectors. This layout can be described as having enclosures with a high concentration of structures placed on leveled sectors (Fig. 4). We have come to call them small clusters in contrast to big clusters which can reach up to 10–15 acres. These big clusters are called *pucaras*, and they present a dense building pattern and were occupied later in time.

The information obtained comes from excavations performed several decades ago, and that is why it is fragmentary and focused on surveying inhumation sectors, as in the case of La Isla de Tilcara (Debenedetti 1910; Casanova 1937), Keta-Kara (Pelissero 1995), and Puerta de Juella (Casanova 1937; Raffino 1991). For example, in the first of the mentioned sites the investigators did not take into consideration the walls of the enclosures near the burials. In this sense, La Isla is more than a cemetery, as Debenedetti defined it (1910). This site constitutes a town with similar characteristics to the aforementioned (Rivolta 2000). In the case of Keta-Kara it was possible to define secondary discard spaces (Nielsen 1997) and some shallow approximations to occupational floors (Pelissero 1995).

3 Materiality

Here we shall consider the material assemblages recovered from excavations performed in the mentioned sites, particularly emphasizing pottery remains which are equally represented at every site. Other elements of the materiality may or may not be present in the different assemblages, a circumstance hindering comparative studies, although in certain cases they complement the current analysis.

3.1 Formative

By Formative pottery we understand, clearly alluding to the Lower Formative (Raffino 1991), the assemblages recovered in the Tilcara urban sector, particularly the ones from archaeological rescues, among which we can mention Til.20 (Mendonça et al. 1991), Til.22 (Rivolta and Albeck 1992; Rivolta 1996), Til.23 (Aleksandrowicz 1987a), Malka (Nielsen 2001), Intiwayna (Rivolta et al. 2010), and Flores 1 (Seldes 2006) as the more relevant ones. Different interventions have allowed us to acknowledge pottery diversity, commonly from mortuary spaces, focusing on two main typological groups: ordinary and painted ceramics. From an iconographic perspective, the presence of decorative attributes refers to a limited percentage of pieces and fragments, as opposed to ordinary pottery. Formal diversity within the assemblage include: tubular pots, straight walled vessels, ovoid pots, pipes, bowls, and scarce modeled zoomorphic pieces (Fig. 5). Regarding

Fig. 5 Different ceramic pieces corresponding to Formative Period, recovered from the Tilcara urban area

iconography, the only decorative motif registered is parallel lines combined with zigzag lines drawn in black over red engobe.

We also recovered non-local pottery fragments, which based on the petrographic analysis of one of the fragments was attributable to the Black Polished San Pedro style from the Atacama area. Likewise, among allochthonous pottery we registered cases of fragments corresponding to the San Francisco Complex, specifically in the findings at Hotel El Antigal (Madrazo 1968) and Malka.

3.2 *Early Humahuaca*

The assemblages representing this occupation were recovered in excavations of domestic terrace sites, among which we can mention Banda de Perchel (Rivolta 2003b), Puerta de Maidana (Schuel 1930; Aleksandrowicz 1987b; Rivolta 2003b), and Alto de la Isla (Rivolta 2000, 2003b). One of the most noteworthy aspects of these assemblages is the preponderance of ordinary fragments, a feature shared by every site with these characteristics. Regarding form determinations, these assemblages are composed of a majority of bowls and pots, and within the former the Black Polished Interior pieces, with different degrees of surface treatment, are the most popular variety (Fig. 6). In the cases of fragments with visible designs, these were identified as reticulated with motifs resembling fingers from a hand in the lower parts.

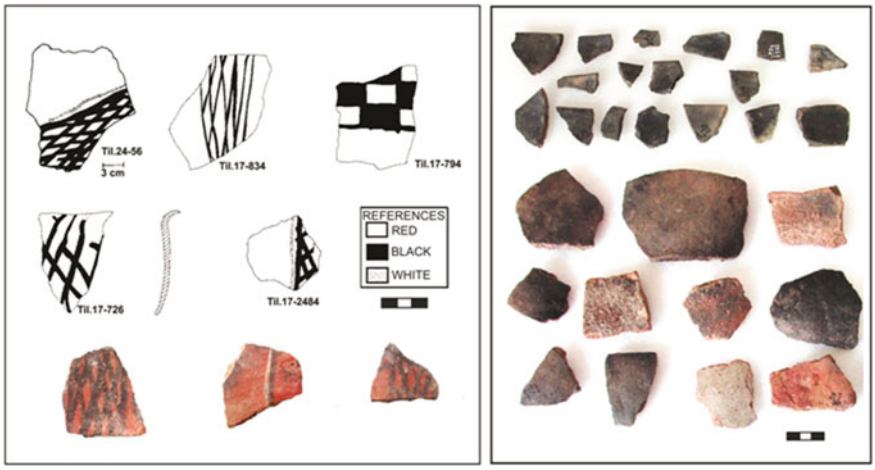


Fig. 6 Assemblage pottery fragments corresponding to Early Humahuaca. *Left* Black over red fragments. *Top, right* Black polished interior. *Bottom, right* Ordinary style

3.3 Isla

Ceramic pieces corresponding to collections recovered in La Isla de Tilcara (Debenedetti 1910), Keta-Kara (Pelissero 1995), and the Huacalera Collection (Rivolta 2003b), along with archaeological rescues in Tilcara's urban sector sites such as El Manzano (Otero 2013; Otero and Rivolta 2015), Hotel Las Marías (Otero and Rivolta 2015), Jujuy Street (Rivolta 1994), Tilcara's Train Station (Rivolta 2003a), and Tilcara's Parochial Church and Belgrano Street (Otero and Rivolta 2015) are generically denominated as "La Isla" considering the original findings in the homonymous site. The provenance of these assemblages is different from other cases since some pieces were obtained through archaeological rescue tasks while others where the result of excavations with different degrees of systematization. In the latter, a great majority of pieces were obtained in the excavation of burial sites (Keta-Kara, La Isla de Tilcara, and Huacalera) as part of the grave goods.

The particularities of these assemblages are related to their originality degree, whose pottery presents unprecedented forms and decorative motifs both for Formative moments and fragments and pieces typical of later times. Regarding the forms registered, these assemblages feature a repertoire of vases with waists and ring thickenings, pots, and bowls being among the most outstanding. If we consider iconography alone, Isla's assemblages are highly heterogeneous especially regarding the diversity of combinations of decorative elements. The use of white and black paint over red backgrounds is registered defining motifs such as: stripped and reticulated triangles, staggered motifs, white dots, spiraled triangles, checkerboard patterns, jagged lines, spirals, and reticulations, among others (Fig. 7). It is worth mentioning anthropomorphic and zoomorphic representations given their common appearance as modeled or painted figures, reflecting significant diversity in both cases. Anthropomorphic figures present variable ways of depicting faces and headdresses/hats; while zoomorphic includes local fauna, camelids, and different birds.

Within these assemblages we also found non-local pottery represented by pieces from Bolivian Altiplano (Yura) and Yavi styles using purple and buff for engobes; as well as the presence of scarce anthropomorphic pieces that could be from northern Chile (Fig. 8). Moreover, non-local pieces are only associated to these assemblages, except in the case of Yavi styles which can also be found in later times in pieces with different forms and iconographies.

Fig. 7 Isla pottery

Fig. 8 Non-local pottery

4 Radiocarbon Datings

In order to evaluate the chronology of the observed trends in pottery and social landscape, we conducted a Bayesian analysis of all radiocarbon datings available for the region. In total we have 23 radiocarbon datings from several archaeological sites. Formative is represented by Til.22 (Rivolta 1996; Tarragó and Albeck 1997) and Malka (Nielsen 2001). In the Early Humahuaca the dated sites are Puerta de Maidana (Rivolta 2003b), Alto de la Isla (Rivolta 2000, 2003b), and Banda de Perchel (Rivolta 2003b). For Isla, the sites are El Manzano (Otero and Rivolta 2015), Keta-Kara (Rivolta 2013), and Hotel Las Marías (Otero and Rivolta 2015). To evaluate the duration and order of events we used a uniform phase model (Buck et al. 1996), assuming that the whole set of phenomena within a phase has the same probability of occurrence in every moment. The sum of probabilities of the calibrated datings and the boundary parameters were also calculated. These analyses were performed using OxCal v4.2 software (Bronk Ramsey 2009) along with the southern hemisphere calibration curve SHCal13 (Hogg et al. 2013). The type of model used is of three overlapping phases (Bronk Ramsey 2009), allowing the phase boundaries to be independent and unconstrained from each other. These represent the hypothesis that there might be contemporaneity, at a regional level, between them. However, the Formative is only contemporary to the Early Humahuaca and Isla in its final segment.

To discuss calibrated dates and statistical parameters, ranges of 95.4 and 68.2% confidence intervals were used. The overlapping phase model used tends to return relatively scattered distributions (cf. Greco 2016, this volume) and it can be difficult

to interpret in processual terms. For that reason, sometimes we refer to point estimates in order to simplify. Research has shown that there is no way to correctly estimate the true age of a given radiocarbon date with a point estimate (Michczyński 2007), although several authors agree that the median or also the mode—the zone of maximum probability in the density function of the calibrated date—is acceptable (Zeidler et al. 1998; Needham et al. 1997; Michczyński 2007; Alberti 2013).

The Bayesian statistical model showed agreement indexes of A_{model} = 90.7 and $A_{overall}$ = 92.5, meaning that the hypothesis is highly acceptable. The results are summarized in Fig. 9 and Table 1 showing the posterior estimates for the start and end boundaries and also the sum of probabilities of each phase.

For this dataset, Bayesian analysis allowed us to estimate that the start of the Formative fell somewhere between 10 BC–420 AD, with a 95% confidence range.

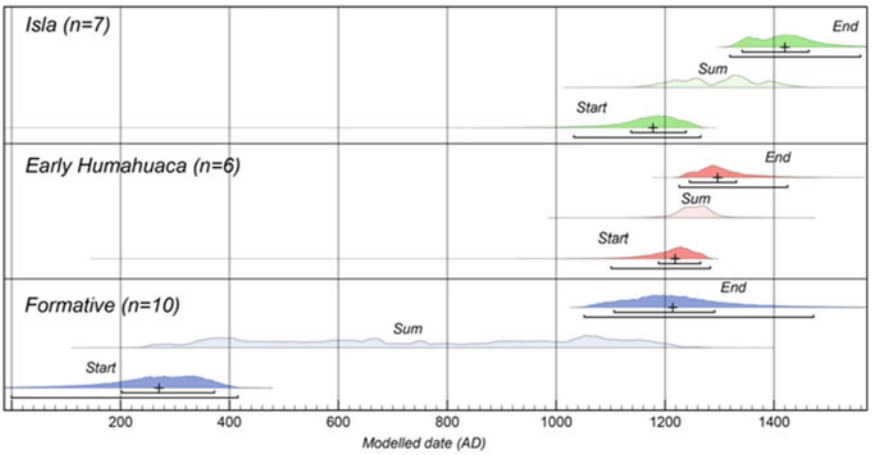


Fig. 9 Probability plots of posterior estimates for the start and end boundaries and the sum of probabilities of Formative, Early Humahuaca, and Isla. The "+" represent the location of the median value

Table 1 Posterior estimates for the start and end boundaries of the Formative, Early Humahuaca, and Isla Periods

	Boundaries	Modeled dates AD 68.2% probability	Modeled dates AD 95.4% probability	Median	Mode
Formative	Start	200–380	10 BC–420	270	340
	End	1110–1300	1050–1480	1210	1200
Early Humahuaca	Start	1180–1270	1100–1290	1220	1230
	End	1240–1340	1220–1430	1300	1280
Isla	Start	1130–1240	1030–1270	1180	1190
	End	1340–1470	1310–1560	1420	1420

However, with a mode at 340 AD and a median at 270 AD we think that the beginning occurred during 3rd or 4th century onward. This moment is related with the consolidation of village life, with evidence focusing mostly on the Tilcara urban area. Possibly, the absence of other records for this interval is due to post-depositional processes or sampling bias.

The end of the Formative coincides with the start of the Early Humahuaca, with medians and modes between 1200 and 1230 AD. Early Humahuaca would have lasted until 1220–1430 AD (95% confidence range) with a median of 1300 AD and a mode of 1280 AD. Those average dates strongly coincide with the time indicated by other authors as the limit between Early and Late Regional Developments Period (RDP) (Nielsen 2007).

Isla is somehow chronologically independent and parallel to the Early Humahuaca. It may have started a few decades before, between 1030 and 1270 AD (95% confidence range) with a median of 1180 AD and a mode of 1190 AD. Instead, the end of Isla was quite a bit later between 1310 and 1560 AD (95% confidence range) with a median and a mode of 1420 AD, meaning that the use of Isla pottery could have occurred in contemporaneity with the regional Late Humahuaca (Nielsen 2007; Greco and Otero 2016).

We think that the chronological position of the Isla is the main result of this analysis, showing that it is a process contemporaneous with other local developments.

5 Some Working Hypotheses

Some issues raised here are based on the discussion of recently obtained radiocarbon datings from several sites in the region, covering a range between the II and XIV centuries. These results constituted the starting point for proposing a shifting paradigm regarding the Isla moment and its classic chronological positioning. While these datings serve to consolidate the proposal, this was previously observed through comprehensive analyses of materiality, especially pottery, in which we detected discrepancies while comparing pieces from collections from the different sites. This fact, and the chronological repositioning, led us to question the reasons why two populations with so different materialities were living in the central sector of Quebrada de Humahuaca.

There is no doubt that spatial perception through time implies acknowledging that Formative groups, particularly the ones located in the Tilcara urban area, signaled the start of the so-called village occupations, although available information is insufficient to support this argument. Nevertheless, it is clear that these groups were located as near to the hydric resource of the Río Grande as they could, and at the same height above sea level. Approaching the XII century new and different manifestations appeared in relation to the Isla and Early Humahuaca moments, which undoubtedly implied a drastic change in location and construction of the surrounding space. Disparity between settlements is powerful evidence;

while Isla sites have an average size of no more than 2 acres presenting a complex and compressed layout with a significant density of enclosures (Fig. 4), Early Humahuaca sites (Fig. 3), on the contrary, have an average size of 6 acres with an uncompressed and extended organization in the landscape, and residential units located on terraced slopes. In this sense, it is worth mentioning that Isla sites were not re-used; they present a single occupation and were abandoned after the XIV century. On the other hand, some terraced sites were abandoned while others were reconditioned, giving origin to big conglomerates identified in the classic literature as *pucaras*.

In the same way, the differences in pottery assemblages are given between formal and decorative attributes. Thus, Early Humahuaca is mainly represented by ordinary fragments, with presence of Black Polished Interior bowls and decoration referring to hands and reticulations, although the two last are low in percentages. On the other hand, Isla's characteristic ceramic forms like vases with waists and pots (Fig. 7) which define this assemblage's identity, resemble some pieces found in the Altiplanic zone, like for example that of the Mollo Culture (Arellano López 1978, 1985; Faldín 1985: 91—Form A and variants. Proposals about the emergence of the "Tricolor Southern Horizon" (Lumbreas 1960), related to the consolidation of post Tiwanaku kingdoms, which possibly had some importance in the definition of local processes in Quebrada de Humahuaca (Lafón 1965; González 1963), can also be considered. Along with local pottery production, Isla collections include clearly allochthonous objects like Yura pieces and fragments from the Altiplano, as well as the presence of a spouted vase of similar origin, an anthropomorphic figure associated with the Valle de Azapa region (Lecoq 1999; Uribe 1999; Daulsberg 1982), and several Yavi pieces.

Another aspect that must be considered is related to the presence of two craniums with deformations typical of the Altiplano (Blom et al. 1998; Bloom 2005; Janusek 2002, 2009) found in Enclosure V, Burial 2 at the Keta-Kara site, as well as a second cranium exhumed at La Isla de Tilcara (N° 3876) mentioned by Dillenius (1913) and Imbelloni (1932) as an example of exceptional cranial deformation among the set of individuals exhumed from these sites (Fig. 10).

The presence of allochthonous objects is likely related to trade circuits with dynamics registered in Quebrada de Humahuaca since the Archaic. These circuits are evidenced during Formative times through scarce fragments corresponding to the San Francisco style, linking the Atacama area with the Yungas. Unlike this context, during Isla's development the pieces and fragments identified as non-local are mainly from the Altiplano, an unprecedented situation in these settlements. Tarragó's investigations (1977) in the Atacama registered La Isla pottery in the cemeteries of this oasis, which implies a circuit likely functioning since early moments, a circumstance that has not been registered yet for the Altiplano. We argue that the events which took place in the central Altiplano since the XII century, related to Tiwanaku's fall, had an impact in Quebrada de Humahuaca, based on the landscape reconfiguration which originated with the arrival of individuals to the region and their installment on an area with scarce evidence of local population concentration. These facts led us to hypothesize that the appearance of small

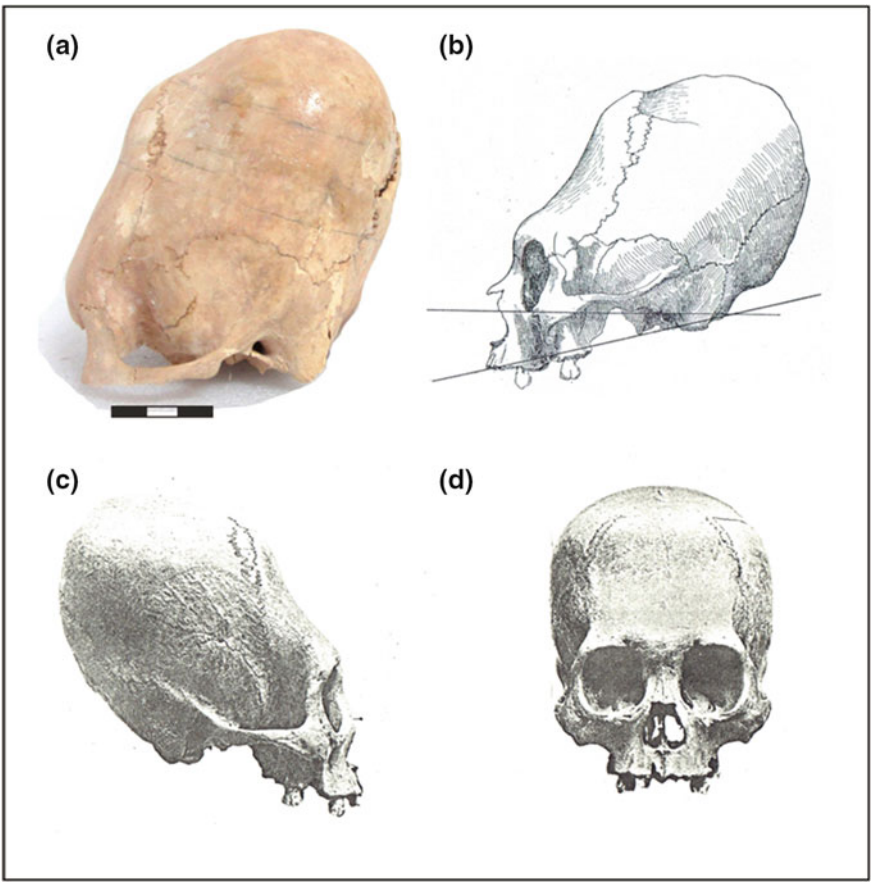


Fig. 10 Crania with Altiplanic deformation. **a** Cranium form Keta-Kara site, **b** cranium from La Isla de Tilcara (N°3876), picture slide taken by Imbelloni (1932), **c** and **d** the same cranium from La Isla de Tilcara (N° 3876), picture slide taken by Dillenius (1913)

conglomerated settlements, in reference to the ones defined for the Isla moment, could be related to the presence of individuals from the Altiplano, while domestic terraced sites would represent an occupational continuity or the identity of local Formative inhabitants.

In this regard, the central sector of Quebrada de Humahuaca showed a differential behavior in relation to its surrounding areas, particularly the oasis in San Pedro de Atacama and the Valle de Azapa, since we have not registered evidence related to Tiwanaku's filiation objects, with the exception of a wooden tablet recovered from Angosto Chico site (Montenegro 2002) and possibly the metal pieces, especially those elaborated in gold, found in Pueblo Viejo de la Cueva and La Isla de Tilcara (Tarragó et al. 2010). This contrasts with the aforementioned cases because in San Pedro de Atacama the burials present several objects as grave

goods (Le Paige 1961; Tarragó 1989; Berenguer and Dauelsberg 1989; Stovel 2001; Uribe and Agüero 2004; Uribe et al. 2016), and in the Valle de Azapa this association was proposed in relation to the Cabuza style (Dauelsberg 1973; Focacci 1982; Goldstein 1996). Nevertheless, based on the strontium isotope analysis from San Pedro de Atacama there is not evidence of population movement from Tiwanaku to the *salar* (salt flat) (Knudson 2008), although adoption of an Altiplanic style for the manufacture of objects was noticed. A later date than that classically considered is proposed for Cabuza style (Korpisaari et al. 2014) based on the Altiplanic influence over this ceramic type. Furthermore, the authors argue that considering radiocarbon dates which are available, Tiwanaku's influence over Cabuza pottery would have been related to processes originated from the collapse of the State and not by the installation of colonies or direct control (op. cit. 422). In this regard, the recreation of Altiplanic styles with local additions could evidence the irruption of this new pottery type in the region, produced by Isla residents.

We have known from decades that the Tiwanaku fall was marked by several factors (Binford et al. 1997; Kolata and Ortloff 2003). Among them, climatic changes linked to aridity and low-temperature events between the XII and XV centuries (Engel et al. 2014) is regarded as one of the causes associated to other socio-political aspects that forced the Altiplanic population to focus on the diversification of resources, particularly pastoralism (Stanish 2003). These and other reasons produced a population movement (Owen and Goldstein 2001; Pärssinen 2003; Janusek 2005; Owen 2005; Smith and Janusek 2014; Sharratt 2016) from the Titicaca area to new and disperse communities and settlement networks, with a starting point near 1100 AD (Janusek 2005). In this sense, Owen (2005) proposes a first-stage defined as a colonizing diaspora in Moquegua and perhaps Cochabamba, while the second stage, which was longer and named by him as victim/refugee, occurred around 1000 AD and was coincident with Tiwanaku's disintegration. The latter stage manifested itself through the settlement of groups in sparsely populated areas recurring to the installation of small, disperse, and defendable villages. Regarding population movements, the material record is clear since in these cases materials appeared abruptly in different settlements without previous antecedents of their presence at a local level (Owen 2005). This situation could be reflecting the issues regarding the Isla moment and its material context.

6 Concluding Remarks

Quebrada de Humahuaca, as part of the Andean region, has had an active role in general processes through the centuries. The starting point of this contribution was centered in the presentation of new evidence, from the application of radiocarbon techniques to material contexts from several sites. Based on this information and complementing it with pottery assemblages and settlement pattern analysis we argue, on the one hand, for the repositioning of the Isla moment between the XII and XIV centuries, unlike classical chronologies which placed it between the VII

and X centuries of the Era. This new temporal organization made itself clear to us in two specific instances: explaining the contemporaneity of sites which were previously considered as part of a consecutive development through time, and providing explanatory proposals enabling the clarification of the reason why both populations showed divergences regarding landscape construction and materiality. Thereby, we suggest as a hypothesis that Isla groups were part of a whole with Altiplanic influences arising in Quebrada de Humahuaca, perhaps originated during the Tiwanaku moments and after its fall, assuming that unlike other regions of the Andes, the one we are studying has not provided any evidence regarding the presence of objects with Tiwanaku's filiation. Nevertheless, we believe that Quebrada de Humahuaca did not remained unaffected by the dynamic of these events and the movement of populations which generated a great dynamism in life conditions between the XII and XIII centuries, although it is probable that these events also propitiated the appearance of unique material manifestations and social practices. It is certainly essential to incorporate new evidence lines to further contrast the hypotheses presented in this paper.

Acknowledgements We particularly thank to Armando Mendoza, Presentación Aramayo, Daniel Aramayo, and the staff of the Archeological Deposit of the Museo Arqueológico "Dr. E. Casanova" (FFyL-UBA) for their collaboration during the revision of the Tilcara urban area, André, Huacalera, Keta-Kara, and La Isla collections.

References

Alberti G (2013) Issues in the absolute chronology of the Early-Middle Bronze Age transition in Sicily and southern Italy: a Bayesian radiocarbon view. J Quat Sci 28(6):630–640

Aleksandrowicz S (1987a) Informe del rescate arqueológico en la Calle Sorpresa (Flia. Arroyo). Informe inédito Instituto Interdisciplinario Tilcara. Unpublished report

Aleksandrowicz S (1987b) Informe de los trabajos realizados en el antigal que suponemos debe ser Puerta de Maidana. Informe Conicet, 1987. Unpublished report

Anschuetz KF, Wilshusen RH, Scheick CL (2001) An archaeology of landscapes: perspectives and directions. J Archaeol Res 9(2):157–211

Arellano López J (1978) La Cultura Mollo: ensayo de síntesis arqueológica. Pumapunku 12: 87–113

Arellano López J (1985) Mollo. Investigaciones arqueológicas. Imprenta Nacional, La Paz

Bennett WC, Bleiler E, Sommer F (1948) Northwest Argentine archaeology. Yale University Publications in Anthropology N° 38, New Haven

Berenguer J, Dauelsberg P (1989) El norte grande en la órbita de Tiwanaku. In: Hidalgo J, Schiappacasse V, Niemeyer H, Aldunate C, Solimano I (eds) Culturas de Chile. Prehistoria. Editorial Andrés Bello, Santiago, pp 129–180

Binford MW, Kolata A, Brenner M, Janusek J, Seddon M, Abbott M, Curtis J (1997) Climate variation and the rise and fall of Andean civilization. Quatern Res 47:235–248

Bloom DE (2005) Embodying borders: human body modification and diversity in Tiwanaku society. J Anthropol Archaeol 24:1–34

Blom DE, Hallgrímsson B, Keng L, Lozada MC, Buikstra JE (1998) Tiwanaku 'colonization': Bioarchaeological implications for migration in the Moquegua Valley, Peru. World Archaeol 30(2):238–261

Bronk Ramsey CH (2009) Bayesian analysis of radiocarbon dates. Radiocarbon 51(1):337–360
Buck CE, Cavanagh WG, Litton CD (1996) Bayesian approach to interpreting archaeological data. Statistics in practice. Wiley, Chichester
Casanova E (1937) Contribución al estudio de la Arqueología de La Isla. Relaciones 1:65–70
Dauelsberg HP (1973) La cerámica de Arica y su situación cronológica. Chungara 1(2):17–24
Daulsberg HP (1982) Prehistoria de Arica. Revista Diálogo Andino 1:33–82
Debenedetti S (1910) Exploración Arqueológica de los Cementerios Prehistóricos de La Isla de Tilcara (Quebrada de Humahuaca, Provincia de Jujuy). Publicaciones de la Sección Antropológica Nº 6, Facultad de Filosofía y Letras, Buenos Aires
Dillenius JA (1913) Craneometría comparativa de los antiguos habitantes de La Isla y del Pukará de Tilcara (Provincia de Jujuy). Publicaciones de la Sección Antropología N° 12, Facultad de Filosofía y Letras, Universidad de Buenos Aires
Engel Z, Skrzypek G, Chuman T, Šefrna L, Mihaljevič M (2014) Climate in the Western Cordillera of the Central Andes over the last 4300 years. Quatern Sci Rev 99:60–77
Faldín AJD (1985) La ceramografía de Villa General Peñaranda y sus connotaciones arqueológicas (segunda parte). Arqueología Boliviana 2:75–98
Focacci G (1982) Nuevos fechados para la época del Tiahuanaco en la arqueología del norte de Chile. Chungara 8:63–77
Goldstein PS (1996) Tiwanaku Settlement Patterns of the Azapa Valley, Chile: New Data, and the Legacy of Percy Dauelsberg. Dialogo Andino 14(15):57–73
González AR (1955) Contextos culturales y cronología en el Área Central del N.O. argentino. Anales de Arqueología y Etnología, vol XI, Mendoza
González AR (1963) Cultural development in North Western Argentine. Smithsonian Institute, 146, 1, Washington
González AR, Pérez JA (1966) El Área Meridional Andina. Actas y Memorias del XXXVI Congreso Internacional de Americanistas, vol. 1, Sevilla, pp 241–265
González AR, Pérez JA (1972) Argentina indígena, vísperas de la conquista. Paidós, Buenos Aires
Greco C (2016) Statistical analysis of radiocarbon datings from the Center-South sector of Quebrada de Humahuaca. In: Scaro A, Otero C, Cremonte MB (eds) Pre-Inca and Inca pottery. Quebrada de Humahuaca, Argentina (in press)
Greco C, Otero C (2016) Chronology of settlements with pre-Incan and Incan occupations superimposed. The case of Pucará de Tilcara (Humahuaca gorge, Argentina). Archaeometry 58 (5):848–862
Hogg AG, Hua Q, Blackwell PG, Niu M, Buck CE, Guilderson TP, Heaton TJ, Palmer JG, Reimer PJ, Reimer RW, Turney CSM, Zimmerman SRH (2013) SHCal13 Southern Hemisphere Calibration, 0-50,000 years cal BP. Radiocarbon 55(4):1889–1903
Imbelloni J (1932) Sobre un ejemplar mimético de deformación craneana: el cráneo 3876 de La Isla de Tilcara (Jujuy, Argentina). Anales del Museo Nacional de Historia Natural 37:193–208
Janusek JW (2002) Out of many, one: style and social boundaries in Tiwanaku. Latin Am Antiq 13(1):35–61
Janusek JW (2005) Collapse as Cultural Revolution: power and identity in the Tiwanaku to Pacajes transition. Archaeol Papers Am Anthropol Assoc 14:175–209
Janusek JW (2009) Residence and ritual in Tiwanaku. In: Manzanilla L, Chapdelaine C (eds) Domestic life in prehispanic capitals: a study of specialization, hierarchy, and ethnicity. Memoirs 46, Ann Arbor, pp 149–169
Knudson KJ (2008) Tiwanaku influence in the South Central Andes: strontium isotope analysis and Middle Horizon migration. Latin Am Antiq 19(1):3–23
Kolata AL, Ortloff CR (2003) Agroecological perspectives on the decline of the Tiwanaku State. In: Kolata AK (ed) Tiwanaku and its hinterland: archaeology and paleoecology of an Andean civilization. Smithsonian Institution Press, Washintong, pp 181–202
Korpisaari A, Oinonen M, Chacama J (2014) A reevaluation of the absolute chronology of Cabuza and related ceramic styles of the Azapa Valley, Northern Chile. Latin Am Antiq 25(4):409–426
Lafón CR (1965) Tiempo y cultura en la provincia de Jujuy. Etnía 2:1–5

Lecoq P (1999) Uyuni Préhispanique. Archéologie de la Cordillre Intersalar (Sud-Ouest Bolivien). BAR International Series 798. Archaeopress, Publishers of British Archaeological Reports, Oxford

Le Paige G (1961) Cultura de Tiahuanaco en San Pedro de Atacama. Anales de la Universidad del Norte 1:19–23

Lumbreras LG (1960) Espacio y cultura en los Andes. Revista del Museo Nacional (Lima) 29:222–246

Madrazo G (1968) Alfarería prehumahuaca en Tilcara (Quebrada de Humahuaca, Prov. de Jujuy). Etnía 8:16–18

Mendonça O, Bordach A, Ruiz M, Cremonte MB (1991) Nuevas evidencias del Período Agroalfarero Temprano en Quebrada de Humahuaca: Los hallazgos del sitio Til. 20 (Tilcara, Jujuy). Comechingonia 7:29–48

Mercolli P, Zaburlín MA, Seldes V (2004) Reflexiones sobre los últimos rescates arqueológicos en Tilcara. Actas del XV Congreso Nacional de Arqueología Argentina, Río Cuarto, Córdoba

Michczyński A (2007) Is it possible to find a good point estimate of a calibrated radiocarbon date? Radiocarbon 49(2):393–401

Montenegro M (2002) Análisis preliminar de las tabletas para inhalación de sustancias psicoactivas de la provincia de Jujuy, Argentina. Pacarina 2:103–109

Needham S, Bronk Ramsey C, Coombs D, Cartwright C, Pettitt P (1997) An independent chronology for British Bronze Age metalwork: the results of the Oxford Radiocarbon Accelerator Programme. Archaeol J 154:55–107

Nielsen A (2001) Evolución social en Quebrada de Humahuaca (AD 700-1536). In: Berberián EE, Nielsen AE (eds) Historia Argentina Prehispánica. Editorial Brujas, Córdoba, pp 171–264

Nielsen A (2007) El Período de Desarrollos Regionales en la Quebrada de Humahuaca: aspectos cronológicos. In: Williams VI, Ventura BN, Callegari ABM, Yacobaccio HD (eds) Sociedades precolombinas surandinas: temporalidad, interacción y dinámica cultural del NOA en el ámbito de los Andes Centro-Sur. Editorial Buschi, Buenos Aires, pp 235–247

Nielsen AE (1997) Tiempo y Cultura Material en la Quebrada de Humahuaca 700–1650 d.C. Serie Monografías, Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, UBA

Otero C (2013) Producción, usos y circulación de bienes en el Pucará de Tilcara (Quebrada de Humahuaca, Jujuy). PhD dissertation, Universidad de Buenos Aires

Otero C, Mercolli P (2008) Consumo y circulación de objetos cerámicos de Tilcara. Tres ejemplos de distintos contextos funerarios. Resúmenes de las IX Jornadas Regionales de Investigación en Humanidades y Ciencias Sociales, en Suplemento de Cuadernos 34: 227–228. Jujuy

Otero C, Rivolta MC (2015) Nuevas interpretaciones para la secuencia de ocupación de Tilcara (Quebrada de Humahuaca, Jujuy). Intersecciones en Antropología 16:145–159

Owen BD (2005) Distant colonies and explosive collapse: the two stages of the Tiwanaku diáspora in the Osmore drainage. Latin Am Antiq 16(1):45–80

Owen BD, Goldstein P (2001) Huari y Tiwanaku: Modelos vs. Evidencias. Boletín de Arqueología PUCP 5:169–188

Pärssinen M (2003) Copacabana ¿el nuevo Tiwanaku? Hacia una comprensión multidisciplinaria sobre las secuencias culturales post-tiwanacotas de Pacasa, Bolivia. Los Andes: cincuenta años despúes (1953–2003). Homenaje a John Murra AM, Lorandi C, Salazar Soler y Nathan Wachtel (eds), pp 229–280. Pontificia Universidad Católica del Perú, Lima

Pelissero N (1995) El sitio arqueológico de Keta-Kara en el sistema cultural de la ceja de Puna, Dpto. de Tilcara, Pcia. de Jujuy. Colección Mankacén, CAEA, Buenos Aires

Pérez JA (1973) Arqueología de las culturas agroalfareras de la Quebrada de Humahuaca (Provincia de Jujuy, República Argentina). América Indígena 33(3):667–678

Raffino R (1991) Poblaciones Indígenas en Argentina. Urbanismo y Proceso Social Precolombino. Tipográfica Editora Argentina, Buenos Aires

Rivolta MC (1994) Calle Jujuy: nuevos hallazgos arqueológicos en la planta urbana de Tilcara. Unpublished report

Rivolta MC (1996) Calle Lavalle y Sorpresa: Aportes a la Investigación Arqueológica de la Quebrada de Humahuaca. XXV Aniversario Museo Arqueológico Dr. Eduardo Casanova, pp. 129–135. Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, UBA

Rivolta MC (2000) 90 años de investigación en la Quebrada de Humahuaca: un estudio reflexivo. Serie Monográfica 5, Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, UBA

Rivolta MC (2003a) Aportes a la arqueología de Tilcara (pcia. de Jujuy) en relación a observaciones efectuadas por Eric Boman. Pacarina 3:287–295

Rivolta MC (2003b) Los Sitios en Terrazas Domésticas como parte de la Dinámica Social en la Quebrada de Humahuaca (Provincia de Jujuy). PhD dissertation, Universidad de Buenos Aires

Rivolta MC (2013) Movilidad e Interacción en la Quebrada de Humahuaca: el caso de Keta-Kara (Jujuy-Argentina). Unpublished report

Rivolta MC, Albeck ME (1992) Los asentamientos tempranos en la Localidad de Tilcara: S.Juj. Til.22, Provincia de Jujuy. Cuadernos 3:86–93

Rivolta MC, Seldes S, Mercolli P (2010) Ocupaciones Tempranas en sectores Urbanos de la localidad de Tilcara (Jujuy, Argentina). Actas del XVII Congreso Nacional de Arqueología Chilena, Actas 1:155–163. Valdivia

Schuel K (1930) Ruinas de las poblaciones indígenas de la provincia de Jujuy. V Reunión Sociedad Argentina de Patología Regional del Norte Argentino: 1430–1451. Buenos Aires

Seldes V (2006) Bioarqueología de poblaciones prehistóricas de la Quebrada de Humahuaca (Jujuy, Argentina). Estudios Atacameños 31:47–61

Sharratt N (2016) Collapse and cohesion: building community in the aftermath of Tiwanaku state breakdown. World Archaeol 48(1):144–163. doi:10.1080/00438243.2015.1110043

Smith SC, Janusek JW (2014) Political mosaics and networks: Tiwanaku expansion into the upper Desaguadero Valley, Bolivia. World Archaeol 46(5):681–704

Stanish C (2003) Ancient Titicaca. The Evolution of Complex Society in Southern Peru and Northern Bolivia. University of California Press

Stovel E (2001) Patrones funerarios de San Pedro de Atacama y el problema de la presencia de los contextos Tiwanaku. Boletín de Arqueología PUCP 5:375–395

Tarragó MN (1977) Relaciones Prehispánicas entre San Pedro de Atacama (Norte de Chile) y regiones aledañas: la Quebrada de Humahuaca. Estudios Atacameños 5:50–63

Tarragó MN (1989) Contribuciones al conocimiento arqueológico de los oasis de San Pedro de Atacama en relación con los otros pueblos puneños, en especial, el sector septentrional del valle calchaquí. PhD dissertation Universidad Nacional de Rosario

Tarragó MN, Albeck ME (1997) Fechados Radiocarbónicos para el Sector Medio de la Quebrada de Humahuaca. Avances en Arqueología 3:101–116

Tarragó MN, González LR, Avalos G, Lamamí M (2010) Oro de los Señores. La tumba 11 de La Isla de Tilcara (Jujuy, Noroeste Argentino). Boletín del Museo Chileno de Arte Precolombino 15(2):47–63

Uribe M (1999) La cerámica de Arica 40 años después de Dauelseberg. Chungara 31(2):189–228

Uribe M, Agüero C (2004) Iconografía, alfarería y textilería Tiwanaku: elementos para una revisión del período Medio en el Norte Grande de Chile. Chungara 36(2):1055–1068

Uribe M, Santana-Sagredo F, Maturana A F, Flores C, Agüero P C (2016) San Pedro de Atacama y la cuestión Tiwanaku en el Norte de Chile: Impresiones a partir de un clásico estudio cerámico y la evidencia bioarqueológica actual (400-1000 d.C.). Chungara 48(2):173–198

Zeidler J, Buck C, Litton C (1998) Integration of archaeological phase information and radiocarbon results from the Jama River Valley, Ecuador: a Bayesian approach. Latin Am Antiq 9(2):160–179

Consumption of Pottery in Quebrada de la Cueva, Humahuaca, Jujuy

Paola Silvia Ramundo

Abstract The spatial distribution of pottery in Quebrada de La Cueva (Humahuaca, Jujuy, Argentina) is a useful hint towards understand consumption relations. In this study, consumption is mainly seen from a stylistic level, both on intra- and inter-site scales within the area. Furthermore, the evaluation of this practice through time could contribute to the study of past social practices in the area. Considering this region as part of the northern Quebrada de Humahuaca, it is suggested that this area suffered similar processes of change on different levels. The starting point of this work is thus defined by the general hypothesis that the consumption of pottery in Quebrada de La Cueva varied through time. From this, a number of minor hypotheses may be derived: (a) during the Late Formative Period, consumption of pottery in the area had a more foreign nature; and (b) during both the Regional Developments Period II and Inca Periods, its consumption was more locally based than in previous and probably later occupational events. Hence, this chapter considers pottery at the stylistic level, using the concept of goods consumption as a kind of symbolic action. In order to consider the consumption of pottery on a stylistic level, a number of analyses were performed: (1) a decorative analysis of complete vessels and sherds recovered in past and recent excavations; (2) a study of the variability in styles on inter- and intra-site scales within the area both spatially and temporally; and (3) a preliminary outline of some of the ways pottery was consumed in Quebrada de La Cueva.

Keywords Consumption of pottery · Style · Pre-hispanic · La Cueva · Argentinean Northwest

P.S. Ramundo (✉)
CONICET, Facultad de Ciencias Sociales, Departamento de Historia, Pontificia Universidad Católica Argentina (C1107AFD), Buenos Aires, Argentina
e-mail: paolaramundo@conicet.gov.ar

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_3

1 Introduction

The research in progress since 2009 in Quebrada de La Cueva is mainly focused on the interpretation of social processes developed in it. It considers the pre-Hispanic occupations and their position in the southern Andes and northwestern Argentina archaeological framework, using pottery as the main analytical guideline. Thus, it aims to study the pottery from this northern sector of Quebrada de Humahuaca along its complete occupation from a technological, morphological, and decorative perspective. We believe this analysis could identify behaviors defining production, consumption, circuits and/or processes involving distribution, interaction, and identity, amongst other social patterns.

Hence, this chapter presents the spatial analysis of pottery distribution to understand its consumption, basically from a style perspective, both at the intra- and inter-site scale in the area. Hence, the evaluation of pottery consumption through time would contribute to define past social practices. Due to the fact that Quebrada de La Cueva is regarded as the northern sector of Quebrada de Humahuaca, it is proposed here that it suffered similar change processes at different levels. The starting point for our analysis is thus defined by the general hypothesis that the consumption of pottery in Quebrada de La Cueva varied through time. From this, a number of minor hypotheses could be derived: (a) the consumption of pottery in the area had a more foreign nature during the Late Formative Period, when a more frequent interaction of ideas or objects may have existed; (b) during the Regional Developments II Period (RDPII) and Inca Periods, pottery consumption in the area was more locally based than in previous and probably later occupation events.

This chapter considers the style dimension in the pottery recovered at Quebrada de La Cueva between the Late Formative and Inca times, using the concept of goods consumption. Studies on consumption may be considered from a myriad of theoretical perspectives; from these, we focus on its symbolic aspects, a view which regards consumption as a kind of symbolic manifestation, following Bourdieu's work (1998).

This perspective has proved valuable in archaeological research for its emphasis on the active role of material culture in social relationships. Hence, according to Bugliani (2008), goods consumption is understood here as a process where social agents become visible and define the categories of a culture. By consuming, agents "express" something about themselves, their origin, and membership to certain groups. Bourdieu (1998) states that the category of the agents, their disposition, and cultural competence may be apprehended by studying the goods consumed as well as the way they are consumed.

Different scholars have enlarged on the concept of consumption and analyzed how the goods consumed and their decorative elements—amongst other variables—were used by certain social groups to indicate their lifestyle and distinguish themselves from other groups. Thus, consumption not only implies the ownership of an

object or the idea of satisfying biological needs but it also involves signs, values, and ideas (Baudrillard 1988). It is a process where the agent who consumes an object is intimately involved in trying to create and maintain a sense of identity by the exhibition of the goods consumed. In this way, consumption plays a key role in the active process of identity creation and maintenance (Baudrillard 1988; García Canclini 1997).

In order to analyze consumption of pottery in stylistic terms, a number of analyses are performed here: (1) decorative analysis of the complete vessels and sherds recovered in the past (Casanova in the 1930s and Basílico 60 years later) and in recent (Ramundo since 2006) excavations; (2) study of time and space variability in the styles found on the inter- and intra-site scale in the area, when possible; (3) a preliminary outline of some of the ways pottery was consumed in Quebrada de La Cueva.

This study provides an integral contextualized analysis of pottery from Quebrada de La Cueva in order to understand processes related to consumption and exchange. Such processes—when complemented with other issues derived from studying the complete archaeological record—may offer a better understanding of Quebrada de La Cueva. This area is still rather unknown in archaeological terms, despite its importance and the early discovery of its sites. So, it is imperative to frame La Cueva in the pre-Hispanic social processes recorded at the micro- and macro-regional levels.

2 The Sites in Quebrada de La Cueva

Quebrada de La Cueva is in the Humahuaca Department, Jujuy, Argentina. From a geographical perspective, it is a tributary basin to Quebrada de Humahuaca. Its head is in the Santa Victoria range (22° 35′ 26.54″S, 65° 20′ 07.55″W) and ends in the Río Grande River (22° 57′ 55.90″S, 65° 21′ 44.42″W), near the village of Iturbe (Hoja La Quiaca 2366–2166). It runs 46 km in a general north–south direction from 4500 masl in the head to 3300 masl in the confluence with the Río Grande.

The sites studied so far include, from south to north (Fig. 1): Angosto de La Cueva (HUM.05), Antigal de La Cueva (ALC), Pukara de La Cueva (HUM.06), Pukara Morado (HUM.07a), Pueblo Viejo del Morado (HUM.07b), Chayamayoc (HUM.10), Pueblo Viejo de La Cueva (HUM.08), Antiguito (ANT), and a large number of archaeological terraces, enclosures, and agricultural fields that are currently being analyzed.

This paper presents the comparative study of the pottery consumed at the HUM.06, HUM.07b, HUM.08, and ANT sites, the locations studied so far from this perspective.

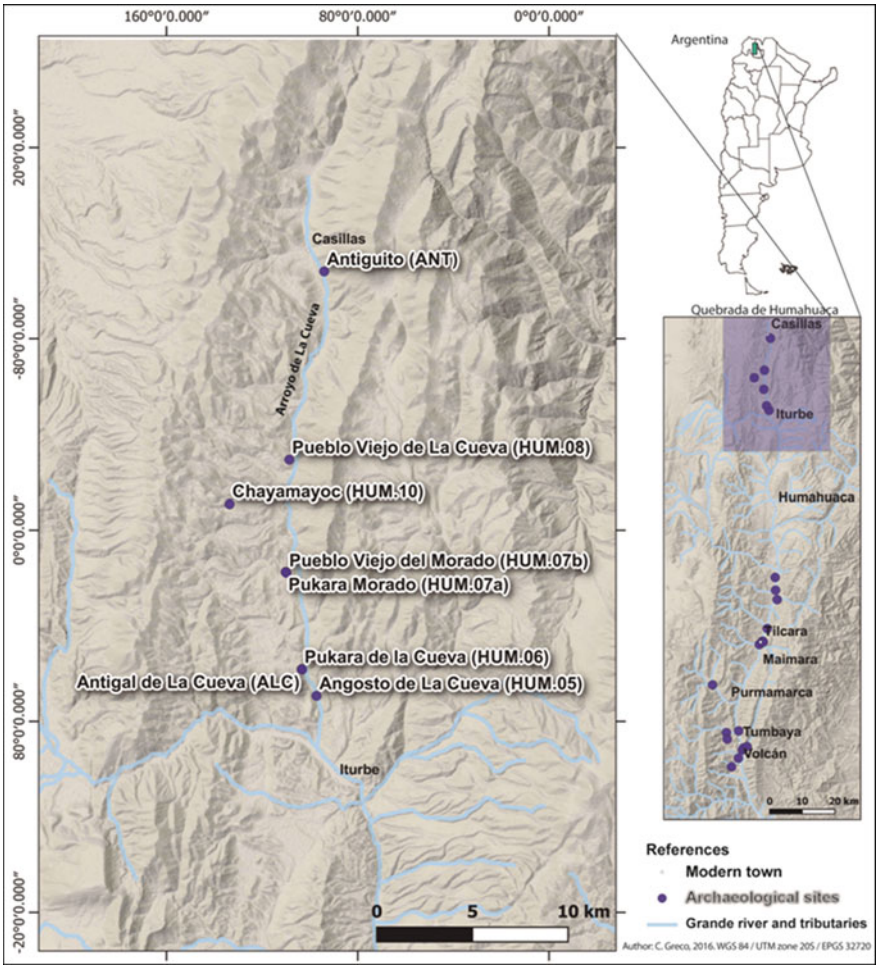


Fig. 1 Map of Quebrada de La Cueva

3 Occupational Events in Quebrada La Cueva

Information about chronology in the area was quite limited until recent times. Some scholars indicated that it could be dated to the Regional Developments Period (1250–1430 AD) and possibly Inca times (1430–1536 AD) as well (Nielsen 2001; Basílico 1992, 1994). For instance, Nielsen (1999, 2001) included HUM.08, HUM.07b, and HUM.06 in the Regional Developments Period I (900–1200 AD),

whereas HUM.07a would be within Inca dates. Nielsen (1999, 2001) also proposed that HUM.08 could have been inhabited since the end of the Late Formative Period (500–900 AD), with an early date of 1180 ± 50 BP (770 + 50 AD [LP-142-charcoal]) (Basílico 1992).

The rock art at HUM.05 and HUM.10 was recorded during the 1970s and 1980s (Fernández Distel 1978, 1983a). HUM.05 was then chronologically placed between "700 and 800 years AD" (Fernández Distel 1978:52), whereas HUM.10 was dated to sometime "between 700 and 1000 AD" (Fernández Distel 1983a:46) in what was called "Cultura Humahuaca", probably in an "Intermediate" Period characterized by tricolour (or polychromous) pottery that the author relates to the "Tiawanaco influence" (Fernández Distel 1983a:46). In a different article, such sites were assigned to the Humahuaca Culture, noting also that HUM.06, HUM.07a, and HUM.08 would be included in the Intermediate or Late Periods (Fernández Distel 1983b). Despite this information, the only site effectively dated was HUM.08. This uncertainty explains why the definition of a chronological framework has always implied a challenge in modern research. Thus, the excavations at ANT (during 2006) and HUM.06 (since 2006) pretended to recover remains from both spaces to be dated; in 2010 and 2011 seven radiocarbon dates were performed (Table 1). As a consequence, the chronology for the area has been enlarged in many senses: the new dates provided the first absolute chronologies for HUM.06, and the occupational range widened the picture described by previous relative chronologies. These new data provide arguments to discuss Nielsen's position (1999, 2001) regarding the correspondence to the Regional Developments I Period (RDPI) (900–1200 AD). Recent evidence indicated that, for the time being, the chronology for the settlement at the area would be extended to the RDPII and Inca times. However, it did not deny the possibility of an earlier occupation in other sectors of the Pukara.

4 Spatial Distribution of Pottery at Intra- and Inter-site Levels

This section analyzes the spatial distribution of pottery in terms of style to observe aspects related to its consumption, both at the intra-site scale (limited to the two dates available for HUM.06) and amongst the different sites. Thus, the study considers and compares the information recovered in recent fieldwork at HUM.06 and ANT, together with the data from HUM.06 published by Casanova (1933). They are further complemented by the information from HUM.07a, HUM.07b, and HUM.08 recovered by Casanova (1933) and Basílico's (1992, 1994) work at HUM.08.

Table 1 Chronological diagram of Quebrada de La Cueva (Adapted from Ramundo 2015–2016)

No. of dated	Period	Dated	Calibrated 68.2% probability	Calibrated 95.4% probability	Site	Material
1 (HUM.08-1)	Late formative	1180 ± 50 years BP [LP-142]	Calibrated (Cal years AD): 874 (68.2%) 988	Calibrated (Cal years AD): 778 (94.2%) 995 1007 (1.2%) 1015	HUM.08 (Basílico 1992)	Charcoal
2 (HUM.06-1)	PDRII	540 ± 60 years BP [LP-2268]	Calibrated (Cal years AD): 1395 (68.2%) 1455	Calibrated (Cal years AD): 1312 (11.3%) 1360 1379 (82.9%) 1500 1597 (1.2%) 1611	HUM.06 Structure no. 45	Bone Left humerus
3 (HUM.06-2)	PDRII	670 ± 25 years BP [UGAMS # 8561]	Calibrated (Cal years AD): 1308 (24.2%) 1328 1338 (28.7%) 1361 1379 (15.4%) 1391	Calibrated (Cal years AD): 1298 (95.4%) 1395	HUM.06 Structure no. 25 (Ramundo 2011)	Charcoal (AMS)
4 (HUM.06-3)	INKA	460 ± 40 years BP [LP- 2420]	Calibrated (Cal years AD): 1436 (68.2%) 1497	Calibrated (Cal years AD): 1416 (79.5%) 1511 1552 (0.5%) 1557 1574 (15.4%) 1622	HUM.06 Structure no. 116	Charcoal
5 (HUM.06-4)	INKA	450 ± 40 years BP [LP 2531]	Calibrated (Cal years AD): 1441 (61.1%) 1499 1599 (7.1%) 1610	Calibrated (Cal years AD): 1425 (72.5%) 1513 1547 (22.9%) 1623	HUM.06 Structure no. 25	Charcoal
6 (HUM.06-5)	PDRII	549 ±30 years BP [MTC-15600]	Calibrated (years Cal d.C.): 1410 (68.2%) 1435	Calibrated (years Cal d.C.): 1399 (95.4%) 1447	HUM.06 Structure no. 45	Bone Right floating rib
7 (HUM.06-6)	PDRII	561 ±32 years BP [MTC-15601]	Calibrated (Cal years AD): 1404 (68.2%) 1432	Calibrated (Cal years AD): 1329 (0.7%) 1333 1391 (94.7%) 1449	HUM.06 Structure no. 45	Bone Proximal phalanx of hand
8 (HUM.06-7)	PRDII	520 ± 40 years BP [LP-2528]	Calibrated (Cal years AD): 1415 (68.2%) 1450	Calibrated (Cal years AD): 1396 (95.4%) 1477	HUM.06 Structure no. 116	Charcoal

4.1 The Pottery at Pukara de La Cueva—HUM.06

For a precise analysis of the differential pottery consumption, it is fundamental to provide a thorough description of the contexts (i.e., the kind of site and its location) and to specify the origin of the sherds analyzed—kind of enclosure, feature, association, etc.

The site of HUM.06 may be described as a *pukara*, sensu Tarragó (2011), located in the confluence of the La Cueva and Pukara Streams, in the Humahuaca Department, Jujuy Province (22° 55′ 32.72″S, 65° 22′ 9.28″W).

The information about pottery at the site is compiled from two separate research events: the first one by Casanova in the 1930s and the second one directed by the author since 2006. This situation explains the difference in available information regarding the origin of pottery.

When excavating HUM.06, Casanova made a brief description of the pottery recovered from a morphological–decorative point of view, including some technological features such as kind of firing—irregular, poor, or perfect—as well as the presence of firing flaws. He also indicated whether the surfaces were rough, smoothed, or had an excellent polish. Finally, he assigned some functionality to the pieces (e.g., bowl, vessel, dish, whistle pot, cooking pot, water or *chicha* jug, etc.).

Nevertheless, he never indicated the location of the contexts studied inside the site, being defined as graves from several enclosures. So, the first context was a rectangular structure some 2.5 m by 3 m with two consecutive internal sub-divisions (features) of 0.80 m by 0.80 m on the western wall of the enclosure. This first context yielded two skeletons of adult individuals, pieces of clothing, a lithic pestle, and part of a "vessel".

The second context was a structure of 3 m by 3.5 m without any sepulchral construction, where the body was deposited near the northern wall, some 0.80 m deep, and accompanied by two pottery vessels, sherds, a lithic spade, a stone spinning disk, and a block of ochre.

As regards to pottery, although Casanova's (1933, Fig. 8: 267) drawing indicated that a sherd of a "non-decorated vessel" was found in the first context, later on Casanova (1933: 267 and 268) described this piece as painted in certain places (on the rim, a line parallel to the rim, and on the middle of the vessel).

The study of this small bowl (sensu Balfet et al. 1983 classification) at the Museo Etnográfico (MET) indicates that the piece presents a flat base (0.4 cm thick) and a straight rim with a bevel lip (0.5 cm thick) painted with a dark red line (Hue 10 R 3/6). A second parallel line in the same color was painted 2.5 cm from the internal rim (0.5 cm thick), as well as a cross with irregular arms (0.4 cm thick; Fig. 2) in the same color which appears on the middle of the vessel. Thus, it may be thought that the "decorative" cannons in Casanova's time did not consider that a line on the rim, a second line parallel to it, and a cross on the middle of the piece may be regarded as "decoration". Furthermore, at the time, they tended to omit the description of non-decorated pottery and even discard it due to the obsessive search for highly ornamented pieces to be exhibited. Nevertheless, this kind of decorative

Fig. 2 Object No. 31–260, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

design reproducing a cross is present in the pottery assemblages known as "Humahuaca Negro sobre Rojo" (Humahuaca N/R) style (Scaro and Cremonte 2012) in Quebrada de Humahuaca. They are also found at other sites such as Los Amarillos (Nielsen 1997; Marengo 1954) also for Regional Developments Period (RDP) dates. Runcio (2010) detected this decoration on bowls from the RDP (Late Period [900–1430 AD] sensu Runcio), particularly in the northern and central sections of Quebrada de Humahuaca (Runcio 2010: 193), coinciding with the record found at Quebrada de La Cueva, also in the northern sector.

Regarding the pottery decorated in "Negro sobre Rojo" (N/R) from grave No. 2, the object No. 31–261 is formed by two sherds (Fig. 3). The first one (0.5 cm thick) presents a reticular kidney shaped design in N/R with a very fine white line framing the crosshatch motif on the external surface. This kind of design on the external surface of the pieces was described as a "horizontal reticulated frieze […] with a tendency to be oval" (Bregante 1926: 173). The author called it "Reticulado tipo Pucará de Tilcara", and indicated it was a "modern decorative form, contemporaneous to the famous Empire of the Incas" (Bregante 1926: 172, own translation). Bennett et al. (1948) also described it as typical of the "Tilcara Negro sobre Rojo" style. Additionally, Nielsen (1997, 2007a) considered the close crosshatch motif inside kidney shaped elements in the RDPII or Componente Humahuaca, which would include the "Tilcara Negro sobre Rojo" style (Nielsen 2007b). This type of decorative design is present in the pottery assemblages of the "Humahuaca N/R" style in Quebrada de Humahuaca. However, it should be noted that none of the previous authors mentioned the use of a white line framing the kidney shaped motif, which may represent a detail exclusive to the local manufacture at Quebrada de La Cueva.

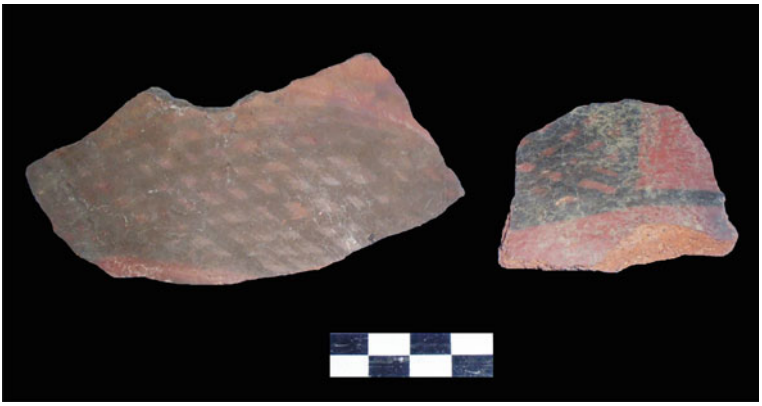


Fig. 3 Object No. 31–261, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

The second sherd, also from grave No. 2, is 0.8 cm thick with an external N/R reticulate inside a rectangular or at least quadrangular area that ends in a straight black line (Fig. 3). These kind of designs were dated to the RDPII by Nielsen (2007a, b) and were included in the "Humahuaca N/R" style.

On the other hand, the object No. 31–263 of the same grave No. 2 (Fig. 4) represents a sherd with an inverted rim and straight lip from a *puco* (bowl). Its internal decoration consists of a crosshatch frieze in N/R parallel to the lip, which also presents consecutive black triangles with the vertex oriented to the inside of the piece, typical motifs of the "Humahuaca–Inca" style (sensu Scaro and Cremonte 2012).

The two "vasos ornitomorfos" (bird-like vessels) found with the aforementioned material need to follow Casanova's description, photographs and black and white drawings (1933), as they could not be located either at the MET or at the Instituto Interdisciplinario de Tilcara. The object No. 31.258 corresponds to a "vaso ornitomorfo" with a maximum length at the body of 8 cm (except for the head and the tail), and a maximum height of 7 cm (from head to base). It was described as painted in red with a decoration in "Negro sobre Blanco". It also presented a hole mimicking a "peak, which is the beginning of a cylindrical conduct that goes through the whole neck and ends in the cavity in the body of the animal" (Casanova 1933: 268–269, own translation). The researcher considered it a "resting bird" (see Figs. 10, 11, 12, and 13 in Casanova 1933: 268–269).

The second piece was described in similar terms: a "maximum length of 8.5 cm (except for the head); a maximum height of 6.5 cm" (Casanova 1933: 269, own translation). See Figs. 10, 11, 12 and 13 in Casanova (1933: 268–269).

These brief descriptions represent the whole pottery material Casanova recovered from the two graves, without any data about the sector of the site they were found in. By comparing it with both the enclosures plans drawn in Casanova's text (1933), and modern measurements of the same features, they seem to have been placed in the northwest sector of the site. Thus, the distribution of styles in HUM.06

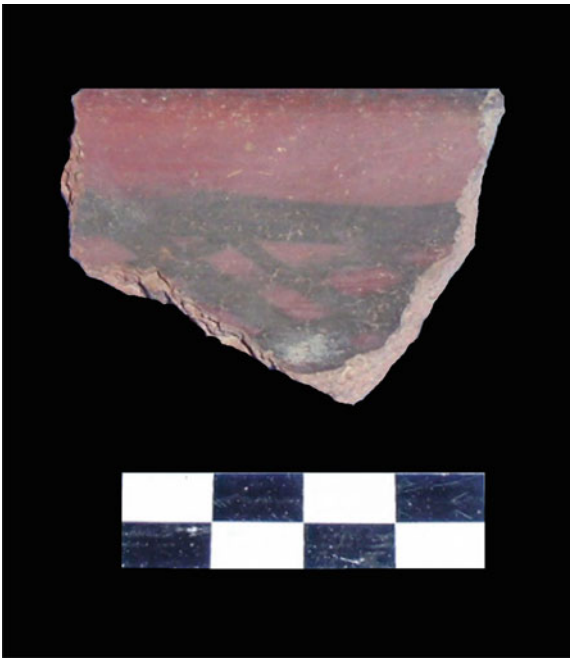


Fig. 4 Object No. 31–263, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

could be tentatively proposed for the time being. Nevertheless, it should be indicated that the pottery described and found by the excavator would be of the "Humahuaca N/R" style, dated to the RDPII in Quebrada de Humahuaca, while the pieces he called "bird-shaped" may tentatively be ascribed to slightly earlier moments. This relationship is based on similar materials described by Debenedetti (1910) at the La Isla site. Furthermore, Bennett et al. (1948: 19) mentioned the presence of "*bird vessels*" in the "Isla Polícromo" style, corresponding to the Intermediate Period or beginning of the Late Period, in what they called "Cultura Humahuaca", and Nielsen (2007b) defined as "Componente IAP (Isla/Alfarcito)", dated between 800 and 1300 AD. Nevertheless, Albeck's recent analysis of the photographs published by Casanova (1933) may question these ideas. The scholar found similarities between these pieces and the zoomorphic asymmetric vessels representing camelids (Albeck, pers. comm. 2013) which were analyzed and described for the styles of the Late Period in Jujuy Puna (Albeck and Ruiz 2003).

In contrast with previous research, modern pottery studies allowed not only the identification of the sectors or enclosures of recovery at HUM.06 but also provided a chronology for the context of some pottery styles thanks to the presence of associated datable material.

The excavated structure described as enclosure No. 45 had a rectangular shape (3 m by 4 m), with a possible domestic function. It presented three simple walls of

Fig. 5 Decoration in "Negro y Blanco sobre Rojo" (HUM.06). Photograph by the author

overlaying stones and a double wall shared with enclosure No. 50. Furthermore, a door without doorjambs could be identified in the western wall, next to a small structure (mentioned as Feature 53) of three lines of rocks with adobe mortar ending in the wall. It was built with large pieces of Pukara basal rock. This enclosure was located in the northwestern quarter of the site, in an elevated sector, near what was interpreted as one of its main entrances. It yielded the first secondary funerary context found at HUM.06, where the bone remains were completely mixed, disarticulated, and with no anatomical connection. Its location in a limited sector of the enclosure and the mix and disposition of the bones suggested it was a multiple secondary burial. Some of the elements—particularly long and coaxial bones—conformed angles of different openings to the horizontal plane of the excavation, indicating that the assemblage could have been removed in some way and mixed with the sediment before the eventual burial. Furthermore, most bones presented a very good preservation state, with low-weathering frequencies (n = 2; 0.30%), confirming they were not exposed on the surface or sub-surface levels for a long time (Aranda et al. 2012).

The pottery material associated to Level 1 of enclosure No 45 is dated to the RDPII (540 ± 60 BP [LP-2268-bone],[1] 549 ± 30 BP [MTC-15600-bone],[2] and 561 ± 32 BP [MTC-15601-bone]).[3] It comprises a low number of mainly decorated and non-decorated sherds (representing 13.5% of the total pottery population in the enclosure). The sherds are highly varied in morphological and surface treatment terms. The assemblage includes a ribbon handle, 4 sherds of flat-concave bases, 111 body sherds, and 13 rims (everted, inverted, and straight). Regarding surface treatments, most pieces present slip, although there are some examples of painted, polished and painted treatment, and a few smoothed vessels. Additionally, some sherds have soot on their surface. Several sherds show the typical decoration of the RDPII in "Negro y Blanco sobre Rojo" (N/B/R) style (Fig. 5) as part of possible triangles/pennants bordered in white (Fig. 6), the style known as "Juella

[1]Date No. 2 in Table 1 (RDPII).

[2]Corresponds to date No. 6 in Table 1 (RDPII).

[3]Corresponds to date No. 7 in Table 1 (RDPII).

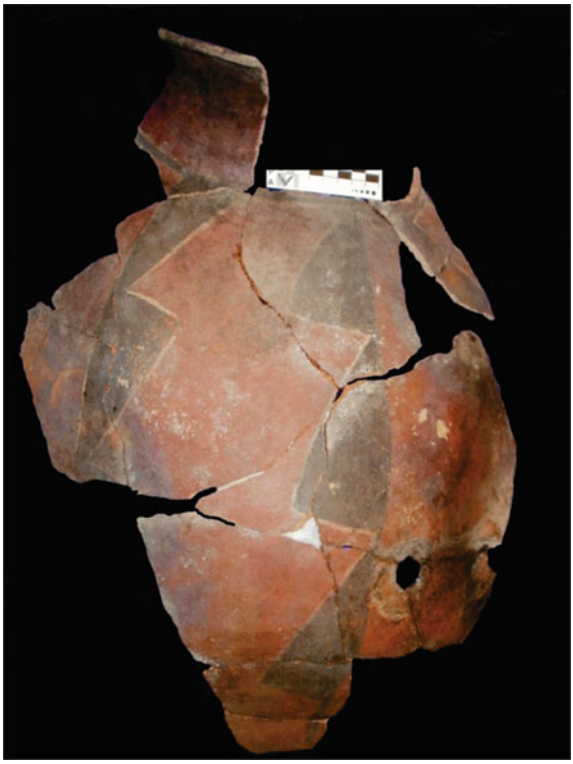


Fig. 6 Decoration in "Negro y Blanco sobre Rojo" (HUM.06). Photograph by the author

Polícromo" (although the thickness and amount of pigment in the white lines in HUM.06 is different from the one found in parallel valleys, e.g., Pintoscayoc). An additional design is the N/R crosshatch of diverse nets or weaves on the internal and external surfaces, typical of the "Humahuaca N/R" style of the RDPII.

The site also yielded some sherds painted in dark red and others with internal brushstrokes in dark red on red (Fig. 7). These strokes are not exclusive to HUM.06; they were also found at ANT and in isolated findings at HUM.07b. However, no evidence of this decorative technique was recorded at HUM.08 (according to Basílico), or at the other sites in nearby valleys such as Chaupi Rodeo (Leoni, pers. comm. 2010) or the Selvas Occidentales (Ventura, pers. comm. 2012). Anyway, Pintoscayoc (a western valley parallel to La Cueva) reported similar sherds; unfortunately, due to their reduced size it is not possible to define on which surface the brushstrokes were painted (Acevedo, pers. comm. 2012). Hence, this "decoration", so frequent in Quebrada de La Cueva, may be considered an idiosyncratic feature typical of the local manufacturing pattern, justifying its nomination as "Brochadas Moradas La Cueva".

Associated to dates No. 2, No. 6, and No. 7 in Table 1 (RDPII), corresponding to the same secondary funerary context, some remains of large pots were located, most of them with a dark red slip and sooth on the external surface. They may have

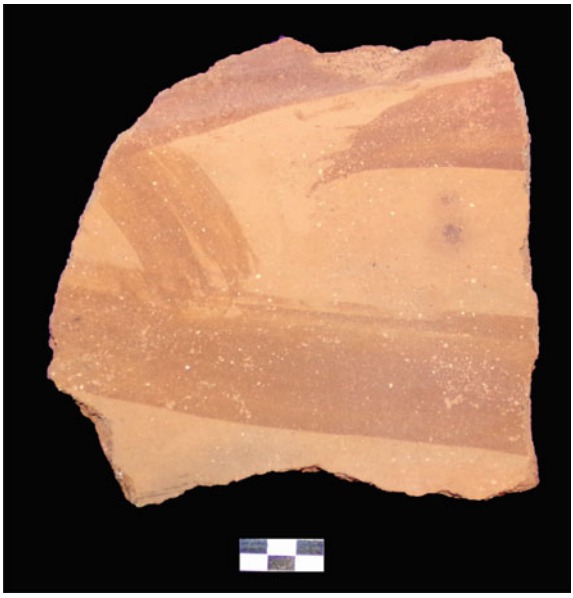


Fig. 7 Pottery with *dark red* brushstrokes (HUM.06). Photograph by the author

been used for some culinary function first, to be later integrated in the funerary context due to their large size.

In this same level, dated to the RDPII, a "*maniforme* (hand-like)" or "peine (comb)" design was identified as well. It is a sherd with the end of a hand-like design parallel to the rim. Due to the wall profile and the design on the internal surface, it may be interpreted as part of a bowl (*puco*), though its small size avoids determining the diameter. It is a N/R design where the first black line is 0.4 cm thick and located near the rim, with the second one measuring 0.3 cm, being parallel to the former (Fig. 8). Even though it is only a segment of the original design, such decorations can be dated to the Late Inca Period (Bennett et al. 1948: 43) and included in the traditionally called "Tilcara Negro sobre Rojo" style: "The designs consist of somewhat intricate figures composed of triangles, triangles and scrolls, crosshatched friezes, hooks and the like. Checkers and 'maniforme' designs are also found" (Bennett et al. 1948: 24, own translation). Serrano (1966: 79) also indicated the presence of this "maniforme" design on large vessels of the traditional "Tilcara N/R" style and Nielsen mentioned that in the Late Period, Sarahuaico phase (1280–1350 AD), the pottery designs identified were, amongst others, "*pucos* with *maniforme* motifs parallel to the rim" (Nielsen 1997: 111, own translation). He emphasized that the Sarahuaico phase presented "bi-colour materials with different designs (*peines*)" (Nielsen 2007b: 236, own translation). Furthermore, Runcio (2010) found these designs on bowls from the RDPII, describing them as triangles with parallel appendages. Nowadays they are included in the so-called "Humahuaca N/R" style.

Fig. 8 Drawing of a sherd with "hand" or "comb" decoration (HUM.06). Drawing by the author

The second context (enclosure No. 116) corresponded to a 3 m by 2 m large domestic structure with an entrance defined by doorjambs in the eastern wall (a simple wall structure), next to the main entrance to HUM.06, in the central southern sector.

The pottery recovered is associated with another date for the RDPII (670 ± 25 BP [AMS–charcoal])[4] and include four sherds of small and very small[5] bodies, indicating a high fragmentation which prevented determining forms. Thickness ranges between 0.5 and 0.7 cm. Three of them present external dark red painting (Hue 10 R 3/3) and internal slip (Hue 2.5 YR 6/6, 5/6, and 6/4), and one has external sooth as well. The remaining sherd shows a polished external treatment (Hue 7.5 YR 5/6) and internal slip (Hue 7.5 YR 7/4). Thus, this context only yielded sherds of a dark red colour, which are also dominant at the site and seem to be a constant in the sample from this occupational period. That is the reason this pottery type is called "Morado La Cueva".

A second group of pottery from the same enclosure No. 116 corresponds to an Inca Period, dated to 460 ± 40 BP (LP-2420–charcoal).[6] It consists of three body sherds, two with dark red external slip (Hue 2.5 YR 5/4), some 0.6 cm thick and small in size. One of them shows an external orange slip (Hue 2.5 YR 5/8) with

[4]Corresponds to date No. 3 in Table 1 (RDPII).

[5]Very small: 2 cm × 2 cm; small: 5 cm × 4 cm.

[6]Corresponds to date No. 4 in Table 1 (Inca Period). Greco (2010: 87) indicated a highly possible contextual association.

Fig. 9 Miniature jug in the hearth of enclosure No. 116 (HUM.06). Photograph by the author

smoothed internal surface (Hue 2.5 YR 5/3), measuring 0.8 cm in thickness and is medium-sized.[7]

The miniature jug found in the hearth is the only example of this type in HUM.06. It is almost complete (only part of the handle is missing), with a red polish[8] and some contents which are currently under analysis (Fig. 9). Rather similar miniature vessels were found in funerary contexts in the Pukara de Tilcara (López et al. 2010) and in the Jujuy Puna in Late Inca contexts (Yacobaccio and Madero 1997–1998).

Furthermore, this domestic context (enclosure No. 116) yielded a date of 520 ±40 BP (LP-2528-charcoal).[9] Related material corresponds to four body sherds (0.4–0.6 cm thick) painted in dark red (Hue 10 R 3/4), with the presence of sooth and saltpetre, coinciding with previous descriptions. There is also a straight border (0.5 cm thick) with a rounded lip and dark red external decoration on the lip and rim (Hue 10 R 3/4) on a beige background (Hue 5 YR 7/4), all with a dark red

[7]Medium size: 9 cm × 6 cm.

[8]Hue 2.5 YR 6/8. Total height: 4.3 cm. Opening diameter: 2.9 cm. Maximum diameter: 3.6 cm. Base diameter: 1.5 cm. Minimum diameter: 2.2 cm. Thickness: 0.2 cm (at the rim).

[9]Corresponds to date No. 8 in Table 1 (RDPII).

internal slip (Hue 10 R 3/4). Lastly, a body fragment which has external dark red painting (Hue 10 R 5/4) and orange smoothed interior (Hue 2.5 YR 7/6) is 0.5 cm thick and presents weathering evidence.

Finally, the third example also corresponds to a domestic context (enclosure No. 25, 3 m by 4 m large, simple wall, and accessible from the southern sector indicated by evidence of doorjambs) with pottery associated with a date of 450 ± 40 BP (LP 2531-charcoal).[10] The materials recovered include three very small body sherds (thus indicating high fracture, a frequent situation in enclosure No. 25), 0.6–1 cm thick. One of them has a rough surface finish and the other two are painted in a dark red color (similar to the external colors in date No. 3); one sherd presents abundant grounded pottery macroscopically visible.

Although restricted to the five enclosures excavated so far from the 150 walled structures identified, a preliminary impression defines the pottery as highly homogeneous in a chronological level, with the presence of "Humahuaca N/R" and "Humahuaca Inca" styles, the later in fewer numbers. Both may be dated to RDPII and Inca times. Furthermore, the assemblage is homogeneous regarding its intra-site distribution. This is important, as the enclosures excavated in 1930 by Casanova were tentatively located in the central western high sector, next to enclosure No. 45, excavated by the author. On the other hand, the recently excavated enclosure No. 25 is in the northwestern high sector and enclosure No. 116 in the central southern low sector of HUM.06. It means that they occupy different spaces in this 1-ha site, considering just the walled area.

4.2 The Pottery from Pueblo Viejo de La Cueva—HUM.08

Because the local aboriginal community does not authorize fieldwork in the area, only previous excavations can be used to study this western side of the main area, at 7 km from Pukara Morado and surrounded by Quebrada de Ojo de Agua or Cortadera (to the south), Quebrada de Vadito (north), and Quebrada de La Cueva (east).

The settlement is a semi-conglomerated structure on the hillside, with access to hydrological resources and surrounded by cultivation fields (Basílico 2008). Casanova (1933) found pottery described as well-fired vessels, with smoothed walls of a moderate thickness, and a technical level "higher than the one found at Pukara Morado" (Casanova 1933: 300, own translation). In a structure of unknown position inside the site, he recovered five pieces with geometrical decoration, three non-decorated calceiform or asymmetric pitchers and two large non-decorated pots, of which one was not removed. The most outstanding finding was, however, the large pot covered by slabs that Casanova could not recover, but considered it may have stored liquids. The author mentioned that this kind of pot was also found at

[10]Corresponds to date No. 5 in Table 1 (Inca Period).

Pukara de Tilcara. The latter were studied by Bregante (1926), although it should be noted that they were similar only in some morphological aspects (but not, for instance, in the location of the handles), as the pots from the Pukara de Tilcara showed a N/R decoration with designs typical of the "Humahuaca N/R" style, dated to the RDPII.

A second large pot was found, with a flat base, vertical short neck, perpendicular rim, and oblique handles inserted on the upper third of the piece.[11] This piece, of a grey color (Hue 10 YR 3/1), is not decorated. He went on to describe the three calceiform or asymmetrical pitchers found in the same dwelling, indicating their rough aspect, different sizes, and domestic function as their form would be appropriate for heating. Modern analysis shows that the first one presents a short neck, everted rim, flat base, vertical handle (body–neck),[12] is devoid of any decoration, and seriously weathered.

The second asymmetrical piece also has a short neck, everted rim, flat base, and vertical handle (rim–body).[13] It presents a red slip (Hue 10 R 5/6), soot remains, burnt parts, rough walls, and no decoration.

Lastly, the third asymmetrical vessel has a short neck, everted rim, flat base, and vertical handle (rim–body).[14] Its colour is red (Hue 10 R 5/6) without any decoration but with firing flaws.

At the chronological level, Nielsen considered that the asymmetrical vessels present at different sites in Quebrada de Humahuaca "seem to represent efficient solutions to basic needs, apparently functioning as constant along the whole period", that is, from the Formative to the Colonial Period (700–1650 AD) (Nielsen 1997: 87, own translation).

Casanova included a pitcher (Fig. 10) with a cylindrical neck, everted rim, and flat base as well. It has flat handles obliquely placed at different heights.[15] The vessel presents a rough finish, rather irregular form, rough walls of red colour (Hue 5 YR 5/6), and firing flaws. The decoration, painted in N/R, is nowadays quite unclear, conditioning any stylistic classification.

Other materials found by Casanova may be included in the "Isla" style or Componente Isla/Alfarcito (800–1300 AD) for Nielsen (2007b), due to their form and decoration. Casanova described a non-decorated vessel with a central axis and everted rim forming a large ledge, a flat base, and a handle.[16] It also presented smoothed external walls and soot remains.

[11]Base diameter: 12.5 cm. Opening diameter: 21 cm. Maximum diameter: 45 cm. Total height: 55 cm. Wall thickness: 0.8 cm.

[12]Height: 23.2 cm. Base diameter: 11.5 cm. Opening diameter: 14.2 cm. Maximum diameter: 20.5 cm.

[13]Height 13 cm. Base diameter: 7.5 cm. Opening diameter: 8.2 cm. Maximum diameter: 15.5 cm.

[14]Height 6.6 cm. Base diameter: 5 cm. Opening diameter: 4.5 cm. Maximum diameter: 8 cm.

[15]Height: 19 cm. Base diameter: 6 cm. Opening diameter: 7.2 cm. Maximum diameter: 13 cm.

[16]Dimensions: 10.2 cm high. Base diameter: 6 cm. Opening diameter 8.8 cm.

Fig. 10 Pitcher (HUM.08). Object No. 31–305, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

He recovered a second vessel (see Fig. 59 in Casanova 1933: 306) with an everted rim and large ledge. The base is flat and the handle is missing, leaving a mark on the place it was inserted. The vessel presents a thick coat of red paint (Hue 7.5 R 4/6) and the decoration is restricted to the neck of the vessel, organized in two areas—one external and the other internal. Both are similarly painted with irregular crosshatch designs, but the squares are larger on the internal surface. A third vessel (Fig. 11), with an everted rim, flat base, and a handle inserted in the body–neck was also found. This piece presents well-smoothed walls painted in red (Hue 7.5 R 4/6 red) with a black crosshatch design. The motifs occupy two areas: the irregular crosshatch covers the body and part of the base, whereas the second design completes the neck between two parallel lines, one a few millimetres from the rim and the other one dividing the two parts of the vessel. In this case, there are four decorated areas separated by plain ones. Two motifs are alternatively repeated: the first one was drawn between two straight lines perpendicular to the rim, and may be described as a series of lines which are parallel in the lower part and slightly joined in the upper end. The second motif consists of two series of small triangles forming pennants. In the internal part, a broken line occupies an area 1.5 cm thick along the rim.

Fig. 11 Vessel (HUM.08). Object No. 31–300, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

Another vessel collected by Casanova is similarly decorated (Fig. 12) and has an everted rim, flat base, and vertical handle inserted in the neck–body. Its walls are smoothed and covered in red paint (Hue 7.5 R 4/8), later decorated in white (Hue 5 Y 8/1) and black on the body and neck of the vessel.

A further vessel was described (see Fig. 64 in Casanova 1933: 309), whose rims are slightly everted to the outside, the base is flat, and the vessel presents a handle inserted in the neck–body. The walls are smoothed and painted in dark red (Hue 7.5 R 4/6) with motifs in black and white (Hue 5 Y 8/1) which include two lines in black in the central axis of the vessel which divide the vase into two areas. Furthermore, a black frieze made by two broken parallel lines was drawn on the body. The parallel black lines form triangles on the vessel's neck and small white circles of different sizes were placed between the straight lines. Parallel to the rim on the internal wall, it presents a broken line some 2 cm thick painted in black.

Lastly, Casanova found a vessel with a flat base, everted rim, and the remains of a vertical handle (Fig. 13). The walls are smoothed and covered in red slip (Hue 2.5 YR 5/6) on the external surface and also part of the internal rim. The decoration appears in three areas, two external and one internal. The former are separated by a central zone (vessel axis) with no decoration. The motif on the body presents a series of straight lines painted in black which does not follow the same direction

Fig. 12 Decorated vessel (HUM.08). Object No. 31–299, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

and forms triangles. The neck was painted with a series of black isosceles triangles with the base alternatively orientated to the rim and the base of the vessel. Inside them, white dots were painted (Hue 5 Y 8/1), many of them shaped as half-moons. On the inside, the motif covers 3 cm along the rim and is limited to a thick broken line painted in black.

Many years after Casanova's work, Basílico excavated HUM.08 and analyzed the pottery found both on surface and from excavation work from a techno-typological and techno-morphological perspective. She elaborated a protocol of pottery forms, description of rims for open and closed vessels, determination of design elements, and analysis of a number of variables in the decorated pottery assemblage recovered, such as morphology, design elements, and structure. Additionally, she compared this material with the "Isla" collection at the MET and confirmed the presence of pottery of this style as a consequence of inter-site contacts (Basílico 1992: 126). Such vessels are presented in Basílico (1992: Sheet IV, Figs. 8, 10, 1, 13). Following the methodology common in the 1980s she analyzed ceramic fabrics (Basílico 1994), developed ceramic standards and groups, correlated fabric compositions with morphology and decoration, and compared the

Fig. 13 Vessel (HUM.08). Object No. 31–301, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

assemblage with the standards from Quebrada de Humahuaca and Puna areas to consider possible contacts between regions. Thus, she found pottery with white dots (Hue 5 Y 8/1) similar to the ones in Quebrada de Humahuaca recorded by Debenedetti at Alfarcito, and by Krapovickas at San Ana de Abralaite (Puna) and San Pedro de Atacama (Chile). When confronting the evidence with the Quebrada de Humahuaca and Puna samples, she stated that "the vessels from Pueblo Viejo de la Cueva would correspond to the fabric technological tradition known as Yavi, with definite local features" (Basílico 1994: 161, own translation). She concluded that some fabrics presented similarities with the standards at Quebrada de Humahuaca, suggesting a similar technological tradition, and thus postulated the existence of contact between these areas. Furthermore, she indicated that local vessels presented peculiarities regarding paste composition and manufacture. Finally, she mentioned the similarity in morphology and painted design with materials from "Isla" (already mentioned) and "Alfarcito" (see Basílico 1994: Sheet 3, Fig. 1), but considered that the potters at the site elaborated their own creations by combining design elements for the decorations. According to this author, some fabrics differed from the materials in Quebrada de Humahuaca, which would indicate the existence of a local manufacture.

Even though it is not completely excavated, the almost exclusive dominance of vessels related to the "Isla" and "Alfarcito" styles, together with some pieces of an ambiguous chronology (i.e., calceiform vessels) and the date published by Basílico (1992) for HUM.08 corresponding to the Late Formative, would all be indicative of a Componente IAP sensu Nielsen (2007b) chronology for this site.

4.3 Pottery from Pueblo Viejo Del Morado—HUM.07b

The site HUM.07b is some 4 km from the Pukara de La Cueva and 1 km to the west of the La Cueva River, in its confluence with the Ciénaga Grande Stream. From an architectural perspective, it can be defined as a semi-conglomerate. This domestic arrangement is highly disturbed, with few pre-Hispanic structures visible on the surface nowadays. Modern houses and pens cover part of the old site.

The only excavation available was performed by Casanova in the 1930s and supplemented by our surface collection in 2013. The pottery recovered by Casanova (1933) was "tough", with irregular walls being badly fired, "technically poorer" than the bird-like vessels found at HUM.06. It was recovered from two structures, with their own funerary contexts. Three pottery vessels came from the first context. The first one is a pitcher with a flat base and two horizontal handles placed at different heights in the central area of the piece. The walls are blackish (Hue 10 YR 3/1) and despite its serious weathering it does not present evidence of

Fig. 14 "Ornitomorfo" vessel (HUM.07b). Object No. 31–281, Museo Etnográfico "Juan B. Ambrosetti", Universidad de Buenos Aires. Photograph by the author

any kind of decoration. The second piece is a pot with a broken rim and soot remains (see Fig. 36 in Casanova 1933: 289). It presents a flat base and two horizontal handles on the maximum diameter of the vessel. Poor conservation or original use has obliterated the decoration, which seems to have been an irregular crosshatch in N/R. The third piece corresponds to a short-necked bottle with an everted rim, flat base, and smoothed painted walls without any further decoration.

He also recovered an incomplete vessel from the second enclosure (Fig. 14) with plastic decoration, a flat base, everted rim, and walls painted in red (Hue 5 R 5/4). It has an asymmetrical form and may be considered a bird-like vessel sensu Casanova (1933). Furthermore, he found some isolated large pots which were not collected and resembled the ones at HUM.08. The brief description he provided does not allow any consideration on the distribution of pottery and their styles at the intra-site level, as he did not specify the origin of the objects. Even though the study of the site, its pottery, styles, and chronology is still pending, we can propose as a preliminary hypothesis about style that, due to the similarity with the large pots and the possible bird-like vessel (related to the "Isla" style or "ornitomorfo" sensu Bennett et al. 1948), this site could be connected to HUM.08 and the earliest chronology in Quebrada de La Cueva. It should be noted that in the surface collections we carried out in 2013 and 2014, pottery painted in dark red ("Morado La Cueva") and the suggested "Brochadas Moradas La Cueva", were found, identical to the ones at HUM.06 with a chronology of the RDPII.

4.4 Pottery from Antiguito—ANT

The site ANT is located on the eastern side of Quebrada de La Cueva, where it intercepts Quebrada de Antiguito, excavated by the author and Basílico in 2006. It rests on a high terrace, some 3 m from the main basin. The Antiguito Stream divides the site into two sectors: one to the north and another one to the south. No archaeological structures were found on the surface except in some disturbed areas (due to the looting of more than 63 graves), which yielded constructions with *pirca* walls in a corbel dome. The pottery was recovered in funerary contexts, which were completely looted, and thus highly fragmented, both in the case of decorated and non-decorated sherds. There is a dominance of flat bases, riveted ribbon handles, and everted rims with flat lips (Ramundo and Sanz 2012). It should be remembered that the dark red brushstrokes (Hue 10 R 4/2) on the red slip (Hue 10R 6/8 light red) is considered here as decoration, present in large numbers (97%)[17] on the internal surface of the sherds (Fig. 15). A lower percentage (<3%) are sherds with geometric decoration consisting of an open and fine crosshatch design in N/R (Hue 7.5R 4/6 and Hue 7.5 R 2.5/1) inscribed inside isosceles triangles on the internal surface of

[17]Total: 1857 body fragments (from which only 265 are decorated), 27 handles, 29 bases, and 97 rims.

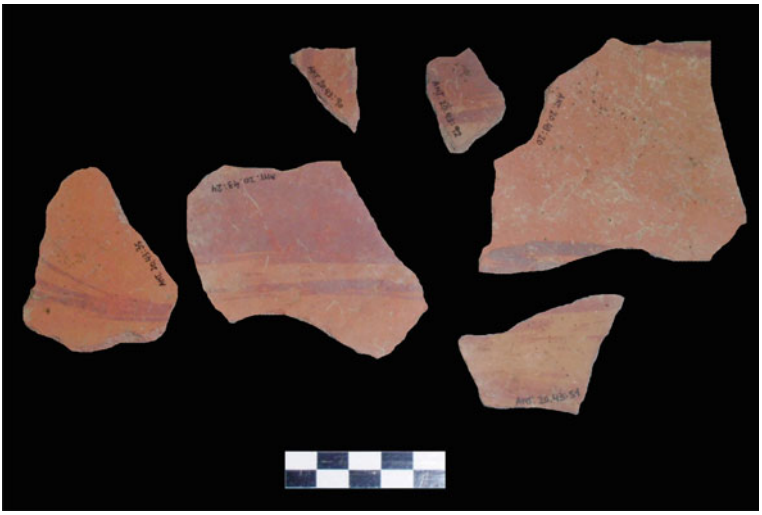


Fig. 15 Pottery with *dark red* brushstrokes (ANT). Photograph by the author

Fig. 16 Pottery decorated in "Negro sobre Rojo" crosshatch (ANT). Photograph by the author

everted rims, as well as in body sherds. As they have the same thickness, fabric type, and colour, they could be considered part of the same vessel (Fig. 16). This kind of triangular crosshatch design inside the rim area was described by Bregante (1926: 166) for the La Isla site. Similarly, Nielsen (1997: 130) considered it the "Back on Red fine open-net crosshatch in triangular sectors style" (own translation), a direct reference to the materials found by Debenedetti in La Isla, in Tilcara. Hence, we believe that due to the short distance between ANT and HUM.08—where the "Isla" style is present—it would not be strange to find this same style at ANT.

Furthermore, some sherds have inclusions of yellow mica visible on the surface, a common element to Jujuy Puna (e.g., at Agua Caliente de Rachaite, a variety with

mica sensu Zaburlin [pers. comm. 2011]; or in what Albeck and Ruiz (2003) called "Casabindo" style for the Miraflores-Guayatayoc basin).

The chronology for ANT is relative. In this sense, due to the similarity with the styles present at HUM.08—specifically the "Isla" style, attributed to the Late Formative or Middle Period [500–900 AD] (see discussion of the distribution of "Isla" style in Nielsen 2007a)—ANT may have been a coetaneous site. Nevertheless, having in mind the limited excavated area, the possibility of previous or later occupations cannot be completely ruled out. Furthermore, it is necessary to enlarge on the comparison of the fabrics in our area with the ones in Jujuy Puna and their chronological implications to offer more precise information.

Finally, we have to mention the large representation of pottery with dark red painting ("Morado La Cueva") and dark red brushstrokes of the type we named "Brochadas Moradas La Cueva" at ANT. Due to their high frequency in most of the sites studied in Quebrada de La Cueva, it may correspond to some kind of idiosyncratic feature of the manufacturing pattern. In this sense, it should be remembered that style is considered here as a representational model socially constructed and involved in social strategies. Thus, we propose that, as such, it must have been shared by all or almost all the members of the society. Thus, the dark red brushstroke style may represent a local manufacturing pattern and thus a code shared by most of the inhabitants at Quebrada de La Cueva. Consequently, some relationships may be postulated between this pottery with dark red brushstrokes and the possibility of ANT being a cemetery (see Ramundo and Sanz 2012). Since it is a kind of ritual space, the demonstration of idiosyncratic aspects could have been important for the desire of transcending by leaving some evidence of the people who inhabited the place in the past and now rest there.

5 Discussion and Reflections

This chapter aims to analyze the spatial distribution of pottery in terms of consumption, particularly regarding style, both at the intra-site (in the case of HUM.06) and inter-site levels (amongst HUM.06, HUM.07b, HUM.08, and ANT) in Quebrada de La Cueva.

With this objective we analyze the complete vessels and sherds recovered at the sites both in historical and modern fieldwork, and define a frame for the classification of the styles in time and space.

Thus, when information at the intra-site level is available we identify that in HUM.06 there is certain homogeneity in style terms that coincides with the chronology postulated. First, we define that in both the primary and secondary funerary areas, as well as in the domestic contexts recovered at the site, there is a dominance of pottery of the "Humahuaca N/R" style and a lower representation of the "Humahuaca-Inca" style, both corresponding to the end of the RDPII and the beginning of the Inca Period. Second, we also observe that at HUM.06 the assemblage is homogeneous regarding what is called the "Brochadas Moradas La

Cueva" and "Morado La Cueva" pottery type when the different contexts (i.e., funerary and domestic) are considered.

Having in mind the definition of some of the ways pottery was consumed—as well as its variability—in terms of style in Quebrada de La Cueva, we identify differences between HUM.06 and HUM.08 as well. In the latter, for instance, there is a high presence of vessels of the "Isla/Alfarcito" style, absent in HUM.06. They are associated to the absolute date for HUM.08 of Late Formative. Furthermore, in this site Basílico's research identified the presence of vessels of a possible "Yavi" style (from Jujuy Puna) which were not consumed in HUM.06 either, as far as we can see. It may be related to the fact that HUM.08 is connected by communication paths with the Puna and they are nearer and more accessible than in the case of HUM.06 (Ramundo 2013). On the other hand, no vessels of the "Humahuaca N/R" or "Humahuaca-Inca" styles were located at HUM.08, but they were present in HUM.06, probably indicating an earlier occupation for the former.

Considering work in this sector is quite recent, it can be said that so far HUM.06 and HUM.07b have presented few similarities regarding consumption of pottery. Due to the presence of large pots and the "ornitomorfa" vessel of possible "Isla" style, HUM.07b would better resemble HUM.08 regarding pottery styles and the earlier chronology in Quebrada de La Cueva. Nevertheless, the occurrence of "Morado La Cueva" and "Brochadas Moradas La Cueva" types in both sites suggest both surface treatments could be of local manufacture and indicative that part of the occupation at HUM.07b may be extended to the RDPII.

The presence in both HUM.07b and ANT of pottery which could be considered "Isla" style suggests a significant relationship between both sites. When considering HUM.06 and ANT, it should be noted that only the latter presents "Isla" style pottery. Furthermore, ANT did not yield "Humahuaca N/R" and "Humahuaca-Inca" styles but they are evidenced in HUM.06. An additional similarity may be considered in both sites due to the presence of pottery of the type we have considered "Morado La Cueva" and "Brochadas Moradas La Cueva". As aforementioned, their representation would indicate that both decorations may be of local manufacture.

Finally, there is a clearer relationship between HUM.08 and ANT afforded by the presence in both sites of "Isla" style vessels.

The present research provides thus an analysis of the pottery styles for the sites in Quebrada de La Cueva between the Late Formative and the Inca Period from the concept of goods consumption. We understand this concept as a kind of symbolic action, with a strong emphasis on the active role of material culture in social relations, considering it a process by which the social agents make visible the categories of a culture, establishing with such agency spaces of social differentiation and symbolic distinction (Bugliani 2008). We believe that by their consumption of pottery, the pre-Hispanic agents or inhabitants of Quebrada de La Cueva have "spoken" about themselves, their territory, and probably their membership to certain groups because consumption also involves signs, values, and ideas (Baudrillard 1988). For instance: (a) the presence of frequent style attributes in the area, such as the dark red paint ("Morado La Cueva") and the dark red brushstrokes ("Brochadas

Moradas La Cueva"), may respond to certain local idiosyncratic manufacture which could have differentiated groups; (b) the decorative details, such as the white framing which borders the traditional kidney shaped N/R crosshatch of the "Humahuaca N/R" style which appears in grave No. 2 at HUM.06, can also be a symbol of differentiation or membership; and (c) the different thickness and amount of paint in the white lines bordering the banners on the pottery at HUM.06, which varies from the ones in the parallel valleys (e.g., Pintoscayoc), may also stand for membership to a certain group. So, we consider that the way pottery goods were consumed in Quebrada de La Cueva provides information about the agents/actors involved in these social processes and, particularly, their willingness. The idea that agents show certain willingness to inscribe differential experiences on the goods leads us to verify the existence of variability in the consumption of materials between the Late Formative and the Inca Period at the inter-site level (e.g., HUM.06, with presence of the "Humahuaca N/R" and "Humahuaca-Inca" styles *versus* HUM.08, ANT, and HUM.07b, representing "Isla" style). The study is also extended to the intra-site level in the case of HUM.06. As we have already mentioned, there is certain homogeneity in the "Humahuaca N/R" style and the presence of possible vessels related to the late styles in the Jujuy Puna. It could be read as further evidence of the agents' willingness at HUM.06 to establish links at the style level with the two most important geographical areas it communicated with: the central and southern sectors of Quebrada de Humahuaca and the Puna (Ramundo 2013).

So we considered that the goods consumed and the decorative elements present in the pottery were used by some social groups to demonstrate their lifestyle and differentiate themselves from other groups. A good example may be the repeated and frequent use of the "Morado La Cueva" and "Brochadas Moradas La Cueva" pottery types in the sites of the areas we have studied so far (HUM.06, HUM.07b, and ANT).

The process of consuming a specific object may be related to the need to create and maintain a sense of identity by displaying the goods consumed, as well as creating, maintaining, or reinforcing other kinds of relationships. Thus, we think that the coexistence of "Humahuaca N/R" style vessels typical of the RDPII at HUM.06, together with the bird-like vessels (probably related to earlier moments) would be indicative of the re-use or reclamation and/or eventual signification of some of the materials consumed in punctuated funerary contexts. We consider that something that is valuable tends to be preserved, stored, and possibly devoted to a ritual function such as a grave, as another way to indicate a lifestyle or distinguish somebody from another or one's own group (i.e., at the intra-site level). Alternatively, it could be said that such vessels—when recovered and studied—should be assigned to later times' styles in the Jujuy Puna (Albeck, pers. comm. 2013). In this case, they may reflect an election or way to demonstrate aspects of the lifestyle of the social actors who lived in HUM.06 when they selected for the burial materials from a region they had a close relationship with, through paths or communication routes available in the past and still present today (Ramundo 2013).

As aforementioned, we identify a differential distribution for these pottery assemblages in the area at the chronological, intra-site (at HUM.06), and inter-site levels.

We consider that our main hypothesis about the consumption of pottery at the style level is thus tested, and that this consumption varied through time in the area, and that such consumption was differential. Following this line of thought and considering our derived hypothesis we understand that the consumption of pottery regarding style was basically locally based during the Late Formative in the area. That is, there was a more intimate interaction with pottery, specifically in the case of HUM.08, where the presence of foreign styles is detected, including "Isla", "Alfarcito", and "Yavi", as well as the possible "Isla" style at ANT. Due to the similarity between their large pots, inasmuch as the possible "ornitomorfa" vessel related to the "Isla" style, HUM.07b may be connected with HUM.08 and its earlier chronology. Nevertheless, this hypothesis cannot be tested yet for the rest of the sites, as no earlier occupation has been detected so far.

Regarding the second minor hypothesis, it could be said that the consumption of pottery in style terms in the area was more locally oriented during the transition from the RDPII to the Inca Period than in previous moments. Unfortunately it can be verified only at HUM.06, as no later occupations have been found at the other sites. At the style level, this is visible in the presence of designs typical of later moments (N/R), showing a more local decorative mark, such as the high presence of dark red rather than ordinary red painting, as well as an abundance of "Morado La Cueva" and "Brochadas Moradas La Cueva" pottery types at HUM.06 and ANT, at the end of Quebrada de La Cueva. Furthermore, it is reinforced by petrographic studies that indicate a dominance of locally produced pottery at HUM.06 for the RDPII (Cremonte and Ramundo 2011).

In this sense, and in order to provide new elements to test the hypothesis, we must consider that, according to Nielsen (2007a), around 1200 AD there was a regionalization process in the circum-Puna sector evidenced in everyday materials—pottery, for instance—which defined the practical resources available. They were selected by the different groups in order to resemble or distinguish from others by building some kind of regional border. Furthermore, inside regional communities there seems to have been smaller local units than the ones identified in Quebrada de Humahuaca. They would be manifested in subtle differences—like pottery—in the regional style pattern. It could possibly be describing the situation in Quebrada de La Cueva, the northern end of Quebrada de Humahuaca, since pottery, while stylistically adopting some features of this regional pattern, would be mainly locally made.

Summing up, we could say that there was: (a) a slightly different consumption regarding pottery styles at the intra-site level at HUM.06, as a consequence of the possible re-use/reclamation processes identified in one of the funerary contexts; (b) a dominance of vessels which may be related to the "Humahuaca N/R" and "Humahuaca-Inca" styles of the end of the RDPII at HUM.06; (c) some variability in the known designs for the "Humahuaca N/R" style of the RDPII, particularly in the modern excavations at HUM.06 (e.g., polychromous N/B/R, hand-shaped, N/R crosshatch, amongst others); (d) presence of pieces painted in dark red from the

RDPII, which is defined as local manufacture in the petrographic analysis; (e) presence of vessels with "Interior Negro Pulido", also typical of the RDPII—although it is not a clear indicator due to its presence in the different chronological moments of Quebrada de Humahuaca; (f) vessels with dark red brushstrokes for the RDPII probably represent a manufacture which indicates an idiosyncratic willingness of the agents involved; (g) evidence of chronologically ambiguous calceiform pieces at HUM.08; and (h) presence of miniatures in HUM.06, typical of Inca moments, and dated to such a period.

We understand the relevance of this research is reflected in a thorough contextual analysis of the pottery from an integrated perspective for the sites in Quebrada de La Cueva. It explains some aspects of social processes such as consumption and exchange. We present a preliminary analysis of the consumption of pottery regarding style at Quebrada de La Cueva that should be enlarged with further studies and hope the evaluation of such consumption would have provided this book a deeper insight to the social practices in the past.

Acknowledgements My acknowledgement to Dr. Aixa Vidal and the reviewers of the chapter for their comments and suggestions. The ideas expressed are my sole responsibility. Many thanks to my research team as well, and to my family for understanding my feelings towards my work and the time stolen from them.

References

Albeck ME, Ruiz M (2003) El tardío en la Puna de Jujuy: poblados, etnias y territorios. Cuadernos 20:199–219

Aranda C, Luna L, Ramundo P (2012) Primeros análisis y conservación preventiva del registro bioarqueológico del Pukara de La Cueva (Humahuaca, Jujuy). Revista Argentina de Antropología Biológica 14 (Número Especial):9–21

Balfet H, Bauvet-Berthelot M, Monzón S (1983) Pour la normalisation de la description des poteries. Editions du CNRS, Paris

Basílico S (1992) Pueblo Viejo de La Cueva (Dpto. de Humahuaca, Jujuy). Resultado de las excavaciones en un sector del asentamiento. Cuadernos 3:108–127

Basílico S (1994) Análisis de las pastas de fragmentos de Pueblo Viejo de La Cueva y su correlación con la morfología y diseño pintado. In: Albeck ME (ed) Taller De Costa a Selva. Producción e Intercambio entre los Pueblos Agroalfareros de los Andes Centro Sur. Instituto Interdisciplinario de Tilcara-Universidad de Buenos Aires, Tilcara, pp 153–176

Basílico S (2008) Las sociedades prehispánicas en la Quebrada de La Cueva (Humahuaca, Jujuy). Resultados preliminares sobre la ocupación del espacio. In: VIº Congreso Argentino de Americanistas Vol 2. Dunken, Buenos Aires, pp 3–18

Baudrillard J (1988) Selected writings. Polity Press, Cambridge

Bennett W, Bleiler E, Sommer F (1948) Northwest Argentine archaeology. Yale University Publications in Anthropology No. 38, Londres

Bourdieu P (1998) La distinción. Criterio y bases sociales del gusto, Taurus, Madrid

Bregante O (1926) Ensayo de clasificación de la cerámica del Noroeste Argentino. Estrada, Buenos Aires

Bugliani MF (2008) Consumo y representación en el sur de valles Calchaquíes (Noroeste argentino). Los Conjuntos cerámicos de las aldeas del primer milenio A.D. Archaeopress, Oxford

Casanova E (1933) Tres ruinas indígenas en la Quebrada de La Cueva. Anales del Museo Nacional de Historia Natural Bernardino Rivadavia 37:255–319

Cremonte MB, Ramundo P (2011) Producción local de alfarería en la quebrada de La Cueva (extremo norte de la Quebrada de Humahuaca, Jujuy). Petrografía de las pastas cerámicas del sitio Pukara de La Cueva (HUM. 06). In: Actas de Resúmenes del III° Congreso Latinoamericano de Arqueometría. Sociedad Chilena de Arqueología, Arica

Debenedetti S (1910) Exploración arqueológica en los cementerios prehistóricos de la Isla de Tilcara (Quebrada de Humahuaca. Provincia de Jujuy) Publicaciones de la Sección Antropológica de la Facultad de Filosofía y Letras 6:1–263

Fernández Distel A (1978) Un nuevo exponente del arte pictórico de la región Humahuaca: las pictografías del Angosto de La Cueva, provincia de Jujuy, Argentina. Cuadernos Prehispánicos:41–53

Fernández Distel A (1983a) Continuación de las investigaciones en la Quebrada de La Cueva: Chayamayoc (Pcia. de Jujuy) República Argentina. Scripta Ethnologica Suplementa 2:43–52

Fernández Distel A (1983b) Mapa arqueológico de Humahuaca. Scripta Ethnologica Suplementa 4:1–70

García Canclini N (1997) Ideología, cultura y poder. Editorial de FFyL-UBA, Buenos Aires

Greco C (2010) Propuesta de una secuencia cronológica para la localidad arqueológica de Rincón Chico de Yocavil. Estudios Sociales del NOA 10:81–105

Instituto Geográfico Militar. Hoja La Quiaca 2366–2166

López M, Acevedo V, Mancini C (2010) Miniaturas en la Fiesta/Feria de Santa Ana (Quebrada de Humahuaca, Jujuy, Argentina). Carnavales. Fiestas y Ferias en el mundo andino de la Argentina. Purmamarka, Salta, pp 219–242

Marengo C (1954) El Antigal de los Amarillos (Quebrada de Yacoraite, Provincia de Jujuy). Publicaciones del Instituto de Arqueología 2:1–42

Nielsen A (1997) Tiempo y cultura material en la Quebrada de Humahuaca 700–1650 d.C. Instituto Interdisciplinario de Tilcara-Universidad de Buenos Aires, Tilcara

Nielsen A (1999) Demografía y cambio social en Quebrada de Humahuaca (Jujuy, Argentina) 700-1535 d.C. Relaciones de la Sociedad Argentina de Antropología 21:336–339

Nielsen A (2001) Evolución Social en la Quebrada de Humahuaca (AD 700–1536). In: Berberián E, Nielsen A (eds) Historia Argentina Prehispánica. Brujas, Córdoba, pp 190–197

Nielsen A (2007a) Celebrando con los antepasados. Arqueología del espacio público en Los Amarillos, Quebrada de Humahuaca, Jujuy, Argentina. Mallku, Buenos Aires

Nielsen A (2007b) El Período de los Desarrollos Regionales en la Quebrada de Humahuaca: aspectos cronológicos. In: Williams V, Ventura B, Callegari A, Yacobaccio H (eds) Sociedades Precolombinas Surandinas. Buschi, Buenos Aires, pp 235–250

Ramundo P (2013) «Huellas en el camino». Estudio de la movilidad en la quebrada de La Cueva, Humahuaca, Jujuy. Temas 21:127–147

Ramundo P (2015–2016) Perspectivas arqueológicas en la Quebrada de la Cueva (Depto. de Humahuaca, Jujuy). Anales de Arqueología y Etnología 70-71:13–39

Ramundo P, Sanz D (2012) Análisis de la cerámica del sitio Antiguito y su aporte al estudio de la manufactura e interacción en la quebrada de La Cueva, Humahuaca, Jujuy. Comechingonia Virtual 6(1):59–85

Runcio A (2010) Estilos e identidades: los pucos subhemiesféricos negro/rojo de la Quebrada de Humahuaca durante el Período Tardío (900–1430 D.C.). Comechingonia Virtual 6(2):163–210

Scaro A, Cremonte MB (2012) La vajilla de servicio de Esquina de Huajra (Dpto. Tumbaya, Jujuy, Argentina). Alternativas teóricas para interpretar su significado. Revista del Museo de Antropología 5:31–44

Serrano A (1966) Manual de la cerámica indígena. Assandri, Córdoba

Tarragó M (2011) Poblados tipo pukara en Yocavil. El plano de Rincón Chico 1 (Catamarca, Argentina). Estudios Sociales del NOA 11:33–61

Yacobaccio H, Madero C (1997–1998) Caza, pastoreo y domesticación de camélidos en la Puna Argentina. Relaciones de la Sociedad Argentina de Antropología 32–33:389–418

Contextual Pottery and Faunal Analysis in the Pre-Inca Site of El Pobladito

Agustina Scaro and Lautaro López Geronazzo

Abstract In order to contribute to the knowledge of the Regional Developments Period (RDP) of Quebrada de Humahuaca, we address the study of El Pobladito's Enclosure 2 through pottery and zooarchaeological analyses. El Pobladito is one of the few examples of a pre-Inca settlement at Quebrada de Humahuaca and the only one found to this point in its central south sector. Thus, studying El Pobladito provides the opportunity to comprehend the social dynamics of the population of Quebrada de Humahuaca prior to Inca domination. The contextual analysis of Enclosure 2 allows the recognition of diverse everyday activities as well as an understanding of its role within the functionality of the settlement. Based on these analyses, we consider that different activities were carried out at Enclosure 2, such as the preparation of food, the storage of food and other goods, and resting. The presence of a high concentration of zooarchaeological remains and pottery vessels in such a small enclosure (22 m^2), as well as "special" elements, rarely recovered in other contexts from Quebrada de Humahuaca, such as a bird skull, a bone trumpet, a group of phalanges, and a probable mollusc ornament, points to it being a non-domestic space. We consider Enclosure 2 as being linked to communal activities developed within the community participation space where it is located.

Keywords El Pobladito · Contextual analyses · Pottery · Zooarchaeology · Pre-Inca

Recent research at the central south section of Quebrada de Humahuaca shows that El Pobladito is the sole settlement in the sector to be occupied only during the

A. Scaro (✉)
Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy (4600), San Salvador de Jujuy, Jujuy, Argentina
e-mail: eowyn939@gmail.com

L.L. Geronazzo
INECOA, Universidad Nacional de Jujuy, CONICET (4600), San Salvador de Jujuy, Jujuy, Argentina
e-mail: lautarolopezg@yahoo.com.ar

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_4

Regional Developments Period (RDP) (AD 1000–1430/80 sensu González and Pérez 1972). Thus, its study is favorable for the analysis of social practices in pre-Inca times. Contextual analysis of Enclosure 2 at El Pobladito allows approaching the activities carried out in it. Pottery and zooarchaeological analysis are complementary to comprehend different everyday behaviors, as well as social interaction processes in which El Pobladito inhabitants participated.

Pottery was studied from a stylistic approach with emphasis placed on morphological and decorative aspects. We consider that these aspects would have played an important role in building identity, social difference, and processes of interaction between different societies (Bugliani 2008). On the other hand, zooarchaeological analysis was carried out in three stages. At first, anatomic and taxonomic aspects were observed; afterwards we registered the sample conservation conditions and every natural and anthropic mark, considering its topographic location. Later we proceeded with analysis and interpretation from interpretative units (Mengoni Goñalons 1988; Reitz and Wing 1999). Finally, an osteometric study of phalanges was carried out (Kent 1982; Menegaz et al. 1988; Izeta 2007; Yacobaccio 2010).

Quebrada de Humahuaca is a deep, narrow valley extending over 130 km at Jujuy Province center. Quebrada's central south section (Fig. 1) is delimited to the north by Quebrada de Purmamarca and to the south by Arroyo del Medio. This area is characterized by the proximity of the environmental and geomorphological units of *Puna*, *Quebrada*, and *Yunga,*[1] allowing access to a great variety of resources at short distance. Quebrada de Tumbaya Grande to the west and that of Huajra to the east are direct paths connecting the sector with *Puna* and *Yungas,* respectively. Archaeological research in the area revealed an important pre-Hispanic occupation.

1 Regional Developments Period in Quebrada de Humahuaca

Several authors (González and Pérez 1966; Núñez Regueiro 1974; Ottonello and Lorandi 1987; Palma 1998; Tarragó 2000; among others) point out that changes were observed in the pre-Hispanic societies of the south central Andes by the 10th century. They would have been linked to new demographic, political, and economic processes associated with the use of more advanced technologies and an intensified management of natural resources through irrigation, intensive livestock farming, and the control of various ecological zones; within a frame of a growing conflict between populations.

[1] *Puna* is a large plain located above 3000 masl, with cold and dry weather. *Quebrada* correspond to a narrow valley of sub-tropical location with great natural heterogeneity. *Yunga* corresponds to the rainforest that covers the eastern slopes of the sub-Andean mountains.

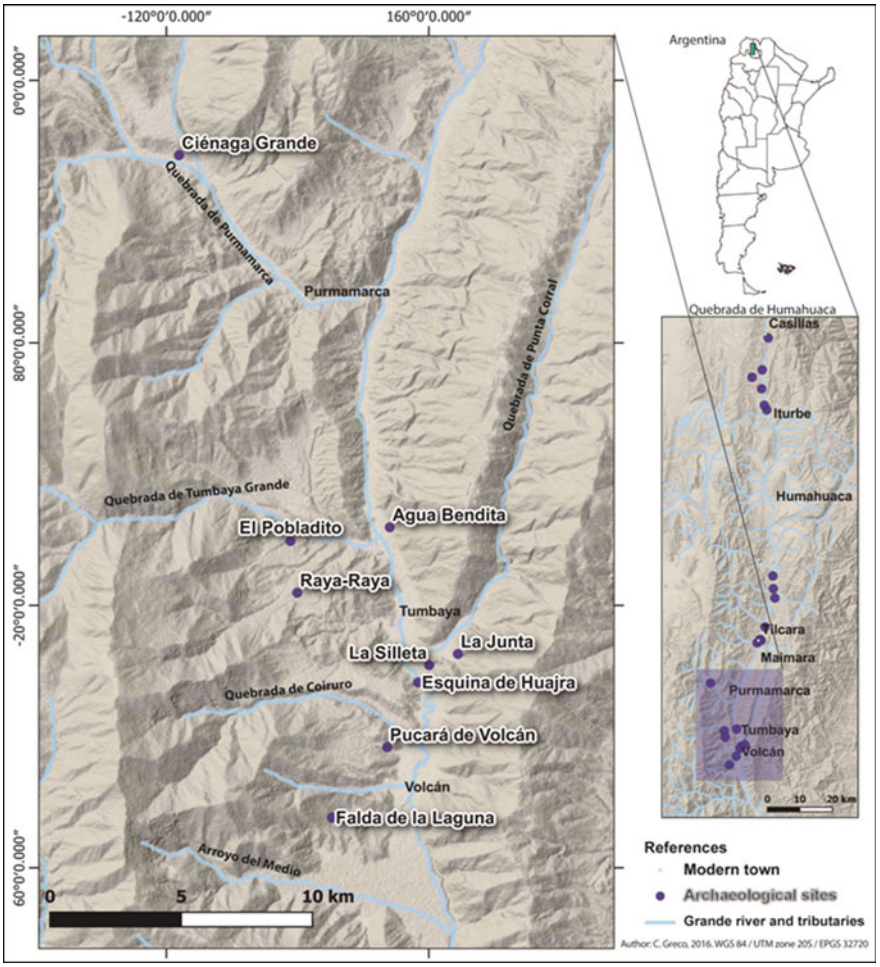


Fig. 1 Map of Quebrada de Humahuaca central south section with the location of the sites mentioned in the text

Researchers explained the above-mentioned transformations and in particular the conflict in the south central Andes in various ways; for example, the population growth and the resulting competition for subsistence resources was considered as an explanation for the existence of endemic conflict (Madrazo and Ottonello 1966). Another explanation for these changes emphasized the collapse of societies concentrating economic and political power in Tiwanaku in the great southern Andean area (Ruiz and Albeck 1997; Tarragó 2000), since the disarticulation of this entity would have generated a competition for controlling exchange networks. Also, it was considered that the growing aridity in the region by the 10th century would have generated pressures on groups that in searching for more favorable conditions would come into conflict with groups already occupying those areas (Nielsen

2001). One of the most complex social and political developments of the south central Andes developed in Quebrada de Humahuaca; based on an agricultural–stockbreeding system well implemented by technologies that enabled expanding and improving crop fields and pasture rotation (Tarragó, op cit.).

The demographic increase of the time, evidenced by the growing size of the sites and by the concentration of the population, led to the rise of large conglomerate settlements located mainly in high and inaccessible places (Palma 1998; Tarragó, op cit.; Nielsen, op cit.). The typical settlement for the RDP in Quebrada de Humahuaca corresponded to a conglomerate or semi-conglomerate facility located on hills that could have defensive walls.

The question of contemporaneousness of these settlements with others situated in lower locations has not yet been defined, although Tarragó (2000) noted that the conglomerates sites located at high elevation were articulated with others without defenses and located in lower areas, and also with housing units distributed in agricultural and pastoral areas. The definitive separation between residential areas and agricultural and pastoral spaces led to an increase in the productivity of the latter, located in foothill areas, such as Coctaca, Rodero, Alfarcito and Estancia Grande, becoming specialized agricultural centers (Palma 1998).

2 Methodological Aspects

Pottery analysis was approached from stylistic studies, creating a morphological–decorative catalog that accounts for local social identities and allows characterizing pottery traits typical for the RDP. Style is not separated from social contexts that provide material culture its social value (Conkey and Hastorf 1990).

Style is considered from an active perspective, as a socially built representation that possesses a particular configuration whose contents can only be interpreted regarding the context where it was constructed and used (Bugliani 2008). From this perspective, we consider that iconographic, morphological, and technological aspects are interrelated, shaping a particular way of doing. In this sense, and as proposed by Knappett (2005), everyday objects have a meaning, this is not exclusive to objects that could be considered “special” or “esthetic”.

We carried out the morphological analysis considering the previous classifications for Quebrada de Humahuaca (Cremonte et al. 1997; Otero 2006) and taking as a starting point the proposal made by Balfet et al. (1983). We started by establishing General Morphological Groups from the relationship between the height of the pieces and their maximal, minimal, and opening diameters. Each group was then divided further according to contour points and rim and neck characteristics. This approach turned out to be handy for generating a morphological classification of a highly fragmented ceramic universe, as the one faced in this case.

The decorative analysis was carried out according to guidelines from Jernigan (1986) for a non-hierarchical approach to motifs, looking to identify units from their repetition in different recipients but without assuming the existence of levels

between them related to planning or execution stages. The analysis included the identification of decorative techniques and the creation of a protocol of decorative elements.

Regarding the zooarchaeological analysis, the guidelines of Mengoni Goñalons (1988) and Reitz and Wing (1999) were followed. Initially, we proceeded to anatomically and taxonomically identify zooarchaeological remains based on a morphological comparison, using reference collections and an anatomic atlas (e.g., Pacheco Torres et al. 1986). In the case of camelids, we used an osteometric analysis to achieve a more accurate taxonomic identification, to which we applied mixture analysis and kernel density estimation (Kent 1982; Menegaz et al. 1988; Izeta 2007; Yacobaccio 2010). We also registered age indicators such as the degree of epiphysis fusion (Kent 1982; Wheeler 1982).

Afterwards, we considered post-depositional alterations since they are extremely important in reconstructing the context for where the archaeological record was formed (Lyman 1994a; Izeta 2007). We seeked to determine weathering degrees (Behrensmeyer 1978) by naked eye and binocular loupe (20×) identifications, as well as detecting thermal alteration, considering color changes, and macroscopic alterations (cracks, fissures, etc.). Finally, we registered processing marks from their morphology, topographic location on the bone, and the presence of other associated traits (Binford 1981; Lyman 1994b).

We quantified and analyzed the data obtained in order to understand patterns and tendencies in the studied sample taking into consideration the Number of Identified Specimens (NISP) (Izeta 2007) and the Minimal Number of Individuals (MNI) (Casteel and Grayson 1977; Izeta 2007).

3 El Pobladito

El Pobladito is a settlement placed in an ancient alluvial terrace at 2400 masl, located at Quebrada de Tumbaya Grande. This valley presents a great variety of resources (Solís and Rivero 1994), such as diverse raw materials, pastures, and agricultural apt soils. The latter are founded at the valley bottom and mainly at Raya-Raya, an 80-ha area of agricultural structures built at different moments in the occupational history of the sector. Additionally, lake resources would have been available, since the valley bottom of the Grande River was covered by a paleo-lake that extended from Arroyo del Medio to Tumbaya Grande. The settlement covers almost 2 ha (Fig. 2), and is 432 m long and 25–86 m wide. It is composed of rectangular enclosures with rounded angles.

Three enclosures have been excavated so far, located at different sectors in the settlement. Enclosure 1 presents good architectonical conservation; its digging revealed the presence of a filling stratum with scarce cultural material overlapped on a sterile stratum that coincides with the building foundations. Enclosure 3 possess a 98 m^2 surface and a wall dividing it into a smaller and a larger space;

Fig. 2 Plan of the structures registered in the El Pobladito settlement.

digging revealed stratigraphy similar to Enclosure 2, finding a unique occupation floor with two cooking fires, camelid bones, lithic instruments, and local pottery. Enclosure 2 provided the larger amount of cultural material.

4 Enclosure 2

This enclosure is a 21 m^2 structure whose conservation is very poor, registering only part of the west and east walls with a height of 50 cm on the current surface, as well as the blocks that mark access to the enclosure. Its total excavation revealed the presence of three filling natural strata, the upper two had little cultural material, while the third, corresponding to the filling of the occupation floor, had a higher number of findings. Underneath the third layer, at 45 cm deep, an occupation floor of varying thickness was found; it had greater thickness to the north of the enclosure. Dating of charcoal and bone allowed locating this occupation to the second half of the RDP (Table 1).

Digging revealed the presence of a number of features along the enclosure. A large cooking fire linked to some blocks that would have worked as bearing surfaces was registered at the northwest corner. In the center of the enclosure a small underground storage feature demarcated by clasts was found, containing the distal portion of a camelid bone trumpet and a small grinding stone; nearby there was a storage vessel's base supported by clasts to provide stability. In the southern sector another negative trait was found, corresponding to a post mold, limited with clasts, that would have served to support the roof, which would have covered the

Table 1 Radiocarbon dating obtained for Enclosure 2

Provenance and lab code	^{14}C date BP	δ^{13}C	Dated material	Calibrated dates AD 68.2% probability	Calibrated dates AD 95.4% probability
R2 (C3/1) **LP 2742**	470 ± 40	−24 ± 2 estimated	Charcoal	1430–1486 (68.2%)	1410–1508 (84.9%) 1582 – 1620 (10.5%)
R2 (C2/1) **UGAMS 8558**	650 ± 25	−25.7	Charcoal	1318–1352 (53.2%) 1384–1394 (15.0%)	1301–1365 (69.6%) 1375 – 1402 (25.8%)
R2 **LP 2883**	690 ± 50	−24 ± 2 estimated	Camelid bone	1293–1324 (27.9%) 1344–1389 (40.3%)	1279–1400 (95.4%)
R2 **LP 2877**	1070 ± 60	−24 ± 2 estimated	Camelid bone	909–912 (1.0%) 970–1048 (46.4%) 1084–1139 (20.9%)	892–1153 (95.4%)

The dating was calibrated with the OXCAL V4.2 program (Ramsey 2013)

southern section of the enclosure, according to the presence of a single post mold and of eolian-origin sediment covering only the northern sector of the occupation floor.

4.1 The Pottery

The ceramic assemblage recovered in Enclosure 2 was composed of 1804 fragments corresponding mainly to types and styles from local manufacturing. In this enclosure, 21.9% of the material (n = 395) belongs to the regional style Humahuaca Black on Red (B/R), which emerged in the RDP and was recorded throughout Quebrada de Humahuaca. Additionally, 1.8% of the set corresponds to Polished Black Interior Bowls; these pieces presented continuity in Quebrada de Humahuaca from the Formative to the Inca Period (Nielsen 2001) with variations over time. The outer surfaces of these bowls were ordinary or had a red smoothed slip.

Incised Angosto Chico fragments were scarce (0.8%). This pottery is characterized by an incised decoration on the neck area of pots and bottles (Ottonello 1994); the fragments recovered at Enclosure 2 have shallow circular incisions, and dragged horizontal and vertical incisions. Regarding the Burnished Bowls, although they represent 0.2% of the finds, they deserve a special mention given that they do not correspond to local production (Cremonte and Botto 2009), that in the case of Enclosure 2 have red or black surfaces. Smoothed (n = 240, 13.3%) and polished (n = 153, 8.5%) fragments without painted decoration were found, including black, purple, and red fragmented vessels, encompassing various types not yet defined.

Most of the assemblage included ordinary fragments ($n = 966$, 53.5%) with smoothed surfaces and to a lesser extent revoked and worsted.

It was possible to identify a minimum number of 48 vessels belonging to the occupation floor. In this case 23 of these vessels belong to the Humahuaca B/R style, 3 to Incised Angosto Chico, 5 were service vessels with black polished interiors, 2 were smoothed red without painted decoration, and 13 were ordinary. Two Burnished Bowls were also found.

The morphological analysis of these vessels allowed the identification of six general groups and additional varieties: bowls, porringers, platters, low mugs, cooking pots, jars, and pitchers (Fig. 3). Service vessels present a greater variety of shape, predominating those with simple contours mainly with a direct rim. With the cooking and storage pieces everted rims and straight divergent necks were recurrent. Regarding bases and handles, although in most cases they cannot be assigned to a particular form due to material fragmentation, flat-concave bases and handles with rectangular or oval sections were registered.

Humahuaca B/R bowls have a smoothed or slightly polish inner surface, decorated with a band or a spiral, both with a reticulated design performed on a thick line and open mesh at an angle greater than 90°, referred to as "rhomboidal reticulated". Polished Black Interior Bowls have a lower morphological variability, identifying Varieties 6 and 13. The smoothed red bowl belongs to Variety 6, while two Burnished Bowls were registered; one red and the other black (Fig. 4).

Porringers and platters are in all cases Humahuaca B/R and have simple contours; they are decorated with a band or a spiral "rhomboidal reticulated". Low mugs of Variety 2 are ordinary, linked to spinning, given the presence of spindle marks

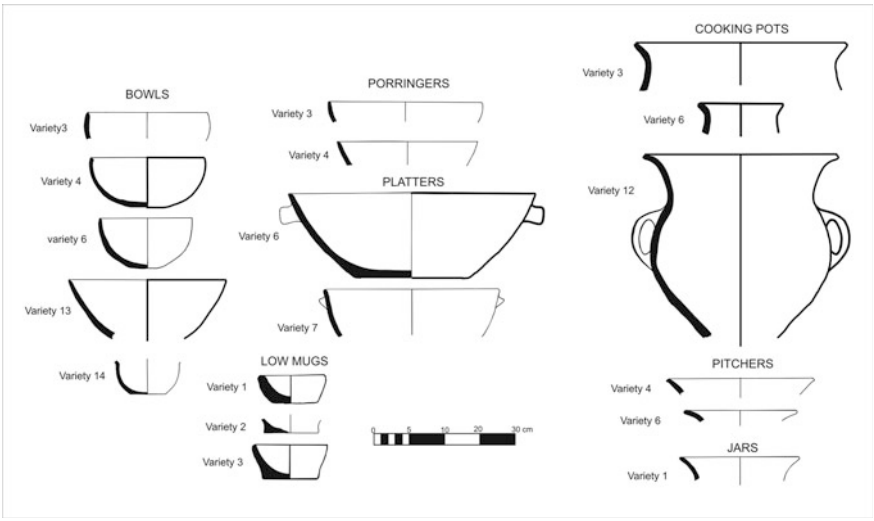


Fig. 3 Morphological repertory of vessels recovered at Enclosure 2

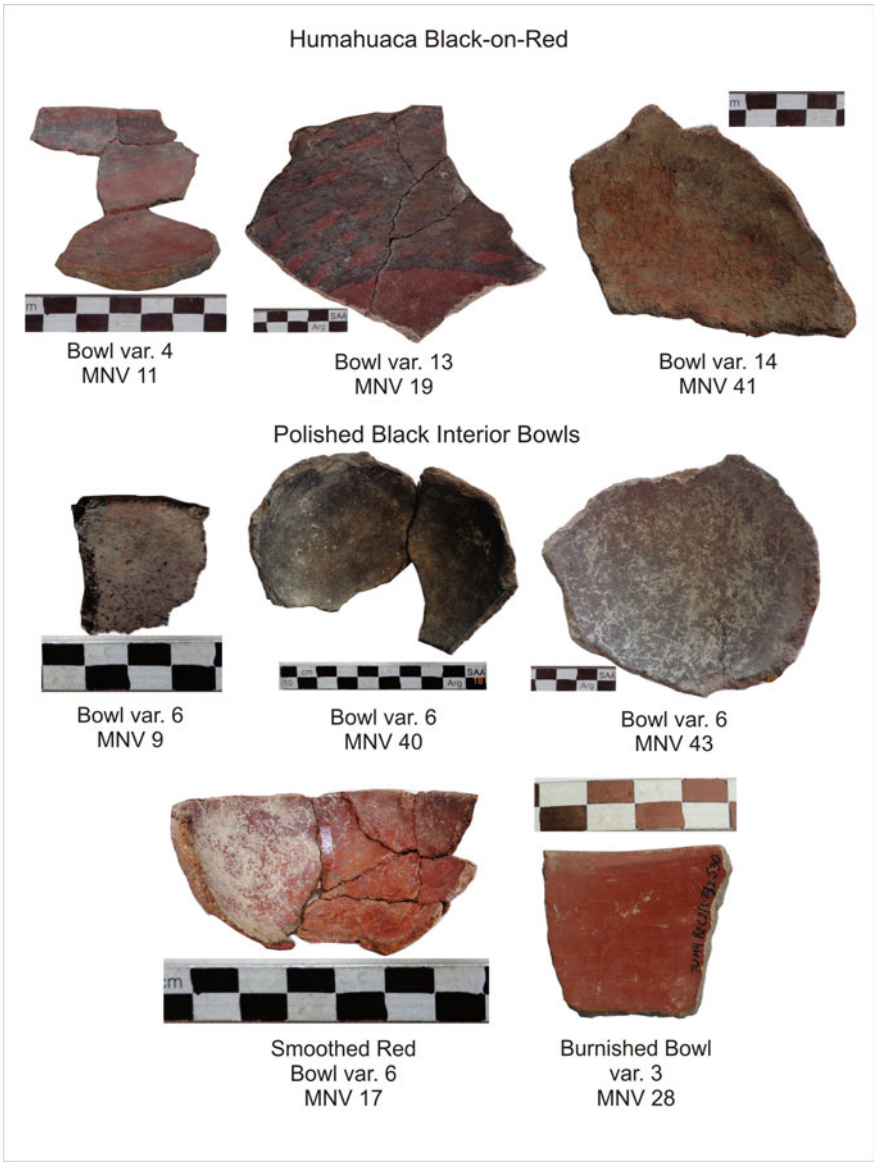


Fig. 4 Bowls identified on the occupation floor of Enclosure 2

inside. The low mug of Variety 1 has a slightly polished black interior, while the one of Variety 3 is decorated in black on red with reticulated bands inside (Fig. 5).

Cooking and storage vessels (Fig. 6) correspond mainly to ordinary cooking pots with inflected contours and necks with either diverging walls (Variety 12) or

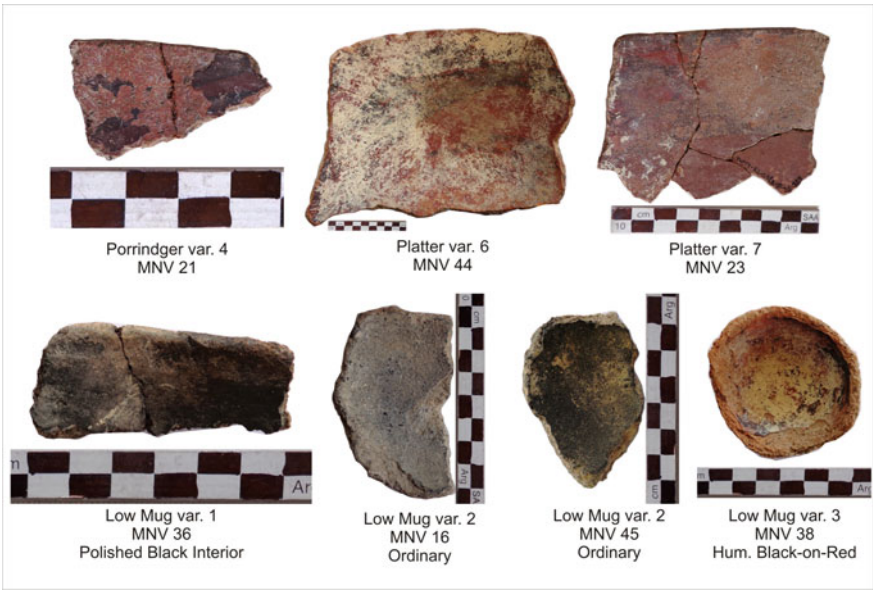


Fig. 5 Service vessels recovered on the occupation floor of Enclosure 2

hyperboloid walls (Variety 3); some of them have sooting on the external surface. Also, an Incised Angosto Chico cooking pot with a concave walled neck (Variety 6) was registered; it was decorated with shallow vertical incisions. The other cooking and serving vessels, ordinary, Incised Angosto Chico, and Humahuaca Black on Red, were highly fragmented and could not be assigned to any morphological category. The Incised Angosto Chico cooking pot, identified as MNV 12, had a fabric of non-local manufacture whose petrography referred to a volcanic environment, absent in Quebrada de Humahuaca.

Two elements that are not part of the defined morphological groups were found (Fig. 7): a ceramic whistle or *ocarina* and a piece of cylindrical shape. The *ocarina* was ordinary and measured 45 mm long by 30 mm high; at one end it had a borehole and on the other, an extension with a hole, perhaps from which is was hung. A similar *ocarina* was recovered in the archaeological rescue held at the "Hotel Intiwayna" in the urban area of Tilcara (Rivolta et al. 2010). It was identified as a first-millennium occupation where ceramic sherds were recovered decorated with zigzag lines painted in black on red, typical Formative pottery, associated with a fragmented *ocarina* decorated with incised geometric motifs.

The cylindrical piece was decorated with smoothed red slip on the outer surface and presents rounded edges at both ends. Probably it was used as support for some element of perishable material, since the top edge appears worn.

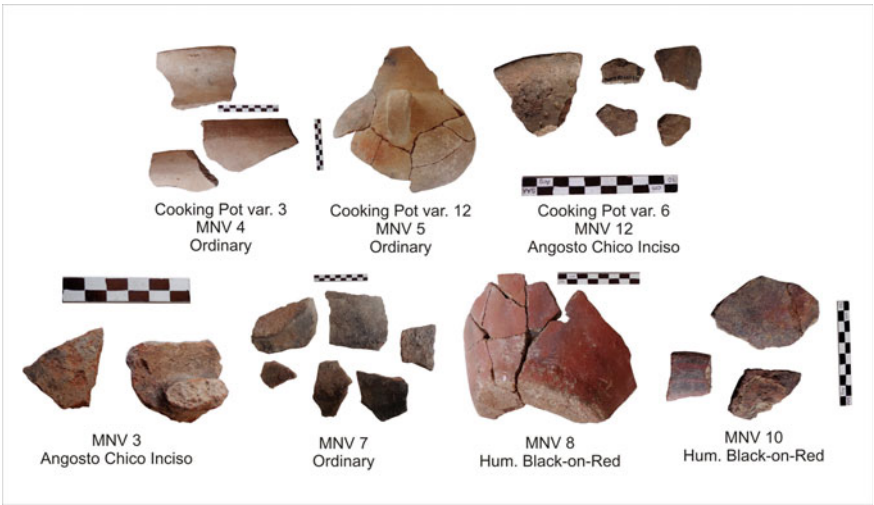


Fig. 6 Cooking and storage vessels of Enclosure 2

Fig. 7 *Left Ocarina* or pottery whistle found at Enclosure 2. *Right* Cylindrical piece with red slip on its outer surface

4.2 The Zooarchaeological Analysis

The sample analyzed for this chapter corresponds to 50% of the bone material of Enclosure 2, recovered from grids 3.1, 3.2, and 3.3. We decided to approach the analysis of the materials discovered during the 2011 digging season around the cooking fire and the area with the greater density of material. It was mainly formed of camelid bones, a recurring situation at various sites in the Andean region, such as Pucara de Tilcara, La Huerta, Huachichocana, or Pucara de Volcán (Cicala 1998;

Table 2 Species identified from bone material of Enclosure 2

	NSP	% NISP
Camelidae	98	48.51
Unidentified	51	25.25
Large mammal	43	21.29
Cervidae	4	1.98
Rodentia	2	0.99
Lycalopex sp.	2	0.99
Artiodactyla	1	0.5
Aves	1	0.5
Total	202	100

Madero 1991; Yacobaccio and Paz Cata 2006). Scarce fox and rodent bones were also present, as well as a bird skull (Table 2). Due to its contextual association and likely anthropic marks, we considered only the camelid bones and the bird skull to be associated with human activity, while the remains of rodents and the fox would have a taphonomic origin.

Regarding weathering, most of the bones did not exceed Behrensmeyer's (1978) Grade 2; approximately half of the sample did not have any damage by weathering, pointing out the very good preservation of the sample. The main reasons of weathering are erosion, root invasion, and trampling.

4.2.1 Analysis of Camelidae Subset

The analysis of camelid remains allowed the identification of various elements of the skeleton, represented in Table 3.

Data in Table 3 shows that both the axial and the appendicular skeleton are represented in an uniform manner, suggesting that camelids were exploited as economic and social goods in Enclosure 2. This, considering the contextual relationship between ceramics and archaeofaunal materials, and the presence of processing marks, and of bones decorated with red pigment. Also, the large amount of phalanges in Table 2 relates to the presence of a phalanges concentration on the occupation floor of Enclosure 2.

A total of 26 grouped phalanges were found near the northeast corner of the enclosure, 25 of them corresponded to camelids, while the other was from a cervid. It was noticed that 15 of the phalanges had red pigment and of those, 7 also had black paint (Fig. 8). We cannot rule out the phalanges may have lost part of their pigment due to taphonomic processes. Another special element within the zooarchaeological material found in Enclosure 2 was the distal part of a bone trumpet, found inside a small underground reservoir located in the central sector of the enclosure. The trumpet section was 120 mm long, was made from a sectioned camelid shinbone, and had a small hole at the top, similar to that observed in the ceramic *ocarina*.

Table 3 Camelids skeleton elements identified for Enclosure 2

Elements	NISP (Camelidae)
Skull	1
Mandíble	1
Maxilla	1
Tooth	4
Tympanic bulla	1
Axis	1
Vertebrae	1
Ribs	9
Scapula	3
Humerus	1
Radius-ulna	9
Lunate	1
Cuneiform	2
Magnum	1
Iliun	1
Femur	3
Tibia	5
Astragalus	4
Calcaneus	2
Metatarsal	2
Sesamoid	1
Phalanx 1	31
Phalanx 3	1
Metapodium	12
Total	98

The discovery of the set of colored phalanges is exceptional in Quebrada de Humahuaca and there have been no similar cases in the region. Meanwhile, bone trumpets have been found in other archaeological sites in Quebrada, as in Pucara de Volcán, where trumpet mouthpieces and sound boxes were recovered, some of them with "random" drawn incisions (Gatto 1946). In Ciénaga Grande the distal part of trumpets were decorated with bands of incised reticulated triangles faced by a vertex, similar to the decoration observed in cylindrical vases, plates with side handles, and bowls from the Inca Period (Salas 1945). In Pucara de Tilcara some fragmented specimens were recovered, decorated with incised dots and circles or with reticulated bands (Ambrosetti 1908; Otero 2013), while in Pucara de Juella undecorated pieces were found along with one decorated with incised circles with a central point arranged in rows and associated to a guard of triangles (Cigliano 1967).

Two types of marks of human origin were also found: cut marks and hammer impacts. Cut marks appear located on a humerus, a vertebra, two shoulder blades, a

Fig. 8 *Top* Group of phalanges with *red paint* found at Enclosure 2. *Bottom* bone trumpet

talus, a radius–ulna and ribs. These marks could be associated with filleting and dismemberment activities, according to observations made by Binford (1981). Additionally, two unidentified long bones with hammer impact marks were registered. On the other hand, thermal alteration in the bones is very low (less than 3%); this coupled with anthropic marks and the presence of vessels with soot on their outer surfaces suggests that the meat would have been prepared by boiling.

Table 4 Economic utility of Camelids

Economic Utility	NISP	% NISP
Bones only with flesh (Vertebrae, ribs, the pelvis and scapula)	13	27.66
Bones with abundant flesh and marrow (Humerus, femur)	4	8.51
Bones with low marrow and flesh (Radius-ulna, tibia, mandible)	16	34.04
Bones only with marrow (Metapodium, calcaneus)	14	29.79
Total	47	100

Analyzing the bones from the perspective of the economic utility of camelids (Table 4), allowed establishing that almost all parts of the animal would have been consumed at Enclosure 2, with a slight preference of bones with bone marrow and scarce meat, over bones only with bone marrow.

4.2.2 Minimum Number of Individuals

Based on the analysis of laterality of camelid remains (Table 5), it was possible to determine the presence of at least two individuals in Enclosure 2. However, the aforementioned phalanges are not included in the analysis, as they may falsely increase the MNI, since it is an index very permeable to over-representation.

4.2.3 Age Profile

Regarding age profile, it was possible to distinguish three age groups in the recovered camelids, namely animals of infant age, young, and adult. The first phalanges found in the aforementioned grids (both the group mentioned and the pieces found isolated) show a striking variability of fusion stages. Considering that the phalanx fusion in camelids is completed between 22 and 24 months of age (Burger and Salazar 2003), the situation in Enclosure 2 could signal the presence of both wild and domestic animals, due to the identification of large unfused pieces and smaller, completely fused pieces.

4.2.4 Phalanges Osteometry

The osteometric analysis was performed on 23 first phalanges corresponding to all the analyzed material (both the accumulation of phalanges and the rest of the material), dismissing phalanges that were not completely fused or with traits of thermal alteration in order to make the analysis more reliable. The measurements

Table 5 Minimum number of individuals (*Camelidae*)

Elements	NISP	L	R	MNI
Scapula	3	1	1	1
Humerus	1	1	–	1
Radio-ulna	9	1	2	2
Lunate	1	1	–	1
Cuneiform	2	1	1	1
Magnum	1	–	1	1
Ilium	1	1	–	1
Femur	2	1	–	1
Tibia	4	1	1	1
Astragalus	4	2	2	2
Calcaneus	2	2	–	2

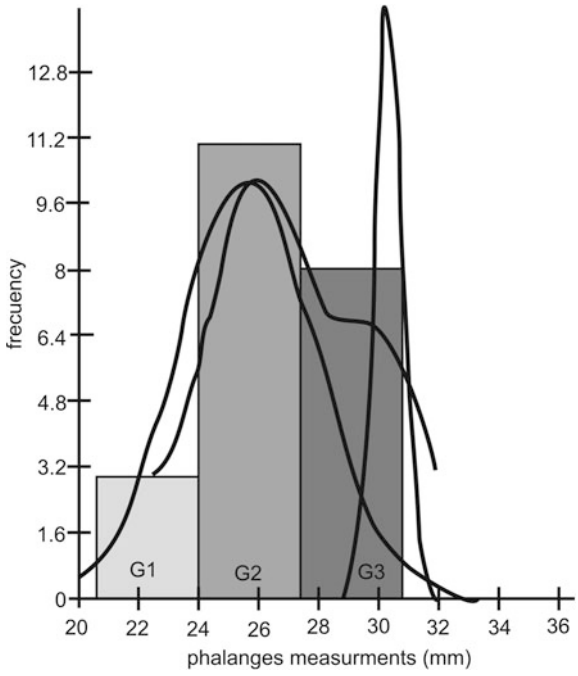


Fig. 9 Graphic representation of phalanges osteometric analysis. *Notes G1* small wild animals; *G2* larger wild or domestic animals; *G3* domestic animals

were taken according Kent (1982), and mixture analysis and kernel density were applied on the latero–medial sector of the proximal articular surface (Yacobaccio 2010; Belotti 2013). The analysis allowed three distinct groups to be established (Fig. 9); the first group (G1) would correspond to smaller wild camels (*Vicugna vicugna)*, the second (G2) would comprise an intermediate size camelids including both *Lama glama* (llama) and *Lama pacos* (*guanaco*). The third group (G3) would include only domestic camelids, such as llama.

5 Areas of Activity and the Functionality of Enclosure 2

The contiguity of findings at Enclosure 2 allowed probable areas of activity to be established (Fig. 10). A probable resting area (Fig. 11) was located in the southeast corner, where a protected area under the roof with scarce findings was observed. It is likely that this sector also served for food consumption, given the proximity of Humahuaca B/R polished and smoothed service vessels.

The southwest corner and the center of the enclosure would have served as storage spaces (Fig. 12). In the first of these areas were found fragments of Humahuaca B/R and ordinary jars and jugs, and clasts delimiting space with fragments of an Incised Angosto Chico vessel and camelid bones. In the central area, fragmented storage vessels were recovered, as well as the base of an ordinary vessel held by clasts, and a small underground storage feature.

The northwest corner of the enclosure, where the cooking fire was found, would have been used for food preparation (Fig. 13) given the presence of cooking vessels (some with soot), the concentration of camelid bones, grinding stones, and a lithic support surface. Small grinding stones were also observed, probably intended for grinding spices and condiments such as chili pepper and salt, considering both their small size and present-day use by residents of the area, who call them "*ajiceras*". However, other tasks may have been performed as well, such as spinning or manufacturing stone tools, according to the presence of spinner cups and obsidian flakes. A small metal plate with a hole was recovered and a complete land snail was also found. The snail was identified as a specimen of the *Strophochelidae* family, *Megalobulimus sp.* Genus.[2] This specific type of snail has its origin in the rainforest that covers the eastern slopes of the sub-Andean mountains. Nowadays, it is used as a "tranquilizer for small children", located under their pillows (Vargas Rodriguez, pers. comm.).

In the northeast sector of the enclosure (Fig. 14) artisan tasks would have been carried out, such as coloring the camelid phalanges, given the spatial relation between them and a piece of red pigment; spinning and manufacturing stone tools were probably accomplished too. A small plate made of a bivalve (*Bivalvia mytilidae*) was found in the center of the enclosure; originating from northern Chile's rocky coastline. This plate appeared next to the mentioned underground storage feature where the bone trumpet and a small grinding stone were recovered.

Enclosure 2 would have been part of the scene where public activities were carried out, including the communal participation space (Nielsen 2006) surrounding it. In Enclosure 2 tasks like food preparation, cooking, and storage would have been carried out, although probably to a supra-domestic scale. This proposal arises from the large amount of faunal remains and the consumption of all parts of the skeleton; a selection or division of animal parts were not found, as often observed in purely domestic contexts. Moreover, the density of vessels indicated a high consumption,

[2]The malacological materials found at El Pobladito were analyzed by specialist N. Vargas Rodríguez (Universidad Nacional de Jujuy).

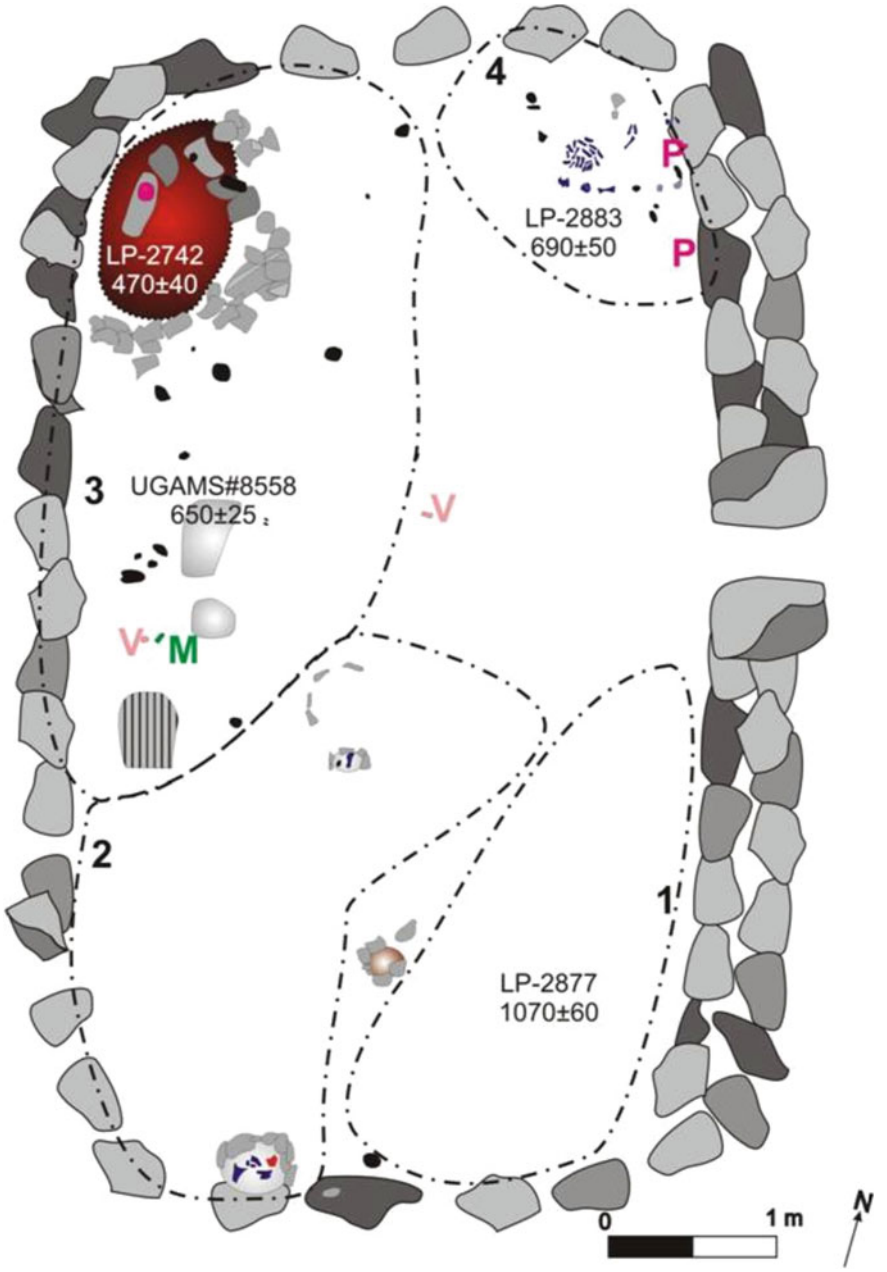


Fig. 10 Probable activity areas in Enclosure 2. *Notes 1* resting area; *2* storage area; *3* cooking and food preparation area; *4* probable space for coloring phalanges; *V* malacological elements; *M* metal elements; *P* pigment

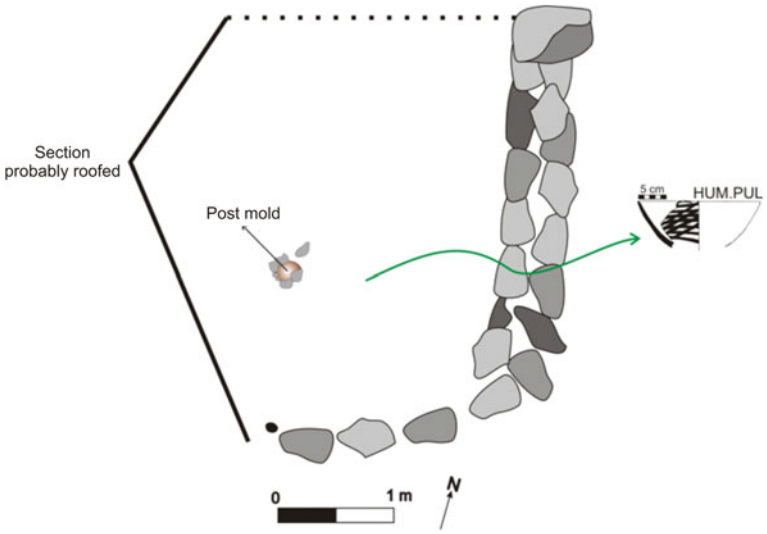


Fig. 11 Probable resting area in the southeast corner of Enclosure 2. *Notes* HUM.PUL, Polished Humahuaca *Black on Red*

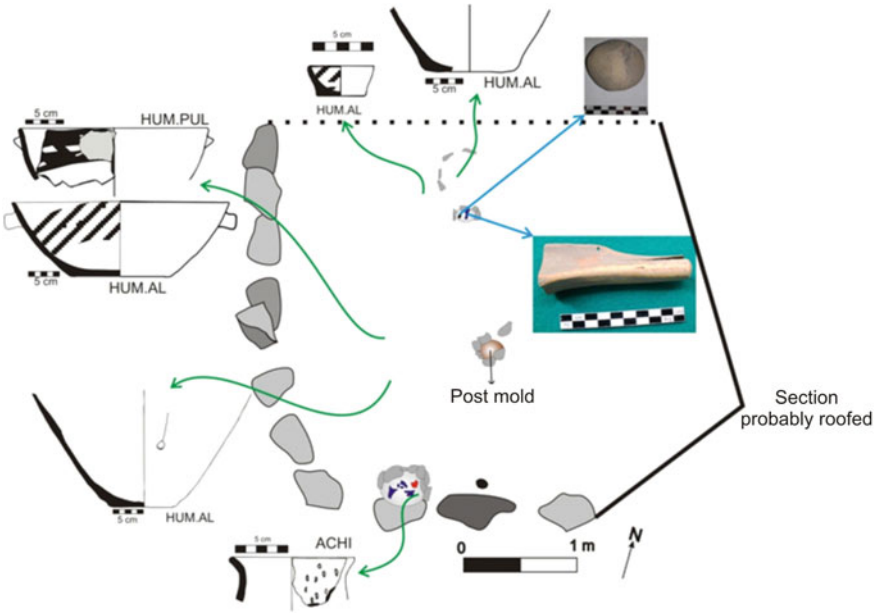


Fig. 12 Probable storage area of Enclosure 2. *Notes HUM.AL* Smoothed Humahuaca *Black on Red*; *HUM.PUL* Polished Humahuaca *Black on Red*; *ACHI* Incised Angosto Chico

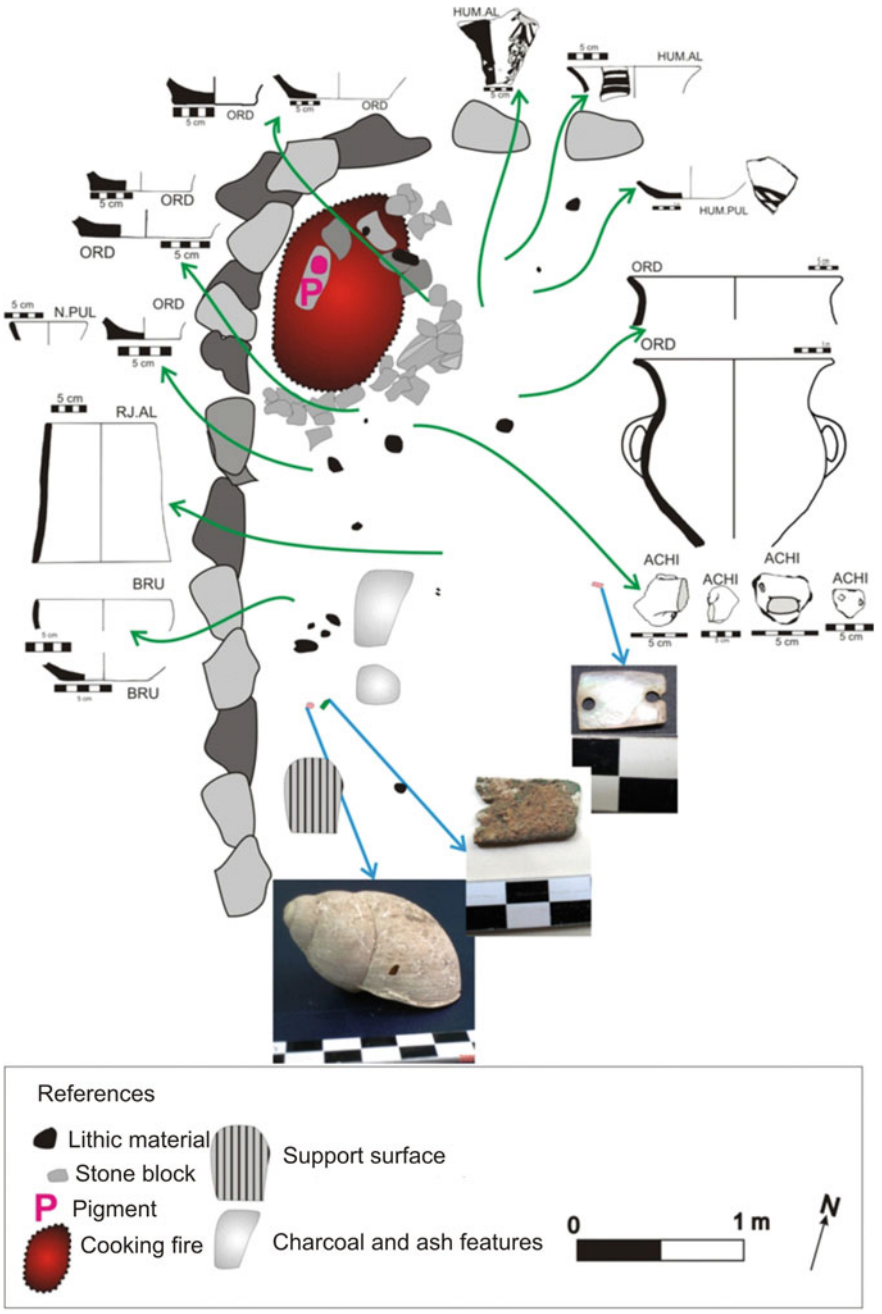


Fig. 13 Probable cooking and food preparation area. *Notes BRU* Burnished Bowls; *RJ.AL* Smoothed Red; *ORD* ordinary; *N.PUL* Polished Black Interior; *HUM.AL* Smoothed Humahuaca *Black on Red*; *HUM.PUL* Polished Humahuaca *Black on Red*; *ACHI* Incised Angosto Chico

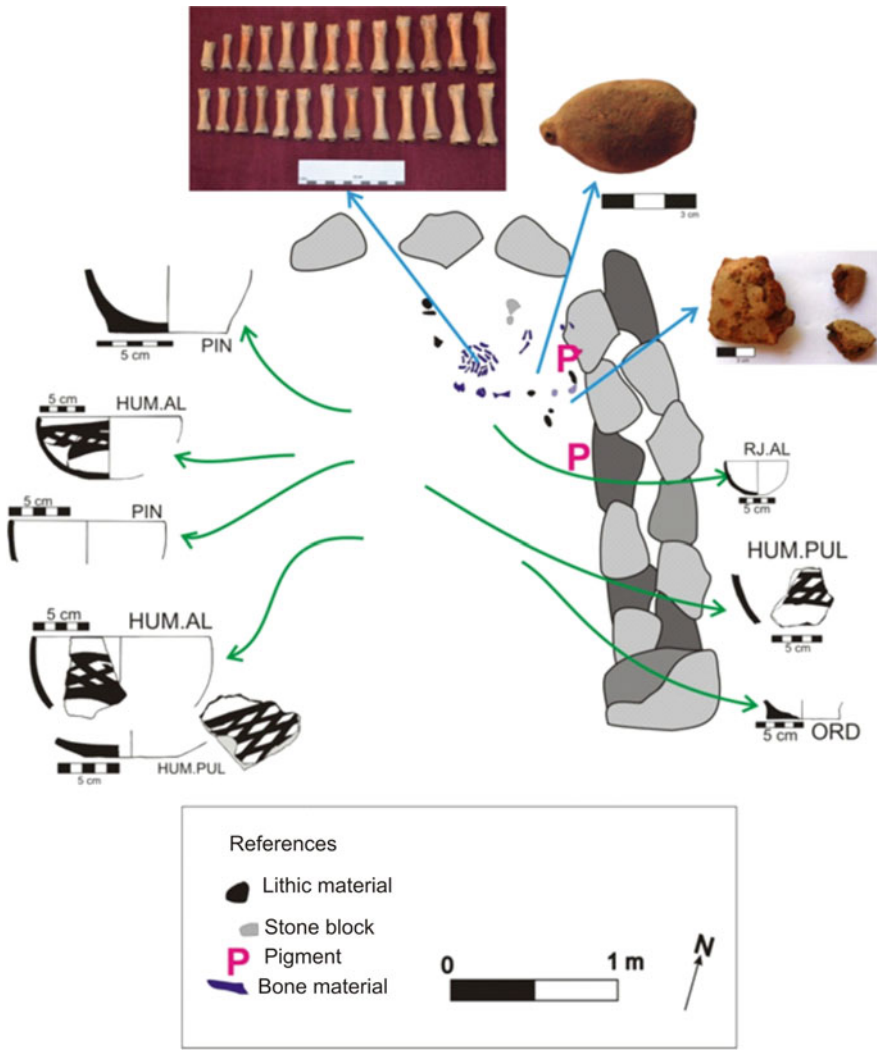


Fig. 14 Probable craft tasks area. *Notes HUM.PUL* Polished Humahuaca *Black on Red*; *HUM.AL* Smoothed Humahuaca *Black on Red*; *PIN* Polished Black Interior Bowls; *RJ.AL* Smoothed *Red*; *ORD* ordinary

considering that 48 vessels were identified at Enclosure 2 (22 m^2), while in the nearby Enclosure 3, only 11 vessels were recovered in the 12 m^2 surface excavated. The presence of both platters and Burnished Bowls support the work hypothesis of Enclosure 2 participating in public events; the platter sizes found indicate group food consumption, while Burnished Bowls are special pieces generally used in high visibility and status contexts (Cremonte and Botto 2009). The already mentioned craft activities would also have been carried out. Regarding public celebrations and

rituals performed at the square, Enclosure 2 would have been used for the preparation and storage of objects that would have been used in them.

Special elements found in Enclosure 2, such as the trumpet, the bird skull, the painted phalanges, and the malacological elements, would all play a part in the Andean symbolic universe, according to findings at different south central Andean sites (Pérez Gollán and Gordillo 1993; Martínez 1995; Gudemos 1998; Bordach 2006; Nielsen 2007; Scaro and Cremonte 2012). They would be linked to various rituals, performed at the square surrounding Enclosure 2, considered as a space for community participation. Gudemos (1998) characterized trumpets as instruments formed by three bone pieces assembled using resin: mouthpiece, intermediate tube, and pavilion (Fig. 15). The author has argued that these instruments, especially the pavilions, have no evidence of a musical function, a proposal supported by the presence of pigments in some of the pavilions recovered at Pucara de Tilcara (Otero 2013).

Nielsen (2007) observed that the trumpets were mainly found in Andean funerary contexts, and were especially abundant at Quebrada de Humahuaca. According to him, Andean armies blew the trumpets during battles and propitiatory ceremonies too; their sound would be linked to the voice of the *wak'a*. Trumpets would then evoke the power of these beings and would probably been used to combat threats such as pests or hail. Moreover, as noted by Martínez (1995), the trumpets would be part of authority emblems in the Andean world, associated to a strong threat of destruction, reinforced by its connection with war. Pérez Gollán and Gordillo (1993) argued that these elements could have been used to inhale hallucinogenic powders, especially considering their contextual links with wooden tablets to consume these powders.

Regarding the bird skulls, they would be a highly symbolic element which would appear generally in funerary contexts during different periods. Thus, in Tomb 11 of La Isla de Tilcara site was recovered a complete skeleton of an adult macaw (probably *Ara hyacinthinus* or *Ara chloroptera*) as part of the grave goods (Debenedetti 1910; Tarragó et al. 2010; Belotti 2012). In Pucara de Tilcara, a condor (*Vultur gryphus*) skeleton was found inside a cylindrical chamber, as well as bird bones as grave goods accompanying five adults and one child (Debenedetti 1930). In later contexts, such as those found in the Esquina de Huajra and La Falda

Fig. 15 Complete bone trumpet from the Museum "E. Casanova", Tilcara

de Tilcara sites, skulls of *Cairina moschata* and *Meleagris ocellata* also appeared as funerary objects (Bordach 2006; Scaro and Cremonte 2012).

On the other hand, applying red pigment on different camelid skeletal parts has been registered in various contexts excavated in the Andes (e.g., Agüero and Uribe 2011). In the central south sector of Quebrada de Humahuaca, a long bone with one of its ends painted red was recovered at the La Silleta site (López Geronazzo 2015). References to painted phalanges are rare; they have been found in a dig conducted at the Ojo de Agua site in Casabindo (Jujuy Puna), where phalanges painted with red ocher appeared in the deeper layers (Albeck, pers. comm.). In Enclosure 2, these elements may have constituted an offering made within a propitiatory ritual.

The analysis of ceramics and faunal remains from Enclosure 2 allowed us to begin to understand the functionality of this context, considered as a supra-domestic space linked to communal activities carried out in the community participation space where the enclosure is located. This study is the stepping stone to comprehend El Pobladito's functionality in the landscape of the central south sector of Quebrada de Humahuaca during pre-Inca times, since it will be added to the studies of other excavations, albeit with different contexts, within the settlement.

Acknowledgements For this research funds from PIP-CONICET 0060 and ANPCYT-PICT 01538 projects were used. We thank the students of anthropology (FHyCS-UNJu) Nicolas Lamberti, Valeria Lopez, Mariana Benavidez, Martin Basso, Jose Luis Tolaba, and Maria Tejerina for participating in the field work. Our special regards to the Aboriginal Community of Tumbaya for its support for our research and for their interest in archaeological ceramics as an expression of their identity.

References

Agüero C, Uribe M (2011) Las sociedades Formativas de San Pedro de Atacama: Asentamiento, cronología y proceso. Estudios Atacameños 42:53–78

Ambrosetti JB (1908) Exploraciones arqueológicas en la antigua ciudad del Pukará de Tilcara. Manuscript kept at Archivo del Museo Etnográfico. Facultad de Filosofía y Letras. Universidad de Buenos Aires, Buenos Aires

Balfet H, Fauvet Berthelot MF, Monzon S (1983) Pour la normalisation de la description des poteries. Centre National de la Recherche Scientifique, Paris

Behrensmeyer AK (1978) Taphonomic and ecological information from bone weathering. Paleobiology 4:150–162

Belotti C (2012) En compañía de los muertos. Ofrendas de animales en los cementerios de La Isla (Tilcara, Jujuy). Intersecciones en Antropología 13(2):345–357

Belotti C (2013) Usos económicos y rituales de la fauna en la región valliserrana del noroeste argentino entre los inicios del período temprano y hasta la conquista inka (*ca*. 600 AC–1600 DC): Zooarqueología del Valle de Yocavil (Catamarca), centro y norte del Valle Calchaquí (Salta) y la Quebrada de Humahuaca (Jujuy). PHD Dissertation. Universidad De Buenos Aires

Binford LR (1981) Bones: ancient men and modern myths. Academic Press, New York

Bordach M (2006) Interacciones étnicas e indicadores de desigualdad social en el cementerio de la falda (SJTIL 43), Tilcara, Jujuy. Estudios Atacameños 31:115–128

Bugliani F (2008) Consumo y representación en el sur de los Valles Calchaquíes (Noroeste Argentino). Bar International Series, England

Burger RL, Salazar LC (2003) The 1912 Yale Peruvian Scientific Expedition collections from Machu Picchu: human and animal remains. Yale University Press, Connecticut
Casteel WR, Grayson D (1977) Terminological Problem in quantitative faunal analysis. World Archeology 9(2):235–242
Cicala B (1998) Ganadería de camélidos en el Pucará De Tilcara: avances en el estudio de una muestra ósea. In: Cremonte MB (ed) Los Desarrollos Locales Y Sus Territorios. Ediunju, Jujuy, pp 305–317
Cigliano EM (1967) Investigaciones antropológicas en el yacimiento de Juella (Dep. de Tilcara, Provincia de Jujuy). Revista del Museo de La Plata NS 6:123–249
Conkey MW, Hastorf CA (eds) (1990) The uses of style in archaeology. Cambridge University Press, Cambridge
Cremonte MB, Botto L (2009) Unas vasijas especiales halladas en contextos tardíos del Noroeste de Argentina. manufactura de los Pucos Bruñidos. Estudios Atacameños 37:63–77
Cremonte MB, Ortiz MG, Delgado A (1997) Las vasijas en los estantes. Análisis de una colección descontextualizada. Cuadernos 9:1–37
Debenedetti S (1910) Exploración arqueológica de los cementerios prehistóricos de La Isla de Tilcara (Quebrada de Humahuaca, Provincia de Jujuy). Publicaciones de la Sección Antropología, Buenos Aires
Debenedetti S (1930) Las ruinas del Pucará. Tilcara, Quebrada de Humahuaca (Provincia de Jujuy). Archivos Del Museo Etnográfico 11 (Primera Parte)
Gatto S (1946) Exploraciones arqueológicas en el Pucara de Volcán. Extracto de la Revista del Museo de La Plata NS 4:5–91
González R, Pérez J (1966) El Área andina meridional. Actas y memorias del XXXVI congreso internacional de americanistas. vol 1. Sevilla, pp. 241–265
González R, Pérez J (1972) Argentina indígena, vísperas de la conquista. Paidós, Buenos Aires
Gudemos ML (1998) Antiguos sonidos. El material arqueológico musical del Museo Dr. Eduardo Casanova. Tilcara, Jujuy (Rep. Argentina). Publicaciones del Instituto Interdisciplinario Tilcara, Tilcara
Izeta A (2007) Zooarqueología del sur de los Valles Calchaquíes (Provincias de Catamarca y Tucumán, República Argentina). Bar International Series, England
Jernigan E (1986) A non-hierarchical approach to ceramic decoration analysis: a southwestern example. Am Antiq 51(1):3–20
Kent JD (1982) The domestication and exploitation of the south american camelids: methods of analysis and their application to circum-lacustrine archaeological sites in Bolivia and Perú. PHD Dissertation, Washington University
Knappett C (2005) Thinking through material culture. University Of Pennsylvania Press, Philadelphia
López Geronazzo L (2015) Zooarqueología de sitios del centro-sur y norte de la Quebrada de Humahuaca, Provincia de Jujuy. Manejo del recurso faunístico (*ca*. 1.000 a 1536 d.C). Dissertation, Universidad Nacional de Jujuy
Lyman RL (1994a) Vertebrate taphonomy. Cambridge University Press, Cambridge
Lyman RL (1994b) Quantitative units and terminology in zooarcheology. Am Antiq 59:36–71
Madero CM (1991) Análisis faunístico de Huachichocana III (Jujuy): identificación arqueológica de la caza y el pastoreo de camélidos. Palimpsesto 2:107–122
Madrazo SB, Ottonello M (1966) Tipos de instalación prehispánica en la región de la puna y su borde. Editorial de la Universidad de Olavarría, Olavarría
Martínez JL (1995) Autoridades en los Andes, los atributos del señor. Fondo Editorial De La Pontificia Universidad Católica Del Perú, Lima
Menegaz A, Salemme M, Ortiz Jaureguizar E (1988) Una propuesta de sistematización de los caracteres morfométricos de los metapodios y las falanges de camelidae. In: Ratto N, Haber A (eds) De Procesos, Contextos Y Otros Huesos. Editorial de la UBA, Buenos Aires, pp 53–64
Mengoni Goñalons G (1988) Análisis de materiales faunísticos en sitios arqueológicos. Xama 1:78–120

Nielsen AE (2001) Evolución social en Quebrada De Humahuaca (AD 700–1536). In: Berberián E, Nielsen AE (eds) Historia Argentina Prehispánica. Brujas, Córdoba, pp 171–264
Nielsen AE (2006) Plazas para los antepasados: descentralización y poder corporativo en las formaciones políticas preincaicas de los Andes Circumpuneños. Estudios Atacameños 31:63–89
Nielsen AE (2007) Armas significantes: tramas culturales, guerra y cambio social en el Sur Andino prehispánico. Boletín del Museo Chileno de Arte Precolombino 12(1):9–41
Núñez Regueiro VA (1974) conceptos instrumentales y marco teórico en relación al desarrollo cultural del Noroeste Argentino. Revista del Instituto de Antropología 5:169–190
Otero C (2006) Análisis cerámico del Recinto 2 de la Unidad 1, Sector Corrales del asentamiento urbanizado de Tilcara (SJUJTIL 1-UH 1). Dissertation, Universidad de Buenos Aires
Otero C (2013) Producción, usos y circulación de bienes en el Pucara de Tilcara (Quebrada de Humahuaca, Jujuy). PHD Dissertation, Universidad de Buenos Aires
Ottonello M (1994) La cerámica Angosto Chico Inciso en el sitio del Volcán en el sector meridional de la Quebrada de Humahuaca. In: Albeck ME (ed) Taller de Costa a Selva. Publicaciones del Instituto Interdisciplinario de Tilcara, Tilcara, pp 329–352
Ottonello MM, Lorandi AM (1987) Introducción a la Arqueología y Etnología. Diez mil años de historia argentina. Ed. Universitaria de Bs. As., Buenos Aires
Pacheco Torres VR, Altamirano Enciso A, Guerra Porras E (1986) The osteology of South American camelids. Institute Of Archaeology, Los Angeles
Palma J (1998) Curacas y señores. Una visión de la sociedad política prehispánica en la Quebrada de Humahuaca. Publicaciones del Instituto Interdisciplinario Tilcara, Tilcara
Pérez Gollán JA, Gordillo EI (1993) Alucinógenos y sociedades indígenas del Noroeste Argentino. Anales de Antropología 30(1):299–350
Ramsey CB (2013) Oxcal 4.1. Oxford University, Oxford
Reitz EJ, Wing ES (1999) Zooarchaeology. Cambridge University Press, Cambridge
Rivolta MC, Seldes V, Mercolli P (2010) Ocupaciones tempranas en sectores urbanos de la localidad de Tilcara (Jujuy, Argentina). In: Actas del XVII Congreso Nacional de Arqueología Chilena
Ruiz M, Albeck ME (1997) El fenómeno "pucara" visto desde la Puna Jujeña. Estudios Atacameños 12:75–87
Salas AM (1945) El Antigal de Ciénaga Grande (Quebrada de Purmamarca, Prov. de Jujuy). Publicaciones del Museo Etnográfico, Buenos Aires
Scaro A, Cremonte MB (2012) La vajilla de servicio de Esquina de Huajra (Dpto. Tumbaya, Jujuy, Argentina). Alternativas teóricas para interpretar su significado. Revista del Museo de Antropología 5:31–44
Solís N, Rivero A (1994) Remoción de masa en la localidad de Tilcara. Prov. de Jujuy. Rep. Argentina. In: III Simposio Latinoamericano Sobre Riesgos Geológicos Urbanísticos, Cochabamba
Tarragó M (2000) Chakras y pukara. desarrollos sociales tardíos. In: Tarragó M (ed) Nueva Historia Argentina. Sudamericana, Barcelona, pp 257–299
Tarragó MN, González LR, Ávalos G, Lamamí M (2010) Oro de los señores. La Tumba 11 de la Isla de Tilcara (Jujuy, Noroeste Argentino). Boletín del Museo Chileno de Arte Precolombino 15(2):47–63
Wheeler JC (1982) Aging llamas and alpacas by their teeth. Llama World 1:12–17
Yacobaccio HD (2010) Osteometría de llamas (Lama glama L.) y sus consecuencias arqueológicas. In: Gutiérrez MA, De Nigris M, Fernández PM, Giardina M, Izeta A, Neme G, Yacobaccio HD (eds) Zooarqueología a principios del siglo XXI: Aportes teóricos, metodológicos y casos de estudio. Buenos Aires, Ediciones del Espinillo, pp 65–75
Yacobaccio HD, Paz Cata M (2006) El uso de camélidos en la quebrada de Humahuaca (1100 DC). In: Olivera D, Miragaya M, Puig S (eds) Actas Del IV Congreso Mundial Sobre Camélidos

Ceramic Styles from the Pucara de Tilcara Settlement During the Inca Domination

Clarisa Otero

Abstract This chapter aims to present a synthesis of the wide variety of stylistic manifestations registered in the ceramic assemblages from Pucara de Tilcara, established as a capital of a *wamani* on an existing settlement. The pottery of this site allows characterizing styles from other regions of the Andes that circulated during the last late pre-Hispanic Period, as well as recognizing morphological and decorative transformations in pieces manufactured locally. We mainly focus on changes resulting from the Inca conquest that along with the identification of other representations, leads us to consider the pottery of this region—defined for decades as abstract or geometric—as an important visual resource for expressing identity messages and imposing new narratives by the State. In this context we highlight the use of two rhetorical figures: metaphor and metonymy, also detected in other non-ceramic supports, reflecting the existence of religious beliefs related to supernatural and fertility cults.

Keywords Pucara de Tilcara · Social representation · Ceramic styles · Identity

In Quebrada de Humahuaca, ceramics are one of the richest means of support for the analysis of pre-Hispanic social representation parameters since, by the time of its appearance, they constituted an important expressive resource for the creation of sociocultural values. The wide variety of stylistic manifestations present in the pottery sets of the region, particularly on those from the previous centuries to Spanish colonization, reflects the constant transmission of different symbolic and cultural categories in every social practice.

In this chapter, acknowledging this variability, we present the results obtained through the stylistic analysis of 315 pieces from Pucara de Tilcara that are preserved

C. Otero (✉)
Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras,
Universidad de Buenos Aires, Belgrano 445, (4624), Tilcara, Jujuy, Argentina
e-mail: clarisaotero@yahoo.com.ar

C. Otero
INECOA, Universidad Nacional de Jujuy, CONICET, Av. Bolivia 1661, (4600),
San Salvador de Jujuy, Jujuy, Argentina

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_5

in the collections of two museums dependent of Facultad de Filosofía y Letras, Universidad de Buenos Aires (UBA). This set of pieces includes both local styles and the styles of other regions. Among the local repertoire, with the intention to register the transformations produced in the representations during the Inca Period, we analyzed the composition and structuration of the decorative elements from the pieces corresponding to the Humahuaca Inca B/R (black on red) and B/P (black on purple). This kind of identification allowed us to interpret these stylistic changes in relation to the symbolic signification of the representations in the social context.

In order to assess these aspects, during a previous stage of the investigation we delimited the work sample considering information regarding the finding of the pieces achieved through the collections review, and the published and archive documental material. The contextualization of the objects was not only useful to determine the composition of the assemblage but it also generated implications in relation to the chronology of the location.

1 Pucara de Tilcara

This archaeological site is located in the medium sector of Quebrada de Humahuaca. It is characterized as an urbanized settlement emplaced over a low hill in the left margin of the Río Grande of Jujuy and the mouth of the Huasamayo River (see general map in the Preface). It has an extension of 17.5 ha, with over 580 structures built on it, constructed with double walls and mortar. These structures are characterized for having different shapes, sizes, and connectivity degrees, since the residential and craftsmanship spaces were sometimes articulated around a *patio*. A wide network of paths articulates the different dwelling areas with the public spaces (ceremonial centers and *plazas*) and cemeteries which, as the structures that were defined as corrals (Casanova 1970), are segregated from the residential areas (Fig. 1). Nevertheless, it is worth mentioning that inhumations in *patios* and daily use structures were frequent.

Since the beginning of the XX century, there have been several archaeological investigations in this site, including partial restorations and reconstructions of the dwelling areas, graves, public spaces, and corrals. Likewise, we can also find other interventions that are irreversible. Through Dr. Eduardo Casanova's initiative, several dwelling and workshop sectors were destroyed on top of the Pucara in order to build a monument in honor of the first archaeologists who studied it, and for the tracing of a road that led to this area from the site's base (Casanova 1970; Zaburlín 2006; Otero 2013a) (Fig. 1).

Previously, different authors stated that this site was constituted as the capital of the province or *wamani* of Humahuaca (González 1982; Williams 2004). Results from recent investigations allowed us to define it as a great administrative, politic, and religious center, which was built over a pre-existing town with the objective of installing a big population dedicated to the specialized production of artisanal goods linked to metal and rock working (Otero 2013b, 2015; Otero and Cremonte 2014). We also have a growing number of radiocarbon dates proving that the greatest occupational density occurred during the Inca times (Otero and Ochoa 2011; Greco and Otero 2016).

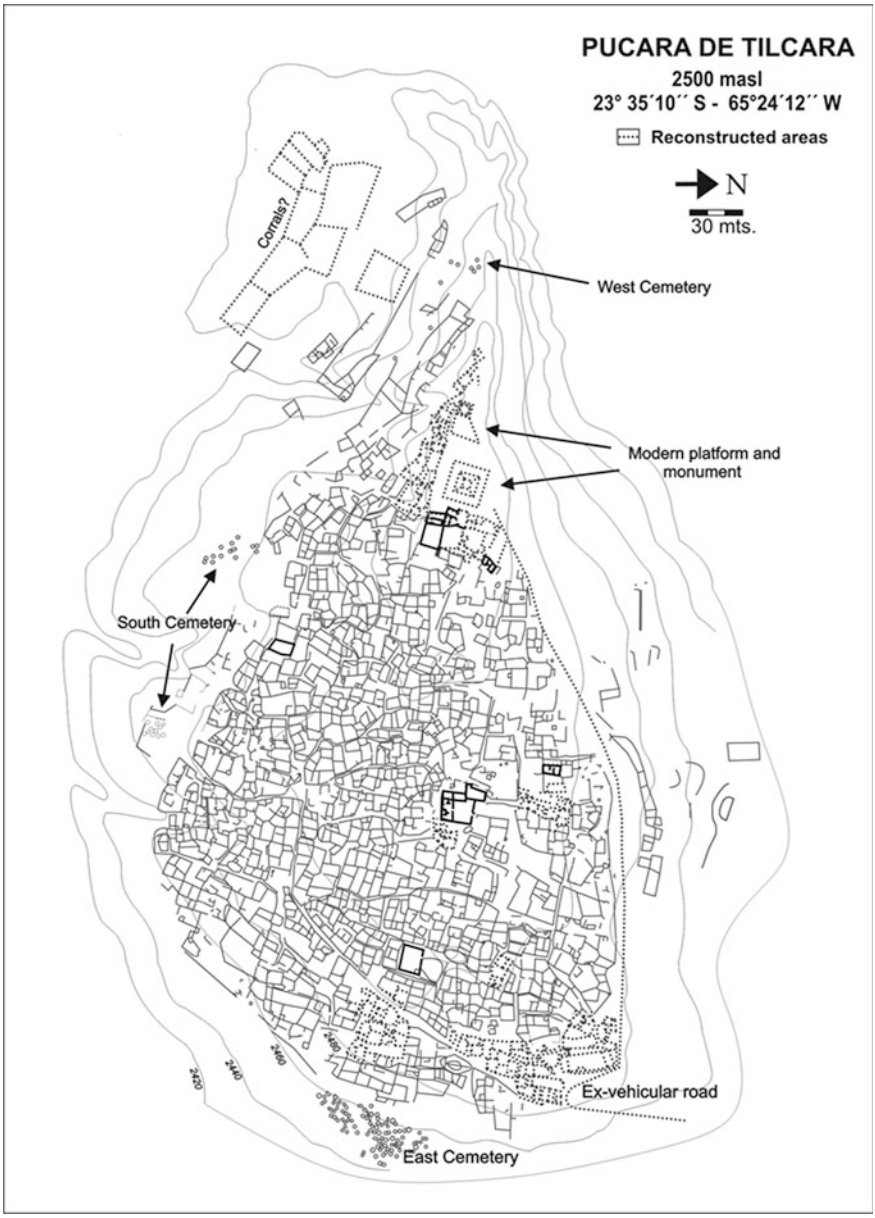


Fig. 1 Map of Pucara of Tilcara (extracted from Zaburlín 2006). Planimetry of the north and southwest slopes elaborated by Lanzelotti et al. (2012)

The identification of an important organization of the production by the state, partly explains the presence of various Inca's affiliation objects that are currently located in the collections of the Museo Etnográfico (MET) "J.B. Ambrosetti" and

Museo Arqueológico "Dr. Eduardo Casanova" (both from Facultad de Filosofía y Letras, UBA). Among these materials, ceramic assemblage stands out for its variability and quantity. Below, we will present the results obtained through the analysis of 315 pieces currently located in the archaeological reserves of such museums, which represent a wide view of the ceramic types produced, consumed, and in circulation during late pre-Hispanic times, and particularly during the Inca domain. These vessels were recovered during the Ambrosetti (1908, 1912), Debenedetti (1930), and Casanova (1970) archaeological campaigns.

With the purpose of analyzing the pieces from a stylistic and contextual point of view, we registered the ceramic material location. In order to achieve this contextualization, we made a cross-search between the catalogs of the museums with the intention of establishing each object's provenance. This first step allowed us to determine if the objects were recovered at the Pucara or not, so that we could further advance in the recomposition of the recovery contexts. The information from the catalogs was complemented with Ambrosetti's (1908), Zaburlín and Otero (2014) and Debenedetti's (1909/1910, 1928/1929) journal diaries, as well as other papers from the same authors (Ambrosetti 1912, 1917; Debenedetti 1930) and Casanova (1970, 1971). Despite the fact that the work of this author is the most modern, it is also the work with the least information. In contrast, the information recovered from Ambrosetti's and Debenedetti's manuscripts turned out to be very illustrative of most of their interventions. The descriptive character of these works was very helpful for the reconstruction of the features of the analyzed spaces and the objects recovered in each one of these spaces. Although we acknowledge that many of the structures and inhumations from where the pieces were recovered could represent successive occupations, it was through the descriptions mentioned before that certain objects could be chronologically grouped, according to different occupation moments of the Pucara.

It is worth mentioning that during the collections' study we prioritized the search for different materials in order to re-construct the contexts that, given Ambrosetti's and Debenedetti's descriptions or the things seen in the catalogs, were valuable for the characterization of some material assemblages from the crossing of associations or for the temporal determination of the Pucara's occupation.

2 The Ceramic Sample

According to the sample composition ($N = 315$), the local pottery was ordered into four stylistic groups. The main group, which accounts for 53% of the sample ($N = 168$), is representative of the late Humahuaca styles (Fig. 2). The second group in percentage terms (26%, $N = 82$) includes local Inca ceramics (Fig. 2). Only four pieces correspond to the Hispanic–Indigenous Period (Fig. 2), and were found in structures that also presented Inca materials. This post-Inca low representation, in relation to the sample here presented, is comparable to the amount of Isla-type pieces, since this group only accounts for six pieces (Fig. 2).

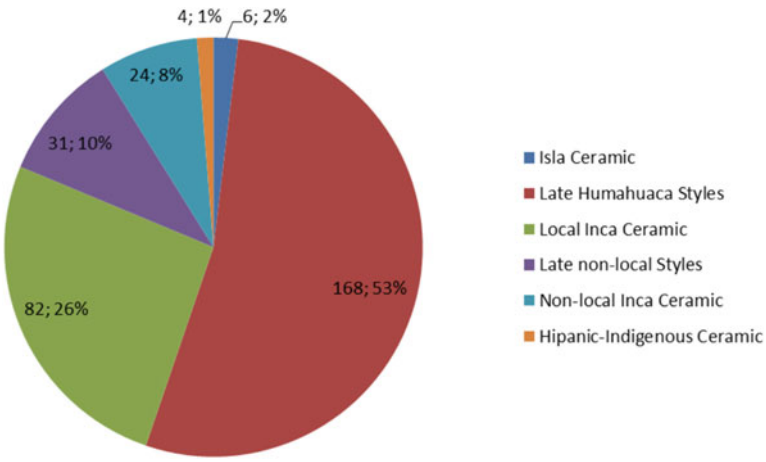


Fig. 2 Percentage of pieces belonging to the different stylistic groups

In Table 1 we present the different morphological and stylistic classes identified in the ceramics corresponding to the Late and Inca styles in the region. We have to mention the fact that Isla and Hispanic–Indigenous pieces were not ordered in styles since we still do not have a complete typological classification for their numerous variants.

Among the Late Humahuaca styles we differentiate Humahuaca B/R (N = 78), Humahuaca B/P (N = 7), Poma B/R (N = 29), Juella Polychrome (N = 1), Black Polished Interior (N = 23), and Red Polished Interior (N = 3), which are combined with smoothed or red to brown polished outer surfaces, Smoothed or Polished Red (N = 7), local Incised Angosto Chico (N = 3), and ordinary (N = 17) (Table 1). These styles are called "Late" in the wide sense of the definition, since many of them continued to be used during Inca times and perhaps during the first moments of the European conquest.

The second group includes the local Inca Provincial or Humahuaca Inca (sensu Nielsen 2001; Cremonte 2006). Under this group we were able to identify a wide number of variants, which arise from the modifications generated from the Inca domination of the Quebrada styles. This group includes the Humahuaca Inca B/R (N = 60), Humahuaca Inca B/P (N = 6), Humahuaca Inca Brown Polished (N = 1), and Humahuaca Inca Black Interior (N = 10) or Polished Brown with smoothed exterior (N = 5) (Table 1).

Regarding the pieces attributed to the pre-Late era, one of the aspects that could change the sample composition is the fact that only one of the six pieces of the Isla type presents an accurate provenance. This is a small tricolor pot (MEJBA 4525[1]),

[1]MT: refers to the numbering of pieces cataloged in the Museo Arqueológico "Dr. E. Casanova" in Tilcara. MEJBA: refers to the numbering of objects according to the MET "J.B. Ambrosetti" catalogs.

Table 1 Classification of local vessels

Form/style	Humahuaca				Humahuaca Inca					Ordinary	Smoothed red	Juella polychrome	Incised Angosto Chico	Poma B/R	Totals
	B/R	B/P	BPI	RPI	B/R	B/P	BrP	BPI	Br PI						
Platter	1				6	2									1
Bowl/*Puco*	47	4	23		25	2	1			1	1			29	133
Lateral handle *puco*								10	4	1					15
Ornithomorphic plate					7										7
Kero glass						1									1
Jar					1					5					6
Deep bowl	3	1								1	1				6
Lateral handle deep bowl										1					1
Pot	8	2			7	1			1	2	3	1	2		27
Pitcher	17				3					2	2		1		25
Aribaloide					5										5
Pelike					6										6
Sculpt figure										1					1
Low glass	2			2						2					6
Cup				1						1					2
Totals	78	7	23	3	60	6	1	10	5	17	7	1	3	29	250

References: *B/R* black on red; *B/P* black on purple; *BPI* black polished interior; *RPI* red polished interior, *BrP* brown polished, *BrPI* brown polished interior

discovered in 1909 in one of the many tombs comprising the Necropolis or East Cemetery (Fig. 1). Unfortunately, the catalog does not include the number of the tomb in which it was found. For this reason, it was impossible to determine the other objects that were associated with it, in order to establish its time of use.

We do not have information about the place of discovery inside the Pucara of the five remaining pieces, only the year in which they entered into the MET's deposit. Among them we identified a *puco* (bowl) with an anthropomorphic appendix (MT 2151-MEJBA 7074) and a small pitcher B/R (MT 2200-MEJBA 7149). The available records indicate that both pieces entered the museum in 1910. On the other hand, we also identified two B/R *pucos* with tripartite decoration. The first one has an inner decoration consisting of three triangles filled with a narrow line reticulate (MT 2149-MEJBA 26423). The second one shows the same triangles but filled with parallel lines (MT 2413-MEJBA 26421). The registers indicate that they were found in 1919, which raises questions about their provenance. Although around this time Debenedetti was indeed investigating in Quebrada de Humahuaca; according to his journals we know that he did not excavate the Pucara. His registers indicate that he only worked in other sites such as Peñas Blancas, Los Amarillos, Yacoraite, and Humahuaca, so we do not know how he obtained it.

The fifth piece is a highly restricted Black Polished Interior sub-spheroidal *puco* (MT 2479-MEJBA 22856), similar to those excavated in contexts of the urban sector of Tilcara, in which we have recovered materials similar to the ones from La Isla (Otero and Rivolta 2015). This piece, recovered in 1917, also lacks reference to its location inside the Pucara. Regarding its acquisition, it appears as obtained in the "Debenedetti Expedition", more precisely the XIII Expedition of the Faculty. Very few objects in the catalogs are described with these same references, and if we consider that the Pucara was only excavated in the late 1910s during the XIV Expedition with those materials entered in the Ethnographic around 1918, it is possible to estimate that this last piece, as well as the two *pucos* mentioned before, were acquired by donation or purchased from third parties. On some occasions, the money given by the Facultad de Filosofía y Letras in order to complete archaeological campaigns was also used for the purchasing of materials belonging to private collections (Alejandra Reynoso, pers. comm. 2011). For this reason we cannot say with certainty if they were recovered in the Pucara.

Beyond the fact that the provenance of these pieces may be determined with better certainty in the future, what is most notable is the low proportion, nearly insignificant in number, of pre-Late materials identified in the assemblage. In this sense, for the moment we cannot deny the existence of an earlier occupation of the settlement, possibly disperse.

Another aspect that needs to be highlighted, also in relation with the detection of earlier material, is that using the descriptions of the original records from the Ethnographic Museum we were able to identify that several ceramic pieces entered in the Museo Arqueológico "Dr. E. Casanova" as proceeding from the Pucara, actually belonged to different areas of the urban sector of Tilcara. Thus, a great

number of objects attributed to the pre-Late time, such as vessels from the Yavi, Isla, and polychrome Alfarcito styles, were left outside the collection.[2]

Unfortunately, except for Rivolta (2003), who was always attentive to such provenance errors and included the assemblage recovered from behind the Church of Tilcara in a study regarding La Isla occupation in the urban area of the town, several scholars analyzed these pieces for decades as if they had been recovered from the Pucara, without assuming that during the transfer of part of the collection from the MET to the Museo Arqueológico "Dr E. Casanova" the origin of many of the pieces was badly cataloged.[3] This transfer, as well as the collection's disintegration resulting from several exchanges from museums around the world, is one of the main factors regarding discrepancies when it comes to reconstructing the finding's assemblages from the different sectors of the Pucara.

On the other hand, regarding the site's collections currently outside the country, it is worth mentioning that we could not identify ceramic pieces attributed to the pre-Late time during the digital revision of the National Museum of the American Indian-Smithsonian Institute (New York, USA) and the Museum der Kulturen Basel (Basel, Switzerland) catalogs. We neither recognized this type of material in the assemblages recovered from surface collections and recent excavations. Something similar must have been perceived by Ambrosetti (1912) and Debenedetti (1910) when describing the evidences found during their interventions. They mentioned the existence of two different cultures for Tilcara's area. On the one hand, due to detection of certain similarities with the assemblages of La Poma, La Paya, or Tastil, Ambrosetti ascribed the findings from the Pucara to the Calchaquí Culture, while those from La Isla, as well as did Debenedetti, were ascribed to the Humahuaca Culture, identifying it as a new tradition in the region.

Despite this generalization, Debenedetti defined the southeast sector of the Pucara as one of the oldest, given the architectonic characteristics of some structures and the attributes of certain pieces which reminded him of some found in La Isla and El Alfarcito (Debenedetti 1918). This proposal was also supported by Madrazo (1969). Nevertheless, the results achieved through the stylistic analysis of the ceramic material recovered in the excavation of three structures from this sector, during 2009 and 2014, and through the radiocarbon dating of these spaces, do not concord with these observations. In the same way as with the others Pucara's structure, we were only able to identify objects corresponding to the lapse

[2]Among these we can mention a batch of pieces that were found in 1921, in tombs located in gullies behind the Parochial Church of Tilcara. These pieces were recovered in 1921 and listed in the MET from 27224 to 27242. From this batch, the vessels located in the Museo Arqueológico "Dr. E. Casanova" have been numbered MT 2131, 2251, 2286, 2321, 2447, 2585, 2596, 3122, 3125, 3129, and 3480. On the other hand, besides several isolated pieces (e.g., MT 2186-MEJBA 2738; MT 2544-MEJBA 2876; MT 2156-MEJBA 22925; MT 2282-MEJBA 26422; MT 2368-MEJBA 31754; MT 2547-MEJBA 42229; among others), an assemblage of vessels found by Casanova in Belgrano's street in 1937, possibly during archaeological salvage tasks, is also included (MEJBA 37-142 and 37-144).

[3]The same was noticed when we checked the provenance of several lithic, bone, wood, or metal objects.

comprising the two centuries before the arrival of the Incas and the period corresponding to its domination.

This evidence is very helpful for the understanding the characteristics of the site's occupational history. While it demonstrates a prolonged occupation of the hill, the high percentage of ceramic materials corresponding to the late pre-Hispanic time (97%, $N = 305$) reflects an interval of greater occupational density. This density is also reflected in the intra-site distribution of the objects belonging to these moments. Starting with the inventory number of each object we were able to determine its location inside the Pucara. From these data, the grouping of 659 materials manufactured in bone, wood, stone, and ceramic allowed us to identify 139 sets of findings recovered in different sectors of this site by Ambrosetti, Debenedetti, and Casanova. Of these 139 sets 96 include ceramics with a known provenance ($N = 242$). In 55 of these 96 sets we could identify vessels corresponding to the moment of the Inca occupation. Calculating the percentages indicates that 57% of the studied spaces, which were described by the authors as *Casas* (houses) and *Yacimientos* (archaeological sites) distributed both in the top, as in the upper terrace, and southwest, south, and eastern slope of the Pucara, display evidence belonging to this time.

This high representation of Inca ceramic, in addition to providing a comprehensive picture of the main ceramic types being produced, consumed, and that were circulating during this moment, also serves to demonstrate that the material record is mainly represented by elements belonging to the last moments of the site's occupation. Beside the four ceramic pieces mentioned before, there is other Hispanic–indigenous evidence but, in general, the materials belonging to the previous moment are the predominant ones. This difference in the composition of the assemblages possibly reflects the abandonment interval of the town for residential use.

The pieces of non-local origin ($N = 55$) are also represented by an important number of Inca ceramics ($N = 24$) (Fig. 2). The remaining vessels ($N = 31$) belong to the late styles from other regions of the south central and Southern portion of the Andes (Fig. 2). They are defined in this way because they were used throughout the last pre-Hispanic time. Among them we distinguish Yavi-Chicha ($N = 7$), Santamariano ($N = 1$), Casabindo B/R ($N = 1$), non-local Angosto Chico Inciso ($N = 4$), Red Polished ($N = 3$), Corrugated ($N = 2$), Huruquilla ($N = 1$), and pieces for which we could not determine the provenance of and were classified as indeterminate ($N = 12$) (Table 2).

Among the 24 Inca vessels, only one corresponds to the Cuzco polychrome style (Rowe 1944) (Table 2). It is an *aribalo* with zoomorphic representations. On the other hand, in the Provincial Inca group we included seven pieces that are linked to this style since they are vessels that imitate iconographic, morphologic, and structural design attributes of the Cuzco's ceramics (Table 2). However, they are different from them if we look at the techniques employed in their production, in some cases exhibiting a lower manufacturing quality. Nevertheless, it is worth mentioning that this productive differentiation may be difficult to recognize since we still do not have access to the full repertoire of Inca Cuzqueña or from the other provinces of the Empire's pottery.

Table 2 Classification of non-local vessels

Form/style	Cuzco poly-chrome	Inca Provincial					Yavi-Chicha	Huru-quilla	Red polished	Corrugated	ACHI non local	Santamariano	Casabindo	Ind.	Totals
		Imperial reproduction	Inca Pacajes	Inca Paya	Inca Yavi-Chicha	Ind.									
Bowl/*Puco*							4	1	3						8
Ornithomorphic plate			3		1	5									9
Double handle plate		1				1									2
Jar		1		1	1	1									4
Kero glass														1	1
Deep bowl														2	2
Lateral handle deep bowl							1								1
Pot							2			2	4			2	10
Pedestal pot						1						1	1		3
Pitcher														5	5
Aríbalo	1	5				1									7
Pelike					1										1
Sculpt figure														2	2
Totals	1	7	3	1	3	9	7	1	3	2	4	1	1	12	55

References: *ACHI non local*: non local Angosto Chico Incised; *Ind*. indetermined

On the other hand, the non-local Inca Provincial group includes regional styles such as Inca Pacajes ($N = 3$), Inca Paya ($N = 1$), and Inca Yavi-Chicha ($N = 3$), which possibly circulated around the southern Andes via parallel channels to those of the Inca Polychrome ceramics (Williams 2004). Besides these three styles we also identified pieces with clear Inca attributes that, although being detected in other sites of northwest Argentina, for the moment cannot be ascribed to a certain origin or style. It is for this reason that they are called indeterminate Inca Provincial ($N = 9$) (Table 2).

3 Stylistic Transformations in the Local Ceramic

With the Inca arrival, the Quebrada's pottery acquired new ways of social representation, responding in some cases to the use and manufacture of state parameters, the coexistence with foreign groups to the region, the pottery circulation from other provinces, and the re-signification of local artisans' productive practices in reaction to the impact of the imperial annexation. This caused a greater diversity in forms and designs in the composition of local ceramics, reflected in the case of the Pucara in the analysis of the 82 pieces attributed to the Humahuaca Inca's group (sensu Nielsen 2001; Cremonte 2006) (Table 1). Inside this group, the predominant ones are the Humahuaca Inca B/R pieces ($N = 60$) (Table 1). This high representation, which corresponds to 73% of the local Inca Provincial ceramic, allowed us to register different ways of expressing some of the introduced variables. It is worth mentioning that similar variables were also identified in the Humahuaca Inca B/P style, very scarcely represented in the sample ($N = 6$) (Table 1). For this reason we considered that their inclusion in the assemblage was appropriate.

The emphasis was mainly directed to the study of new modes of representation of the decorative elements and modifications in the structuring and composition of the designs. Partly, this is due to the fact that the regional literature generally presents references to the morphological changes of the pieces neglecting information over decorative variants (Deambrosis and De Lorenzi 1973; Raffino 1983, 1993; Palma 1989; Nielsen 1997, 2001; Ruiz and Albeck 2006; López 2006; Runcio 2009). In certain cases we were able to identify that these modifications were made with the intention of reproducing the foreign attributes of pieces, whilst in others, the changes were a reaction to innovations giving origin to new forms and designs, which could be considered as local.

Among the new registered configurations in the open pieces, we distinguished the incorporation of a circular stripe composed by triangles in series with parallel appendices and reticulated rectangles, or just the latter alternating with undecorated fields (Fig. 3a). This stripe is structured in a tripartite way, starting from a center circle bordering the inner base.

Zuidema proposes that, besides the quadruple and quintuple partition, Inca socio-politic organization was, in the first instance, tripartite (Zuidema 1977; Urton 1996). This tri-partition, introducing the concepts of *collana, payan*, and *cayao*,

Fig. 3 **a** *Puco* MT 2189-MEJBA 4850 found in 1909 at Casa 61, **b** *Puco* MT 3599, recovered in 1972 by Casanova, associated to lateral handle *Black Polished* Interior *pucos*, in a burial located by the former vehicle road (Fig. 1), and **c** *Puco* MT 2194-MEJBA 7221, found in 1910 at Casa 53. This *puco* appeared associated to several Humahuaca-Inca ceramic pieces, wood and stone objects, and a bronze *tumi*

also responded to a social hierarchy, to the Inca's sub-lineages, and to a social organization, also hierarchic—that of the *ceques* system (Bauer 2000). Beyond the fact that this new way of structuring the designs is linked or not to this ternary notion, it is possible to suggest that the social changes product of the domination carry through a different managing of the pieces' inner space, based on the translation of the motifs following a radially form.

Another incorporation noticed is the use of reticulated stripes, formed by arcs connected at their ends (sensu Salas 1945: 117), arranged in a circular or lineal way (Fig. 3b, c). In the case of the latter, an application of two stripes is usually detected. One of them is placed in the middle and upper portion of the body while the second is placed around the base (Fig. 3c). López (2006) associates this type of decoration with the starry shape, as seen in cross-section, of the Venetian *Aggri Perlen* beads, detected in several Hispanic–indigenous contexts of the Quebrada. Inside the Pucara, Ambrosetti (1908) recovered these types of beads in one of the structures on top of the site, named by him as "*Casa del Amurallado*" (fortified house). Nevertheless, the *pucos* described here were found in spaces corresponding to the Inca's occupation. Previously, Cremonte and Solís (1998: 159) indicated that this type of motif, also represented in pieces from the Pucara de Volcán, is assignable to this moment.

The reticulated mesh in all of these *pucos*, both the ones with circular configurations as well as the ones that show arched stripes, is tightly delineated and uses right angles. In some plates, also attributed to Inca moments, the mesh is so tight that it is impossible to distinguish the reticulation by eye. In these pieces, the stripes seemed to be filled with black paint (Fig. 4a). Another introduced variable corresponds to the use of crossed parallel lines (Fig. 4b). This type of design was also detected in Inca Provincial *pucos* from other regions.

Another decorative attribute which could be defined as particularly from this moment is the application of thick parallel lines of rounded points in the outer and inner rim over a wide variety of forms (*pucos, platters, deep bowls, ornithomorphic plates, small pots, pelikes, and aribaloides*) (Fig. 5). In some of these pieces, these

Fig. 4 **a** Platter MT 2192-MEJBA 7201, found at Casa 55, excavated in 1910; it corresponds to *Yacimiento* 167 in the publication of Debenedetti (1930: 101). This platter was associated to a figurative Cuzco Polychrome *aríbalo* MEJBA 7604 and an Inca Provincial jar MEJBA 8610, and **b** *Puco* MT 2316-MEJBA 35084, recovered at *Yacimiento* 20 on 1929 (Debenedetti 1930)

Fig. 5 Left: platter MT 2209-MEJBA 4048, found in 1909 at Casa 104, next to a Juella Polychrome pot. Right: deep bowl MT 2290- MEJBA 4840, recovered in 1909 at Casa 62

lines are combined with the black line appearing over the rim in most of the local pieces. Nielsen also describes this type of decoration for some *pucos* belonging to this moment found in Los Amarillos (Nielsen 1997).

Modification or introduction of motifs and new organization forms in the painted decoration is registered in many cases alongside morphological variants. One example of this situation belongs to a 11.5 cm high side handle jar (MT 2329-MEJBA 7029) (Fig. 6). Despite the fact that it corresponds to a sub-globular piece with a very restricted neck, as the ones described by Deambrosis and De Lorenzi (1973: 132), this one shows a difference in the position of the handle. Although the handle is absent, it can be identified due the insertion formation in the upper body. Considering that it does not display another visible insertion, we estimate that the superior extremity of the handle must have had a vertical adhesion to the rim as registered in narrow neck and flat base vessels, belonging to the B3 category of the formal classes proposed by Meyers (1975: 24). This arrangement of the handle has not been registered in other pieces from the Quebrada. Jars, also with Inca influence, as the ones described by the authors here or the ones referred to as *Puchuelas* and *Aysana* by Palma (1998), Runcio (2009), display a double insertion in the body.

On the other hand, among the analyzed assemblages, this piece's configuration design is exceptional. A reticulated central stripe was applied as a decorative motif, framed at its sides by two lines of chained black triangles. The triangles of every chain are facing each other. For now, this type of arrangement of local elements has not been identified in other pieces.

Fig. 6 Jar MT 2329-MEJBA 7029. Drawn by Bregante (1926: 273, Fig. 324). Detail of the decoration from a perpendicular view. This jar was found at Casa 53, mentioned in Fig. 3c

Fig. 7 *Kero* shape piece MT 2550-MEJBA 35135, found in 1929 in one of the *Yacimientos* that appears isolated in the catalogs, possibly in the southeast slope. This piece appears next to a small pot that presents the same type of decoration

A vessel that also presents a unique form and decoration type is a glass with everted to vertical walls. This contour recalls the "i" shape proposed by Rowe (1944: 48) for the ceramic typology of the Late Inca Period. This type of shape, clearly associated to *keros*, was identified in Sacsahuaman's grave goods (Julien 2004: 9). Considering the surface treatment, we could say that this vase is from local manufacture. It depicts black decoration consisting of two reticulated stripes over a red to purple polished *engobe* (Fig. 7).

Until now, taking consideration of the whole sample, this would be the only piece with these morphological characteristics. In turn, there are not many references to this shape throughout the Quebrada. It could only be linked to the cylindrical glasses described by Salas (1945: 128) which were found on the surface at Ciénaga Grande. This author mentions the issues that arose about their temporal determination. Actually, endorsing Boman's stance over Debenedetti's, he argues that even if this form appears in Tiahuanaco's assemblages, they are characteristic of Inca pottery (Salas 1945: 128). In the particular case of the Pucara's glass, it was found along with objects of Cuzco's affiliation.

Fig. 8 Ornithomorphic plates. *Left* MT 2284-MEJBA 3708, found in 1908 at "The Church" or Casa No 1 of MET's catalogs. This casa, located in the center of the Pucara, functioned as a ceremonial building (Fig. 1). *Right* actual condition of the plate MEJBA 3345 and the drawing by Bregante (1926: 294, Fig. 355), found in 1908

Beyond its shape, definitely Inca, the ornitomorphic plates are another example of vessels combining local attributes as well as those adapted from other regions. The term used is ornitomorphic, instead of "duck", given the diversity of bird representations identified among the 16 plates composing the sample, which were distributed among different local and non-locals styles (Tables 1 and 2). Seven pieces from the Humahuaca Inca B/R were identified. Even though manufacture is clearly local, four of them present a central stripe composed by triangles joined by their vertices and combined with parallel vertical lines as decoration (Fig. 8), similar to the one described by Rowe (1944: 47) in the classification of Inca pieces from the Cuzco. The appendices from two of these plates could correspond with a depiction of tufted ducks (Julien 2004: 10) (MT 2284-MEJBA 3708, MEJBA 8737), while the remaining two could depict sharp-beaked birds (MT 2381 and MEJBA 3348) (Fig. 8). The state of the latter is currently incomplete. Nevertheless, its description is based on a complete drawing presented by Bregante (1926: 294, Fig. 355) (Fig. 8). Unfortunately, many pieces were fragmented before being transferred from the MET to the Museo Arqueológico "Dr. E. Casanova" in Tilcara. On some occasions, these fragmented pieces were separated and transported without specifying the corresponding original piece.

The structure of the remaining plate's decorative elements also responds to Inca manufacture parameters. This is a piece (MEJBA 4337) presenting two crossed stripes filled with reticulated *dameros* (checkerboard; motif C3 from Deambrosis and De Lorenzi 1973: 134), similar to the ones registered in Cuzco's pottery (Pardo 1939: 18 and 21, lam. 9 Fig. q) (Fig. 9). Despite the fact that the use of *dameros* is identified in pre-Inca vessels (Nielsen 1997; Rivolta 2005), the distinctiveness comes from the way they are organized. This plate, as well as the ones described above, is incomplete. In the drawing of this piece, Bregante remarks about the fracture line (Fig. 9). Nevertheless, the author must have had the two parts composing the piece since the appendix is included.

The two remaining plates are also fragmented. From the MEJBA 8724 we only have the appendix, depicting a bird with a sharpened beak. Despite showing bad conservation one can tell that it was painted in black. The other plate, MEJBA

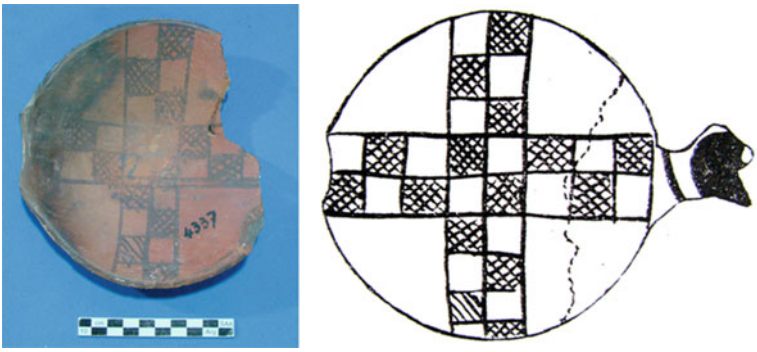


Fig. 9 *Left* plate MEJBA 4337. *Right* drawn by Bregante (1926: 293, Fig. 352). This plate was found in 1909 at Casa 46, which corresponds to *Yacimiento* 158 on Debenedetti's (1930: 98) publication, possibly located on the upper terrace of the Pucara

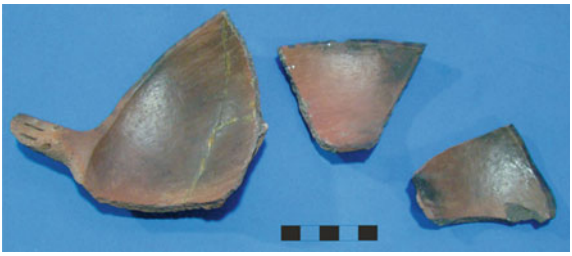


Fig. 10 Plate MEJBA 8738, found in 1908, during Ambrosetti's excavation at the top of the Pucara

8738, is composed of half a body and the appendix section, representing a stylized duck head (Pardo 1939: 19, lam. 8 Fig. f; Julien 2004: 10). Its surface is covered by a polished coating that goes from red to brown. A set of black parallel lines with rounded edges are disposed as decoration (Fig. 10).

Pelikes are another set of pieces in which we can observe new representational methos. In five of the six analyzed pieces we registered a new structuring in the design, based on successive horizontal stripes placed on the medium and upper body of the pieces. These stripes are composed of black painted elements such as triangles with parallel or spiral appendices, reticulated rectangles, and vertical parallel lines, which are translationally repeated or combined by alternation, similar to the cases of the *pucos* with radial decorations. On some occasions, these elements are presented in a mirrored way or repeat themselves over the external neck (Fig. 11). Selection of this surface as a decorative field is characteristic of this moment, since it has not been registered in pre-Inca pieces.

We also detected a decorative variant over the inner edge of a *pelike*. The elements placed there are different from the ones composing the stripes from the body and external neck. We are talking about triangles with spirals, presenting as a

Fig. 11 *Pelikes*. *Left* MT 2692-MEJBA 5085, found in 1908 at Casa 56. *Center* MT 2689-MEJBA 25851, recovered in 1918 at Yacimiento 306, alongside a Humahuaca-Inca B/R *puco*. *Right* MT 2679- MEJBA 4521, recovered in 1909 in one of the tombs of the North Cemetery

final aggregate parallel appendixes, while the ones placed on the body and the neck are simpler (MT 2679-MEJBA 4521) (Fig. 11). These motifs can be defined as non-local, since the local ones usually combine triangles with parallel appendices, parallel lines, and reticulated fields. It is worth noting that during late pre-Inca times, the triangles with parallel appendices only appear in *pucos* and platters. Until now, these have not been registered in restricted pieces.

Reticulated fields in the *pelikes* also demonstrated new inscription techniques at this moment in time. Among the pitchers and pots from the pre-Inca times, reticulation appears as the filling of straight stripes with rounded or ovals edges. In the case of *pelikes*, the reticulation was used to complete the interior of rectangular motifs, whose contours were adjusted to the limits of the continuous stripes decorating each face of the piece. In most of the cases, the design pattern is not strictly repeated over both faces. Generally, the decoration from each face of the body is only combined with the one from its respective side of the neck.

The way in which the stripes are configured, horizontally, and the incorporation of spiraled triangles, particularly the ones presenting as a final addition to parallel appendixes, led us to think about the usage of certain characteristics and design elements from the Yavi-Chicha pieces (Ávila 2006; Runcio 2009). This could be possible if we consider that many good quality specimens from this type circulated between Inca sites in the Argentinian northwest and, in turn, that *mitimaes* from Chicha origin could have inhabited the Quebrada de Humahuaca (Raffino 1993; Williams 2004). In this sense, we could make reference to an "incaization process" of the ceramic generated, partly, due the involvement and presence of Chicha's settlers (Cremonte 2014).

In other Humahuaca Inca B/R and B/P restricted pieces, as in the case of pitchers, pots, and *aribaloides*, we also registered the use of new representation motifs and ways of organizing the elements. Although reference had been made in the archaeological literature regarding the appearance of pennants or streamers (Deambrosis and De Lorenzi 1973: 134–135), it was not only their incorporation

Fig. 12 *Aribaloides*. *Left* MT 2252-MEJBA 35101, found in 1929 at Yacimiento 35 that corresponds to *Yacimiento* 211 on the publication of Debenedetti (1930: 126). This *aribaloide* appeared associated to several ceramic pieces, like an Inca Provincial *aríbalo*, whose decoration mimics the one found on imperial vessels. *Center* MT 2222-MEJBA 7514, found in Casa 35, excavated in 1910, which corresponds to Debenedetti's (1930: 147) *Yacimiento* 147. This *Yacimiento* was identified as a house–workshop responsible for the specialized production of artisanal goods. *Right* MT 2289-MEJBA 3719, found at Casa No 2, excavated in 1908. Evidence of metallurgical production were recovered in this casa, located on Pucara's upper terrace

that explains the stylistic variable. Its introduction was accompanied by a new design structure.

Pennants, unlike chained triangles arranged vertically along the sides of each face of some Humahuaca B/R restricted pieces, are more stylized and are not joined by their vertices. These are placed over black vertical lines not only on their sides but also at the center of each face, arranged in alternation and opposition (Fig. 12).

Comparing the design configuration of these pieces we could observe that pennants are combined in different ways and they even display different representation formats. For example, apparently there is no standardization in the arrangement of these elements. In all of these vessels, regardless of the morphological type, beyond the design structure into two sub-fields, which recalls the Inca *aribalos* with central stripes, the pennants are presented in three vertical rows, but not following a pattern regarding their orientation.

Unlike *pelikes*, these pieces usually repeat the design over both faces. Among the registered combinations we can mention are: a first pennant placed on the left lateral line facing two others placed on the central line, as well as this arrangement being repeated by translation in the other half of the decorative field; two pennants placed in the first row facing a central one, and then the repetition of this arrangement; or the placing of two pennants in the first row facing two in the center, with the appearance of this arrangement, not repeated but reflected in symmetry over the other half of the field.

The symmetry is approximate in some cases. Given the irregularity of many vessel contours, decoration does not always show uniformity. In turn, we have identified different recording modes regarding the pennant's means of representation. In some pieces we can even observe that they have lost their set of features.

Fig. 13 *Aribaloides*. *Left* MT 2196-MEJBA 35102, associated to the *aribaloide* MT 2252-MEJBA 35101 found at *Yacimiento* 35 in 1929, described in Fig. 12. *Center* MT 2222-MEJBA 7514, above mentioned on Fig. 12. *Right aribaloide* neck MEJBA 8731, found in 1908, without location references for the Pucara

Instead, while maintaining the layout, straight or slightly curved thick lines are placed.[4]

Regarding the design configuration, we can also propose a different reading of the pieces depicting pennants. Ceramic fields of representation possibly had a ruled decoding order which cannot be discerned by us. Nevertheless, we can assume that this order did not present a single and unique visual level, as accustomed during the stylistic analysis of certain objects. Both the *aribaloides* as the pitchers with pennants can be "read" perpendicularly to their mouths (Fig. 13). In every one of the variants inside this style, beyond the registered combinations on each face of the body, we can observe a circular series of translation of the pennants, either clockwise or counterclockwise. This series is combined with the elements depicted on the inner edges, such as little lines or streamers that start at the edge and end with a rounded tip. In some of these pieces we also registered the application of black triangles vertically placed over their inner edges. Besides the MT 2222-MEJBA 7514, previously described, we have the neck of an *aribaloide* depicting this same decoration (MEJBA 8731) (Fig. 13). In this case, a black painted line over the edge joins the triangles by their bases.

Inca domination must have also considered the creation of a new visual memory through the colors of the objects used in different practices. Regarding *engobe* coloration, beyond the fact that in many vessels we identified a shift from red to brown or purple, in some pieces we could observe the intention of applying more intense brown and purple baths. Such is the case of a Humahuaca Inca B/P *puco*

[4]This variant was also registered on a restricted piece founded in the Hispanic–Indigenous cemetery of La Falda. It is a pitcher presenting only a central stripe with thick lines placed willowy. Instead of using black painting, usual to the pottery of this area, the decoration of this jug is purple. Also, it was in this cemetery where Mendonça and Bordach (Mendonça et al. 1997) recovered an *aribaloide* and a jug depicting the same design pattern as the pieces with pennants in the Pucara.

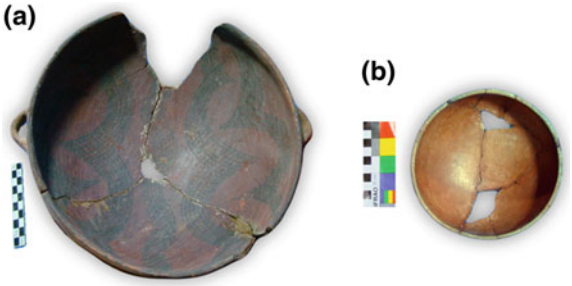


Fig. 14 **a** *Puco* MEJBA 4230. Found in Casa 8, excavated in 1909, which corresponds to *Yacimiento* 113 in the publication of Debenedetti (1930: 83). This *puco* was found associated to bone and wooden tools, *huemul* (deer) horns and other ceramic pieces, and **b** *Puco* Brown Polished MEJBA 3215, recovered in 1908, at Casa de Altamirano, located at the top of the Pucara

Fig. 15 Lateral handle *puco* MT 3589, found in one tomb located next to the former vehicle road during Casanova's excavation of 1972

(Fig. 14a) and a piece defined as Slipped Brown Humahuaca Inca, the only specimen of this style detected in the sample (Fig. 14b).

Another morphological type adopted during Inca moments and presenting a wide range of tonalities is the one of *pucos* with a lateral handle. Among this morphological variant, we have registered Black Polished Interior and Brown Polished Interior Humahuaca Inca pieces in the sample (Table 1) (Fig. 15), although we also have undecorated specimens.

The 14 *pucos* analyzed here showed smoothed external surfaces, in some occasions with a bad finis or barely combed. The diameter of the mouth of these *pucos* varies between 11 and 16 cm and the regularity of their contours also varies. In some of them, besides the wear marks on the inner bases, we registered soot on the opposite portion of the handle or on the inner walls. According to Nielsen (Nielsen and Boschi 2007), maybe these *pucos* were used as incense burners. We think that this proposal is correct since they have been frequently found in burials and are easily grasped, given their size and the type of handle that they present. Among the pieces studied here, five where found in burials. In turn, Debenedetti (1930) repeatedly mention their presence in funerary contexts.

Acknowledging the different transformations in the local pottery led us to reflect upon the pace of change of use of different materials. It is possible that these were produced at different moments and as different responses to different kinds of

interaction between the local people and their conquerors as well as the development of the State itself. The dynamics of the articulation between the subjugated groups and the Incas is frequently discussed. In this case, perhaps pottery reflected not only the changes which occurred during the annexation but also expressed the ways in which successive Incas, and therefore their representatives, understood and comprehended the world during the period of occupation of the Quebrada. At the moment it is impossible to specify the stages of these changes, because it remains a challenge establishing the precise dating for the trajectory of this domination. Nevertheless, the wide set of modifications reflects the perception of the potters facing a new reality, a reality which included the everyday coexistence with people and materials brought from other regions.

On the other hand, this characterization of Late and Inca style pieces from the region allowed us to determine the incorporation, maintenance, and transformation of several motifs and configurations, which partly indicate the persistence, with modifications, of a shared language between different materialities over time. It is possible that the type of registration and the way of reading these objects also varied as a response to the necessity of transmitting new notions during Inca domination, yet highlighting elements of the *tilcaras* (local groups settled on the central sector of Quebrada de Humahuaca).

4 Stylistic Representations as Local Identity Referents

Certain identity marks, expressed in the iconographic representations of some pieces, can be noticed in the Humahuaca ceramics. Taking these representations, earlier defined as abstract or geometrical (Casanova 1942) as a starting point, the pottery decoration in the region can be analyzed from a different standpoint. In order to comprehend these marks we could think of the ceramic pieces as representations of the human or the social body. References to this expression can be found in different regions of the Andes regarding textiles (Cereceda 2010), as well as ceramic vessels (Bray 2004; Nastri 2008, 2009; Arnold 2008[5]), as living beings.

In the case of the Quebrada, it is the objects themselves which makes them explicit. Two little anthropomorphic pitchers Humahuaca B/R were recovered in the Pucara (Fig. 16a, b). These pieces maybe reflect the different ways to register in certain statements regarding the social network, as in the case of the ethnic identification through the anthropomorphic metaphor. Thus, the decorative design of these pieces could be understood as a reflection of the characteristics of the dresses used both before and during Inca presence. This could even be extended to those vessels

[5]Denise Arnold mentioned that in some indigenous communities in Bolivia, the body of ceramic pieces is identified as the stomach of human beings. This researcher made the comment as part of a doctorate course dictated by her in the Facultad de Humanidades y Ciencias Sociales at the Universidad Nacional of Jujuy, in 2008.

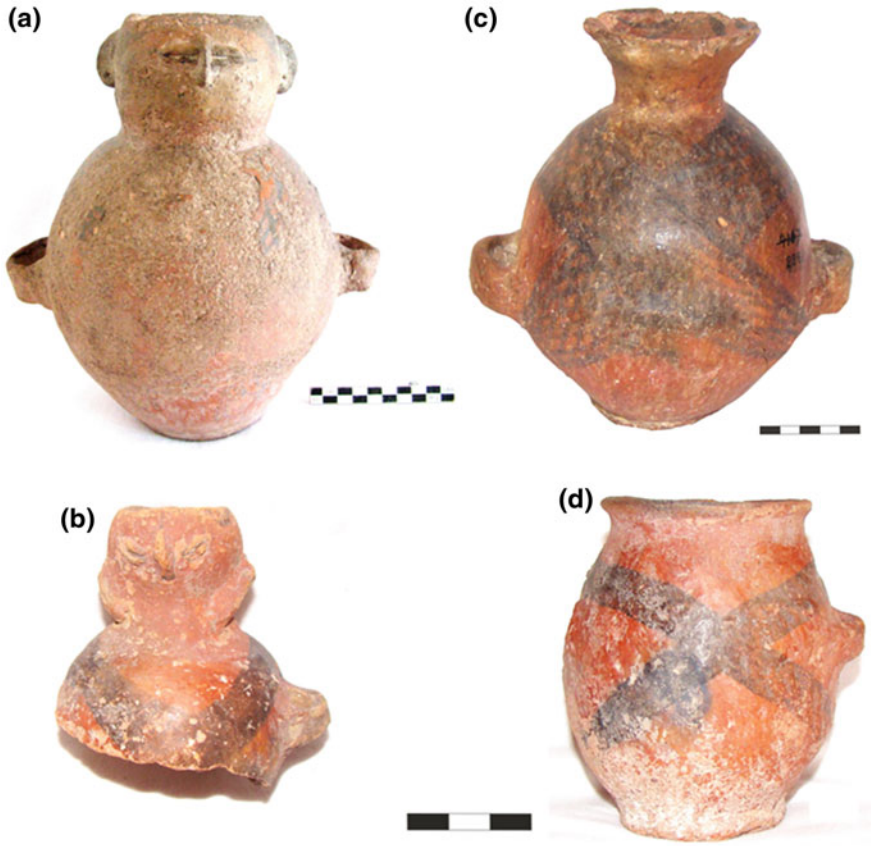


Fig. 16 **a** Anthropomorphic pitcher MT 2574-MEJBA 3322, found at Casa de los Pedernales in 1908, located at the top of the Pucara (Ambrosetti 1908). This structure can also be defined as a house–workshop where stone handicrafts were produced during Inca Period, **b** Anthropomorphic pitcher MT 2234-MEJBA 4436, found at Casa 40, excavated in 1909, which corresponds to *Yacimiento* 152 in Debenedetti's (1930: 97) publication, possibly located on the upper terrace, **c** Small pitcher MT 2254-MEJBA 4167, found in 1909 at Casa 8, where a Poma B/R *puco*, a small Yavi-Chicha pot, and a Humahuaca B/R *puco* were identified, and **d** small pot MT 2351-MEJBA 3774, recovered in 1908 in the Acrópolis, located at the top of the Pucará

showing painted decoration but lacking the addition of a human trait, as the modeling of faces detected in the little Humahuaca B/R pitchers and pots (Fig. 16c, d).

Textiles were, and continue to be in some communities of the Andean world, one of the main demarcations of identity and spatiality (Cereceda et al. 1994; Gisbert et al. 2006). Given the bad conservation registered in these kinds of materials in the Quebrada, the pottery embodied designs cannot be directly linked with those found in textiles, yet it is possible to assume that ceramics were also used to communicate these kinds of messages. Codes of social representation found in

Fig. 17 Anthropomorphic motifs at Peña de la Llama (Coctaca)

textiles were likely repeated in the ceramic design with the purpose of reinforcing the issued messages by using the same signifiers system.

The textiles conserved in the Midden 1 of the Pucara, even if they belong to fragments from textile structures, as *ponchos* or blankets, tapestries, bags or hats, and to twine, cordage, ropes, basketry, fibers, and yarns, allowed us to determine the colors used to dye the threads in some of these pieces (Renard 2006). Among them we could distinguish blue, white, black, red, and a variety of browns and beiges. The palette registered by Renard concords with the color of the materials presented by Forgione (Pelissero et al. 1997), also from Midden 1. Taking both studies as a starting point we can discern that in ceramics, as in textiles, the same contrasts were selected: red and black, red, and black and white.

This reinforces the idea of the existence of some kind of relation between both materials, allowing the transmission of messages in conjunction with starting from a shared semantic, a semantic that might even be deepened by studying rock art depictions. In *Peña de la Llama*, a site located by the seasonal river at Achicote of Coctaca, in the year 2007 we registered anthropomorphic motifs with *uncus* and headdresses painted in black, red, and white (Fig. 17).

Different chronicles indicate that the diverse peoples under the Inca domain identified themselves by their dresses, which included hats, *ponchos*, and headdresses (Rostworowski 1999, 2005; Berenguer 2009). Sánchez (2004) mentions that in ethnographic sources from the XVII century, found in the current Jujuy Province, the groups that inhabited the middle sector of the Quebrada de Humahuaca from *Tumi* (Angosto de Perchel currently) to the south were identified as *tilcara ticas*. For this author, the *tica* denomination was possibly added by Incas due the kind of distinctive headdresses worn by these people, apparently ornamented with feathers. It is also these headdresses that allowed distinction of the inhabitants of Tilcara from others, such as the Purmamarca indigenous people.

If we consider this, as mentioned by Sánchez, we could assume that registered variants in the local ceramic since the arrival of the Inca could be correlated to several transformations in textiles design imposed by the Empire in order to

highlight identity distinctions between different groups from a same region, or between the *Omaguacas* and other groups from outside the Quebrada. Answering these questions we needed to develop a detailed stylistic analysis, comparing the ceramic assemblages ascribed to Inca times in different sites of the Quebrada. Whilst doing this, other transformations registered in the ceramic from the Pucara de Tilcara allowed us to deepen the subject. This is the case of another rhetorical figure that could be added to the use of the anthropomorphic metaphor. We are talking about the metonymic representation of the snake found in *pucos* presenting a spiraled stripe in their interior simulating the figure of such an animal. This type of representation must have had a great historical depth considering, beyond stylistic differences, the tricolor *puco* found in La Isla by Debenedetti (1910: 73, Fig. 42), depicting as a filling of the stripe an open mesh and narrow line reticulate.

Among the analyzed assemblage from the Pucara, we also registered two *pucos* depicting a reticulated spiral, one with an open mesh and the other with a closed mesh, and four cases in which the spiral is composed by parallel oblique or vertical lines. In the specimen presenting a closed mesh reticulate, the snake representation is far more explicit, since a bifid tongue was drawn at the end of the spiral (Fig. 18a). In another *puco*, whose spiral is composed by parallel lines, the motif placed at the tip appears to be representing the head of a snake (Fig. 18b).

The meandering design from the reticulated stripes in a Humahuaca Inca B/P platter and the black stripes in the Poma B/R *pucos* could also reference the characteristics traits of the snakes (Fig. 19a, b). According to Tarragó (2001), and considering the information provided by Debenedetti, who mentions that these *pucos*, used for covering pitchers filled with *chicha* among other functionalities, must have had an important extra social meaning for everyday life linked to the consumption of this beverage, which would also explain their external decoration, easily perceived during festivities and ritual events.

Wynveldt (2009) suggests that the filling of the segmented stripes of certain zoomorphic bodies present in the pottery from the Hualfín Valley with dots or straight crossed lines, could represent ophidians scales. We could interpret the reticulate found in the Humahuaca's pieces in the same way. Even in the spiral design with parallel lines from a *puco* found in the Pucara (MT 2476-MEJBA 4263), each set of stripes seems to resemble the rings placed on the skin of some

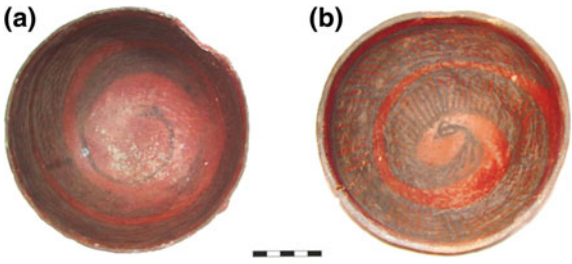


Fig. 18 **a** *Puco* MT 2419-MEJBA 7479, found in 1910, without site references inside the Pucara, and **b** *Puco* MT 2153-MEJBA 4755, associated to a *Black Polished* Interior *puco* at Casa 41, excavated in 1909, possibly located at the top of the Pucara

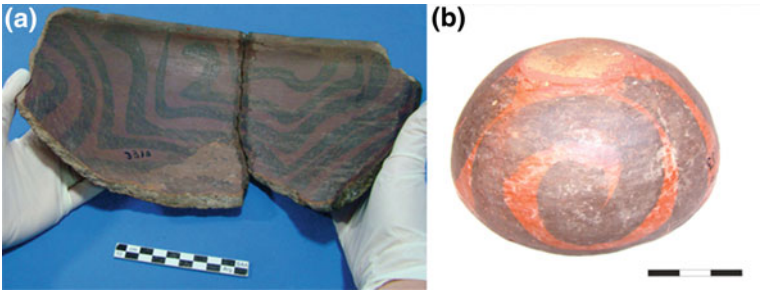


Fig. 19 **a** Platter B/P, MEJBA 3310, found in 1908, during the first interventions at the Pucará around Morro 2, located near the top (Ambrosetti 1908), and **b** Poma B/R *puco*, MT 2603-MEJBA 35076, found in 1929 at Yacimiento 16, which corresponds to *Yacimiento* 192 in the publication of Debenedetti (1930: 117). This *puco* was found inside a big restricted piece used to bury a child

Fig. 20 *Left puco* MT 2476-MEJBA 4263, found at Casa 29, excavated in 1909. *Right* fake coral specimen, *Oxyrhopus rhombifer*, recovered in Tilcara. Photographs by Noel Montoya and Pablo Ochoa

snakes from the region (Fig. 20). The brightness and the watered-down type of decoration in this *puco* recalls the Inca Yavi-Chicha pieces.

Besides the reticulate, widely depicted in every morphological type, the choice of black over red and black and white over red for decorating the ceramics can also be related to the colors of the Fake Coral and Coral snakes, which can be found in the Province of Jujuy. The B/R could also be associated with the color of the spiders regionally called *Wairuru*. Since Colonial times, in the Quechua and

Aymara languages, this word is used to reference the black and red tropical seeds and also extreme beauty, which could extend to danger or even death (Cereceda 1987) and, as expressed in some Andean myths, was understood as a medium between humans and mysterious forces (Siracusano 2005). In each case, these authors argue that colors intervened in many different aspects of Andean life, representing diverse meanings according to their tonality. The B/R might prove the confluence, but also the contrast, between two colors perhaps representing a warrior people, identified with some wild animal characteristics.

Snakes and other reptiles were profoundly identified with hydric resources and rain (Bouysee-Cassagne 1988), so necessary for agriculture. In turn, ophidians as well as felines and condors were some of the animals linked to a temporal–spatial dimension called *Ucu Pacha,*[6] as they travelled alongside the dead and everything existing underneath the earth or water surface. Some natural features, such as water sources, caves, or any other cavity in the Earth's crust, were a communication media towards this subterranean world linked to death and birth, and mainly with fertility (Fink 2001; Steele and Allen 2004).

Snakes and other animal representations, considered as water symbols, are also detected on metal plates, "trumpets", and bone spatulas found in several structures from the Pucara. Beyond the fact that these ophidians are registered implicitly and metonymically in these different objects, the representations themselves demonstrate how important they were. Thus, the repetition of this element in the designs could be understood as a reflection of beliefs tied to the existence of a symbolic dimension loaded with supernatural nuances and/or fertility related practices. We also need to consider the necessity of transmitting certain traits, which combined specifically or singularly, allow us to say something about the identity of this people, closely linked to their natural environment.

5 Conclusions

The analysis of 315 ceramic pieces from MET "J.B. Ambrosetti" and Museo Arqueológico "Dr. Eduardo Casanova" (both belonging to the Facultad de Filosofía y Letras, UBA) allowed us to progress on different aspects. On the one hand, the correlation of the provenances between both institutions catalogs served to demonstrate the importance of searching references regarding the origin of the pieces before even starting any kind of study with collections in order to minimize errors at the time of characterization of sample composition.

This characterization, besides allowing the temporal delimitation of the assemblage, also helped us to notice their diversity. Beyond the variety of local styles

[6]While one can argue that the *Ucu Pacha, Hanan Pacha* and *Kay Pacha* realms responded to a transfer of the Christian ternary imagery (Steele and Allen 2004), Pease (2007) argues for the identification of *Ucu* as one of the two worlds in the Andean worldview that made, and still make in many communities, reference to a lower world, in opposition to *Hanan*, the upper world.

attributed to the complete Late pre-Hispanic times, we also registered an important number of styles circulating in *Tawantinsuyu* times, possible as a consequence of the complex state organization based, among other things, in reciprocity through goods re-distribution and in population transfer. Considering the fact that we also registered pieces with origins in trans-Andean, Altiplanic, and forest regions, it is possible to argue that the Quebrada functioned as one of the main communication corridors as the annexation of territories to the south advanced.

Most of the pieces of non-local origin, particularly the Inca ceramics, are easily manipulated and transported, given their small sizes. In the case of *aribalos*, none of them surpasses 23 cm, but nonetheless they are very significant. The content of these vessels or their uses might even be more valuable than the pieces themselves. As Bray (2003) points out, there was a close link between food, politics, and gender issues proposed through Imperial ceramics with their use as cooking equipment and symbols of the State serving to mark social differences. These differences were also promoted in the provinces in order to back up the Empire's construction and legitimation. Under these circumstances, the role of *aríbalos* must have been fundamental since they are directly related with the consumption of *chicha*. This beverage was one of the most important during Inca times given its very prominent role in political and ceremonial events (Cremonte et al. 2009). This fact might help us understand the reason we found an important number of *aribalos* among the Imperial tableware of the Pucara, which was functioning as the *Wamani* capital.

With the arrival of the Inca, local pottery also shifted to express these social differences and transformations. In conjunction with other media, ceramics worked as one of the main vehicles for the circulation of style, necessary for the enactment of political and ideological codes of both the State (Morris 1995) and the local communities. Hence, not only do we approached the stylistic features incorporated on the local pottery in terms of innovation and repetition but also as a reflection of multiple social processes triggered by Cuzco's domain, processes which likely involved identity demarcation.

In this regard, along with textiles, ceramics must have constituted one of the primordial objects used for the inscription of statements shared by the whole of society, functioning in turn as dynamic and non-exclusive texts for both the language of the Quebrada populations as the one imposed by the Empire. Hopefully, as the contextual studies of the ceramics regional repertoire keeps expanding, we will be able to identify the persistence of other signifiers possibly linked to the local beliefs system, as well as other variables that, like the ones presented here, could had been introduced through the circulation of new narratives.

Acknowledgments Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) and Facultad de Filosofía y Letras (Universidad de Buenos Aires) from Argentine, which funded this research. I particularly thank to Gabriela Ammirati, Alejandra Reynoso, Marina Marchegiani, Victoria Coll, Silvia Manuale, Armando Mendoza y Presentación Aramayo, the staff of the Archeological Deposits of the MET "JB Ambrosetti" and Museo Arqueológico "Dr. E. Casanova" (Facultad de Filosofía y Letras, UBA) for their collaboration during the revision of the Pucara of Tilcara collections. I also want thank to Mauricio Akmentins for determing the Fake Coral specimen as *Oxyrhopus rhombifer*.

References

Ambrosetti JB (1908) Exploraciones arqueológicas en la antigua ciudad del Pukará de Tilcara. Manuscrito conservado en el Archivo del Museo Etnográfico. Facultad de Filosofía y Letras. Universidad de Buenos Aires, Buenos Aires (in press)

Ambrosetti JB (1912) Resultados de las exploraciones arqueológicas en el Pucará de Tilcara (Pcia. de Jujuy). Actas y memorias del XVII Congreso Internacional de Americanistas, Vol. II. Buenos Aires

Ambrosetti JB (1917) Los vasos del Pucará de Tilcara tipo Pelike comparados con los de Machu Picchu. Proceedings of 2nd. Pan American Scientific Congreso, Sección Antropología I, Washington, DC

Ávila MF (2006) Un mundo ante sobre morado. Estudio sobre el estilo cerámico Yavi de la Puna Oriental de Jujuy. Dissertation, Universidad de Buenos Aires

Bauer BS (2000) El espacio sagrado de los Incas. El sistema de ceques del Cuzco. Archivos de Historia Andina no 33. Centro Bartolomé de las Casas, Cuzco

Berenguer JR (2009) Chile bajo el Imperio de los Inkas. Museo Chileno de Arte Precolombino, Santiago de Chile

Bouysee-Cassagne T (1988) Lluvias y cenizas. Dos Pachacuti en la Historia, HISBOL, La Paz

Bray TL (2003) Inka Pottery as culinary equipment: food, feasting, and gender in imperial state design. Lat Am Antiq 14(1):3–28

Bray TL (2004) La alfarería imperial inka: una comparación entre la cerámica estatal del área de Cuzco y la cerámica de las provincias. Chungará, Revista de Antropología Chilena 36(2): 365–374

Bregante O (1926) Ensayo de clasificación de la cerámica del Noroeste Argentino. Estrada, Buenos Aires

Casanova E (1942) El Pucará de Hornillos. Anales del Instituto de Etnografía Americana 3: 149–162

Casanova E (1970) El Pucará de Tilcara (antecedentes, reconstrucción, guía). Publicación no 1. FFyL. Museo del Pucará de Tilcara, Universidad de Buenos Aires

Casanova E (1971) El Museo Arqueológico de Tilcara (antecedentes, funciones, guía). Publicación no 2. FFyL. Museo del Pucará de Tilcara, Universidad de Buenos Aires

Cereceda V (1987) Aproximaciones a una estética andina: de la belleza al Tinku. In: Bouysee-Cassagne T, Harris O, Platt T, Cereceda V (eds) Tres reflexiones sobre el pensamiento andino. HISBOL, La Paz, pp 133–231

Cereceda V (2010) Semiología de los textiles andinos: las talegas de Isluga. Chungará. Revista de Antropología Chilena 42(1):181–198

Cereceda V, Dávalos J, Mejía J (1994) Una diferencia, un sentido: los diseños de los textiles Tarabuco y Jal´qa. ASUR, Sucre

Cremonte MB (2006) El estudio de la cerámica en la reconstrucción de las historias locales. El sur de la Quebrada de Humahuaca (Jujuy, Argentina) durante los períodos de Desarrollos Regionales e Incaico. Chungará, Rev Antropol Chil 38(2):239–248

Cremonte MB (2014) El estilo Yavi-Chicha en instalaciones inkaicas del noroeste argentino. Las pastas como posible marcador identitario. In: Rivera Casanovas C (ed) Ocupacion Inka y Dinámicas Regionales en los Andes (Siglos XV–XVII). IFEA-Plural Editores, Serie Actas y Memorias IFEA, La Paz, pp 223–245

Cremonte MB, Otero C, Gheggi MS (2009) Reflexiones sobre el consumo de chicha en épocas prehispánicas a partir de un registro actual en Perchel (Dto. Tilcara, Jujuy). Relaciones de la Sociedad Argentina de Antropología No XXXIV, pp 75–102

Cremonte MB, Solís N (1998) La cerámica del Pucará de Volcán: variaciones locales y evidencias de interacción. In: Cremonte MB (ed) Los Desarrollos locales y sus territorios. Arqueología del N.O.A. y sur de Bolivia. Universidad Nacional de Jujuy, San Salvador de Jujuy, pp 155–178

Deambrosis MS, De Lorenzi M (1973) La influencia incaica en la Puna y Quebrada de Humahuaca, República Argentina. Anales del Instituto de Antropología IV: 129–139

Debenedetti S (1909/1910) Diario de campo de la 5° Expedición Arqueológica de las Regiones del Norte Argentino (Unpublished Material)
Debenedetti S (1910) Exploración arqueológica en los cementerios prehistóricos de La Isla de Tilcara (Quebrada de Humahuaca, provincia de Jujuy). Publicaciones de la Sección Antropológica No 6. (FFyL-UBA). Buenos Aires
Debenedetti S (1918) Las ruinas prehispánicas de El Alfarcito (Departamento de Tilcara, Provincia de Jujuy). Bol. Academia Nacional de Cs. Córdoba. 23:287–318
Debenedetti S (1928/1929) Diario de campo de la 24° Expedición Arqueológica del Museo Etnográfico. Tilcara, Jujuy (Unpublished Material)
Debendetti S (1930) Las Ruinas del Pucará de Tilcara, Tilcara, Quebrada de Humahuaca (Pcia. De Jujuy). Archivos del Museo Etnográfico II, Primera Parte. Facultad de Filosofía y Letras, Universidad de Buenos Aires
Fink R (2001) La cosmología del dibujo del Altar del Quri Kancha según don Joan de Santa Cruz Pachacuti Yamqui Salca Maygua. Histórica 25(1):9–75
Gisbert T, Arze S, Cajías M (2006) Arte textil y Mundo Andino. Plural Editores, La Paz
González AR (1982) Las provincias inca del antiguo Tucumán. Revista del Museo Nacional XLVI: 317–380
Greco C, Otero C (2016) Chronology of settlements with pre-Inca and Inca occupations superimposed. The case of Pucará de Tilcara (Humahuaca Gorge, Argentina). Archaeometry 58(5):848–862
Julien CJ (2004) Las tumbas de Sacsahuaman y el estilo Cuzco-Inca. Ñawpa Pacha 25–27(1987–89):1–125
Lanzelotti S, Ochoa PA, Acuña G (2012) Relevamiento altiplanimétrico del Pucará de Tilcara. Manuscript on file, Biblioteca "R. Molinelli Wells", Instituto Interdisciplinario Tilcara, Facultad de Filosofía y letras, Universidad de Buenos Aires
López MA (2006) Imágenes postconquista y etnogénesis en la Quebrada de Humahuaca, Jujuy, Argentina. Hipótesis de trabajo arqueológico. Revista Memoria Americana 14:167–202
Madrazo GB (1969) Los sectores de edificación en el Pucará de Tilcara (Provincia de Jujuy). Etnía 9:21–27
Mendonça OJ, Bordach MA, Albeck ME, Ruiz M (1997) Collares de Vidrio y Ollas de Barro. Comportamiento Ante la Muerte en el Tilcara Hispano-indígena Inicial (Jujuy, Argentina). Cuadernos 9:175–202
Meyers A (1975) Algunos problemas en la clasificación del estilo incaico. Pumapunku 8:7–25
Morris C (1995) Symbols to power: styles and media in the Inka State. In: Carr C, Neitzel JE (eds) Style, society and person, archaeological and ethnological perspective. Plenum Press, New York, pp 419–433
Nastri J (2008) La figura de las largas cejas de la iconografía Santamariana. Chamanismo, sacrificio y cosmovisión Calchaquí. Boletín del Museo Chileno de Arte Precolombino 13(1): 9–34
Nastri J (2009) La noción de transformación en arqueología antropológica. In: R. Barberena, K. Borrazo y L. Borrero (eds) Perspectivas actuales en Arqueología Argentina. IMHICIHU-CONICET. Buenos Aires, pp 89–120
Nielsen AE (1997) Tiempo y Cultura Material en la Quebrada de Humahuaca. 700–1650 d. C. Instituto Interdisciplinario de Tilcara, (FFyL-UBA), Tilcara
Nielsen AE (2001) Evolución social en la Quebrada de Humahuaca. In: Berberián EE, Nielsen AE (eds) Historia Argentina Prehispánica, tomo I. Editorial Brujas, Córdoba, pp 171–264
Nielsen AE, Boschi L (2007) Celebrando con los antepasados. Arqueología del espacio público en Los Amarillos, Quebrada de Humahuaca, Jujuy, Argentina. Mallku Ediciones, Buenos Aires
Otero C (2013a) La Arqueología en el relato oficial del Estado Nacional. El caso del Pucará de Tilcara (Jujuy, Argentina). Arqueología Suramericana 6(1/2):87–111
Otero C (2013b) Producción, uso y circulación de bienes en el Pucará de Tilcara (Quebrada de Humahuaca, Jujuy). Ph.D. dissertation. Universidad de Buenos Aires
Otero C (2015) Distribución y consumo de cerámica inca en el Pucará de Tilcara (Quebrada de Humahuaca, Argentina). Chungara. Revista de Antropología Chilena 47:401–414

Otero C, Cremonte MB (2014) Local vessels technology of the Pucará of Tilcara during Inca Period (Quebrada of Humahuaca, Argentine). J Anthropol Archaeol 33:108–118
Otero C, Ochoa PA (2011) Primeras aproximaciones a la materialización del tiempo y las prácticas productivas especializadas en Tilcara (Quebrada de Humahuaca, Jujuy). Revista Estudios Sociales del NOA. Nueva Serie 11:101–122
Otero C, Rivolta MC (2015) Nuevas interpretaciones para la secuencia de ocupación de Tilcara (Quebrada de Humahuaca, Jujuy). Intersecciones en Antropología 16:145–159
Palma JR (1989) Proceso Cultural Agroalfarero Prehispánico en la Quebrada de Humahuaca. Ph. D. Diserttation, Universidad de Buenos Aires
Palma JR (1998) Curacas y Señores: una visión de la sociedad política prehispánica en la Quebrada de Humahuaca. Instituto Interdisciplinario de Tilcara (FFyL-UBA), Tilcara
Pardo L (1939) Clasificación de la cerámica cuzqueña. Revista del Museo e Instituto Arqueológico Año 4(6–7):3–27
Pease GYF (2007) Los Incas. Fondo Editorial de la Pontificia Universidad Católica del Perú, Lima
Pelissero N, Forgione C, Alancay R (1997) El Pucará de Tilcara. Colección Mankacén, Buenos Aires
Raffino RA (1983) Los Inkas del Kollasuyu. Origen, naturaleza y transfiguraciones de la ocupación inka en los Andes Meridionales. Ramos Americana Editores, La Plata
Raffino RA (1993) Inka. Arqueología, historia y urbanismo del Altiplano Andino. Ediciones Corregidor, Buenos Aires
Renard S (2006) Los textiles del Basural 1 del Pucará de Tilcara. Excavaciones de 1992 y 1993 (Unpublished Report)
Rivolta MC (2003) Aportes a la arqueología de Tilcara (pcia. de Jujuy) en relación a observaciones efectuadas por Eric Boman. Pacarina 3:287–295
Rivolta MC (2005) Cambio social en la Quebrada de Humahuaca (1100–1400 DC). Instituto Interdisciplinario Tilcara (FFyL, UBA), Tilcara
Rostworowski de Diez Canesco M (1999) Historia del Tahuantinsuyu. Instituto de Estudios Peruanos, Lima
Rostworowski de Diez Canesco M (2005) Ensayos de Historia Andina I. Elites, etnías, recursos. Obras completas V. Instituto de Estudios Peruanos, Lima
Rowe JH (1944) An introduction to the archaeology of Cuzco. Papers of the Peabody Museum of American Archaeology and Ethnology Vol. XXVII, No 2. Harvard University, Cambridge
Ruiz M, Albeck ME (2006) Los Inkas. Editorial de la Universidad Nacional de Jujuy, Jujuy, Espacio y Cultura
Runcio MA (2009) Estilos e identidades: producción y consumo de vasijas cerámicas en la Quebrada de Humahuaca durante los períodos Tardío e Inca (900–1536 d.C.). Ph.D. Diserttation, Universidad de Buenos Aires
Salas AM (1945) El Antigal de Ciénaga Grande (Quebrada de Purmamarca, Pcia. De Jujuy). Publicación del Museo Etnográfico (FFyL-UBA). Serie A, Buenos Aires
Sánchez S (2004) Discursos y alteridades en la Quebrada de Humahuaca (Provincia de Jujuy, Argentina). Identidad, parentesco, territorio y memoria. Boletín de Arqueología PUCP 8:111–132
Siracusano G (2005) El poder de los colores. De lo material a lo simbólico en las prácticas culturales andinas. Siglos XVI–XVIII. Fondo de Cultura Económica de Argentina, Buenos Aires
Steele PR, Allen CJ (2004) Handbook of Inca mythology. ABC-CLIO, California
Tarragó MN (2001) Chacras y Pukara. Desarrollos sociales tardíos. In: Tarragó MN (ed) Nueva Historia Argentina, Tomo I: Los pueblos originarios y la Conquista. Buenos Aires, Sudamericana, pp 257–300
Urton G (1996) R. Tom Zuidema, Dutch Structuralism, and the application of the "Leiden Orientation" to Andean Studies. J Steward Anthropol Soc 24(1–2):1–36
Williams VI (2004) Poder estatal y cultura material en el Kollasuyu. Boletín de Arqueología PUCP 8:209–245
Wyndveldt F (2009) La Loma de los Antiguos de Azampay. Sociedad Argentina de Antropología, Buenos Aires, Un sitio defensivo del Valle de Hualfín (Catamarca, Argentina)

Zaburlín MA (2006) El Proceso de Activación Patrimonial del Pucará de Tilcara. Universidad Internacional de Andalucía, Diserttation

Zaburlín MA, Otero C (2014) Un manuscrito olvidado de J.B. Ambrosetti: "Exploraciones arqueológicas en la antigua ciudad del Pukará de Tilcara". In: Aparicio et al. (eds), Colección Saberes. Investigaciones del Instituto Interdisciplinario Tilcara. Editorial de la Facultad de Filosofía y Letras, Universidad de Buenos Aires. Tilcara, Jujuy, pp 161–220

Zuidema T (1977) The Inca Kinship system: a new theoretical view. In: Bolton R, Mayer E (eds) Andean kinship and marriage. American Anthropological Association special publication no 7. Washington DC, pp 240–281

Esquina de Huajra Vessels. A Morphological and Decorative Study of Humahuaca-Inca Pottery

Agustina Scaro

Abstract We discuss the morphological and decorative protocol of pottery from the Humahuaca-Inca site of Esquina de Huajra, based on a stylistic perspective, in order to understand regularities in the shape–decoration relationships identified for each pottery style present. The protocol accounts for Esquina de Huajra's morphological and decorative pottery variability. This variability, as well as the high incidence of foreign vessels, is significantly higher than that observed at the nearby and contemporary settlement of Pucara de Volcán. This situation suggests that Esquina de Huajra would have played a significant role within the new landscape created by the Inca administration, related to the status of its inhabitants and to their participation in interaction networks that extended well beyond northwestern Argentina.

Keyword Esquina de Huajra · Humahuaca-Inca · Morphological and decorative variability · Stylistic analysis

This chapter discusses the morphological and decorative protocol of pottery recovered in the late Inca settlement of Esquina de Huajra (Tumbaya, Jujuy) from a stylistic perspective. This analysis has the purpose of advancing the understanding of regularities in the correlation between form and decoration established for the different ceramic types and styles found on the site, considering that, as Conkey and Hastorf (1990) pointed out, style is not separated from social context which gives material culture its social value.

Style is considered from an active perspective, as a socially constructed representation. It possesses a particular configuration whose contents can only be interpreted regarding the context in which it is produced and consumed (Bugliani 2008; Hodder 1990). Within this framework, iconographic, morphological, and technological aspects are interrelated, shaping a particular way of doing. This way

A. Scaro (✉)
Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy, Otero 262. San Salvador de Jujuy (4600), Jujuy, Argentina
e-mail: eowyn939@gmail.com

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_6

of doing would be linked to the practical schemes used in everyday life by the people who thought, used, re-used, and discarded the vessels. Thus, a style can be understood as a set of habits, practices, and embodied abilities (Scattolin 2007). In this sense, and as proposed by Knappett (2005), social meaning is not limited to objects that could be considered "aesthetic" or "special", but is also possessed by everyday elements.

The stylistic analysis of ceramic vessels allows registering certain regularities regarding its decoration, surface treatment, and shape. They could correspond to an Andean complex system of communication that would transmit certain subjects of collective knowledge linked to politics, memory, and identity. This has been proposed by various authors (Hostnig 2004; Troncoso 2005; Martinez 2010) for graphical representations expressed in different material supports. For the case studied on this occasion, pottery is considered as a means to convey information about ethnic identity, prestige, and the relation between the Inca administration and local societies (Hayashida 1994), given that ceramics reaffirm visual symbols of power and state generosity in order to encourage submission and loyalty. In this sense, style is power while it creates social relations and ideologies since it sets up meanings (Hodder 1990).

1 The Use of Space in the Central South Section of Quebrada de Humahuaca

The Esquina de Huajra settlement is located in the central south sector of Quebrada de Humahuaca (Fig. 1). The sector is limited to the north by Quebrada de Purmamarca and to the south by Arroyo del Medio; it is characterized by the proximity of environmental and geomorphological units of *puna*, *quebrada*, and *yunga*, allowing access to a variety of resources within a short distance. Quebrada de Huajra to the east and Quebrada de Tumbaya Grande to the west are direct paths that connect the area with *yunga* and *puna* respectively. Quebrada de Tumbaya Grande allows access to Nevado del Chañi, a mountain where evidence of at least one *Capacocha* ritual was found (Ruiz and Albeck 2006), pointing out that it would be an Inca sacred place, although its importance as a *mallku* (Nielsen 2006) probably goes back to pre-Inca times.

In the studied sector, evidence of an ancient and important pre-Hispanic occupation has been found. It would go back at least to the beginning of the era. Later social landscapes of the area account for an occupation of greater magnitude during the Regional Developments Period (RDP) and Inca Period, according to the presence of diverse sites, such as Pucara de Volcán, El Pobladito, Esquina de Huajra, La Silleta, Raya-Raya, and Las Ventanitas. During the RDP, Pucara de Volcán, El Pobladito, and the Raya-Raya agricultural area would make up the same political

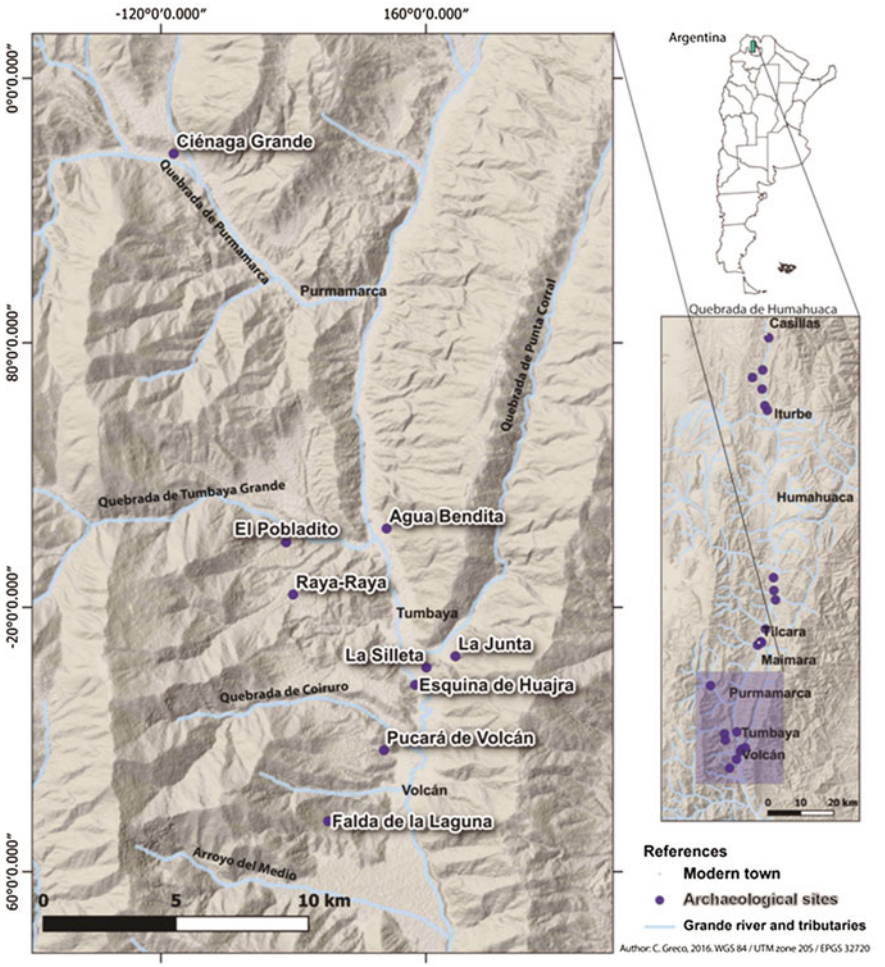


Fig. 1 Map of Quebrada de Humahuaca's central south section where some of the sites found so far are located

territory. The rise of these territories would be linked to changes and new processes that characterize the RDP, framed in situations of conflict and political fragmentation (Tarragó 2000; Nielsen 2006; Arkush 2008). During the Inca Period, Esquina de Huajra and the small site of Las Ventanitas would have appeared, while others like Pucara de Volcán and Raya-Raya would have had their greatest development (Scaro 2015).

2 Esquina de Huajra and Its Pottery

Equina de Huajra was defined as a Humahuaca-Inca settlement (Cremonte et al. 2006/07) located at Huajra curve, between the contemporary town of Tumbaya and the pre-Hispanic settlement Pucara de Volcán. Esquina de Huajra is strategically placed in front of Quebrada de Huajra, as mentioned above, one of the most important paths towards the eastern valleys. Archaeological structures were built on the middle and lower slopes of a hill at 1990 masl. They are barely visible since they were covered by sediment. This situation favored the preservation of the site but makes it hard to know the total built surface, its architectural features, and spatial configuration.

A surface of 222 m^2 in the middle slope of the eastern mountainside has been excavated so far, identifying three leveled surfaces (Fig. 2). The lower one, called Terrace 1, revealed the presence of part of a rectangular enclosure with right angles. Analyzing the material culture found and its contextual relations allowed characterizing this sector as a domestic area that corresponds to the courtyard of a dwelling. Regarding the second level (Terrace 2), some retaining walls were found and it was not possible to identify a clear occupation floor, therefore the functionality of this level has not yet been established. The third sector, Terrace 3, was used primarily as a burial area linked to funeral rituals. Four burials have been excavated so far showing variations in construction techniques, burial methods, and grave goods. Among these burials, Tombs 1, 2, and 3 stand out since they were built above the occupation floor and not in underground chambers inside dwellings, as is usual for Quebrada de Humahuaca. Tomb 4 corresponds to the local burial pattern; two sub-adults buried in an urn (Cremonte and Gheggi 2012).

Recent calibrations of the nine dates obtained in charcoal and human bone material (Cremonte and Gheggi 2012) indicate that Esquina de Huajra corresponds primarily to a late occupation, limited to the interval 1500–1580 AD. This chronology refers to the Hispanic–Indigenous Period, however, in Esquina de Huajra no Spanish elements have been found. It is clearly a Humahuaca-Inca context that does not show the typical features that characterize historical sites, marking differences with the cemetery of La Falda de Tilcara (Bordach 2006). The abundance and diversity of non-local pottery is another relevant characteristic that raises questions about its inhabitant's population configuration, and about interaction networks, especially with the highlands.

Diggings allowed the recovery of 6143 ceramic fragments and 22 whole or partially fragmented vessels.[1] Most of the recovered pottery corresponds to ordinary vessels, i.e., pieces without any decoration whose surfaces can be smoothed, combed, or revoked. As for the local Humahuaca Black on Red (B/R) and Humahuaca-Inca styles, numerous fragments have been found. Humahuaca-Inca vessels are characterized by their black designs of fine lines painted on red or brown

[1]Pictures, drawings, and details about fragmented vessels and selected potsherds are presented in the Appendix of this book.

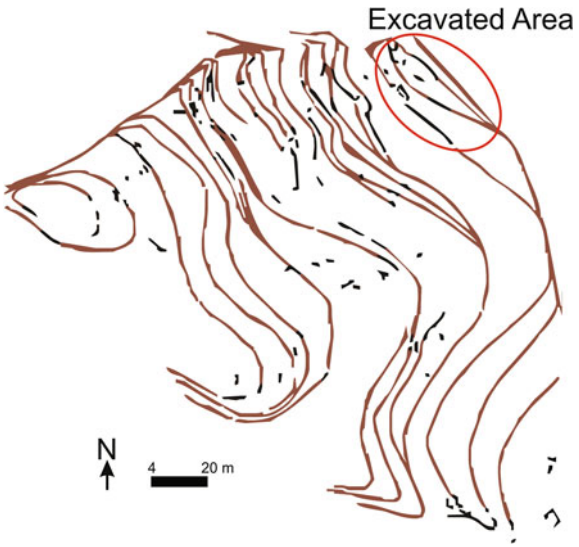


Fig. 2 Plan of the visible structures at Esquina de Huajra. The excavated area is marked in *red*

polished surfaces; service vessels always have a decoration on its inner surface. This style is typical of the Inca Period and it derives from Humahuaca B/R, a style present throughout Quebrada de Humahuaca from the RDP and characterized by predominantly smoothed vessels painted with thick line designs (Cremonte and Solís 1998).

To a lesser extent, in Esquina de Huajra are present Polished Black Interior Bowls, Incised Angosto Chico, and corrugated vessels, as well as Yavi-Chicha, Casabindo Pintado, Burnished Bowls, Inca Paya, and Inca Pacajes non-local pieces. These ceramics have different origins, indicating the interaction networks in which Esquina de Huajra would participate. There are also polished pieces of pink, brown, black, and purple surfaces, corresponding to types that have not yet been defined; Polished Pink is an exception, considered as an Inca typical type of the central south section of Quebrada de Humahuaca (Scaro and Cremonte 2012).

3 The Morphological Analysis

The morphological protocol of Esquina de Huajra was elaborated upon considering morphological classifications made for Quebrada de Humahuaca (Cremonte et al. 1997; Ortiz and Delgado 1997; Otero 2006) and based on the proposal of Balfet et al. (1983).[2] Ten General Morphological Groups were established (bowls,

[2]The complete morphological catalogue for the central south section of Quebrada de Humahuaca is detailed in my PhD Dissertation (Scaro 2015), and it includes pottery from the El Pobladito, Pucara de Volcán, and Esquina de Huajra sites, dated in the RDP and Inca Periods.

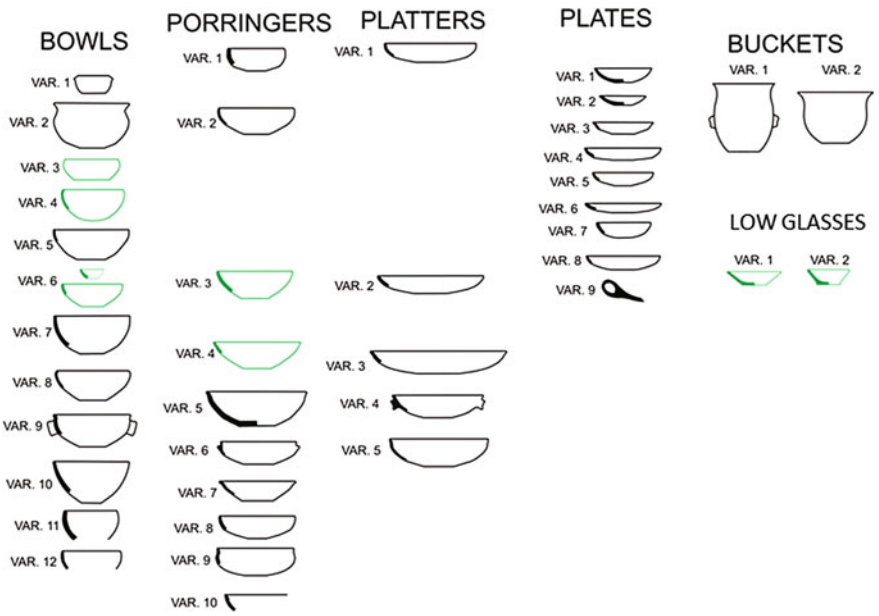


Fig. 3 Morphological protocol of service vessels found at Esquina de Huajra. The varieties that continue from the RDP are marked in *green*

porringers, platters, buckets, low glasses, cooking pots, jars, pitchers, and *aríbalos*) from the relation between the pieces height and their maximum, minimum, and opening diameters. Each group was subdivided into varieties according to profile points, and rim and neck characteristics. This approach proved useful for analyzing a highly fragmented set as the one faced in this case.

Afterwards, the morphological groups were assembled according to their functionality, whereas the form of a vessel is usually linked to the functions for which it was created (Cremonte and Bugliani 2006/09). Thus, and following Rice (1987), bowls, plates, porringers, platters, and buckets were considered service vessels: unrestricted pieces easily accessible whose sizes correspond to individual or group portions. On the other hand, cooking pots, pitchers, jars, and *aríbalos* were considered as storage–preparation–cooking vessels, given that they have a restricted or very restricted form with their orifice modified in order to close them or to use them to pour liquids. Low glasses, some of which were used for spinning, were grouped with service vessels since they are unrestricted pieces.

The General Morphological Groups and varieties defined as service vessels (Fig. 3) are as follows:

Bowls: containers whose opening diameter corresponds to 1½ and 2½ times the pieces height (Balfet et al. 1983).

Variety 1 with a simple profile, inverted rim, and wide base. Exclusive variety of Inca Paya pieces, a non-local style.

Variety 2 with an inflected profile and an everted rim. Exclusive variety of Polished Pink pieces.
Variety 3 a sub-elliptical piece with an inverted rim. Exclusive variety of Burnished Bowls, a non-local style.
Variety 4 with a tangential point in the upper 1/3 of the body and an inverted rim. This variety includes pieces of different styles and types.
Variety 5 with a simple profile and a straight parallel direct rim. This variety includes pieces of different local styles and types.
Variety 6 with a simple profile and a direct rim. This variety includes pieces of different local styles and types.
Variety 7 with an inflection point in the upper 1/3 of the body and a direct rim. Exclusive variety of Inca Paya pieces, a non-local style.
Variety 8 a sub-ellipsoidal piece with an inverted rim and a tangential point in the upper ¼ of the body. This variety includes pieces of Humahuaca-Inca local style.
Variety 9 with convex walls and symmetrical handles. This variety includes pieces of Humahuaca-Inca local style.
Variety 10 a deep bowl with a simple profile and a direct rim. This variety includes pieces of different styles and types.
Variety 11 a sub-ellipsoidal piece with an inverted rim and a narrow base. Exclusive variety of Inca Paya pieces, a non-local style.
Variety 12 a sub-hemispheric piece with an inverted rim and a thinned lip. This variety includes pieces of Humahuaca-Inca local style.

Porringers: containers whose opening diameter corresponds to 2½ and 5 times its height (Balfet et al. 1983).

Variety 1 with a tangential point in the middle section of the body, a direct rim, and straight walls. This variety includes pieces of Humahuaca-Inca local style.
Variety 2 with a simple profile, a tangential point in the upper 1/3 of the body, and a direct or inverted rim. This variety includes pieces of different local styles and types.
Variety 3 a sub-hemispheric piece with a simple profile and a direct rim. This variety includes pieces of different local styles and types.
Variety 4 with a simple profile, a direct rim, and straight divergent walls. This variety includes pieces of different local styles and types.
Variety 5 with an inflection point in the upper ¼ of the body, an everted rim, and curved walls. This variety includes pieces of the local Humahuaca-Inca style.
Variety 6 with an inflected profile, a direct rim, and curved walls. This variety includes pieces of the local Humahuaca-Inca style.
Variety 7 with an inflected profile, an everted rim, and divergent curved walls. This variety includes pieces of different local styles and types.

Variety 8 a sub-hemispheric piece with a tangential point and a direct rim. This variety includes pieces of different local styles and types.

Variety 10 with a simple profile, a tangential point in the upper 1/3 of the body, and a direct thickened rim. This variety includes pieces of Humahuaca-Inca style local.

Platters: containers whose opening diameter corresponds to 2½ and 5 times its height. Even though the diameter–height index is similar to that of porringers, platter dimensions correspond to group consumption, which is the reason why they have been separated in a different group.

Variety 1 with a tangential point in the upper ¼ section of the body and a direct rim. This variety includes pieces of different local styles and types.

Variety 2 with a simple profile, a direct rim, and divergent walls. This variety includes pieces of different local styles and types.

Variety 3 with an inflection point in the upper 1/3 of the body, an everted rim, and divergent walls. This variety includes pieces of Humahuaca-Inca local style.

Variety 4 with an inflection point in the upper 1/5 of the body, an everted rim, and curved walls. This variety includes pieces of different local styles and types.

Variety 5 a sub-hemispheric piece with a tangential point in the middle section of the body and a direct rim. This variety includes pieces of different local styles and types.

Variety 8 a sub-hemispheric piece with a direct rim. This variety includes pieces of Humahuaca-Inca local style.

Plates: a small container whose opening diameter is equal to or exceeds 5 times its height (Balfet et al. 1983).

Variety 1 with a simple profile, a direct rim, a thinned lip, and thin walls. This variety includes pieces of different local styles and types.

Variety 2 with an inflected profile and a direct rim. This variety includes pieces of different local styles and types.

Variety 3 with an inflected profile, an everted rim, and divergent walls. This variety includes pieces of different local styles and types.

Variety 4 with a tangential point in the upper 1/3 of the body and a direct rim. This variety includes pieces of Humahuaca-Inca local style.

Variety 5 with a tangential point in the upper 1/3 of the body and a direct rim. This variety includes pieces of Humahuaca-Inca local style.

Variety 6 a shallow plate with a simple profile, a direct rim, and divergent walls. Exclusive variety of a non-local Inca style not yet identified.

Variety 7 with a simple profile, a direct rim, and divergent walls. Exclusive variety of Inca Pacajes pieces, a non-local style.

Variety 8 a sub-hemispheric piece with a tangential point and a direct rim. Exclusive variety of Yavi-Chicha pieces, a non-local style.

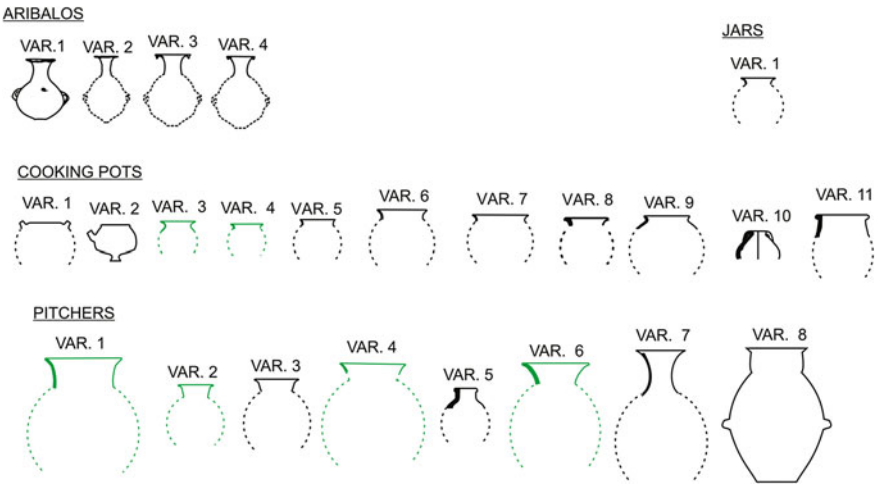


Fig. 4 Morphological protocol of cooking–storage vessels found at Esquina de Huajra. The varieties that continue from the RDP are marked in *green*

Variety 9 with a simple profile, a direct rim, and lateral handle stick on the lip. Exclusive variety of Yavi-Chicha pieces, a non-local style.

Buckets: deep containers whose opening diameter is not less than 80% of the maximum diameter (Ortiz and Delgado 1997).

Variety 1 very deep pieces with inflected profiles and a direct rim. This variety includes pieces of different local styles and types.

Variety 2 with an inflected profile and an everted rim. This variety includes pieces of different local styles and types.

Low Glass: Containers with straight everted walls and a broad and flat base (Otero 2006).

Variety 1 with a simple profile and a direct rim. This variety includes pieces of different local styles and types.

Variety 2 with a tangential point in the lower ¼ of the body, a differentiated base, and divergent walls. This variety includes pieces of different local styles and types.

Four General Morphological Groups were defined for cooking and storage vessels, each with their own varieties (Fig. 4). Due to the high rate of material fracture it was not possible to consider attributes related to the vessels body shape for defining groups and varieties. However, body and base fragments found indicate that a large part of the containers would have sub-globular bodies with flat-concave bases. In most cases, handles would have an oval or rectangular section, although, it was not possible to assign them to a specific form, as they were almost always found isolated. The morphological groups identified are:

Aríbalos: very restricted containers with tall necks and very everted rims. This morphological group includes pieces of different local styles and types.

Variety 1 with an inflected profile (of local manufacture).
Variety 2 with a narrow and tall neck.
Variety 3 with a narrow neck and buboes on the outer rim surface.
Variety 4 with buboes on the outer rim surface.

Pitchers: very restricted containers regarding their maximum diameter, with everted or direct rims (Bugliani 2008).

Variety 1 with a long neck of slightly concaved walls and an everted rim. This variety includes pieces of different local styles and types.
Variety 2 with a long neck of straight divergent walls and an everted rim. This variety includes pieces of different local styles and types.
Variety 3 with long neck of convex walls and an everted rim. This variety includes pieces of different local styles and types.
Variety 4 with long neck of straight divergent walls and a direct rim. This variety includes pieces of different local styles and types.
Variety 5 with a neck of straight parallel walls. Exclusive variety of "Angosto Chico Inciso" local style.
Variety 6 with a long neck of concave divergent walls and an everted rim. This variety includes pieces of different local styles and types.
Variety 7 a very restricted pitcher with a high neck and an everted rim. This variety includes pieces of different local styles and types.
Variety 8 with a convex neck. Exclusive variety of Casabindo Pintado pieces, a non-local style, according to the definition of Zaburlin (2012).

Cooking pots: slightly restricted containers with a short neck or without a neck at all (Bugliani 2008); they have everted or direct rims.

Variety 1 with a globular body, a simple profile, and without a neck. This variety includes pieces of different local styles types.
Variety 2 with a compound profile and a central foot. This variety includes ordinary or red slipped non-local pieces.
Variety 3 with a short hyperboloid neck and an everted rim. This variety includes pieces of different local styles and types.
Variety 4 with a straight short neck and an everted rim. This variety includes pieces of different local styles and types.
Variety 5 with a diverging neck and a direct rim. This variety includes pieces of different local styles and types.
Variety 6 with a concave neck and an everted rim. This variety includes pieces of different local styles and types.
Variety 7 an unrestricted pot with no neck and an everted rim. This variety includes pieces of different local styles and types.
Variety 8 with a very everted rim, reinforced inside. This variety includes pieces of different local styles and types.

Variety 9 a restricted piece with a globular body, no neck, and a straight everted rim. This variety includes pieces of different local styles and types.

Variety 10 a restricted piece with no neck and an everted rim; it presents a sub-ovoid body. This variety includes pieces of different local styles and types.

Variety 11 an unrestricted piece, with a straight converging neck, and an everted rim. Exclusive variety of "Angosto Chico Inciso" local style pieces.

Jars: restricted containers with a half-height neck and everted rims.

Variety 1 with a convex neck and an everted rim. This variety includes pieces of different local styles and types.

4 The Iconographic Analysis

The analysis of the visual representations inscribed on the pottery included the identification of the decorative techniques used, afterwards the protocol of decorative elements was established, and finally regularities that organize these elements on the vessels were detected. For the decorative elements analysis the guidelines formulated by Jernigan (1986) were followed; Jernigan proposed a non-hierarchical approach to decorative elements, seeking to identify units but without assuming that there are levels linked to planning or execution stages. Units are called "schemes" and they can be recognized from their replication on different containers.

The identified decorative elements are for the most part executed through painting, and in fewer cases by paste displacement (incisions and corrugated). Only a few elements were modeled, registered in an ornithomorphic plate and some Humahuaca-Inca *aríbalos*. Figure 5 represents the 32 elements or schemes identified for Esquina de Huajra, indicating those specifically linked to a particular ceramic style, i.e., the case of small llamas on the Inca Pacajes style, reticulated triangles and rhombuses, the ostrich (*suri*) and the "comb" typical of the Inca Paya style, or the various types of incisions of Incised Angosto Chico.

The local styles scheme shows the greatest variety; it is possible to distinguish elements present in the central south section of Quebrada de Humahuaca before the arrival of the Inca administration and those that appear during the Inca Period according to observations in other sites in the area (Cremonte and Solís 1998; Scaro 2015). The elements that would appear during the RDP and would last during the Inca Period are single black lines painted on the lip of service and cooking vessels, parallel black lines, black or concentric semicircles, reticulated spirals, and especially reticulated horizontal or vertical bands. These elements appear in both Humahuaca B/R and Humahuaca-Inca style, although with some differences linked to the width of the lines (during the Inca Period elements are drawn with a line of 2–4 mm), and with reticulated characteristics. During the RDP, reticulated elements show lines thicker than 4 mm and open meshes with angles inferior to 90°, named

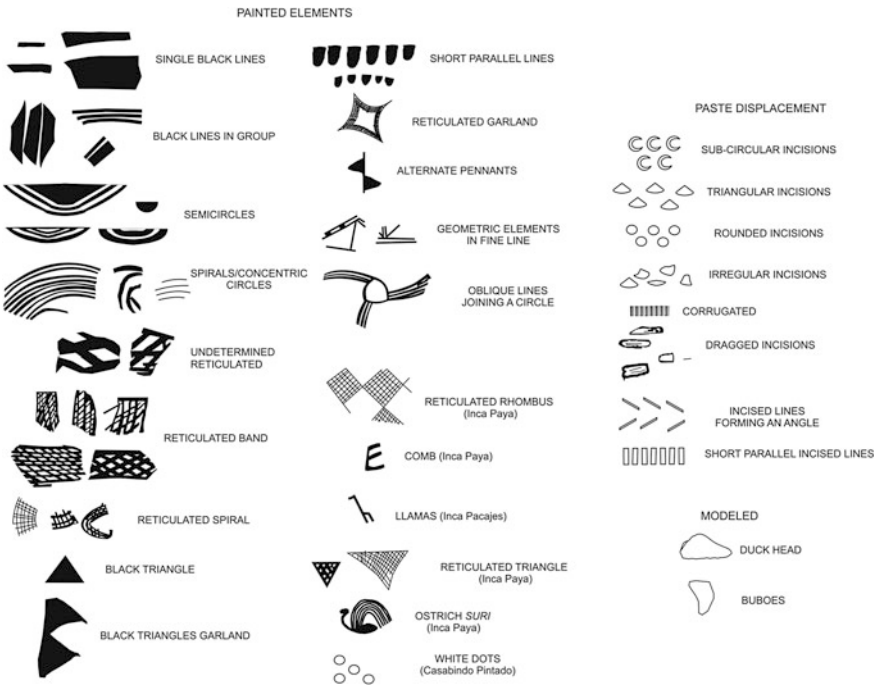


Fig. 5 Decorative elements identified for Esquina de Huajra's pottery

"rhomboidal reticulated". For the Inca Period, "rhomboidal reticulated" continued to be used, but reticulated designs with thinner lines (2–4 mm) and a close mesh forming a 90° angle, denominated "square reticulated", were recurrent.

Humahuaca-Inca decorative elements are alternated pennants, geometric patterns in fine lines, short parallel lines located on the inner rim of vessels, "square reticulated" garlands, and oblique lines that join in a circle. In this style are inscribed the two modeled elements: a duck's head on an ornitomorphic plate and symmetrical buboes (with or without a central hole) on the outer rim of *aríbalos*. Some elements have not yet been associated with a particular type or style, such as the case of short wavy lines displayed inside the only Variety 9 bowl and incised lines that fail to unite to form an angle on the neck of a small gray vessel.

The identified decorative elements are organized in various ways on the vessels; the composition of the design varies according to their disposition in the decorative field and the relation between the elements. In order to understand the sequential order of the representations, combination rules were identified, considering the effects achieved by these combinations and sequences on the vessels (Shanks and Tilley 1987; Bugliani 2008).

It was possible to recognize 14 rules (Fig. 6); the first 6 were identified for the RDP and continued in use during the Inca Period, while the remaining 8 were innovations from the Inca Period.

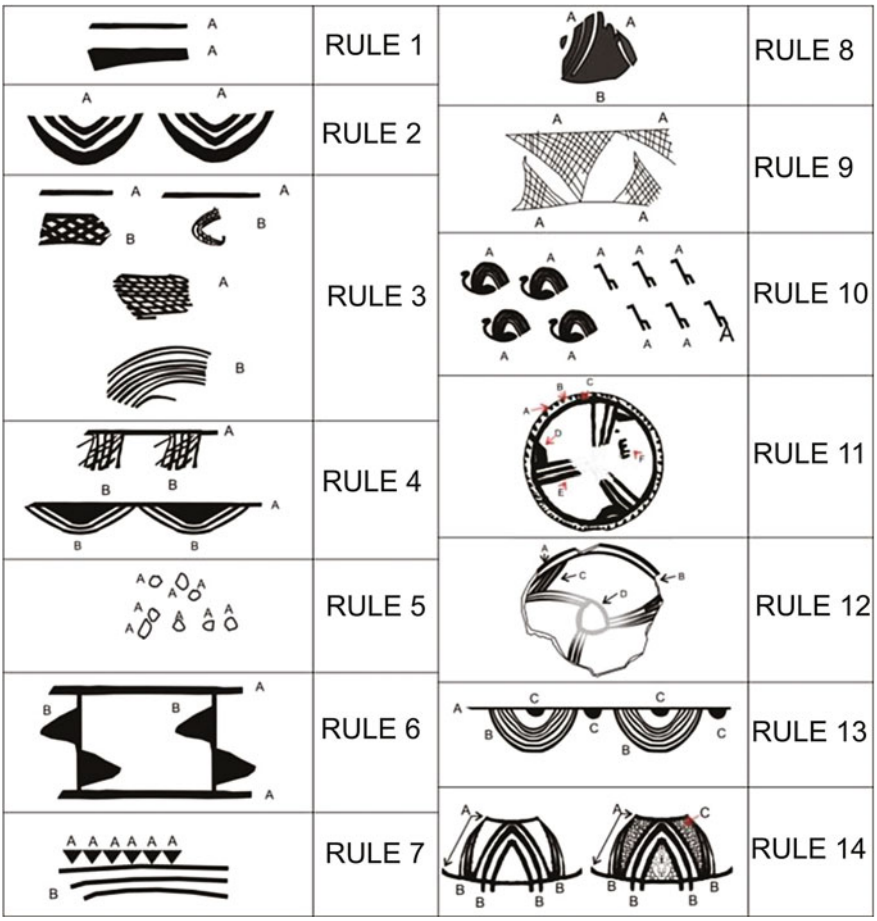


Fig. 6 Combination rules identified for late periods

Regional Developments Period the rules that continue during Inca Period:

Rule 1 a vertical arrangement of two equal elements (A-A).
Rule 2 a horizontal repetition of the same element (A-A).
Rule 3 two different elements arranged vertically or horizontally (A-B).
Rule 4 the presence of two different elements, where the second element is repeated in a radial sequence along the first (A-B-B).
Rule 5 one element repeated without any order (A A A A).
Rule 6 two different elements, the first delimitates the decorative field where the second is repeated in a horizontal sequence along the body of the vessel (A-B-B-A).

Inca Period exclusive rules:

Rule 7 combination of two different elements, the first is repeated horizontally and combined with the second element located below it (A-A-A-B).

Rule 8 a combination of two different elements, where the first is repeated, surrounding the second (A-B-A).

Rule 9 a repetition of the same element forming opposing and alternating designs (A-A-A-A).

Rule 10 a repetition of the same element in rows (A A A A).

Rule 11 a combination of six different elements: black line on the lip (A), short parallel lines on the inner rim (B), black line parallel to the rim (C) of which three set of lines (E) come down, with each set associated to a black semicircle (D), a "comb" appears isolated (F).

Rule 12 a combination of a black line on the lip (A) and a line below it (B), of which three sets of oblique lines come down, meet at a circle painted on the inner base (D), each of these sets is associated with concentric semicircles (C).

Rules 11 and 12 are more complex and correspond to configurations found inside whole or partially whole porringers; indicating that the combinations of decorative schemes would be more complex than those identified in fragments.

Rule 13 a combination of three different elements, the first is arranged horizontally (A), underneath it the other two elements appear (B-C), repeated in a horizontal sequence.

Rule 14 the presence of two equal elements delimiting a decorative field (A), where another element arranged obliquely repeats (B) forming triangular spaces. This last rule is present in Casabindo Pintado pitchers (Zaburlin 2012) and presents a variation: the same configuration may also have white spots (C) in the triangular spaces.

The identified combination rules would be part of the complex Andean universe of register systems proposed by several authors (Hostnig 2004; Troncoso 2005; Martinez 2010) that would also include myths, stories, dances, dramatizations, music, textiles, *khipu*, tables, canes, *kero*, and rock art panels. These Andean communication systems would pass on certain issues of collective knowledge, probably linked to politics, memory, and identity. Signs present on them would be organized according to their own constructive logics that could be recovered, albeit partially, thanks to the presence of certain regularities. The existence of diverse logic on different supports would give each of them certain autonomy, they would be linked in broader complex systems, making the Andean register system multi-sensory and giving it simultaneity.

Rules and combination structures identified in the pottery of the central south sector of Quebrada de Humahuaca are likely related to Andean verbal patterns, in the manner of the narrative visual forms of *kero* vases which are linked to *Quechua* oral traditional guidelines, according to the observations of Martinez and Martinez (2013). This relation has not yet been investigated in the case of northwestern

Argentinian pottery, although it would be promising to advance in this line for the understanding of messages inscribed on vessels.

5 Linking Forms and Decorations

Each of the morphological groups identified in Esquina de Huajra appears linked to different elements and decorative configurations, registering motives and combination rules typical for serving or cooking–storage vessels, as well as those that appear interchangeably in both vessel categories. Service vessels appear in almost all cases with a special surface treatment (painted, burnished, slipped, or polished); the appearance of ordinary pieces is exceptional. The high percentage of polished surfaces in this category of vessels could be linked to the need to waterproof them, especially in the case of bowls and porringers which are suitable containers for the consumption of liquid or semi-liquid food (Scaro and Cremonte 2012).

Cooking and storage vessels are mainly ordinary, although some appear decorated. This difference is consistent with the functions of both vessel categories; whereas service vessels are linked to public or private commensality events with high visibility and associated to the display of identity and ideological or political messages. Meanwhile, cooking, preparation, and storage vessels have in general a lower visibility and reduced transportation, as their use is mainly restricted to domestic areas. On the other hand, appropriate physical properties regarding surface treatments are important for cooking or storage activities, cooking vessels for instance are ordinary and porous to better withstand the thermal stress generated by exposure to fire, while the rough surfaces often registered in these vessels allow easily handling. In addition, storage vessels may have slipped or polished surfaces thus reducing their permeability (Rice 1987).

Regarding service vessel decoration, Inca Paya bowls (Varieties 1 and 7) correspond to pieces that are set apart in the Esquina de Huajra ceramic universe by their form and decoration (Fig. 7). The bowl of Variety 1 is a very small piece that has reticulated rhombuses designed in very fine lines on its exterior surface. The bowl of Variety 7 is decorated with reticulated triangles configured according to Rule 9 on the polished inner surface. This arrangement creates a zigzag negative decorative scheme. The fragment of the body of a third Inca Paya bowl was found, although it is not possible to include it to a morphological variety. The inner surface of this bowl is brown and very polished and presents the design of ostriches (*suri*) configured according to Rule 10. Bowls of Variety 6 correspond to Humahuaca-Inca pieces painted in black on red or brown polished surfaces (Fig. 8). Painted elements include a black line on the lip associated with different elements: reticulated vertical bands configured according to Rule 4, reticulated elements in fine lines and reticulated garlands according to Rule 3, and short parallel lines on their inner rims. Regarding unpainted pieces, the Variety 2 bowl presents a polished pink exterior surface, while Variety 3 corresponds to Burnished Bowls (Fig. 9), defined by Cremonte and Botto (2009) as highly standardized pieces with burnished surfaces in a single color or

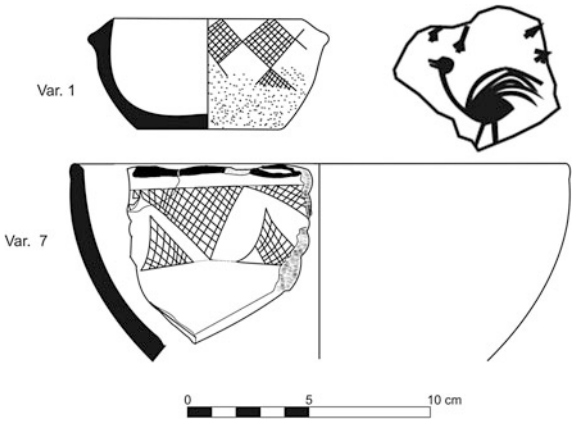


Fig. 7 Inca Paya bowls

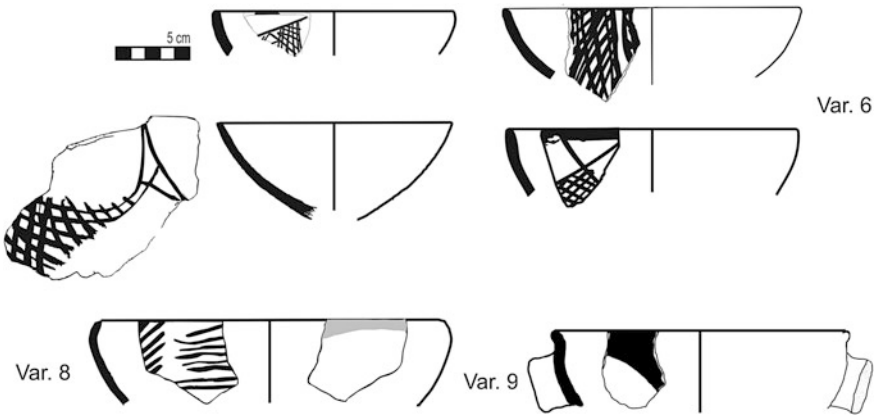


Fig. 8 Local decorated bowls

combination of colors. Those found at Esquina de Huajra either have both surfaces in red or combine a red exterior with a brown or black interior. Variety 4 includes Interior Polished Black Bowls with a very polished interior and an ordinary or red slipped exterior. Finally, Variety 5 corresponds to a polished brown bowl.

In the case of porringers, those with unpainted decoration have brown, black, or red polished surfaces. This last piece is interesting for its divergent convex walls. The most popular decorative element is the "square reticulated" vertical or horizontal band associated with a black line on the lip according to Rule 3. This configuration appears in pieces of Varieties 1, 2, 3, 4, and 6, and can also be decorated with single lines of various thicknesses.

The three porringers of Variety 5 deserve a special mention since they have similar shapes and decorative patterns. They were found as part of a mortuary

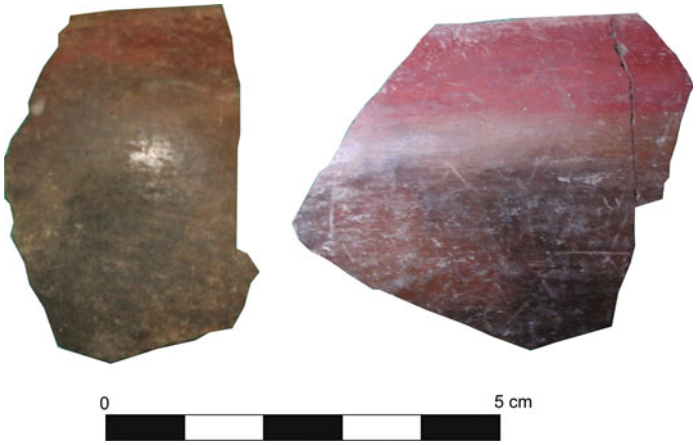


Fig. 9 Burnished bowls

Fig. 10 Variety 5 porringers found in tomb 4

accompaniment inside a pitcher where two children were buried (Tomb 4, Terrace 3). The two larger porringers, considered "twins" due to their similarity (Fig. 10) are decorated according to Rule 12, with oblique lines that join a circle painted on the inner base. Runcio (2009, 2010) suggested that this decoration only appears in sites in the middle and northern sectors of Quebrada de Humahuaca such as Coctaca and Pucara de Tilcara, considering that it belongs to the RDP. The dating obtained for Esquina de Huajra allows the proposition that this decoration would be typical of the Humahuaca-Inca style, at least in this sector of Quebrada de Humahuaca. The smallest porringer shows an arrangement according to Rule 11, where the "comb" decorative element stands out, recurrent in the regional style Inca Paya. Its presence in a Humahuaca-Inca porringer could indicate an interaction of styles during the Inca Period. Platters (Fig. 11) have horizontal "square reticulated" bands (variety 1 and 3), two lines parallel to the rim (Rule 1), and concentric circles of fine lines (Variety 3 and 5). Pieces without painted decorative elements are smoothed purple, or pink, black, and red with polished surfaces.

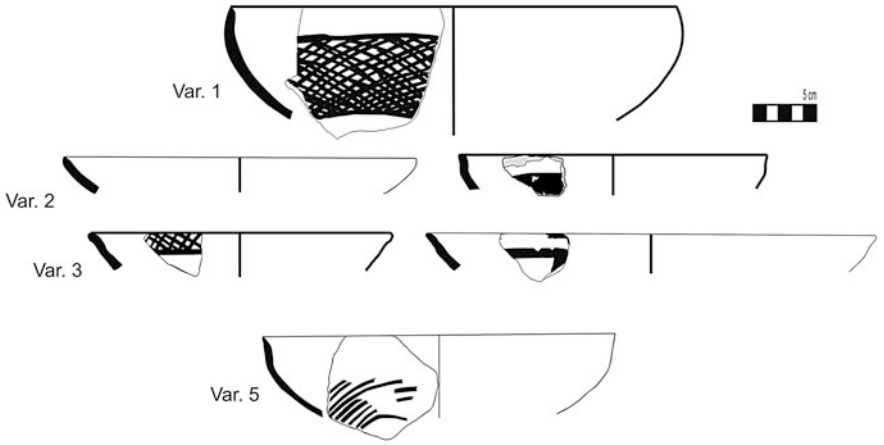


Fig. 11 Painted platters

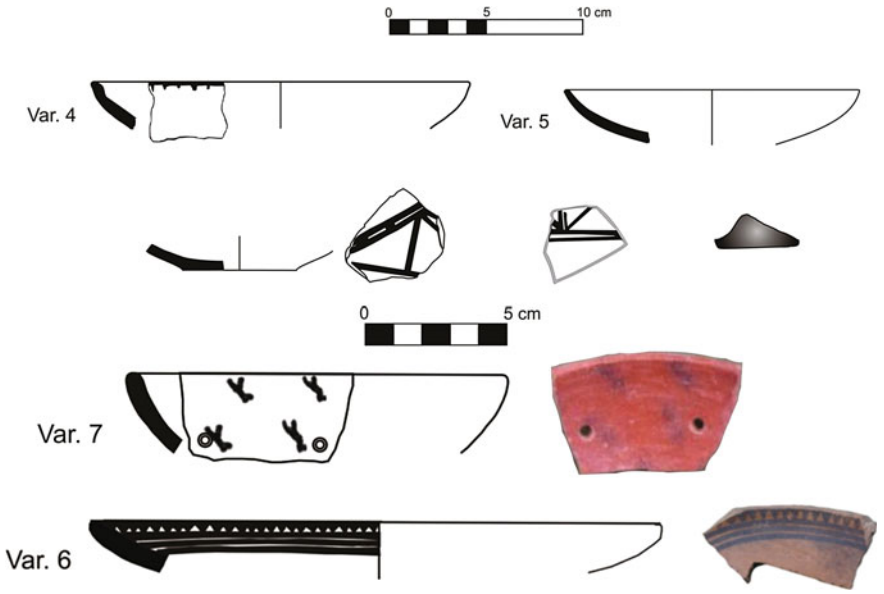


Fig. 12 Local and non-local plates

Most plates have no painted decoration (Fig. 12), their polished surfaces are purple (Variety 1), brown (Variety 1), red (Variety 1 and 3), and black (Variety 1). Pieces with painted elements of local style have short parallel lines on the inner rim (Variety 4), a black line on the lip (Variety 5), two "square reticulated" bands forming a cross (Variety 1), and geometric elements of very fine straight lines. Non-local pieces of Yavi-Chicha style are also present, they have purple smoothed surfaces

(Variety 8) or polished black ones (Variety 2). One piece has a brown smoothed surface painted with a black line on the lip and it shows a lateral handle stick on the lip. Non-local decorated plates correspond to two pieces; one of them belongs to a non-local Inca style (Variety 6) that is decorated according to Rule 6. The other plate corresponds to Inca Pacajes style (Variety 7) and is decorated with the typical llama decorative element painted on a pink polished surface following Rule 10.

Regarding the low glasses group, they are ordinary or have a smoothed red slip on the outside, their interior is smoothed black and the notches left by the spindle can be seen in the inner base. This evidence supports their use as spinning instruments. Some fragments of service vessels have been found that could not be assigned to any morphological group. They are interesting due to their decorative elements, allowing to complete the decorative protocol of Esquina de Huajra. The elements found include a "square reticulated" band located on the inner base of undetermined pieces. It can be associated to a similar band (Rule 1) or to fine-lined spirals (Rule 3). There also are undetermined reticulated elements, and reticulated spirals. Fine-lined spirals appear in one case associated with black triangles, combined according to Rule 8.

As already mentioned, most of the cooking, preparation, and storage vessels have no decoration. *Aríbalos* present in all cases a special surface treatment (Fig. 13), although those with painted decoration are scarce and in most cases their designs are difficult to discern. Varieties 1 and 2 of *aríbalos* correspond to pink polished pieces, appearing both in the domestic area (Terrace 1) and the funeral space (Terrace 3). Those of Variety 3 are plain polished and decorated with two modeled buboes attached to the exterior surface of the rim, the Variety 4 *aríbalo* is purple polished and also presents buboes that are pierced. We have also found a piece decorated in black on red with black triangles on the inner rim.

Decorated pitchers have a black line on the lip and concentric semicircles with or without black centers on the inner rim (Rule 4), a band with parallel lines, and a thick black line, with black triangles are also present. Vertical pennants arranged

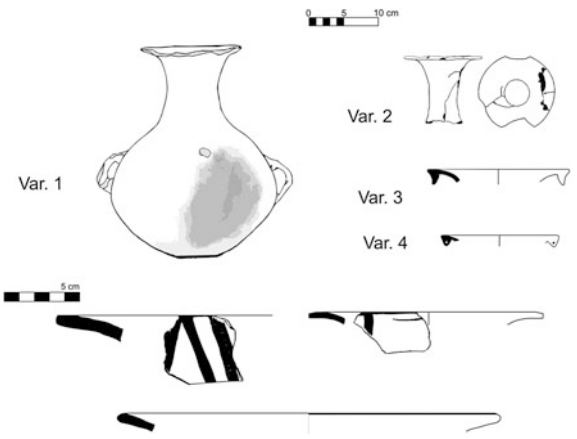


Fig. 13 *Aríbalos* found at Esquina de Huajra

according to Rule 6 were observed on the body of a pitcher. There also are a few corrugated and "Angosto Chico Inciso" pitchers. Regarding non-local vessels, some Casabindo Pintado (Variety 7) fragments were found (Fig. 14).

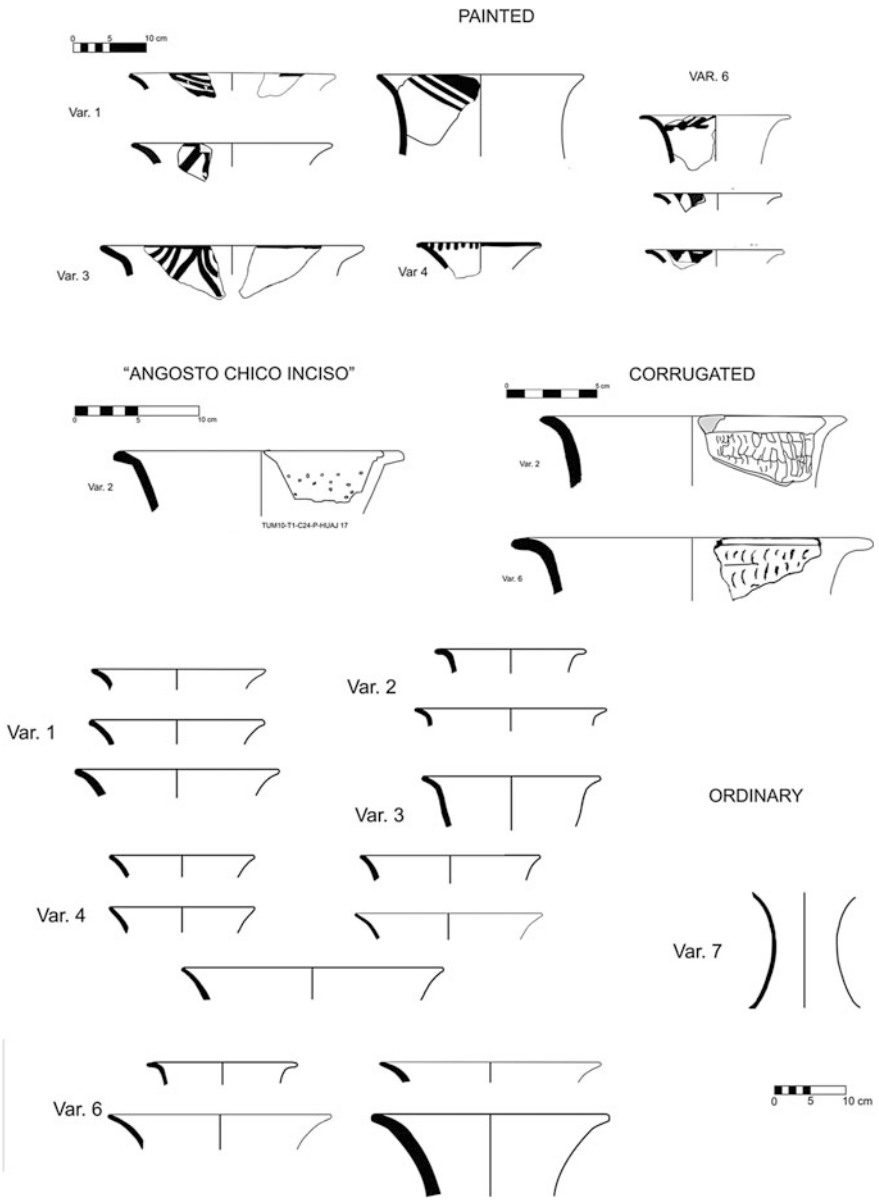


Fig. 14 Pitchers from Esquina de Huajra

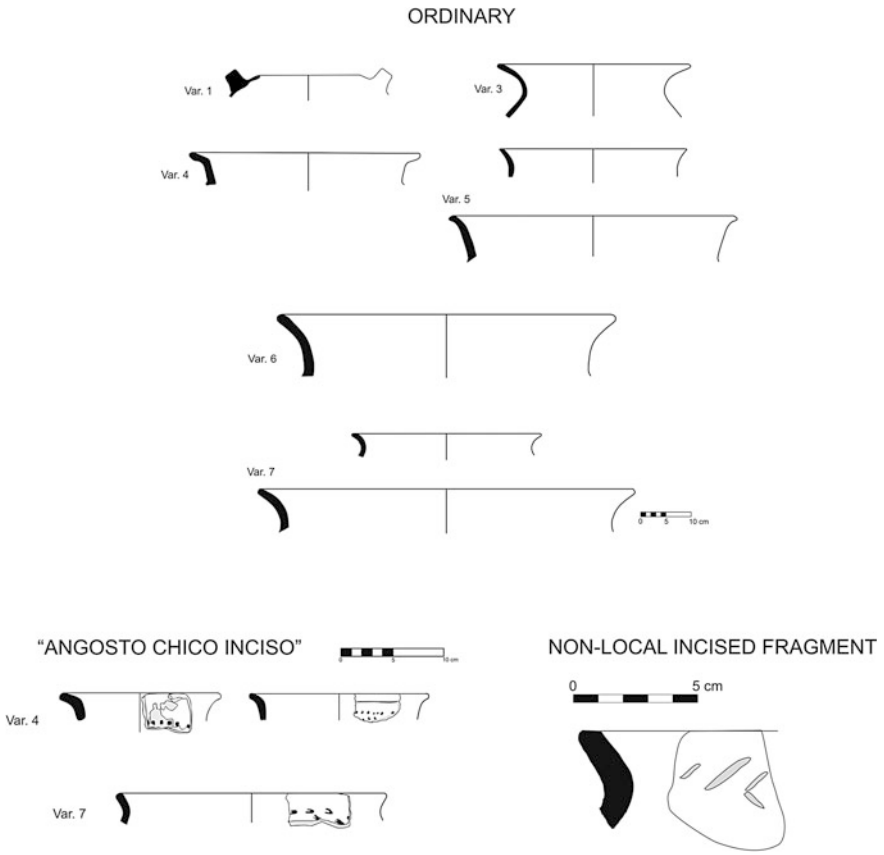


Fig. 15 Cooking pots

Cooking pots have a greater variety of forms but most of them are ordinary (Fig. 15). A few decorated pieces have incised elements. In Variety 3, the only decoration observed corresponds to incised parallel lines on the lip of the piece, while in Variety 4 we find a piece of "Angosto Chico Inciso" style with rounded incisions arranged in rows on the neck area. The Variety 8 pot is also an "Angosto Chico Inciso" with irregular incisions organized in rows. Regarding jars, one of them is ordinary while the other is Humahuaca-Inca, decorated with a black line on the lip.

6 Discussion

The morphological and iconographic analysis of ceramics recovered in Esquina de Huajra allowed the establishment of a protocol of forms and decorations that we expect to further complete with new samples from the central south section of

Quebrada de Humahuaca. The correlation of forms and decorations revealed that service vessels have a higher display of decorative configurations and special surface treatments, including painted decoration, and polished and burnished surfaces. On the other hand, cooking and storage vessels are mainly ordinary, showing a much lower decorative display.

It was possible to establish that some of the painted decorative elements appear exclusively in some forms. Thus, the geometric element with fine lines appears only on the inner base of plates, while the oblique lines that join in a painted circle only appear in Variety 5 large porringers, while the "comb" element appears exclusively in the smallest porringer of that variety. Exclusive decorative elements for cooking and storage vessels consist of alternate pennants combined with black lines in the body of medium to large vessels, and black triangles on the inner rim of the pieces appearing mainly on pitchers—the cooking and storage vessels having a higher variability of decorations—and more rarely on *aríbalos*. Incisions generally appear on "Angosto Chico Inciso" cooking pots and more rarely on pitchers. A similar situation was observed for corrugated pieces, although they appear in smaller proportions than "Angosto Chico Inciso".

Additionally, decorative elements displayed in both service and cooking–storage vessels were registered, such as spirals, semicircles, parallel short lines on inner rims, and reticulated bands. In the case of spirals, they mainly appear in porringers and platters, executed with a very fine line, although one fragment of a cooking–storage vessel was found decorated with an irregular spiral. Semicircles are in most cases on the inner rims of cooking–serving vessels, and they were observed on Variety 5 porringers. Short parallel lines on the inner rim and reticulated bands appear in both vessels' categories without showing a tendency toward one or another.

The configuration of decorative elements according to the identified rules of combination, allows "reading" the pottery in two different ways: frontally and in a continuous space (Quiroga 2001). Service vessels present a frontal reading via the elements painted on their interior. Decorated pitchers with painted elements on their inner rim would also show a frontal reading, a situation also observed on the few decorated *aríbalos*. Some cooking–storage vessels have painted decoration on their external surfaces, displaying a continuous reading of elements extending along it. Plane polished vessels also present a continuous space reading since there are no limitations on the decoration that can be observed from all angles.

Regarding vessel forms, the presence of plates, *aríbalos*, and cooking pots with a central foot is relevant since, as Bray (2004) points out, these pieces would form the typical Inca tableware of agents linked to state administration living in the Empire's provinces. Plates are mostly plain and polished or with a black line on the lip; decorated non-local plates standout such as Inca Pacajes and non-local Inca pieces, displaying decorative elements, configurations, and surface treatments clearly different from local pottery. The presence of plain polished *aríbalos* is in line with Bray's proposal of an increase in polished undecorated *aríbalos* found at peripheral sites, a tendency opposite to that observed in the center of the Empire. The author links this situation with the Inca administration's interest to communicate different

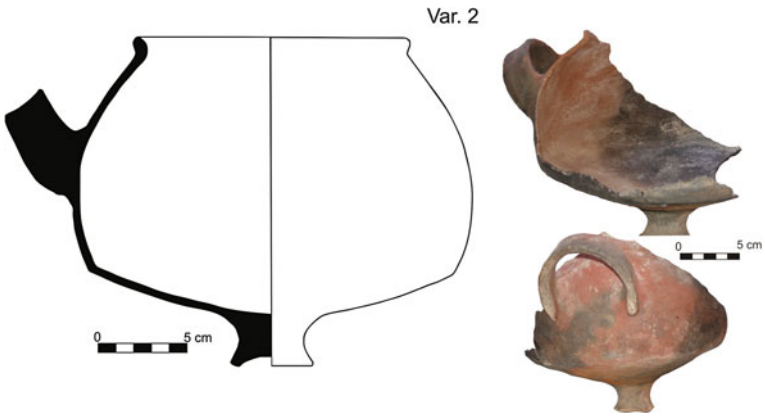


Fig. 16 Non-local Inca cooking pot with a central foot

messages to the populations of its provincial areas. From this, we consider that plain polished surfaces as well as painted decorative elements form part of the communication system inscribed on pottery. In this sense, the appearance of Polished Pink vessels, manifested as a recurring Inca type in the central south sector of Quebrada de Humahuaca (Scaro and Cremonte 2012), becomes relevant. Burnished Bowls with mirrored surfaces (a high visibility decorative proposal), correspond to vessels used as status markers, since these bowls would be of restricted access, circulating and being used in hospitality ceremonies and in domestic status contexts (Cremonte and Botto 2009).

Vessel form would also be an essential element in transmitting messages, not simply as a support of visual proposals but as an important part of the code used to formulate those messages. Technological aspects would also be a part of this communication system: technological choices could transmit information on politics, identity, and memory. Therefore, ordinary vessels would transmit messages perhaps in a domestic environment. Thus, the cooking pot with a central foot recovered at Terrace 1 (Fig. 16) could be connected to the importance of demonstrating an identity linked to the Inca administration even in the most basic activities of daily life (Bray 2004). The cooking pot mentioned corresponds to an Inca Period piece according to Marchegiani (2011) typology. Petrographic analysis revealed that the fabric of this pot includes vulcanite, indicating links with the highlands (Scaro and Cremonte 2012).

The visual proposal of "Angosto Chico Inciso" vessels clearly differs from the local aesthetic, the difference probably being linked to the eastern origin of this pottery style. In this sense, Otonello (1994) argues that this style, of late appearance in Quebrada de Humahuaca sites, would have its origin in the ordinary component of San Francisco traditional pottery, showing contacts between eastern populations and those settled at Quebrada de Humahuaca, especially in its central south sector, where the "Angosto Chico Inciso" style has a greater presence.

Morphologically, non-local pieces separate themselves from local ones, such as the case of Inca Paya bowls (Varieties 1 and 7), Burnished Bowls (Variety 3), the Inca Pacajes plate (Variety 7), the non-local Inca small plate (Variety 6), some Yavi-Chicha plates (varieties 8 and 9), and Casabindo Pintado pitchers (Variety 7).

The Yavi-Chicha style was initially defined by Krapovickas (1965, 1973, 1975, 1977), who registered the presence of asymmetric bottles with handles, bowls, buckets, and small pitchers of low body height and inflected cylindrical necks. Vessels show purple, red, or beige polished slips and faint painted designs. The fabric of these ceramics is pink or orange, and in most cases contains white inclusions. This style's temporal and spatial distribution is wide, chronologically located between 500 AD and the time of Spanish contact; its main area of dispersion includes the northern Puna of Jujuy Province and the basin of the Grande de San Juan River (Avila 2008).

Fragments found at Esquina de Huajra are mostly very small making the task of assigning them to a ceramic type (sensu Krapovickas 1977) or a morphological group difficult, although fragments of plates, bowls, pitchers, and *aríbalos* were identified (Fig. 17). They are inscribed in the Late Yavi subgroup defined by Avila (2009), characterized by the presence of pieces with pink or beige smoothed or polished surfaces, as well as fragments with faint decoration painted in black on a beige surface.

In their analysis of materials from Jujuy's Puna and southern Bolivia, Krapovickas (1965, 1973, 1975, 1977); Avila (2005, 2008) did not describe pieces similar to the polished black plates found at Esquina de Huajra. These plates were incorporated into the Yavi-Chicha style according to their fabric characteristics (Cremonte et al. 2006/07; Scaro and Cremonte 2012). The presence of pieces with Yavi-Chicha traditional fabrics, but whose forms or decorations do not correspond to this style, such as the aforementioned black polished dishes or some Casabindo Pintado sherds with Yavi fabric identified by Cremonte (2012), would account for a situation where potters from the Chicha area produced vessels of other styles circulating at Quebrada de Humahuaca.

Inca Paya (Krapovickas 1965, 1968) was defined as a variant of the Yavi-Chicha style developed in the Inca Period, derived from the Polychrome Yavi Chico type according to similarities in their manufacture and decoration. This style would circulate through a wide area, reaching various sites of northwestern Argentina (Avila 2005; Beierlein 2008). Pieces of this style would have been distributed through parallel channels to those used for Imperial Inca pottery, along with Polychrome Yavi Chico and Inca Pacajes vessels (Williams 2005). Inca Paya's wide distribution would indicate prestige, suggesting that Incas would have valued certain ceramic styles of different ethnic groups in the region. At Quebrada de Humahuaca's central south sector, Inca Paya pieces correspond to bowls. Their petrographic study (Scaro and Cremonte 2012) determined the presence of local and non-local pieces. The Variety 7 bowl presents a fine variant of local fabric, while the Variety 1 bowl has abundant vulcanite fragments, indicating a non-local manufacture. These differences are consistent with the situation observed at an iconographic level, since in some vessels the integration of the Inca Paya and Humahuaca-Inca style was observed.

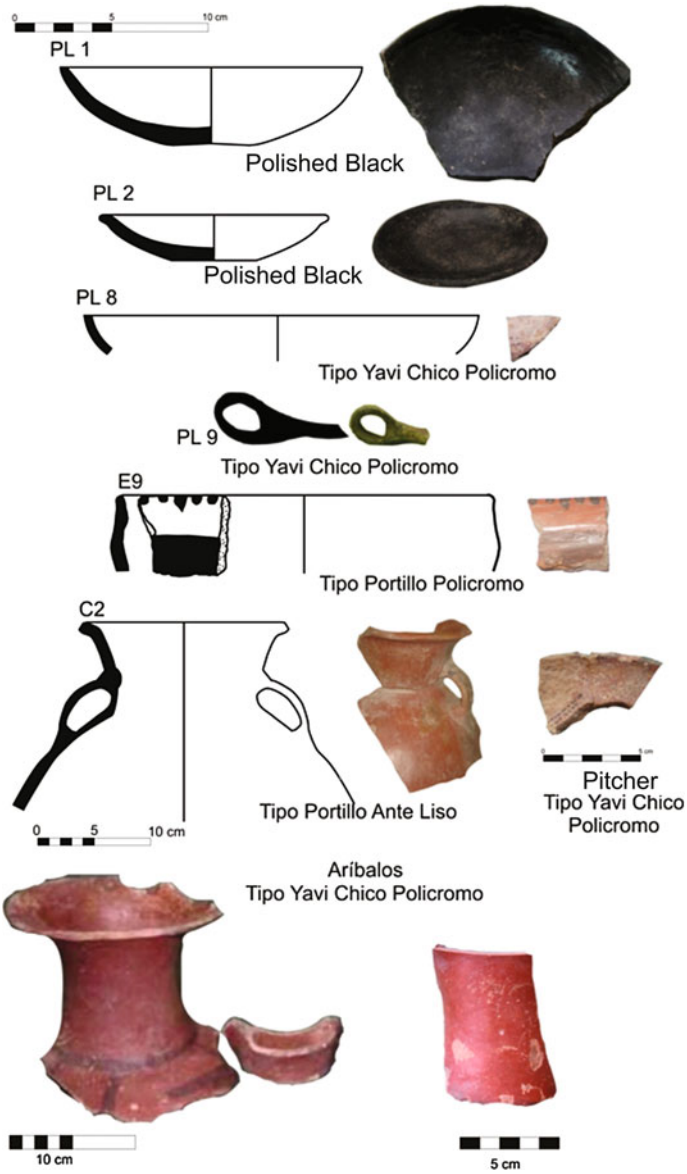


Fig. 17 Yavi-Chicha vessels recovered from Esquina de Huajra

Such is the case of the abovementioned porringer, decorated with a "comb", a typical element of the Inca Paya style, and integrated on a Humahuaca-Inca piece. This could point to the presence of probable *mitmaqkunas* producing their pottery at Esquina de Huajra or perhaps the assimilation of Inca Paya icons by potters of Quebrada de Humahuaca (Scaro and Cremonte 2012).

The protocol presented in these pages points out the iconographic and morphological variability present in Esquina de Huajra pottery, adding to that found by Cremonte in ceramic fabrics (Scaro and Cremonte 2012). This variability, combined with the notorious incidence of foreign style vessels (greater than the observed in other nearby and contemporary sites like Pucara de Volcán), would indicate a context of status and interaction, indicating that Esquina de Huajra was a strategic and special settlement, linked to the Inca administration politics for the central south sector of Quebrada de Humahuaca.

The high incidence of non-local vessels in the Inca contexts at Esquina de Huajra refers to the areas of interaction in which the central south sector of Quebrada de Humahuaca was inserted under Inca administration. Thus, it can be considered that objects expand the shared social space, linking the inhabitants of the area with other regions, such as Jujuy's Puna and southern Bolivia. The use of these vessels in domestic contexts such as in Esquina de Huajra Terrace 1 would point to the role of these objects as status markers for those living in the settlement. The use of non-local pieces at public events would be evidenced by their presence at Pucara de Volcán square. In this context, the vessels would have served to display imperial power as well as to negotiate the ties of dwellers from the area with the Empire. Thus, ceramics would have been an active element in the socio-ideological discourse of an elite group in public and private situations.

In the scheme of the Inca administration in the area, Esquina de Huajra may have been a key point in the economic links between different ecological zones, either by participating in a long-distance trade circuit and/or controlling the workforce from settlements in the area, directed to the exploitation and distribution of *Yunga*'s resources through Quebrada de Huajra. This proposal is reinforced by the presence of sites found along Quebrada de Huajra (Cremonte et al. 2011). The importance of Esquina de Huajra in the social landscape of the sector during the Inca Period is reflected in its ceramic universe. The stylistic analysis and the development of a morphological and decorative protocol allowed recognition of the important variability present in this settlement in terms of shapes, design configurations, and styles. As already stated, the incidence of non-local vessels of different styles—mostly from the highlands—and the display of forms, surface treatments, and fine fabrics would work as status and interaction markers for those living in the settlement (Cremonte et al. 2006/07, 2011). It is likely that Esquina de Huajra also controlled the farming at Raya-Raya. The relations of the area with Jujuy's Puna and the Bolivian and Salta highlands, must have also been important during this moment, perhaps linked to the Inca *tambo* El Moreno and the symbolic significance of "Nevado de Chañi" one of Jujuy's most important mountains, considered as a pilgrimage space where a sanctuary was found (Ruiz and Albeck 2006). The Inca administration introduced changes in the landscape of the south central sector of Quebrada de Humahuaca, however some aspects of "the local" linked to identity and everyday life remained in this new landscape. This continuity is reflected in the permanence of manufacturing tradition established during the RDP, as well as in the persistence of some forms and decorations in the new context.

Acknowledgments Funds from the PIP-CONICET 0060 and ANPCYT-PICT 01538 projects were used for this research. We thank anthropology students Mariana Benavidez, Fabiola Vilte, Daniel Ochoa, and Valeria López for their collaboration in the registration and drawing of pottery. Finally, we thank the Kolla Aboriginal Community of Tumbaya for its support to our research and interest in archaeological ceramics as an expression of their identity.

References

Arkush E (2008) War, chronology, and casualty in the Titicaca Basin. Latin Am Antiquity 19 (4):339–373

Ávila F (2005) El Estilo Alfarero Yavi y su Relación con la Construcción de Entidades Culturales. Theoria 14(1):85–101

Ávila F (2008) Un Universo de Formas, Colores y Pinturas. Caracterización del Estilo Alfarero Yavi de la Puna Nororiental de Jujuy. Intersecciones en Antropología 9:197–212

Ávila F (2009) Interactuando desde el Estilo. Variaciones en la Circulación Espacial y Temporal del Estilo Alfarero Yavi. Estudios Atacameños 37:29–50

Balfet H, Fauvet Berthelot MF, Monzon S (1983) Pour la normalisation de la description des poteries. Centre National de la Recherche Scientifique, Paris

Beierlein M (2008) Cultura Material y Fuentes Escritas: los Chichas de los Andes del Sur. Comechingonia 10:99–118

Bordach M (2006) Interacciones étnicas e indicadores de desigualdad social en el Cementerio de La Falda (SJTil 43), Tilcara, Jujuy. Estudios Atacameños 31:115–128

Bray T (2004) La alfarería imperial Inka: una comparación entre la cerámica estatal del área de Cuzco y la cerámica de las provincias. Chungara 36(2):365–374

Bugliani MF (2008) Consumo y representación en el Formativo del sur de los Valles Calchaquíes (Noroeste argentino). Los conjuntos cerámicos de las aldeas del primer milenio A.D, BAR International Series, Oxford

Conkey MW, Hastorf CA (eds) (1990) The uses of style in archaeology. Cambridge University Press, Cambridge

Cremonte MB (2012) El Estilo Cerámico Yavi-Chicha en Instalaciones Incaicas del Noroeste Argentino. Las Pastas como Posible Marcador Identitario. In: Rivera Casanovas S (ed) Ocupación Inka y Dinámicas Regionales en los Andes (Siglos XV-XVII). IFEA, Bolivia, pp 223–246

Cremonte MB, Botto I (2009) Unas vasijas especiales de contextos tardíos del Noroeste Argentino. Manufactura de los Pucos Bruñidos. Estudios Atacameños 37:63–77

Cremonte MB, Bugliani MF (2006) Pasta, forma e iconografía. Estrategias para el estudio de la cerámica arqueológica. Xama 19–23:239–262

Cremonte MB, Gheggi MS (2012) Espacios rituales y cultura material en un sitio arqueológico Humahuaca-Inca (Quebrada de Humahuaca, Jujuy, Argentina). Revista Española de Antropología Americana 42(1):9–27

Cremonte MB, Solís N (1998) La cerámica del Pucara de Volcán: variaciones locales y evidencias de interacción. In: Cremonte MB (ed) Los desarrollos locales y sus territorios. EdiUnju, Jujuy, pp 155–178

Cremonte MB, Ortiz MG, Delgado A (1997) Las vasijas en los estantes. Análisis de una colección descontextualizada. Cuadernos 9:1–37

Cremonte MB, Peralta SM, Scaro A (2006/07) Esquina de Huajra (Tum10, dpto. Tumbaya, Jujuy) y el poblamiento prehispánico tardío en el sur de la Quebrada de Humahuaca. Cuadernos del INAPL 21:27–38

Cremonte MB, Peralta SM, Scaro A (2011) Primera prospección arqueológica en un camino hacia y desde las yungas (Dto. Tumbaya, Jujuy). Pakarina 6:81–90

Hayashida FM (1994) Producción cerámica en el Imperio Inca: Una visión global y nuevos datos. In: Shimada I (ed) Tecnología y organización de la producción cerámica prehispánica en los andes. Fondo Editorial de la PUCP, Lima, pp 443–475
Hodder I (1990) Style as historical quality. Conkey MW y Hastorf CA the uses of style in archaeology. Cambridge University Press, Cambridge, pp 44–51
Hostnig R (2004) Arte rupestre postcolombino de la provincia Espinar, Cusco, Perú. Boletín 18:40–64
Jernigan EW (1986) A non-hierarchical approach to ceramic decoration analysis: a southwestern example. Am Antiq 51(1):3–20
Krapovickas P (1965) La Cultura Yavi, una Nueva Entidad Cultural Puneña. Etnía 2:9–10
Krapovickas P (1968) Una Construcción Novedosa en la Quebrada de Humahuaca. Etnía 7:5–8
Krapovickas P (1973) Arqueología de Yavi Chico (Puna de Jujuy, República Argentina). Revista del Instituto de Antropología 4:5–22
Krapovickas P (1975) Algunos Tipos Cerámicos de Yavi Chico. Actas y trabajos del I Congreso de Arqueología Argentina:293–300
Krapovickas P (1977) Arqueología de Cerro Colorado (Departamento Yavi, Provincia de Jujuy, República Argentina). Obras del Centenario del Museo de La Plata vol II. edn. Facultad de Ciencias Naturales y Museo, La Plata, pp 123–148
Knappett C (2005) Thinking through material culture. University of Pennsylvania Press, Philadelphia
Marchegiani M (2011) Las Formaciones Sociales de Yocavil Durante la Dominación Inca y la Conquista Española. Contacto, Conflicto, Persistencia y Transformaciones (Siglos XV-XVII D.C.). PHD Dissertation, Universidad de Buenos Aires
Martínez JL (2010) Mandó pintar dos aves…: relatos orales y representaciones visuales andinas. Chungara 42(1):157–167
Martínez JL, Martínez P (2013) Narraciones Andinas Coloniales. Oralidad y Visualidad en los Andes. Journal de la Société des Americanistes 99(2):41–81
Nielsen AE (2006) Pobres Jefes. Aspectos corporativos en las formaciones sociales pre-inkaicas de los Andes Circumpuñeños. In: Gnecco C, Langebaek CH (eds) Contra la tiranía tipológica en Arqueología: una visión desde Sudamérica. Bogotá, Uniandes, pp 121–150
Ortiz MG, Delgado A (1997) La cerámica del pucara de Volcán. EdiUNJu, Jujuy
Otero C (2006) Análisis cerámico del Recinto 2 de la Unidad 1, Sector Corrales del asentamiento urbanizado de Tilcara (SJujTil1-UH1). Dissertation, Universidad de Buenos Aires
Ottonello M (1994) La cerámica Angosto Chico Inciso en el sitio del Volcán en el sector meridional de la Quebrada de Humahuaca. In: Albeck ME (ed) Taller de Costa a Selva. Publicaciones del Instituto Interdisciplinario de Tilcara, Jujuy, pp 329–352
Quiroga L (2001) A través del arte: Una perspectiva arqueológica de las relaciones coloniales en el Valle de Santa María (pcia. de Catamarca). In: Berenguer J, Cornejo L, Gallado F, Sinclaire C (eds) Segundas jornadas de arte y arqueología, Santiago de Chile, 2001, p 272–300
Rice P (1987) Pottery Analysis. University of Chicago Press, Chicago, A sourcebook
Ruiz M, Albeck ME (2006) Apéndice: Los Inkas en Jujuy. In: Ruiz M (autor) Los Inkas. Espacio y Cultura. Ediunju, Jujuy
Runcio MA (2009) Estilos e Identidades: Producción y Consumo de Vasijas Cerámicas en la Quebrada de Humahuaca durante los Períodos Tardío e Inca (900–1536 d.C.). PHD Dissertation, Universidad de Buenos Aires
Runcio MA (2010) Estilos e Identidades: los Pucos Subhemisféricos Negro/Rojo de la Quebrada de Humahuaca Durante el Período Tardío (900–1430 d.c.). Comechingonia Virtual 4(2):163–210
Scaro A (2015) Arqueología de Tumbaya. Paisajes sociales en un sector de la Quebrada de Humahuaca (Jujuy) durante la etapa agroalfarera. PHD Dissertation, Universidad de Buenos Aires
Scaro A, Cremonte MB (2012) La vajilla de servicio de Esquina de Huajra (Dpto. Tumbaya, Jujuy, Argentina). Alternativas teóricas para interpretar su significado. Revista del Museo de Antropología 5:31–44

Scattolin C (2007) Estilos como recursos en el Noroeste Argentino. In: Nielsen A, Rivolta C, Seldes V, Vázquez M, Mercolli P (eds) Procesos sociales prehispánicos en el sur andino. Brujas, Córdoba, pp 291–321

Shanks M, Tilley C (1987) Re-constructing archaeology theory and practice. Cambridge University Press, Cambridge

Tarragó M (2000) Chakras y pukara. Desarrollos sociales tardíos. In: Tarragó M (dir) Nueva historia argentina. Sudamericana, Madrid, p 257–299

Troncoso A (2005) Hacia una semiótica del arte rupestre de la cuenca superior del río Aconcagua. Chile Central Chungara 37(1):21–35

Williams VI (2005) Poder y cultura material bajo el dominio Inka. Pacarina 4:35–68

Zaburlín MA (2012) La cerámica tricolor de la Puna Jujeña: variabilidad de los motivos de vírgulas y puntos blancos. Arqueología 18:131–152

Statistical Analysis of Radiocarbon Datings from the South Central Sector of Quebrada de Humahuaca

Catriel Greco

Abstract In this chapter we present a compilation and review of radiocarbon dates from different archaeological sites in the south central sector of Quebrada de Humahuaca, Jujuy Province, Argentina. These include those made by Beatriz Cremonte and her team in recent years, as well as those previously available for the region. After reviewing each radiocarbon dating and its context, conventional statistics and Bayesian modeling techniques are used to evaluate temporal trends.

Keywords Radiocarbon · Bayesian statistics · Quebrada de humahuaca · Inca · Regional developments period

1 Introduction

In this paper we present a compilation and review of radiocarbon dates from different archaeological sites in the south central sector of Quebrada de Humahuaca, Jujuy Province, Argentina. These include those made by Beatriz Cremonte and her team in recent years, as well as those previously available for the region. After reviewing each radiocarbon dating and its context, conventional statistics and Bayesian modeling techniques are used to evaluate temporal trends.

The Bayesian statistical approach establishes probabilities in terms of degrees of belief, based on prior information. In archaeological chronology, we can state the hypothesis of relative chronology and contrast them with radiocarbon datings. The datings, along with the assumptions, make a priori information; after the analysis a new a posteriori probability distribution is obtained. Each model thus generated is composed of phases—or groups of datings without internal order—defined by their initial and final boundaries, arranged in sequences. The consistency of the model is evaluated by simulation and accepted when the agreement index (A_{overall} and

C. Greco (✉)
Departamento de Geología, Universidad Nacional de San Luis, CONICET (5700), San Luis, Argentina
e-mail: catrielgreco@gmail.com

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_7

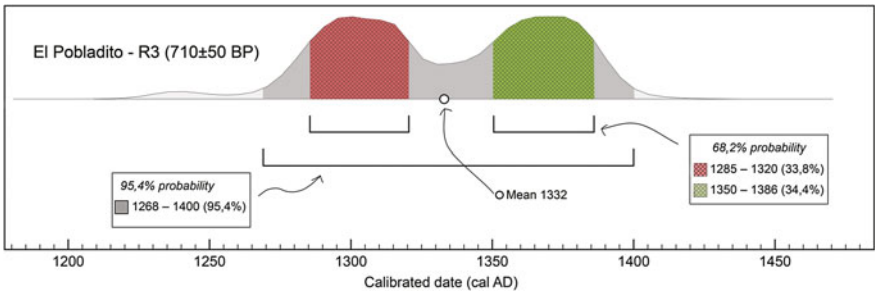


Fig. 1 Interpretation of a radiocarbon calibration graph

A_{model}) exceeds 60%, which is similar to the 5% certainty level in a χ^2 test (Bronk Ramsey 2009). To evaluate the duration and order of events we use a uniform phase model (Buck et al. 1996) assuming that the whole set of phenomena in a phase has the same probability of occurrence in every moment, also calculating the sum of probabilities of the calibrated datings and the span and boundary parameters. All the analysis has been performed with the OxCal v4.2 program (Bronk Ramsey 2009) and the calibration curve for the southern hemisphere SHCal13 (Hogg et al. 2013). The use of this curve must be taken into account when comparing with previous reports (Cremonte et al. 2006–2007; Cremonte and Gheggi 2012; Scaro and Cremonte 2012), as there may be differences arising from the use of other calibration curves.

Throughout the text we include a series of figures and tables with datings and calibrations. As an example, in Fig. 1 we illustrate how to interpret a graph showing the probability distribution of a calibrated radiocarbon dating. As the calibration curve has oscillations and errors within itself, the resulting distribution may be asymmetric and multimodal. In the example there are two peaks or areas of maximum probability, highlighted with patterns and with brackets below. The brackets technique will be the used in the rest of the figures. When Bayesian statistical analyses are performed, prior probabilities are graphed in light gray, superimposed to posterior probability distributions in dark gray.

2 Study Cases

2.1 Esquina de Huajra

Esquina de Huajra is a single-component Humahuaca-Inca settlement. The area is of at least 0.8 ha, with rock structures having low surface visibility because of sedimentary deposits. Rescue excavations were made, covering 210 m^2 on three levels artificially terraced in the northern sector of the site, called Terraces 1, 2, and 3, moving from the bottom to the top of the site (Cremonte et al. 2006–2007). There are nine datings from this site (Table 1; Fig. 2).

Table 1 List of radiocarbon dates from Esquina de Huajra

Provenance and lab code	^{14}C date BP	δ^{13}C	Dated material	Calibrated dates AD 68.2% probability	Calibrated dates AD 95.4% probability	References
Esquina de Huajra-Terrace 3-Floor (C 21) **LP 2502**	260 ± 40	−24 ± 2 estimated	Charcoal	1640–1674 (28.5%) 1739–1798 (39.7%)	1509–1579 (7.3%) 1621–1698 (39.6%) 1724–1808 (48.1%) 1870–1876 (0.3%)	Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 3-Tomb 3 **Beta 206919**	280 ± 50	−21.3	Charcoal	1514–1544 (11.1%) 1624–1674 (31.6%) 1738–1798 (25.5%)	1495–1698 (65.3%) 1724–1808 (29.8%) 1870–1876 (0.3%)	Cremonte et al. (2006–2007), Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 3-Tomb 3 **Beta 32576**	320 ± 50		Human bone	1505–1588 (45.6%) 1616–1655 (22.6%)	1463–1672 (91.1%) 1744–1758 (1.8%) 1780–1796 (2.5%)	Cremonte et al. (2006–2007), Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 1—Floor **Beta 193319**	340 ± 50		Charcoal	1504–1590 (51.6%) 1616–1644 (16.6%)	1460–1664 (95.4%)	Cremonte et al. (2006–2007), Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 1—Floor **LP 2522**	350 ± 40	−24 ± 2 estimated	Charcoal	1504–1590 (56.3%) 1616–1635 (11.9%)	1464–1468 (0.6%) 1476–1650 (94.8%)	Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 3—Tomb 4 **Beta 255446**	360 ± 40	−24.7	Charcoal	1502–1594 (57.7%) 1612–1630 (10.5%)	1464–1645 (95.4%)	Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 3-Floor (C 21) **AA 88375**	393 ± 82	−22.9	Charcoal	1458–1518 (28.0%) 1538–1626 (40.2%)	1414–1670 (94.1%) 1748–1754 (0.4%) 1783–1795 (0.9%)	Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 3-Tomb 2 **Beta 32577**	450 ± 50	–	Human bone	1436–1504 (54.6%) 1591–1615 (13.6%)	1419–1520 (65.2%) 1537–1626 (30.2%)	Cremonte et al. (2006–2007), Cremonte and Gheggi (2012)
Esquina de Huajra-Terrace 3-Tomb 1 **UGA 16200**	550 ± 50	–	Human bone	1404–1440 (68.2%)	1326–1340 (2.8%) 1390–1455 (92.6%)	Cremonte et al. (2006–2007), Cremonte and Gheggi (2012)

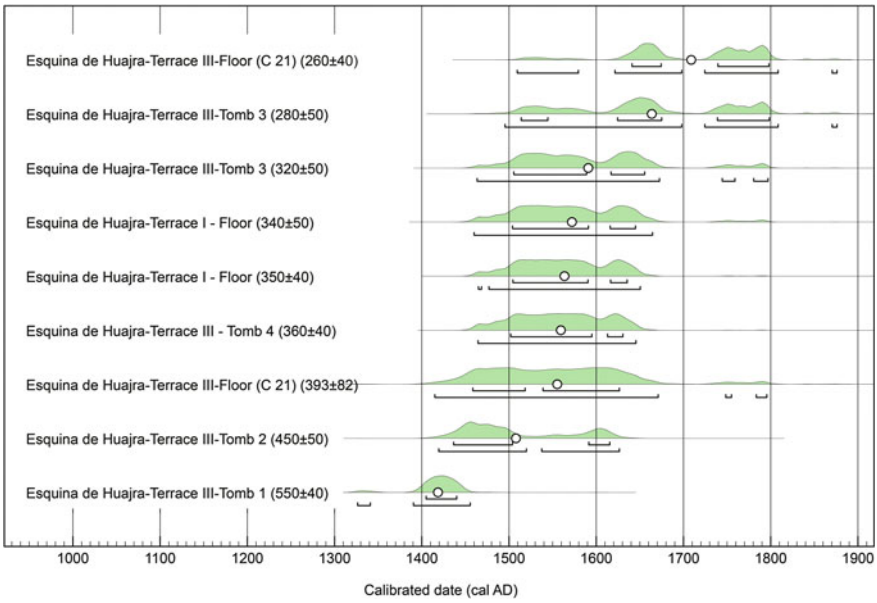


Fig. 2 Probability plots of calibrated dates from Esquina de Huajra

In Terrace 1, part of a rectangular enclosure with right angles and a small opening to the south was found and interpreted as the yard of a household. A small and not delimited combustion structure provided wood charcoal that was dated to 340 ± 50 BP. The association also includes an ordinary pot (fragmented) and two necks of *aribalos* (Inca vessels), plus abundant fragments of other ceramics, bones of birds and mammals, a spatula and a needle made of bone and a bronze chisel (Cremonte et al. 2006–2007; Scaro and Cremonte 2012).

From another concentration of charcoal on the same floor, a dating of 350 ± 40 BP was performed. As the two results are very similar [χ^2 Test; df = 1; T = 0.0 (5% 3.8), average 346 ± 32 ^{14}C years BP] we might think that they correspond to contemporary events within the margins of measurement error, so the weighted average of both dates is the best estimate of the actual age (Ward and Wilson 1978).

On Terrace 3 a living floor area was found, with abundant ceramic fragments and lithic artifacts, on which a number of human burials were also arranged. This space has been interpreted as a funerary area, consisting of an external sector to the tombs, which would function as a restricted congregation space for the preparation of burial rites (Scaro and Cremonte 2012). Using coal recovered from the floor of this space two radiocarbon datings were performed, with ages of 260 ± 40 and 393 ± 82 ^{14}C years BP. In this case, both datings are also statistically indistinguishable [χ^2 Test; df = 1; T = 2.1 (5% 3.8), average 286 ± 36 ^{14}C years BP].

Tomb 1 is a secondary burial ossuary type, with a minimum of five individuals. The left humerus of Individual 2, a male adult (Gheggi 2005), was dated at

550 ± 50 ^{14}C years BP. The associated material includes an ordinary gray cup, fragments of one or two ordinary vessels, red pigment, a schist plate, an arrow made of bone, and a bone tube with linear incisions (Cremonte et al. 2006–2007). The characteristics of the layout of the tomb, and the objects, made the authors think that it might be of Hispanic–Indigenous context, nevertheless it is the oldest dating in the site. This result is an outlier in the group, maybe because it is actually older—an ancestor deposited at a later tomb, as suggested by the authors—or maybe because of unknown causes affecting the measurement process, so we cannot be sure until datings are made in context.

At 6 m from that tomb, three others were found very close to each other. Tomb 2 is a secondary burial of seven individuals, appearing in a small rectangular enclosure of double walls of quarried or selected rocks. The remains of a sub-adult of indeterminate sex and age estimated at 8 ± 24 months (Gheggi 2005) was dated at 450 ± 50 ^{14}C years BP. Also, nearly 100 necklace beads, metal objects, and Humahuaca Black on Red (B/R) pottery, as well as numerous fragments of Inca, local, and non-local vessels were found (Cremonte et al. 2006–2007).

Tomb 3 is a simple semicircular wall of flagstone fixed with mud against the wall of an enclosure. A dating at 320 ± 50 ^{14}C years BP was performed on the left femur of the only individual, a female of 35 ± 5 years (Gheggi 2005). The offering of the burial consisted of a black polished plate, some camelid bones, pottery fragments, and two metal tupus (Cremonte et al. 2006–2007). Another dating from charcoal was at 280 ± 50 ^{14}C years BP. Both results are statistically indistinguishable (χ^2 Test; df = 1; T = 0.3 (5% 3.8), weighted average 300 ± 36 ^{14}C years BP). Finally, Tomb 4 is a primary burial in a brown pot, located below the floor a domestic dwelling. The remains of a child and an unborn baby, metal artifacts, and at least eight Inca pottery vessels (Cremonte et al. 2006–2007) were found inside. Within a local Pink Polished *aribalo* some vegetable charcoal was obtained and dated at 360 ± 40 ^{14}C years BP.

The nine datings at Esquina de Huajra show quite similar and consistent results, although they were conducted at four different laboratories (LATyR at the Universidad Nacional de La Plata, NSF-Arizona AMS Facility, Beta Analytic, and the Center for Applied Isotope Studies of the University of Georgia). In particular the one dated at 550 ± 50 ^{14}C years BP (UGA-16200), is the only one that is an outlier [χ^2 Test; df = 8; T = 35.7 (5% 15.5)]. One of the reasons why this dating is an outlier may be due to the difference in calculations between laboratories, as Baldini et al. (2002) measured repeated samples from LATyR, Arizona, and Beta Analytic and found up to 300 years difference in their reported values. All other datings are statistically indistinguishable and are averaged at 337 ± 17 BP [χ^2 Test; df = 7; T = 11.2 (5% 14.1)]. Therefore, except for UGA-16200, everything points to a fairly limited timespan in a late Inca stage.

It should also be noted that this type of statistical analysis is influenced by measurement error, i.e., it may be averaging events actually separated in time. It is therefore possible to argue that the burials and domestic floors represent different times, so we will perform two statistical tests. On the one hand, to define chronological groups we follow the Dsplit algorithm published by Wilson and

Table 2 Groups of dates of Esquina de Huajra, according to Dsplit analysis (Wilson and Ward 1981)

Group	Provenance and lab code	^{14}C date BP
1	Terrace 3—Floor (C 21)—**LP 2502**	260 ± 40
	Terrace 3—Tomb 3—**Beta 206919**	280 ± 50
2	Terrace 3—Tomb 3—**Beta 32576**	320 ± 50
	Terrace 1—Floor—**Beta 193319**	340 ± 50
	Terrace 1—Floor—**LP 2522**	350 ± 40
	Terrace 3—Tomb 4—**Beta 255446**	360 ± 40
	Terrace 3—Floor (C 21)—**AA 88375**	393 ± 82
3	Terrace 3—Tomb 2—**Beta 32577**	450 ± 50
	Terrace 3—Tomb 1—**UGA 16200**	550 ± 50

Ward (1981), Case 1, using the software of the same name (Kintight, n/d). This process is based on finding the maximum grouping likelihood of a series of datings, looking for splits between subgroups when the test value is below the 0.05 level of significance in χ^2. Taking into account all the site datings ($N = 9$), two splits defining three groups were found (Table 2). In this case it appears that the UGA-16200 dating of Tomb 1 can be grouped with the one in Tomb 2 in a hypothetical first moment of the series.

It is important to note that in this analysis the specific relationships between contexts are not taken into account, therefore, its archaeological implications are limited, only to show statistical divisions in values. However, in the future, consideration might be given to whether it correlates with other lines of evidence.

On the other hand, for Terrace 3 no stratigraphic overlap was found, so the question of whether the burials correspond to a time subsequent or contemporary to the floor use persists. Through analysis of the distribution of objects and burials, Scaro and Cremonte (2012) interpreted this as a restricted congregation space for the preparation of the burials and the corresponding rites. Therefore, a contemporaneity between burials and burning events is proposed. Bayesian statistical analysis allows the evaluation of both possibilities. To that end, we state two different models (PHASE command in OxCal): the first (model A) composed of two phases, Phase 1 the floor and Phase 2 the tombs; and the second (model B), which considers all dates as belonging to the same phase, i.e., a series of events that available information does not differentiate between. The results are shown in Fig. 3.

For model A we consider all dates, with the result of the $A_{overall}$ and A_{model} index being 3.2 and 3.1% respectively (not graphed); these values are not acceptable because they are well below the limit of 60%, the reason for this might be the influence of two dates that deviate from the group. They are not taken into account in subsequent analyses: the aforementioned being older than the rest in Tomb 1 (550 ± 40, $A = 0\%$); also, the first date of the floor (260 ± 40, $A = 16\%$) is very late and, as mentioned, differs from the others in the same context due to unknown causes. Leaving aside these two dates, the reformulated model (Fig. 3A) itself is

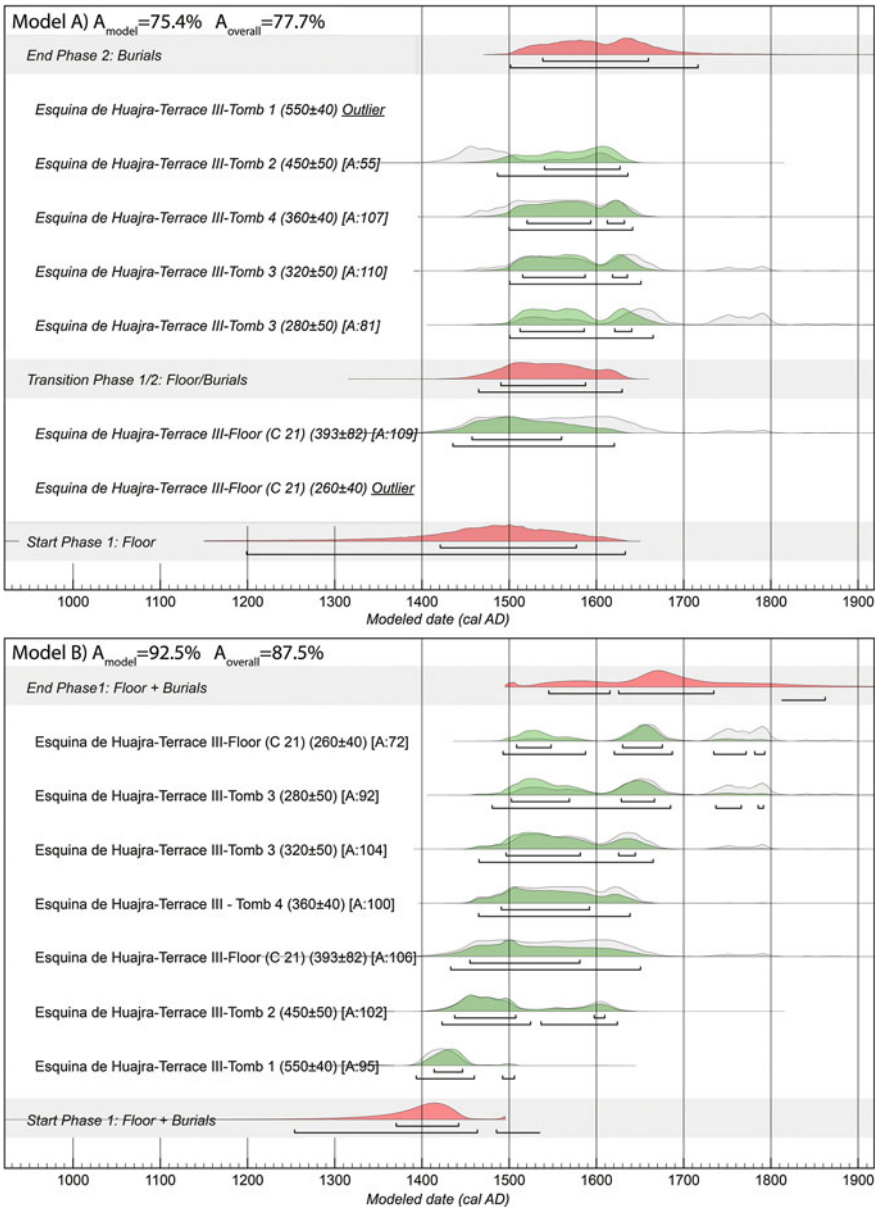


Fig. 3 Bayesian statistical models to evaluate the time difference between floor and burials in Esquina de Huajra—Terrace 3. In *A* burials are hypothetically later than the floor; in *B* floor and burials are hypothetically contemporary

acceptable in statistical terms, and it is therefore possible to state that the burials are dated later than other activities on Terrace 3. However, both burial and combustion events are very close chronologically, as shown by modeled probabilities for the start, end, and transition phases.

Model B (Fig. 3B) contemplates the events of the burial and the floor as being in the same phase, on the basis of the interpretation of Scaro and Cremonte (2012). In this case, the result is even more consistent than before, with an A_{model} index of 92.5%. Therefore, although the two hypotheses may be true, model B is more likely. From this it can be said that the events of the burial and rituals in Terrace 3 began sometime between the ending of the 14th and mid-15th centuries, with a mean probability of 1387 AD. Those events may have finished in the mid-16th and late-17th centuries, with a mean of 1680 AD (Fig. 4). Estimating the finishing dates remains difficult because the calibration curve in those centuries is very flat and returns inaccurate calibrations, but we think it might be similar to the regional perspective discussed later. The duration of these events might be between 77 and 376 years, but a peak of maximum likelihood is ca. 230 years with a mean of 214 years leading us to think that it probably lasted a little over two centuries, comprising the Inca and Hispanic–indigenous Periods.

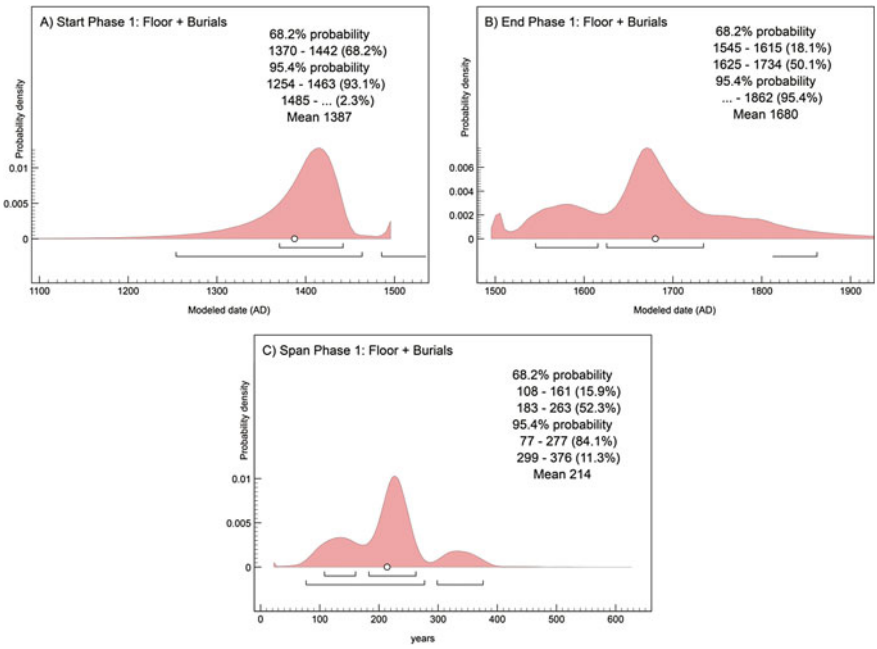


Fig. 4 Posterior estimates from Model B of the start, end and span of the floor use and burials in Esquina de Huajra—Terrace 3

2.2 *Pucará de Volcán*

Pucará de Volcán is a large settlement with an area of 7 ha of complex internal structures located at elevation (Garay de Fumagalli 1998). Radiocarbon datings from three middens and a housing enclosure show a long occupational history (Table 3; Fig. 5).

Midden 1 (Tum1B1) corresponds to continuous discarding events, with a depth of 1.4 m. The ceramic material recovered is abundant; at lower levels there appear pots demonstrating Regional Developments Period (RDP) styles, while at middle and higher levels sherds reflect the Inca influence (Garay de Fumagalli 1998). Datings of wood charcoal at four different levels were conducted, and the results were 670 ± 60, 530 ± 70, 560 ± 60, and 450 ± 60 ^{14}C years BP (Garay de Fumagalli and Cremonte 1997; Garay de Fumagalli 1998). These represent a series of relatively upcoming events in time, statistically indistinguishable from one another [χ^2 Test: df = 3; T = 6.9 (5% 7.8)].

Midden 2 (Tum1B2) is a discard area with a depth of 90 cm, associated with a large artificial mound located at the western end of the site (Garay de Fumagalli 1998). The materials recovered from it during the excavation are very homogeneous, including ceramic fragments in which the polished surfaces and fine designs predominate, as well as those of ordinary and Humahuaca-Inca and Inca-Paya styles (Cremonte and Scaro 2010). The LP-808 dating yielded an age of 440 ± 60 ^{14}C years BP and was performed on vegetable charcoal from the middle of the excavation (Garay de Fumagalli 1998; Cremonte and Nieva 2003).

In Midden 3 (Tum1B3) there is evidence of a long history of deposits, with a greater intensity of artifacts and debris in the upper and middle levels, which were dated at 430 ± 60 and 410 ± 60 ^{14}C years BP, respectively. At Level 9, the base of the midden, few cultural remains were found. Between the remains of two hearths vegetable charcoal samples were extracted and provided an age of 860 ± 70 ^{14}C years BP (Garay de Fumagalli 1998; Cremonte and Nieva 2003). Lastly, a test pit which reached a depth of 2 m was found. In it were a set of fragments of at least 20 vessels of San Francisco Tradition. This early occupation was dated at 1940 ± 40 and 1940 ± 70 ^{14}C years BP.

Finally, in Enclosure 5 (R5) a charcoal sample gave a result of 535 ± 50 ^{14}C years BP. This enclosure is rectangular with an areal extent of 40 m^2, having been 80% excavated. The occupation level corresponds to sandy silt sediment with charcoal stains. From this site were recovered fragments of 20 vessels, both ordinary, Angosto Chico Incised, and Humahuaca B/R, as well as an Inca-Paya bowl (Cremonte and Scaro 2010).

Table 3 List of radiocarbon dates from Pucará de Volcán

Provenance and lab code	^{14}C date BP	Dated material	Calibrated dates AD 68.2% probability	Calibrated dates AD 95.4% probability	References
Pucará de Volcán—Midden 3 middle levels N7 **LP 1038**	410 ± 60	Charcoal	1453–1512 (35.3%) 1549–1560 (5.0%) 1572–1623 (27.9%)	1441–1641 (95.4%)	Cremonte and Nieva (2003)
Pucará de Volcán—Midden 3 upper levels N2 **LP 972**	430 ± 60	Charcoal	1443–1510 (43.7%) 1576–1622 (24.5%)	1429–1634 (95.4%)	Cremonte and Nieva (2003)
Pucará de Volcán-Enclosure R5 **LuS 7927**	435 ± 50	Charcoal	1444–1506 (49.1%) 1586–1618 (19.1%)	1433–1627 (95.4%)	Cremonte and Scaro (2010)
Pucará de Volcán-Midden 2 **LP 808**	440 ± 60	Charcoal	1438–1509 (47.2%) 1580–1620 (21.0%)	1424–1630 (95.4%)	Garay de Fumagalli (1998), Cremonte and Nieva (2003), Cremonte and Scaro (2010)
Pucará de Volcán—Midden 1 N5 **Beta 80119**	450 ± 60	Charcoal	1431–1508 (51.1%) 1585–1619 (17.1%)	1417–1628 (95.4%)	Garay de Fumagalli and Cremonte (1997), Garay de Fumagalli(1998)
Pucará de Volcán—Midden 1 N17 **Beta 80122**	530 ± 70	Charcoal	1329–1336 (2.1%) 1391–1478 (66.1%)	1301–1365 (12.2%) 1375–1511 (77.1%) 1554–1556 (0.2%) 1576–1622 (5.9%)	Garay de Fumagalli and Cremonte (1997), Garay de Fumagalli (1998)
Pucará de Volcán—Midden 1 N8 **Beta 80121**	560 ± 50	Charcoal	1396–1445 (68.2%)	1316–1356 (13.7%) 1381–1459 (81.7%)	Garay de Fumagalli and Cremonte (1997), Garay de Fumagalli (1998)
Pucará de Volcán—Midden 1 N21 **Beta 85493**	670 ± 60	Charcoal	1302–1366 (53.3%) 1375–1393 (14.9%)	1277–1417 (95.4%)	Garay de Fumagalli and Cremonte (1997), Garay de Fumagalli (1998)
Pucará de Volcán—Midden 3 base N9 **LP 801**	860 ± 70	Charcoal	1162–1276 (68.2%)	1042–1296 (95.4%)	Cremonte and Nieva (2003)
Pucará de Volcán—Midden 3 31-6.a **Beta 119669**	1940 ± 40	Charcoal	55–139 (57.5%) 181–201 (10.7%)	21–222 (95.4%)	Garay de Fumagalli and Cremonte (2002)
Pucará de Volcán—Midden 3 30-7.a **Beta 119670**	1940 ± 70	Charcoal	32–205 (68.2%)	58 a.C.–250 (94.5%) 305–321 (0.9%)	Garay de Fumagalli and Cremonte (2002)

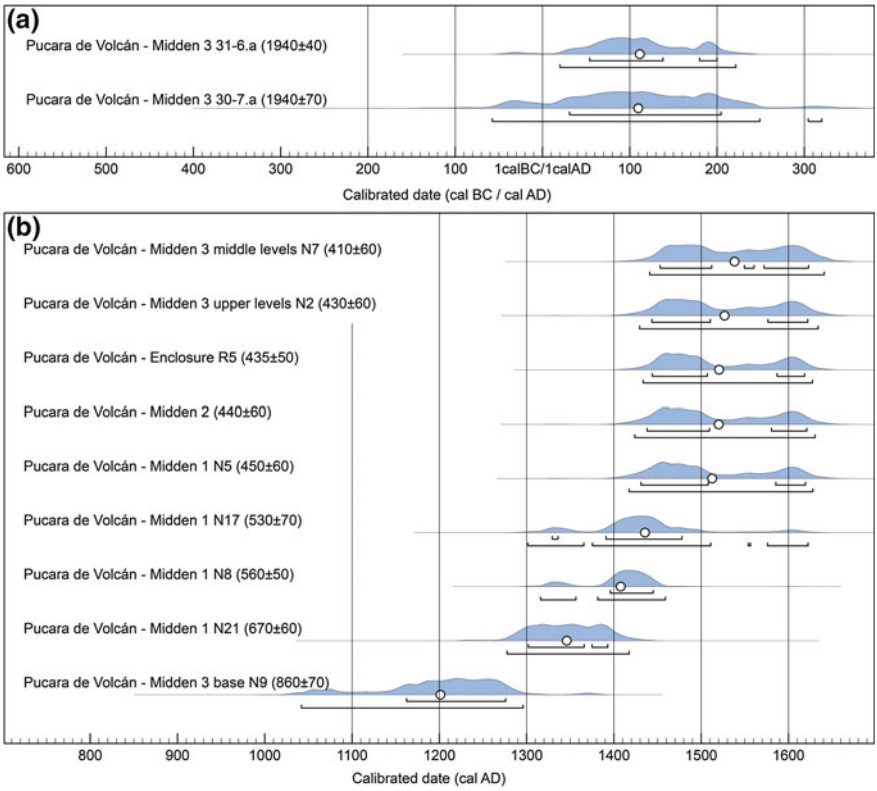


Fig. 5 Probability plots of calibrated dates from Pucará de Volcán. **a** Dates from the 1st millennium AD. **b** Dates from the 2nd millennium AD

2.3 El Pobladito

El Pobladito is a settlement located in an ancient alluvial terrace at 2400 masl, located in Quebrada de Tumbaya Grande. It is a conglomerate comprising 432 m long and 25–86 m wide, covering about 2 ha. So far, three enclosures have been excavated in different sectors of the settlement.

Enclosure 1 (R1) has good conservation at the architectural level; excavation has revealed the presence of a filling layer with little remains overlying a sterile layer. Enclosure 2 (R2) is 21 m^2 and its excavation has revealed the presence of three natural filling layers. The top two had low cultural material, while the third, corresponding to the occupation floor, presented more findings. Under the third layer, 45 cm deep, was found an occupation floor of variable thickness, having greater thickness to the north. Meanwhile, Enclosure 3 (R3) is 98 m^2 and has a wall that divides it into a larger and a smaller space; the excavation of the latter revealed a stratigraphy similar to Enclosure 2, that being a single floor of occupation in which

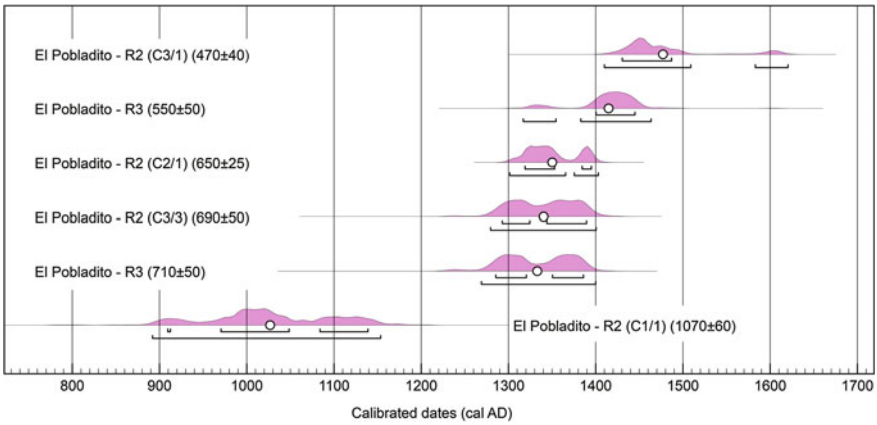


Fig. 6 Probability plots of calibrated dates from El Pobladito

the presence of two fire pits, camelid bones, stone tools, and pottery of local manufacture were found (Scaro 2015).

In Enclosure 2 coals from a large fire pit and a small pit filled with ashes and coals were dated, both located on the occupation level. The results were 470 ± 40 and 650 ± 25 ^{14}C years BP, made by LATyR at the Universidad Nacional de La Plata and the Center for Applied Isotope Studies of the University of Georgia, respectively. Two fragments of camelid bone from the same level were also dated, with results of 690 ± 50 and 1070 ± 60 ^{14}C years BP, both datings made by LATyR. In this case statistically different values were found [χ^2 Test; df = 3; T = 71.7 (5% 7.8)], so we can assume that they date events separated in time (Ward and Wilson 1978).

On the other hand, in Enclosure 3 two datings of charcoal from fire pits were performed, which yielded results of 550 ± 50 and 710 ± 50 ^{14}C years BP, which are also statistically different [χ^2 Test; df = 1; T = 5.1 (5% 3.8)] (Fig. 6; Table 4).

As these six datings from El Pobladito come from different features, they are useful to estimate the duration of occupation (Fig. 7). Bayesian statistical analysis allows us to identify the beginning of the occupation sometime around the eleventh or twelfth centuries AD, based on the areas of highest probability density for the start event, with the end of the occupation between the mid-15th century and the early sixteenth century. The span of occupation is calculated between 224 and 512 years (95.4% probability).

2.4 La Silleta

La Silleta is a settlement of about 2000 m^2, with poorly conserved structures. Only some terracing and enclosure walls are observed (Cremonte et al. 2011). A test pit on the northern slope of the site revealed some pottery fragments that can be

Table 4 List of radiocarbon dates from El Pobladito

Provenance and lab code	^{14}C date BP	δ^{13}C	Dated material	Calibrated dates AD 68.2% probability	Calibrated dates AD 95.4% probability	References
El Pobladito—R2 (C3/1) **LP 2742**	470 ± 40	−24 ± 2 estimated	charcoal	1430–1486 (68.2%)	1410–1508 (84.9%) 1582–1620 (10.5%)	Scaro (2015)
El Pobladito—R3 **LP 2845**	550 ± 50	−24 ± 2 estimated	charcoal	1400–1444 (68.2%)	1316–1354 (9.7%) 1382–1463 (85.7%)	Scaro (2015)
El Pobladito—R2 (C2/1) **UGAMS 8558**	650 ± 25	−25.7	charcoal	1318–1352 (53.2%) 1384–1394 (15.0%)	1301–1365 (69.6%) 1375–1402 (25.8%)	Scaro (2015)
El Pobladito—R2 **LP 2883**	690 ± 50	−24 ± 2 estimated	Camelid bone	1293–1324 (27.9%) 1344–1389 (40.3%)	1279–1400 (95.4%)	Scaro (2015)
El Pobladito—R3 **LP 2847**	710 ± 50	−24 ± 2 estimated	charcoal	1285–1320 (33.8%) 1350–1386 (34.4%)	1268–1400 (95.4%)	Scaro (2015)
El Pobladito—R2 **LP 2877**	1070 ± 60	−24 ± 2 estimated	Camelid bone	909–912 (1.0%) 970–1048 (46.4%) 1084–1139 (20.9%)	892–1153 (95.4%)	Scaro (2015)

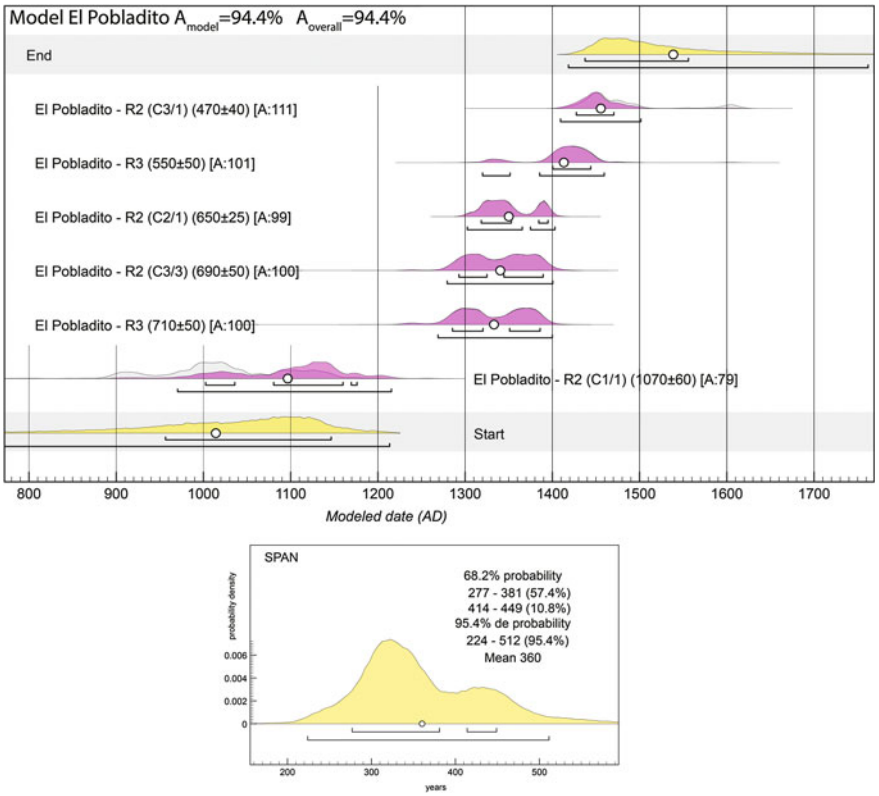


Fig. 7 Uniform phase model to evaluate the span of occupation of El Pobladito

Table 5 List of radiocarbon dates from La Silleta

Provenance and lab code	^{14}C date BP	δ^{13}C	Dated material	Calibrated dates AD 68.2% probability	Calibrated dates AD 95.4% probability	References
La Silleta–test pit 1—Level 6 **LP 2743**	770 ± 30	−24 ± 2 estimated	charcoal	1234–1242 (6.0%) 1265–1298 (62.2%)	1225–1310 (88.2%) 1360–1379 (7.2%)	Scaro (2015)

ascribed to a late occupation: Humahuaca B/R, Humahuaca-Inca, and Casabindo Pintado. The ceramic evidence, along with the settlement pattern, and the inter-visibility suggests its functional relationship with Esquina de Huajra (Cremonte et al. 2011).

However, dating (Table 5; Fig. 8) gave older results than those attributed to the actual location, with a value of 770 ± 30 ^{14}C years BP. The analysis was performed on dispersed vegetable charcoal, so it represents an average age of elements

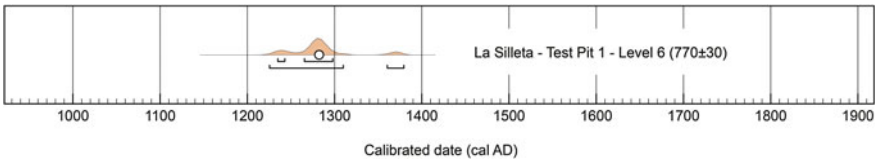


Fig. 8 Probability plots of calibrated dates of La Silleta

from different true ages and therefore is not a reliable enough date to ensure temporal differentiation or similarity between the sites.

3 Span of Occupation at the Regional Level

With the exception of the two oldest dates for the Pucará de Volcán, the radiocarbon datings described above are all within a relatively limited time range, if we take into account all the pre-Hispanic social process in the region. Over just a few centuries, an overlap between dates is often observed, something which is heavily influenced by the range of error in the available measurements. However, the use of Bayesian statistics can provide a way to assess the duration of the occupation at the studied sites. Here we used a combination of a uniform contiguous phase model (Buck et al. 1996; Bronk Ramsey 2009), which assumes that all the events within a phase have the same probability of occurrence at any age and that one phase follows another with some transition period.

Thus, and on the basis of the available contextual information, the datings from the Pobladito, La Silleta, and those from Pucará de Volcán without associated Inca material, were grouped into an older phase, which we call "Pre-Inca" while those from Esquina de Huajra and the datings of Inca contexts from Pucará de Volcán were included in an "Inca" phase. Also in Pucará de Volcán there is an even earlier stage, represented so far by two very similar datings; for this argument we do not take into account that information, since using only two dates would not be useful in order to calculate timespans on a regional scale.

The first model (not graphed) which included all dates is found to be acceptable (A_{model} index 60%), but the agreement is minimal because of the influence of the youngest dating in the series: 260 ± 40 ^{14}C years BP (LP 2502), demonstrating very low individual agreement (31%). This is an outlier value and is not used for subsequent analysis. The revised model (Fig. 9) is acceptable and allows the calculation by simulation of other statistical parameters that we can use to measure the duration of events and processes: the sum of probabilities, the span estimating the number of years for the duration of a phase, and the start and end boundaries of each phase. These probability distributions represent better estimators of the events of interest, than the original ^{14}C dates.

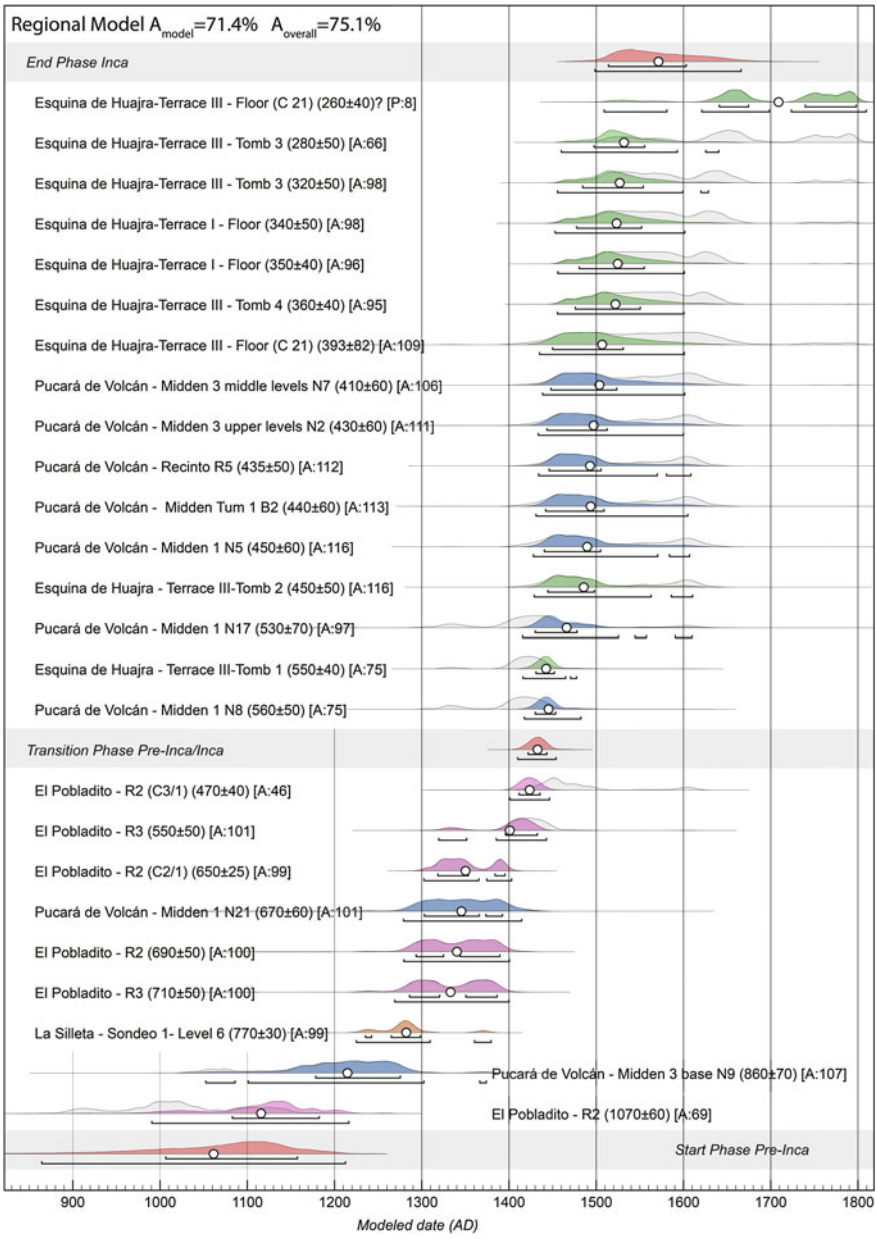


Fig. 9 Bayesian statistical model to evaluate the chronology of the south central sector of Quebrada de Humahuaca, considering two phases grouping the study cases

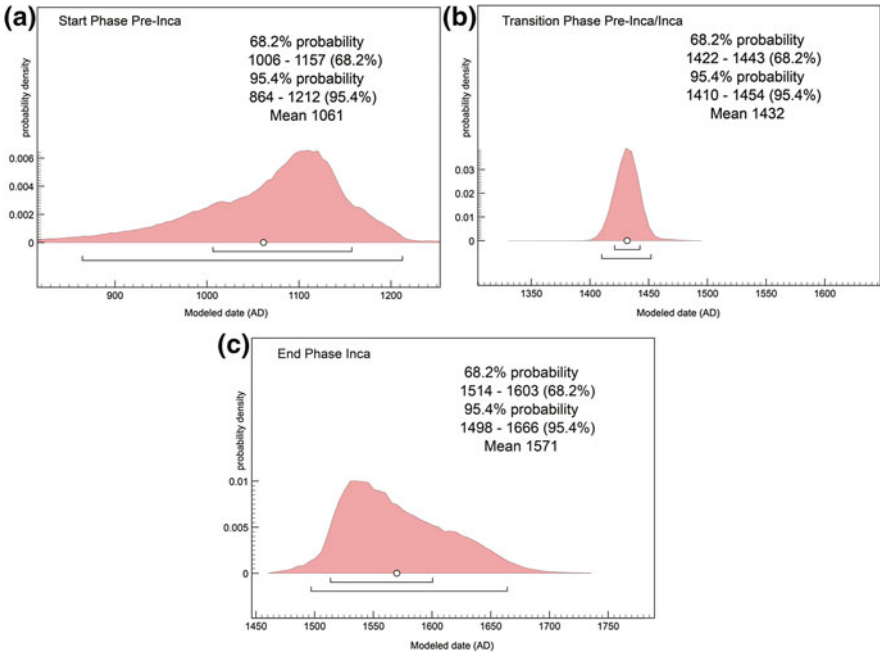


Fig. 10 Probability distributions for the start, transition, and end of the phases of the regional model

Within the 95.4% range of probability (i.e., ±2 sigma), the *start* (Fig. 10) is modeled between 1108 and 1369 AD, but the area of maximum likelihood is in the thirteenth century, with a mean of 1229 AD. The *transition* is calculated over a short range around the early to mid-15th century with a mean at 1431 AD, which coincides with a value a little earlier than historiography shows for the start of the Inca conquest in that region.

The *end*, is modeled between 1497 and 1664 AD (95.4% of probability) with an area of high probability throughout the sixteenth century and an average at 1570 AD. Although less likely, the *end* could also be calculated during the seventeenth century.

Furthermore, the duration of each phase in years was calculated with the Span function (Fig. 11). The "Pre-Inca" phase could have lasted between 47 and 248 years (95.4% of probability), with a peak at ca. 150 years and a mean of 162 years, which suggests a duration of about a century and a half for the process. It is important to note that there may have been previous occupations not represented in the radiocarbon datings. The "Inca" phase, however, could have lasted between 52 and 217 years (with 95.4% of probability) but the mean of 124 and a peak at ca. 100 years has led us to think that it lasted little more than a century.

Another useful parameter is the sum of calibrated probabilities, which was calculated in two ways (Fig. 12). The first way uses OxCal's Sum function directly

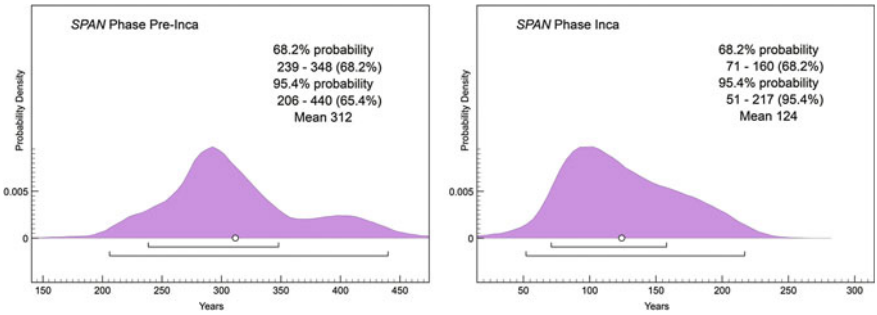


Fig. 11 Probability distributions for the span of the phases of the regional model

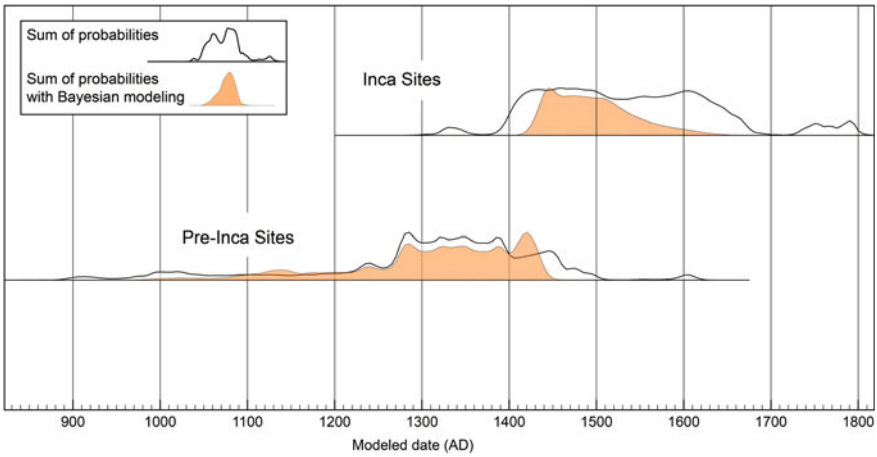


Fig. 12 Sum of calibrated probabilities at a regional scale (n = 25)

for the data set, resulting in an addition of probabilities of all datings to the same distribution. The second way utilizes the Sum function defined within the phases of the regional model (Fig. 9), for which the resulting distribution was modeled by Bayesian statistics. This second option is more significant (Bayliss et al. 2009), although from our perspective the observation of the two sums together is more useful. The first one conveys the maximum range of possible years for the duration of the phenomena, even though it is distorted due to the inaccuracy of the datings, while the second sum represents a highly probable range of years for that duration, which comes from simulation (Greco 2014; Greco and Otero 2015).

Thus, it can be seen that the maximum range of likely years for the a priori datings overextend to the present, while the simulation offers a much more precise estimation.

4 Conclusions

In this work we reviewed 27 radiocarbon datings made in 4 archaeological sites of the south central sector of Quebrada de Humahuaca, considering their contexts and associated materials. From the previous work of Cremonte and her team examining the stratigraphic information and the objects typology, we stated a different chronological hypothesis, evaluating it with Bayesian statistics. Modern statistical techniques serve to make the most of the radiocarbon dates, over different scales.

We assessed the most likely true dates of the events and the duration of the processes in each single excavation unit and at a site level for Esquina de Huajra, Pucará de Volcán, El Pobladito, and La Silleta.

At a regional level we analyzed the radiocarbon datings as a whole with the sum of probabilities and the estimation of the beginning and end of regional occupation. Although there is good evidence of an early occupation of at least 2000 years, the beginning of the better defined Pre-Inca or RDP occupation was sometime between 1108 and 1369 AD (within a 95.4% of probability), and very likely around the thirteenth century.

Moreover, these results provide new data on the expansion of the Tawantinsuyu. The most widely accepted date for that is 1480 AD (Rowe 1945), however in recent decades, radiocarbon dating has pointed to an earlier chronology (D'altroy et al. 2007; Nielsen 2007; among others). Our results also showed ages around the early to mid-fifteenth century for contexts with Inca material types.

Finally, the ending of the occupation is modeled between 1497 and 1664 (95.4% probability), most likely in the sixteenth century. This result is the most interesting if we consider its difference with the original a priori datings, because in this way all the social processes studied are likely to have happened prior to the Spanish conquest of Quebrada de Humahuaca (mid-17th century, after Sanchez and Sica 1990) and is also likely to have happened entirely within the Inca regional phase (Nielsen 2001).

References

Baldini M, Carbonari J, Cieza G, De Feo ME, Del Castillo MF, Figini A, González AR, Huarte R, Togo J (2002) Primer análisis de la cronología obtenida en el sitio Choya 68 (depto. de Cayapán, provincia de Catamarca, Argentina). Estudios Atacameños 24:71–82

Bayliss A, Bronk Ramsey C, Van Der Plicht J, Whittle A (2009) Bradshaw and bayes: towards a timetable for the neolithic. Camb Archaeol J 17:7–28

Bronk Ramsey C (2009) Bayesian analysis of radiocarbon dates. Radiocarbon 51(1):337–360

Buck CE, Cavanagh WG, Litton CD (1996) Bayesian approach to interpreting archaeological data. Statistics in practice. Wiley, Chichester

Cremonte MB, Nieva GC (2003) Registro y clasificación cerámica del basurero tum1b3 del pukara de volcán (dto Tumbaya, Quebrada de Humahuaca). Cuadernos 20:373–391

Cremonte MB, Peralta SM, Scaro A (2006–2007) Esquina de Huajra (Tum 10, dpto. Tumbaya, Jujuy) y el poblamiento prehispánico tardío en el sur de la Quebrada de Humahuaca. Cuadernos INAPL 21:27–38

Cremonte MB, Peralta SM, Scaro A (2011) Primera prospección arqueológica en un camino hacia y desde las yungas (dto. Tumbaya, Jujuy). Pacarina 6:81–90
Cremonte MB, Gheggi MS (2012) Espacios rituales y cultura material en un sitio arqueológico humahuaca-inca (quebrada de humahuaca, jujuy, argentina). Revista Española de Antropología Americana 42(1):9–27
Cremonte MB, Scaro A (2010) Consumo de vasijas cerámicas en un contexto público del Pucara de Volcán (dto. Tumbaya, Jujuy). Revista de Arqueología y Etnología MAE-USP 20:147–161
D'altroy TN, Williams VI, Lorandi AM (2007) The inkas in the southlands. In: Burger R, Morris C, Matos M (eds) Variations in the expression of inka power. Dumbarton Oaks, Washington, pp 85–133
Garay de Fumagalli M (1998) El pucara de volcán, historia ocupacional y patrón de instalación. In: Cremonte MB (ed) Los desarrollos locales and sus territorios. Arqueología del NOA y sur de Bolivia, Jujuy, Ediunju, pp 131–154
Garay de Fumagalli M, Cremonte MB (1997) Correlación cronológica del yacimiento de volcán con sitios de los valles orientales (sector meridional, Quebrada de Humahuaca). Avances en Arqueología 3:191–212
Garay de Fumagalli M, Cremonte MB (2002) Ocupaciones agropastoriles tempranas al sur de la Quebrada de Humahuaca (Jujuy-Argentina) Chungara 34(1):35–52
Gheggi S (2005) Análisis bioarqueológico y contextual en enterratorios arqueológicos. Un caso de estudio en Esquina de Huajra (Quebrada de Humahuaca. Jujuy, Argentina). Dissertation. Facultad de Filosofía y Letras, Universidad de Buenos Aires
Greco C (2014) La cronología del valle de Yocavil. Escalas, datos y resultados. Revista Arqueología 20:11–37. https://sites.google.com/site/reviarqueol4/home/arqueologia-20-dossier-2014/greco-20-dossier
Greco C, Otero C (2015) Chronology of settlements with pre-incan and incan occupations superimposed. The case of Pucará de Tilcara (Humahuaca Gorge, Argentina). Archaeometry. doi:10.1111/arcm.12188
Hogg AG, Hua Q, Blackwell PG, Niu M, Buck CE, Guilderson TP, Heaton TJ, Palmer JG, Reimer PJ, Reimer RW, Turney CSM, Zimmerman SRH (2013) Shcal13 southern hemisphere calibration, 0–50,000 years cal bp. Radiocarbon 55(4):1889–1903
Kintigh K (n/d) Dsplit S/F Wilson and ward radiocarbon analysis program. Tools for quantitative archaeology. http://tfqa.com/doc/dsplit.htm
Nielsen A (2001) Evolución social en Quebrada de Humahuaca (AD 900-1536). In: Berberian EE, Nielsen A (eds) Historia argentina prehispánica. Brujas, Córdoba, pp 171–264
Nielsen A (2007) El período de desarrollos regionales en la Quebrada de Humahuaca: aspectos cronológicos. In: Williams VI, Ventura BN, Callegari BM, Yacobaccio HD (eds) Sociedades precolombinas surandinas: temporalidad, interacción y dinámica cultural del NOA en el ámbito de los andes centro-sur. Buschi, Buenos Aires, pp 235–247
Rowe JH (1945) Absolute chronology in the andean area. Am Antiq 10(3):265–284
Sánchez S, Sica G (1990) La frontera oriental de Humahuaca y sus relaciones con el chaco. Bulletin de l'Institut Français d'Études Andines 19(2):469–497
Scaro A (2015) Arqueología de Tumbaya. Paisajes sociales en un sector de la Quebrada de Humahuaca (Jujuy) durante la etapa agroalfarera. Phd dissertation. Facultad de Filosofía y Letras, Universidad de Buenos Aires
Scaro A, Cremonte MB (2012) La vajilla de servicio de Esquina de Huajra (dpto. Tumbaya, Jujuy, Argentina). Alternativas teóricas para interpretar su significado. Revista del Museo de Antropología 5:31–44
Ward GK, Wilson SR (1978) Procedures for combining radiocarbon age determinations: a critique. Archaeometry 20(1):19–31
Wilson SR, Ward GK (1981) Evaluation and clustering of radiocarbon age determinations: procedures and paradigms. Archaeometry 23(1):19–39

Pre-hispanic Ceramics as Memory Instruments. Public Archaeology and Inter-cultural Collaboration in the Educative Comunities of Quebrada de Humahuaca

Mónica Montenegro, María Elisa Aparicio and Nicolás Lamberti

Abstract Archaeological ceramics represent material evidence of culture that allows archaeologists to trace them through time in order to understand the forms of life in the past. They can also be thought of as pedagogical tools that enhance the didactic transposition of content in the educational space. In this work, we share experiences developed in Quebrada de Humahuaca, which portray the use of archaeological ceramics as devices of social memory. Furthermore, the results from this research allow their inclusion into educational practices in order to reveal meanings and appropriations of both local and regional archaeological heritage.

Keywords Archaeological ceramics · Public archaeology · Education · Cultural heritage

M. Montenegro (✉)
Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras,
Universidad de Buenos Aires, Belgrano 445 (4624), Tilcara, Jujuy, Argentina
e-mail: monicarudy@yahoo.com.ar

M. Montenegro
Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy,
Otero 262 (4600), San Salvador de Jujuy, Jujuy, Argentina

M.E. Aparicio
Universidad Católica de Santiago del Estero, DASS,
Lavalle 333, 4600 San Salvador de Jujuy, Jujuy, Argentina
e-mail: meaparicio90@hotmail.com

N. Lamberti
Centro Regional de Estudios Arqueológicos, Universidad Nacional de Jujuy,
Otero 262, 4600 San Salvador de Jujuy, Jujuy, Argentina
e-mail: neron414@hotmail.com

A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9_8

1 The Past as a Local Construction in a Global Context

In this chapter we present some thoughts which emerged from our current public archaeology and archaeobotany investigations in communities located in the southern Quebrada de Humahuaca, places where the archaeological ceramic pieces are transformed into activation devices for social memory. These materials led us to propose scientific mediation and inter-cultural collaboration strategies that enable the co-construction of discourses regarding pre-Hispanic past from an inter-cultural approach in order to overcome univocal and hegemonic discourses.

In a global context, the construction of narratives regarding the past is usually related to transnational processes of cultural production[1] impacting the everyday practices in communities. In this scenario, it is possible to perceive the presence of new actors[2] who question scientific knowledge and its relation with the production of nationalist and hegemonic discourses, transforming the construction processes about the past and heritage in genuine areas of tension.

In this new epistemological space, archaeology becomes more local and actual than ever (Montenegro 2012, 2015; Montenegro and Aparicio 2013). This disciplinary transit is consistent with new tendencies taking place in the field of social sciences in an answer to sociopolitical scenarios questioning academic works regarding their contribution to society, and enables the renovation of the disciplinary practice both in an epistemic and institutional level.[3]

In the case of South America, archaeology is assuming new positions from the standpoint of post-colonial perspectives which fuel the debate about the social relationships established between the State, the researchers, and the native communities with heritage production processes (Gnecco 2004; Ayala 2008; Nastri and Menezes Ferreira 2010; Montenegro and Rivolta 2012; Menezes Ferreira et al. 2014). Some colleagues have even stated the necessity of questioning archaeology itself as a discipline dependent on others, devoted to contrast, confirm, or project theories from the present over the past, "reasserting its validity in the present both from different

[1]As Daniel Mato (2004) argues, these global-local trans-national articulations are the result of individual and organization practices in the context of wider social, political, and economic relations crossed by power relations and conflicting interests.

[2]Coronil (2000) has noted that in social spaces placed under globalized conditions, collective identities are being constructed in unprecedented forms through a complex articulation of identification sources such as religion, territoriality, race, class, ethnicity, gender, and nationality but this articulation is currently informed by universal discourses regarding human rights, international laws, ecology, feminism, cultural rights, and other means of respecting the differences within equality.

[3]Social sciences are particularly pressured to dialogue and respond to their object, which in a new context of rights becomes an empowered subject which is required to participate in the knowledge construction processes working upon itself and its membership group (Montenegro 2010; Montenegro and Aparicio 2014).

pasts and spaces, thus justifying the current order of the world, to our role as formalized constructors and spokespersons of those pasts" (Laguens 2008: 15).

In our opinion, these disciplinary reviews, in addition to very active ethno-genesis processes in the region during the past few decades, pose serious challenges to the production of institutionalized knowledge. One of these challenges is associated with the confrontation regarding the relevance and pertinence of ancestral versus scientific knowledge. In this debate, Indigenous people—once silenced—raise their voices in order to claim for rights acknowledged in the context of the most recent international documents (Montenegro and Rivolta 2012).

In a way, this complex context has favored the emergence of a public archaeology.[4] In Argentina, new research lines linked to this perspective have been explored in the last few decades, essentially starting from basic investigation,[5] in order to widen the range of action towards different sectors of local communities, through actions transcending the so called "transference or science popularization activities" (Montenegro and Aparicio 2012, 2014; Montenegro and Rivolta 2013; Montenegro et al. 2013). In the particular case of the Province of Jujuy, during the last decade archaeologists and local communities have undergone deep ruptures regarding the re-appropriation of the material evidence from the pre-Hispanic past; this situation has motivated intense reflections and has produced, in some colleagues, a new disciplinary positioning linked to multivocality,[6] seeking to decentralize hegemonic discourses by means of cultural mediation strategies and public archaeology actions, where the material evidence regarding past cultures is transformed into meaningful elements for discourses and practices of the present.

2 Re-thinking Discourses About the Past from Our Archaeological Practice in the Northern Sector of Argentina

In our case, we understand that archaeology nowadays is much more than a science trying to uncover someone's past. For us, archaeology is a discipline that can contribute to the construction of a present for all. Therefore, we agree with Felipe

[4]Constituted not only as a scientific research line, but also as a fertile archaeological research field incorporating a theoretical–practical approach in fields prepared for the interaction of archaeologists and their public as: heritage management, museum education, archaeology, and education (Mc David 2002).

[5]This type of research, also called theoretical investigation, aims for a conceptual deepening of a certain discipline and also the formulation of new theories or the modification of pre-existing ones.

[6]In this sense, Hodder (2008) argues that archaeology has not been absent from these major processes, since it can articulate and promote the consolidation of communal identities that were historically segregated and marginalized, allowing them to make their own interpretations of the past, using their owns terms and approaches in order to build different meanings to those proposed by dominant models.

Criado's definition of archaeology, understood "as a research strategy seeking to describe and interpret, through archaeological record, Material Culture's integration with the socio-cultural processes of reality's social construction" (Criado 1996: 20–21). From this point of view, archaeology ceases to be an aseptic scientific discipline and starts to have an active role in local sociopolitical and economic contexts; in this sense, archaeology as a social science of the past becomes more current and local than ever.

Our investigations are part of public archaeology, which give us an appropriate conceptual frame for critically analyzing the social phenomena regarding knowledge construction about the past and archaeological heritage from an intercultural perspective. In this regard, we have assumed the challenge of rethinking our archaeological practices in a peripheral space not only in Argentina but also in South America; and to that end, we agree with the note by Francisco López Segrera about the fact that "it is up to us to transform the crisis of social sciences' paradigms in the region in a favorable situation for the imagination and construction of a new future" (López Segrera 2000).

We appeal to the construction of peripheral knowledge from an intercultural perspective, putting into question the traditional contents elaborated from central and hegemonic knowledge production structures in this northern sector of the Argentinian northwest. We share with Gustavo Verdesio the idea of the necessity of "trying to transform the field into a place where a strong subaltern inflection could occur; that is to say, an inflection that allows not only the opening of doors to subaltern voices and subjects in a colonial setting but also gives them an epistemological privilege" (Verdesio 2012: 188).

Nevertheless, the controversial local setting encouraged us to rethink archaeological practice; analyzing limitations, scopes, and perspectives. For this reason, we decided to design cultural mediation strategies that allowed us to generate knowledge convergence spaces between archaeology and the local community. We were convinced that it was possible to generate an intellectual production mode which enabled the integration of the meanings given by the community to archaeological sites and goods into new discourses about the pre-Hispanic past, taking their narratives as a starting point.

We were interested in transcending old colonial structures that still support the existence of two hierarchically differentiated knowledge types, one of "universal" value and another of "particular" value,[7] which disqualifies indigenous peoples knowledge production modes, considering that only science constitutes a knowledge of universal validity (Mato 2008). We understood that those were not the types

[7]As Daniel Mato argues: "To think in the production and validity of knowledge as divided into two worlds, one consisting of 'universal' truths and the other consisting only of 'local' truths, it's as old as the idea of 'western civilization's' superiority, purportedly generator and holder of such knowledge of universal aspect" (Mato 2008: 102).

of production and dissemination of knowledge that we wanted to keep reproducing in our archaeological practice.

On the contrary, we agree with Mato (2008) in that intercultural collaboration is essential both for people like us, who belong to institutions producing knowledge of supposedly universal value, and for those who carry out their activities in other institutional and social spaces producing knowledge often described as particular. We think that archaeology can provide information to local communities regarding the ways of life in pre-Hispanic societies, but local communities can provide equally valid information to archaeologists about those same issues, with information constructed from different epistemological frameworks. Ultimately, all knowledge is influenced by the social and institutional contexts in which they are produced, and that is the reason why "there isn't a universal knowledge, none of them are universal, all of them are related to the conditions that originated them" (Mato 2008: 106).

3 Public Archaeology and Multivocality in a Place Declared "A World Heritage Site"

Historically, the Argentinian northwest has been a place of interest for archaeology. In our case, the Quebrada de Humahuaca was visited and studied by the first archaeological expeditions since the late 19th and early 20th century, both nationals (scientific missions of the University of Buenos Aires) and internationals (Chaco-Cordillera Swedish Expedition 1902; and Scientific French Mission in South America 1904). We can say that during approximately 100 years, the appropriation of archaeological sites and materials for scientific purposes was not a strange situation in this region. In fact, many residents know that most of the archaeological collections were recovered from these sites and sent to important museums in Buenos Aires and outside the country (France, Sweden, and Germany, among others).

The dynamics of the archaeological objects' appropriation historically operated in two different contexts, associated with different actors as well: one "governmental-manifest" linked to academic production that promoted, through archaeological practice, knowledge about the material remains of past cultures; and the other characterized as "local-latent" that tried to maintain the symbolic appropriation by local people, related to ancestor-worship or *Antigales* (Montenegro 2010).

Nevertheless, in the dawn of the new century and as a result of heritage activation processes implemented in the Quebrada de Humahuaca,[8] some of the local actors began to re-signify archaeological sites as part of the cultural landscape, referents of ancestral memory, territorial delimitations, and as potential resources

[8]In 2003 the Quebrada de Humahuaca was declared an UNESCO "World Heritage Site" in the category of Cultural Landscapes http://whc.unesco.org/es/list/1116.

for economic development projects in the community. In this context, a re-appropriation of archaeological sites and materials took place and the native communities, until then considered invisibles and silent, started to question the State and the official history constructed from a mono-vocal, colonialist, and hegemonic perspective.

The processes mentioned above were manifested in rather heterogeneous ways throughout the Quebrada de Humahuaca, and led to the integration of archaeological sites and materials into a new category: "the heritage". Heritage became a tension field that aroused disagreements and ruptures between different local, national, and transnational actors regarding conceptualizations, meanings, and appropriations of such concepts. In this plural context, the cultural adscriptions and memberships were being re-defined in a complex network of economical–political relationships, with the consequent re-structuration of roles, occupations, and knowledge that led to a determination of local heritage's appropriation in a sort of dialectic mechanism that considered membership/exclusion (Montenegro 2010, 2015; Montenegro and Rivolta 2012). This had a direct impact on the relation between archaeology and communities, generating conflicts and negotiations between actors and institutions.

Such context also promoted debates regarding the role of archaeology in the production of narratives about the local past. In our case, we thought about the possibility of changing the course and re-defining traditional discourses from a participative basis which could contemplate multivocality. In order to accomplish this it was necessary to generate meeting points with the community that would enable the opening of new dialogue channels where diverse local actors could recognize and listen to the "other" discourses about the cultural evidence of the local past.

With this idea in mind we organized a meeting denominated "Meeting about Archaeological Practice and Communities" (ESPAC) that was conducted for two consecutive years, 2009 and 2010, and was attended by members of several social institutions. Over the course of these meetings different working papers that severely questioned the cultural politics proposed by the State were elaborated, demanding greater participation of local communities both in the production of discourses regarding the past of the region and in the management of cultural goods. As a result of these meetings two work lines were established, one of them was called "Archaeology and Education" and was responsible for the development of our public archaeology investigations in the region of Tumbaya.

4 Scientific Mediation in Quebrada de Humahuaca: Tumbaya as a Space for the Confluence of Knowledge

Public archaeology experiences that we shared were conducted in Tumbaya, Province of Jujuy, Argentina Republic (Fig. 1). This town is located approximately 48 km from San Salvador de Jujuy's city (the capital of the Province) at about 2000 masl. It is part of the homonymous Department, located in the south central

Fig. 1 View of Quebrada Tumbaya Grande

sector of the Quebrada de Humahuaca. Tumbaya Grande is located 3 km north of the town, and the community with which we worked is called *Comunidad Indígena Kolla Finca Tumbaya*.

Research began after II ESPAC, conducted in 2010, precisely during the sessions of "Archaeology and Education" meetings with the participation of different local actors; one of them was the President of the *Comunidad Originaria Kolla Finca Tumbaya*, Mrs. Celestina Ávalos who, among other people showed appreciation regarding education's importance for the valorization of local culture, demanded the inclusion of contents about pre-Hispanic past in the curricula of the schools located in the Quebrada de Humahuaca. During the course of that meeting we talked with other local actors which led to the creation of the first committee, a group which worked for about three years promoting some basic and applied research lines specifically related to public archaeology.[9]

[9]This group consisted of different actors and institutions living and/or working in the south central sector of the Quebrada de Humahuaca: members of the *Comunidad Originaria Kolla Finca Tumbaya*; researchers of the Regional Center of Archaeological Studies from the Universidad Nacional de Jujuy; researchers of the Education Area from the Instituto Interdisciplinario de Tilcara, Universidad de Buenos Aires; teachers of the Instituto de Enseñanza Superior N° 2 "Tilcara-Jujuy" and Jujuy's Education Ministry officials (Primary Level General Direction, Primary Level Supervision, Education Modality Intercultural Bilingual).

Fig. 2 Dialogs with Don Néstor Vilca, manager of the "growth-room"

The actions that took place in Tumbaya involved two different research teams[10] and had the purpose of giving firsthand information to the educative community about the results obtained in the archaeological research developed in the archaeological sites of Tumbaya Grande's Quebrada, among which we can mention Esquina de Huajra, El Pobladito, Raya-Raya, La Silleta, and Las Ventanitas. In this chapter we present experiences related to archaeobotany studies that allowed us to recover certain knowledge about pre-Hispanic farming practices and their relation with archaeological pottery in order to be shared with local settlers, which in turn informed us about ancestral knowledge regarding crop production in this sector of the Andes (Fig. 2).

[10]One of the most outstanding features of this work is the fact that two archaeological research teams were involved: "*Perspectivas de análisis en cerámica arqueológica, procesos sociales prehispánicos e impacto en la construcción del pasado*", a project of the Secretaría de Ciencia y Tecnología, Universidad Nacional de Jujuy, Director Ph.D. María Beatriz Cremonte; and "*Arqueólogos en el aula: estudio y definición de un paquete pedagógico de arqueología y educación*", a project of the Instituto Interdisciplinario Tilcara (FFyL) Universidad de Buenos Aires, Director, Ph.D. Mónica Montenegro.

For our investigations we considered the archaeological record as the "record of the produced forms by preterit social actions that shows the specific orientation of the sociocultural context (or thought) towards the surrounding reality (or world)" (Criado 1996: 29). This is to assume that three stages intervene in the record formation: a social and preterit one that generates a set of original formal elements; a post-depositional one consisting of environmental and physical phenomena affecting such elements; and a social and current stage which allows access through the socio-institutional context in which the archaeological practice is performed (Criado 1996). From this perspective, we understood that current archaeological sites and goods in the Quebrada de Humahuaca participate in socioeconomic, political, and cultural processes and are affected by new meanings and values. It is in that context that we need to re-define the archaeological praxis in terms of inter-culturality.

As a consequence, we decided to embrace a dialogic perspective and started to work with some local community members visiting different spaces (archaeological farming terraces, the experimental "growth-room", the communal greenhouse), observing their practices (preparation and maintenance of cultivation fields, selection of seeds, seedtime, storage system, irrigation strategies, among others), and establishing a dialogue regarding the species currently produced. This dynamic was enriching as it favored a confluence of knowledge. We, as researchers, shared the results of the archaeological investigations about archaeobotany and its relation with pottery use and function, and the community allowed us to access their representations, discourses, and practices regarding archaeology and the meaning of the past for current practices.

The most remarkable thing about the whole process was the awakening of new questions and deep reflections concerning what we understand as developments in public archaeology in South American contexts, summarized here:

(a) ***Archaeological practice significance in multicultural contexts***. We think that it is important to build bonds with the local community from the base of an inter-cultural collaboration, in a way that allows the proposal of more complete interpretations regarding the archaeological record and enables an integration of archaeological and communal knowledge. In the case of Tumbaya's archaeobotany studies, these experiences were transformed in spaces for the confluence of knowledge, where archaeology was made interesting for communities due to the fact that it helped in the recovery of knowledge regarding the use and conservation of plants and about gave information regarding the farming techniques (terraces building, irrigation systems, use of agricultural instruments) employed by pre-Hispanic societies. They were interested in knowing about the ceramic pieces used for the conservation of different vegetal preparations and about the techniques used in the preparation of cultivation fields, especially those related to irrigation. We can say that the community showed interest in "incorporating" certain knowledge shared by archaeologists to their traditional practices regarding food conservation and crop preparation, in the same way that they incorporate new technologies provided by other state

Fig. 3 Different maize varieties produced in the experimental "growth-room"

organizations[11] for the production of plant production, forming new experimentation spaces. In our case, we learned to recognize ancestral pottery manufacturing practices but also learned life experiences in the "growth-room" (handling and selection of seeds, agricultural calendar, crops suitable for the area, alimentary, and the therapeutic and artisanal use of the plants), obtaining access to knowledge related with wisdom and agricultural product exchange between communities dwelling in different ecological floors of the Province of Jujuy. We particularly appreciated the community knowledge transmitted to us regarding experiences developed in the experimental "growth-room" related to production techniques, and consumption and conservation practices used for the different maize varieties (Fig. 3).

(b) ***Archaeology as an interdisciplinary and multivocal cognitive operation***. The introduction of research teams and the authorization request for working in the community constituted crucial elements, not only from the current legal regulations point of view but also from a standpoint of respect for local people, who are usually "affected" in their spaces and everyday practices by archaeologists' presence. We acknowledge the necessity to overcome the unidirectional

[11]Instituto Nacional de Tecnología Agropecuaria (INTA) and Facultad de Ciencias Agrarias from Universidad Nacional de Jujuy.

perspectives of the researchers that arrive in a region in order to "select informants and/or archaeological sites" and to "collect information" after which they leave without even asking about the interests, expectations, and/or necessities of local people. In some cases, it is possible that after some time researchers will "approach" local people with the results obtained and published in important papers; but we are not so sure about the utilization of such research in the community. In the case of Tumbaya and based on the re-definition of disciplinary stances,[12] we decided to adopt an inter-cultural perspective for the work with the community. Starting with a complex negotiation processes about concepts, meanings, and functions, we tried to advance the construction of knowledge about the past from a multivocal perspective that could match the expectations of every participant. In this dialogic-type research perspective, one of the most interesting experiences was related to the recovery of ancestral knowledge about a certain plant species found in the region, the *aguaymanto*, a plant that is being re-cultivated in Tumbaya by local people. We had access to this information during the course of a public archaeology activity organized with the education community; on that occasion some of the parents gave us a jar of "*aguaymanto* marmalade", an unknown product for us which aroused interest regarding production details. They told us that a Bolivian specialist once visited Tumbaya and while visiting the fields identified that species and asked them why they were not cultivating it. They told him that it was "wild" and they did not know the proper way to cultivate it or its nutritional properties. The specialist explained to them that it was a cultivated species in Bolivia, very appreciated in local gastronomy, and that the knowledge necessary for its cultivation and consumption had probably been lost within the people of the Quebrada. It was then that the community decided to grow this plant and obtained an important yield; for the practices related to its conservation and consumption they took the specialist knowledge as a reference but they also created new recipes (marmalades and other sweet products) jointly with teachers and students from the Gastronomy Career course taught in Tumbaya. These foods are starting to become part of the market as "local gastronomical products" offered to tourists. These experiences shared by the community allowed us to add—in our current scientific research—new insights regarding a plant species in the Quebrada de Humahuaca region which we had not registered before (Fig. 4).

(c) ***The archaeological heritage as social construction***. To assume that archaeological heritage is not a given thing but it is the result of the social selection of sites and goods from the past. A community structures cognitive production of their members regarding these cultural assets and also defines the communication circuits for this knowledge's circulation, specifying its value and

[12]These stances were assumed during the last few years (Montenegro 2010; Montenegro and Rivolta 2012; Montenegro et al. 2013) and led us to critically review the "dissemination activities" in order to overcome hegemonic practices regarding knowledge production and legitimacy in multicultural spaces.

Fig. 4 Public archaeology activity developed with the community of Tumbaya

legitimacy. In this scenario, we as archaeologists can assume different roles, including scientific advisors in management and cultural landscape preservation tasks. In this regard, it is important to emphasize that Tumbaya is included within a region (Quebrada de Humahuaca) declared as a UNESCO "World Heritage Site" in 2003; from that point forward, heritage slowly became a tension where different local, provincial, national, and transnational actors disputed the meaning and appropriation of it. In the case of Tumbaya we got to know several notions, valorizations, and meanings given to the archaeological sites and materials by members of the community. Generally, they consider archaeological sites as their "*antigales*" and also as cultural heritage, both being valued from different perspectives. The first is related to agricultural production, where pre-Hispanic terraces are re-appropriated as an experimentation space for cultivation techniques seeking to recover and to adapt certain ancestral practices. The second is associated to tourism: in this case, the archaeological sites and materials are valued on the basis of their potential as resources of tourist interest enabling the promotion of local economic development; one of the most solicited elements being ceramics since people were interested in the recovery of local morphologies and iconographies in order to re-appropriate and capture them in their current pottery productions. With this in mind we conducted a pottery production workshop with the aid of a ceramist who shared ancestral practices as archaeologists shared the results obtained by

Cremonte and her team through nearly two decades of archaeological research in the Quebrada de Humahuaca. During this process we noticed that re-appropriations are part of a dynamic social phenomenon showing different edges and enclosing diverse discursive practices.

5 Educational Practices, Archaeological Experiences, and Cultural Mediation

Taking the communication and inter-cultural collaboration activities mentioned before as a basis, we decided to design a second stage for this activity plan destined for the generation of multivocal spaces for the construction of narratives regarding the local past in primary schools using as a tool the study of archaeological ceramics. In order to select the contents to be developed in our didactic activities we appealed to the three axes mentioned above and we also relied on the Curriculum Design correspondent from the Basic General Education System of the Province of Jujuy.

The first thing we needed to arrange were authorizations, that is why we contacted the General Director of the Initial and Primary Level Education Ministry of Jujuy, who showed us the path to follow through Initial and Primary Education General Supervision as well as the supervisors from Region III with whom we started planning activities. After that we visited schools in the area and interviewed their Principals in order to listen to their requirements and learn about their opinions regarding the relevance of our proposal. We were interested in assuming a multivocal and inter-cultural position so we contacted the referent in Bilingual Intercultural Education in Jujuy and started to work jointly in the design of particular activities.

Our actions were accomplished through the realization of a teacher-training course called "Archaeology and Communities in the southern sector of the Quebrada de Humahuaca: didactic proposals for the reconstruction of the local past in the schools", organized by the Province's Education Ministry, the *Comunidad Originaria Kolla Finca Tumbaya*, the Universidad Nacional de Jujuy, and the Universidad de Buenos Aires. The course was taught by Mrs. Celestina Avalos (*Comunidad Kolla de Finca Tumbaya*), Lic. Agustina Scaro (CONICET, UNJU), Lic. María Elisa Aparicio (UBA), and Ph.D. Mónica Montegro (UNJU/UBA).

The general objective of the course was the generation of a multivocal space for the construction of the past in the schools from an inter-cultural standpoint and through archaeological evidence. This objective required: (a) an understanding of the formal and symbolic value of material evidence in order to reconstruct the way of living of the ancient inhabitants of Jujuy; (b) a knowledge about the existence of "other" discourses about the local past and in doing so contribute to their re-valorization in schools; (c) contributions leading to pondering and revising teaching practice regarding the past in the Quebrada de Humahuaca; (d) promotion

of heritage conservation in schools; and (e) transposing the studied concepts as working devices in order to build tools for approaching the way that the local past is taught.

The teacher-training course was designed for Primary School supervisors, directors, and teachers in the southern region of the Quebrada de Humahuaca, a zone that concentrates on the Volcán–Tumbaya–Purmamarca axis and surrounding towns. A total of 12 schools participated in this course; (1) School N° 16: "18 de Noviembre" from Tumbaya; (2) School N° 17: "25 de Mayo" from Volcán; (3) School N° 117: "Dr. C. A. Bárcena" from Chilcayoc; (4) School N° 373: "Puerta de Lipán"; (5) School N° 308: "Provincia de San Juan"; (6) School N° 93: "Huachichocana"; (7) School N° 377: "Tumbaya Grande"; (8) School N° 21: "Pedro Goyena" from Purmamarca; (9) School N° 53: "Dr. Marcelino Vargas" from La Ciénaga; (10) School N° 251: "Maestro Hipólito Casiano Cruz" from El Moreno; (11) School N° 462: "Comunidad Aborigen de Lipán"; and (12) School N° 276: "Provincia de Río Negro" from Bárcena (Fig. 5).

The content of the course was as follows.

(a) Conceptuals

- Multivocal social processes regarding the construction of the local past in the schools. Diverse and complementary roles between the scientific community, local community, and the school.

Fig. 5 One of the expositions in the course

- Social construction of archaeological heritage: conceptualizations, valorizations, significations, and appropriations.
- Importance of material evidence to the construction of the local past in the education area: including the relevance of archaeological ceramic pieces as social memory elements.

(b) Procedurals

- Theoretical expositions in charge of a trainer's team.
- Reflexive observation of the different discourses and practices related to the material and symbolic evidence of the past.
- Elaboration of didactic materials for the work in themes related with the local past in schools, especially ceramic pieces with morphological and iconographic archaeological designs from the region.

(c) Attitudinal

- To foster awareness and respect attitudes towards "other" discourses about the local past.
- To contribution to the recognition of archaeology as a science and its importance for the construction of the local past.
- To promote awareness and re-valorization attitudes towards material and symbolic evidence from the local past.

The training course consisted of 40 lecture hours and lasted two days following a Seminar–Workshop modality. It included teachers' expositions, speeches from members of the *Comunidad Originaria Kolla Finca Tumbaya*, debate plenaries regarding pre-established topics, and multivocal reflection spaces (Fig. 6).

Fig. 6 Teachers making ceramic pieces

Fig. 7 Firing ceramic pieces in wood-fired, open-air kilns

We also encouraged the making of graphic and artisanal productions (reproducing archaeological ceramic pieces) which could enable the teachers to develop proposals of didactic content transpositions about the local past regarding the production, distribution, and use of archaeological pottery with the intention that it be taught in the classroom. The Education Area for the Instituto Interdisciplinario de Tilcara was in charge of elaborating a series of booklets for classroom activities which were given to teachers (Fig. 7).

For the closure of both meetings, the *Comunidad Originaria Kolla Finca Tumbaya* destined economic resources of their own for the organization of a lunch with the presence of every participant; this material and highly symbolic gesture highlights the importance given by the community to the teaching of archaeology in schools. Likewise, for the day of the delivery of course certificates the community organized a special ceremony at a highly meaningful place—the pre-Hispanic cultivation terraces which are currently being partially re-utilized. Here they conducted a ritual for Pachamama, after which followed speeches from community referents, authorities from the Ministry, and archaeologists. Finally certificates were delivered to teachers who successfully completed the course. The meeting ended with participants sharing regional food and drink offered by the community (Fig. 8).

Fig. 8 Archaeologists participating in the ritual for Pachamama

Fig. 9 Ceramic pieces in an exhibition

We believe that this public archaeology project showed us that it is possible to generate counter-hegemonic spaces for knowledge production in the field of formal education. This could be made by taking past material evidence re-created during current educational activities in order to bring practices from the past to the present. We advocate inter-cultural collaboration as a social participation strategy for the construction of multivocal discourses regarding the local past (Fig. 9).

6 Final Words

Transnational cultural production complexes developed under globalized conditions generate contingent dynamics of recognition, signification, and appropriation of archaeological sites and materials. In certain ways, these affect the relations between archaeologists and local communities regarding knowledge construction about the past and archaeological heritage. This issue renews some disciplinary theoretical–methodological aspects, opening the way to new approaches to public archaeology. Nevertheless, it sometimes leads to critical reflections about the role of archaeologists and demands an ideological and political positioning in these times where echoes of multiculturalism filter down to the scientific community.

Argentine archaeology has started to note this changes and feels challenged in regards to its social role. This context of new social collective emergence facing the field of archaeological heritage calls for investigations that could shed some light on the issue of knowledge construction regarding the past in cultural diversity contexts. It becomes necessary to analyze the re-appropriation and re-signification processes of archaeological sites and materials as part of the cultural heritage of groups historically made invisible by the State, and to integrate them into the construction of new narratives regarding the local past.

The transnational processes of cultural production have set up new research issues in the field of public archaeology, for example the role of archaeology in the construction of counter-hegemonic discourses about local past or the necessity to ponder the pedagogic dimension of our science in relation to the transference of scientific knowledge in multivocal contexts. We understand the necessity of walking through the paths of inter-cultural collaboration, contributing from our discipline to delineate scientific mediation strategies at a regional scale.

Finally, the current research was useful for the advancement of reflections regarding knowledge construction from an inter-cultural perspective which could enable us to transcend colonial modes of univocal and hegemonic discourse production about the past, the territories, and identities. The results have encouraged us to keep planning new disciplinary intervention strategies in this context of tension and reflexivity where inter-ethnic and inter-cultural relationships are constantly being reconfigured. We are convinced that public archaeology and inter-cultural collaboration can favor the construction of a more inclusive present where heritage can be re-signified and archaeological ceramic pieces can be considered as memory elements contributing to the reconstruction of the discourses regarding the local past.

Acknowledgements We would like to thank in first place the members of the *Comunidad Originaria Kolla Finca Tumbaya*, especially to Mrs. Celestina Ávalos, one of their main representatives. Thanks to those who always welcomed us in Tumbaya and shared with us their time and knowledge: Don Néstor Vilca, Doña Joaquina and her family, Don Cañari, Doña Graciela and her family, Don Pablo, Don Florencio, and their families. Our gratitude goes to the educational community of the schools participating in this experience in public archaeology. To the officers of Jujuy's Education Ministry who always supported us, especially to professor Andrea Bellone.

Thanks to the anonymous reviewers whose contributions helped us to improve this paper's quality. Finally, we would like to thank Beatriz Cremonte (CONICET/UNJU) for allowing us to be part of their project; and Daniel Mato (CONICET/UNTREF) for the valuable dialogs about knowledge production and inter-cultural collaboration.

References

Ayala P (2008) Políticas del pasado: indígenas, arqueólogos y estado en Atacama. Universidad Católica Del Norte, Chile, Línea Editorial Instituto De Investigaciones Arqueológicas Y Museo

Coronil F (2000) Naturaleza del poscolonialismo: del eurocentrismo al globocentrismo. Lander E (comp) La colonialidad del saber: eurocentrismo y ciencias sociales. Perspectivas latinoamericanas. CLACSO, Buenos Aires, pp 246–261

Criado Boado F (1996) El futuro de la arqueología, ¿la arqueología del futuro? Trabajos de Prehistoria 53(1):15–35 http://www.tp.revistas.csic.es

Gnecco C (2004) Ampliación del campo de batalla. Textos Antropológicos 15(2):183–195

Hodder I (2008) Multivocality and social archaeology. In: Habu J, Fawcett C, Matsunaga J (eds) Evaluating multiple narratives: beyond nationalist, colonialist, imperialist archaeologies. Springer, Berkeley

Laguens A (2008) Tiempos, espacios y gente: reflexiones sobre las prácticas de la arqueología de córdoba desde córdoba, argentina. Arqueoweb 10. http://www.ucm.es/info/arqueoweb/pdf/10/laguens.pdf, 22 May 2013

Lopez Segrera F (2000) Abrir, impensar y redimensionar las ciencias sociales en américa latina y el caribe. Lander E (comp) La colonialidad del saber: eurocentrismo y ciencias sociales. Perspectivas latinoamericanas. CLACSO, Buenos Aires, pp 177–200

Mato D (2004) Políticas de identidades y diferencias sociales en tiempos de globalización. Universidad central de Venezuela, Caracas

Mato D (2008) No hay saber "universal", la colaboración intercultural es imprescindible. Alteridades 18(35):101–116

Mc David C (2002) From real space to cyberspace: the internet and public archaeological practice. Ph.D. Dissertation, Cambridge University

Menezes Ferreira L, Montenegro M, Rivolta MC, Nastri J (2014) Arqueología, multivocalidad y activación patrimonial en sudamérica. "No somos ventrílocuos". In: Rivolta MC, Montenegro M, Menezes Ferreira L, Nastri J (eds) Multivocalidad y activaciones patrimoniales en arqueología: perspectivas desde Sudamérica. UNICEN y Fundación de Historia Natural Feliz De Azara, Buenos Aires

Montenegro M (2010) El patrimonio arqueológico de Jujuy: miradas diversas desde la escuela. Estudios sociales del NOA (NS) 10:107–121

Montenegro M (2012) Arqueología en la escuela: experiencias en el sector septentrional del noroeste argentino. Chungara 44(3):487–498

Montenegro M (2015) Colaboración intercultural y arqueología pública: nuevas propuestas para la educación superior en el noroeste de argentina. In: Mato D (eds) Educación superior y pueblos indígenas en américa latina. Contextos, experiencias y desafíos. Eduntref, Buenos Aires, pp 207–222

Montenegro M, Aparicio ME (2012) Patrimonio, arqueología y turismo en Jujuy, Argentina. Visiones desde una comunidad educativa. In: Ayala P, Vilches F (eds) Teoría arqueológica en Chile: reflexionando en torno a nuestro quehacer disciplinario. Santiago de Chile, Quillqa, pp 112–126

Montenegro M, Aparicio ME (2013) Re-pensando un sitio arqueológico como monumento de memoria y símbolo nacional. El caso del Pucara de Tilcara, provincia de Jujuy, Argentina. Revista Estudios Bolivianos 19

Montenegro M, Aparicio ME (2014) Transitando los senderos interculturales de la arqueología pública en la Quebrada de Humahuaca, provincia de Jujuy. In: Fabra M, Montenegro M, Zabala ME (eds) La arqueología pública en argentina: historia, tendencias y desafíos en la construcción de un campo disciplinar. Edinju, Jujuy, pp 139–158

Montenegro M, Rivolta MC (2012) Producción de conocimientos sobre el pasado local en tiempos globalizados. Experiencias interculturales en la región septentrional del Noroeste Argentino. Etnicex 3:105–118

Montenegro M, Rivolta MC (2013) Patrimonio arqueológico y desarrollo: pasados que se hacen presente. Experiencias desde el Noroeste Argentino. In: Herrera Wassilowsky A (comp.) Arqueología y desarrollo en América del sur: de la práctica a la teoría. Uniandes, Bogotá, pp 19–36

Montenegro M, Cremonte MB, Peralta SM (2013) Gauchos, turismo y arqueología en Jujuy, Argentina: construcción de patrimonio e identidades en un espacio sociocultural diverso. In: Salas Quintanal H, Serra Puche MC, González de la Fuente EI (eds) Identidad y patrimonio cultural en América latina. UNAM, México, pp 279–300

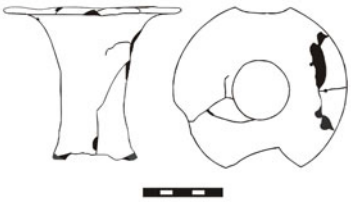
Nastri J, Menezes Ferreira L (eds) (2010) Historias de arqueología sudamericana. Fundación de Historia Natural "Félix de Azara". Universidad de Maimónides, Buenos Aires

Verdesio G (2012) Colonialismo acá y allá: reflexiones sobre la teoría y la práctica de los estudios coloniales a través de fronteras culturales. Cuadernos del CILHA 17:175–191

Appendix
Esquina de Huajra Pottery Inventory

This section describes and illustrates the most conspicuous ceramics from the archaeological site Esquina de Huajra. Huajra's characterization and its archaeological context was presented in chapter 6 *Esquina de Huajra Vessels. A Morphological and Decorative Study of Humahuaca-Inca Pottery* of this book. The catalog described below is made up of 30 pot sherds and 14 fragmented vessels from excavations and surface collections carried out on this settlement between 2001 and 2006. The inclusion of this annex aimed to offer the reader the first complete published inventory of Humahuaca-Inca potteries as a contribution for future comparisons.

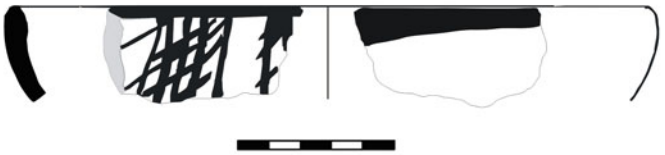
A. Scaro et al. (eds.), *Pre-Inca and Inca Pottery*,
The Latin American Studies Book Series, DOI 10.1007/978-3-319-50574-9



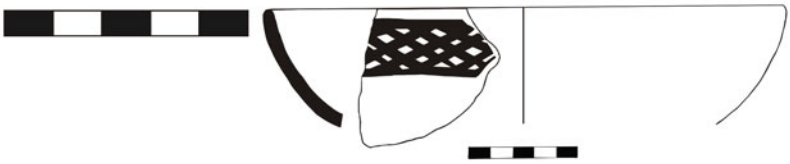
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-C25-piso-1334
Ceramic type: Polished Pink
Height of the piece: 170 mm
Thickness of the wall: 4 mm
Rim diameter: 174 mm
Minimal diameter: 40 mm
Surface treatment:
external: polished with pink slip
inner: ordinary
Form and context: *Aríbalo* with narrow and tall neck. It was found on the floor of Terrace 1 domestic area.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-465
Ceramic style: Humahuaca-Inca
Height of the fragment: 29 mm
Thickness of the wall: 6 mm
Rim diameter: 200 mm

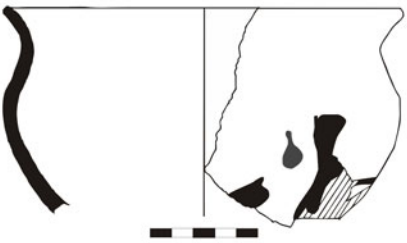
Surface treatment:
external: polished, painted black on brown
inner: polished, painted black on purple
Form and context: Bowl fragment with simple profile and direct rim. It's decorated with reticulated vertical parallel bands, associated to a black line on the lip and external rim. It was found on the wall cleaning of Terrace 1
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-541
Ceramic style: Humahuaca-Inca
Height of the fragment: 47 mm
Thickness of the wall: 4 mm
Rim diameter: 160 mm



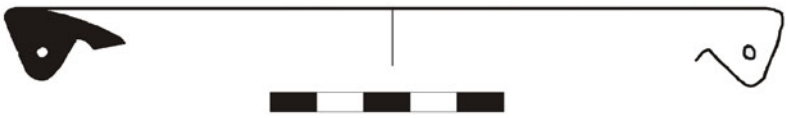
Surface treatment:
external: ordinary
inner: polished, painted black on brown
Form and context: Sub-hemispheric porringer fragment with simple profile and direct rim. It's decorated on the inner rim with a reticulated horizontal band. It was found on the wall cleaning of Terrace 1
Chronology: Inca Period



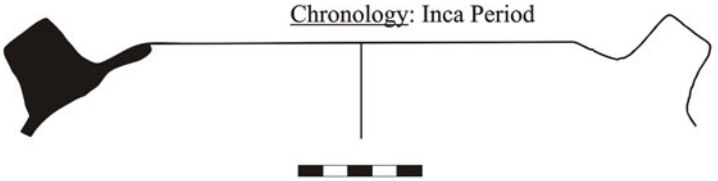
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-C24-P-736
Ceramic type: Polished Pink
Height of the fragment: 100 mm
Thickness of the wall: 4 mm
Rim diameter: 200 mm
Minimal diameter: 180 mm
Surface treatment:
external: polished with pink slip
inner: ordinary
Form and context: Bowl with inflected profile and everted rim. It was found on the floor of Terrace 1 domestic area.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-520
Ceramic type: Polished Pink
Height of the fragment: 30 mm
Thickness of the wall: 3 mm
Rim diameter: 160 mm

Surface treatment:
external: polished with pink slip
inner: polished with pink slip
Form and context: *Aríbalo* fragment with everted rim and flat lip. It presents buboes with a central orifice on the outer rim surface. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-532
Ceramic type: Ordinary
Height of the fragment: 45 mm
Thickness of the wall: 5 mm
Rim diameter: 200 mm
Surface treatment:
external: smoothed ordinary
inner: smoothed ordinary
Form and context: Cooking pot with globular body, simple profile and without neck. It presents horizontal handles. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period

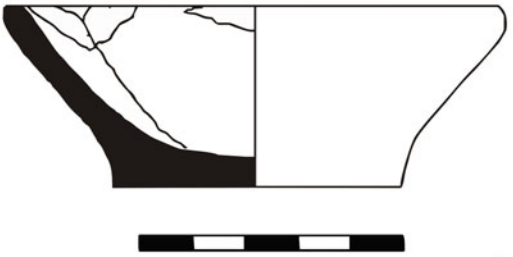


Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-907
Ceramic style: Humahuaca-Inca
Height of the fragment: 35 mm
Thickness of the wall: 7 mm
Rim diameter: 160 mm
Surface treatment:
external: polished, painted black on red
inner: polished, painted black on red
Form and context: Very restricted pitcher with a high neck and everted rim. It's decorated with short parallel lines located in the inner rim, associated to a black line on the lip. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-C24-1902
Ceramic style: Yavi-Chicha
Height of the fragment: 25 mm
Thickness of the wall: 4 mm
Surface treatment:
external: polished brown
inner: polished, painted black on brown
Form and context: Plate fragment with simple profile, direct rim and a lateral handle stick on the lip. It's decorated with a black line on the lip and edge of the handle. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-C24P-1321
Ceramic type: Ordinary
Height of the piece: 35 mm
Thickness of the wall: 4 mm
Rim diameter: 90 mm
Base diameter: 55 mm
Surface treatment:
external: smoothed ordinary

Form and context: Low mug with a tangential point in the lower ¼ of the body, differentiated base and divergent walls. The inner base presents notches left by the spindle. The vessel was found with a disc-shaped piece elaborated on a fragment of a cooking-storage vessel decorated with a reticulated element on black on red. The disc-shaped piece has a 33 mm diameter, and a 5 mm central orifice. They were found on the floor of Terrace 1 domestic area.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-C25-Rasgo A-1333
Ceramic style: Humahuaca-Inca
Height of the piece: 180 mm
Height of the base: 25 mm
Height of the body: 155 mm
Thickness of the wall: 3 mm
Rim diameter: 150 mm
Maximal diameter: 217 mm

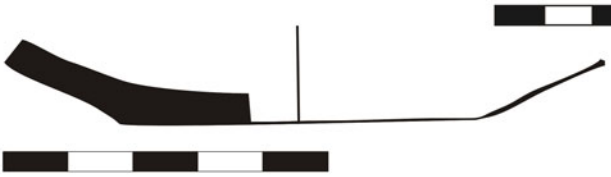
Surface treatment:
external: smoothed with red slip
inner: smoothed ordinary
Form and context: Cooking pot with compound profile, central foot, everted rim and rounded lip. It presents a single horizontal handle. It was found on the floor of Terrace 1 domestic area.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-2840
Ceramic style: Humahuaca-Inca
Height of the fragment: 45 mm
Thickness of the wall: 5 mm
Surface treatment:
external: polished brown
inner: polished, painted black on red
Form and context: Fragment of plate decorated with fine line geometric elementson the inner surface. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-451
Ceramic style: Humahuaca Black-on-Red
Height of the fragment: 32 mm
Thickness of the wall: 8 mm
Base diameter: 200 mm
Surface treatment:
external: smoothed with red slip
inner: polished, painted black on red
Form and context: Fragment of porringer decorated with a reticulated band on medium line. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period

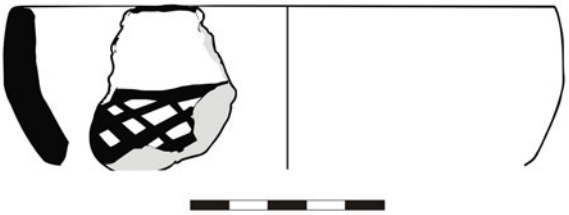
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-3461
Ceramic style: Humahuaca-Inca
Height of the fragment: 13 mm
Thickness of the wall: 4 mm
Base diameter: 60 mm
Surface treatment:
external: smoothed with red slip
inner: polished, painted black on red

Form and context: Fragment of plate with a flat base, decorated with fine line geometric elements on the inner surface. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period

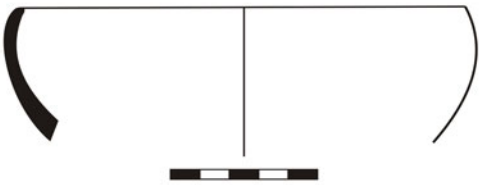


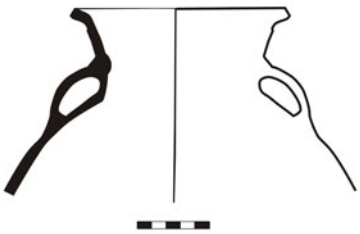
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-C24-P3-1593
Ceramic style: Angosto Chico Inciso
Height of the fragment: 60 mm
Thickness of the wall: 5 mm
Surface treatment:
external: smoothed with incisions
inner: smoothed ordinary
Form and context: Fragment of undetermined cooking-storage vessel, decorated with shallow oval incisions on the neck area. It was found on the floor of Terrace 1 domestic area.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T1-LM-837
Ceramic style: Humahuaca-Inca
Height of the fragment: 50 mm
Thickness of the wall: 8 mm
Surface treatment:
external: smoothed ordinary
inner: polished, painted black on red
Form and context: Fragment of porringer with tangential point in the middle section of the body, direct rim and straight walls. It's decorated with a reticulated horizontal band associated with a black line on the lip. It was found on the wall cleaning of Terrace 1.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-847
Ceramic style: Burnished Bowl
Height of the fragment: 47 mm
Thickness of the wall: 4 mm
Rim diameter: 165 mm
Surface treatment:
external: burnished brown
inner: burnished black
Form and context: Sub-elliptical bowl with inverted rim and rounded lip. Found at Terrace 2.
Chronology: Inca Period

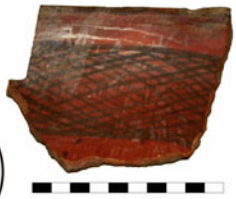


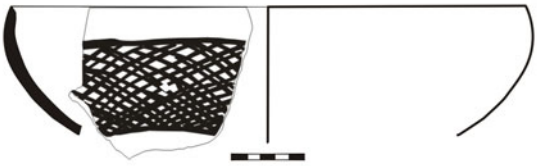


Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C11-1146
Ceramic style: Yavi-Chicha
Height of the fragment: 120 mm
Thickness of the wall: 7 mm
Rim diameter: 160 mm
Minimal diameter: 115 mm
Surface treatment:
external: polished with pink slip
inner: smoothed ordinary
Form and context: Pitcher with a long neck of straight divergent walls and everted rim. It presents a sub-globular body with handles on the upper body. It was found on Terrace 2.
Chronology: Inca Period

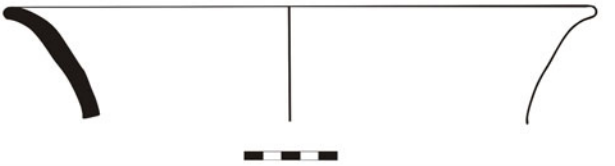
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-779bis
Ceramic style: Humahuaca Black-on-Red
Height of the fragment: 90 mm
Thickness of the wall: 8 mm
Rim diameter: 360 mm
Surface treatment:
external: smoothed ordinary
inner: polished, painted black on red

Form and context: Platter fragment with tangential point in the upper ¼ section of the body and direct rim. It's decorated with a reticulated horizontal band on the inner surface associated with a black line on the lip. It was found on Terrace 2.
Chronology: Inca Period





Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C11-1136
Ceramic type: Smoothed with slip
Height of the fragment: 80 mm
Thickness of the wall: 10 mm
Rim diameter: 400 mm
Surface treatment:
external: smoothed with red slip
inner: smoothed ordinary
Form and context: Pitcher fragment with a long neck of slightly concave walls and everted rim. It was found on Terrace 2.
Chronology: Inca Period



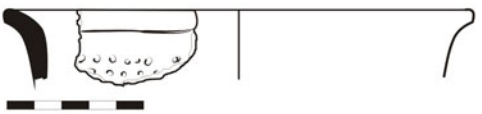
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-851
Ceramic style: Humahuaca-Inca
Height of the fragment: 70 mm
Thickness of the wall: 5 mm
Rim diameter: 250 mm
Surface treatment:
external: smoothed ordinary
inner: polished, painted black on

Form and context: Sub-ellipsoidal bowl with inverted rim, a tangential point in the upper ¼ of the body and a semi-circular handle. It's decorated with short parallel curved black lines on the inner surface and a red band on the external rim. It was found on Terrace 2.
Chronology: Inca Period

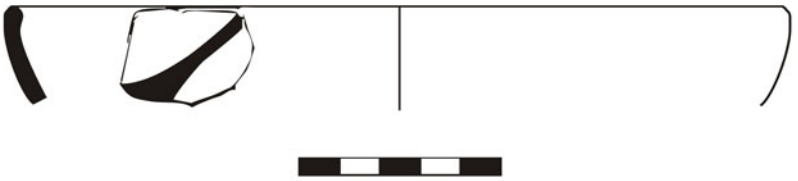
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-380
Ceramic style: Humahuaca Black-on-Red
Height of the fragment: 25 mm
Thickness of the wall: 5 mm
Base diameter: 120 mm
Surface treatment:
external: smoothed ordinary
inner: polished, painted black on red
Form and context: Porringer fragment with flat base, decorated with a reticulated band associated to a spiral. It was found on Terrace 2.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-322
Ceramic style: Angosto Chico Inciso
Height of the fragment: 34 mm
Thickness of the wall: 5 mm
Rim diameter: 180 mm

Surface treatment:
external: smoothed with incisions
inner: smoothed ordinary
Form and context: Cooking pot fragment with straight short neck and everted rim, decorated with rounded incisions arranged in rows on the neck. It was found on Terrace 2.
Chronology: Inca Period



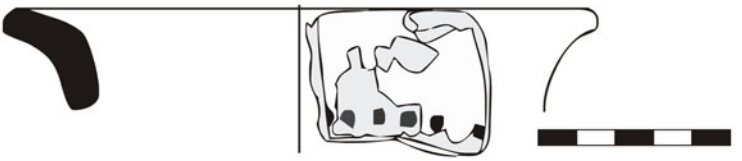
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-544
Ceramic style: Humahuaca-Inca
Height of the fragment: 32 mm
Thickness of the wall: 4 mm
Rim diameter: 200 mm



Surface treatment:
external: smoothed ordinary
inner: polished, painted black on red
Form and context: Porringer fragment with simple profile, tangential point in the upper 1/3 of the body and direct or inverted rim. It's decorated with a black line on the inner surface and a black line on the lip. It was found on Terrace 2.
Chronology: Inca Period

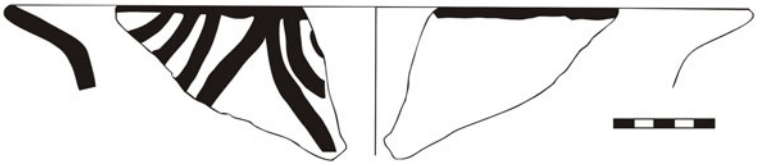
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-569
Ceramic style: Humahuaca-Inca
Height of the fragment: 60 mm
Thickness of the wall: 5 mm
Surface treatment:
external: polished, painted black on red
inner: smoothed ordinary
Form and context: Fragment of cooking-storage vessels of undetermined form, decorated with a reticulated band and a black line black line. It was found on Terrace 2.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-806
Ceramic style: Angosto Chico Inciso
Height of the fragment: 30 mm
Thickness of the wall: 10 mm
Surface treatment:
external: smoothed with incisions
inner: smoothed ordinary
Form and context: Fragment of cooking pot with straight short neck and everted rim, decorated with sub-circular incisions arranged in rows on the neck. It was found on Terrace 2.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-1147
Ceramic style: Humahuaca Black-on-Red
Height of the fragment: 50 mm
Thickness of the wall: 10 mm
Rim diameter: 360 mm
Surface treatment:
external: smoothed with red slip
inner: smoothed, painted black on red

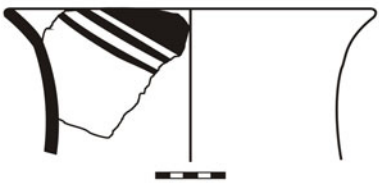
Form and context: Fragment of pitcher with long neck of convex walls and everted rim. It's decorated with concentric semi-circles on the inner rim and a black line on the lip. It was found on Terrace 2.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T2-C18-1166
Ceramic style: Humahuaca Black-on-Red
Height of the fragment: 45 mm
Thickness of the wall: 10 mm
Rim diameter: 280 mm
Surface treatment:
external: smoothed with red slip
inner: smoothed, painted black on red

Form and context: Fragment of pitcher with long neck of slightly concave walls and everted rim. It's decorated with thick black lines on the inner rim and a black line on the lip. It was found on Terrace 2.
Chronology: Inca Period

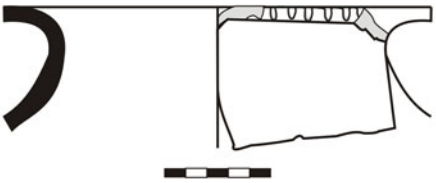
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C11-441
Ceramic style: Humahuaca-Inca
Height of the fragment: 110 mm
Thickness of the wall: 5 mm
Rim diameter: 280 mm
Surface treatment:
external: polished with red slip
inner: polished, painted black on red
Form and context: Fragment of pitcher with long neck of slightly concave walls and everted rim. It's decorated with concentric semi-circles with a black center on the inner rim. It was found on Terrace 2.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C15-PI-267
Ceramic style: Polished Pink
Height of the fragment: 50 mm
Thickness of the wall: 5 mm
Rim diameter: 240 mm

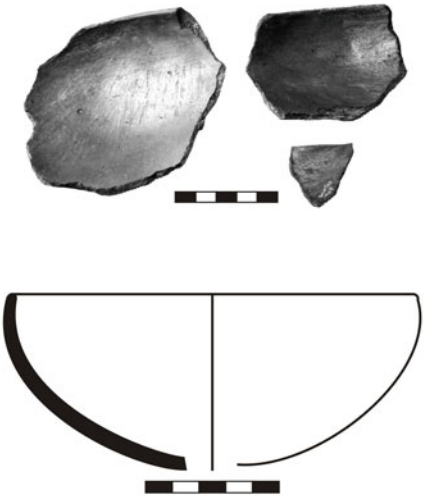
Surface treatment:
external: polished with pink slip
inner: polished with pink slip
Form and context: Fragment of platter with an inflection point in the upper 1/5 of the body, everted rim and curve walls. It was found on Terrace 2.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-G9-915
Ceramic style: Yavi-Chicha
Height of the fragment: 40 mm
Thickness of the wall: 5 mm
Rim diameter: 150 mm
Base diameter: 50 mm
Surface treatment:
external: polished black
inner: polished black
Form and context: Plate with simple profile, direct rim, thinned lip and thin walls. It was found on the area outside Terrace 3 tombs.
Chronology: Inca Period

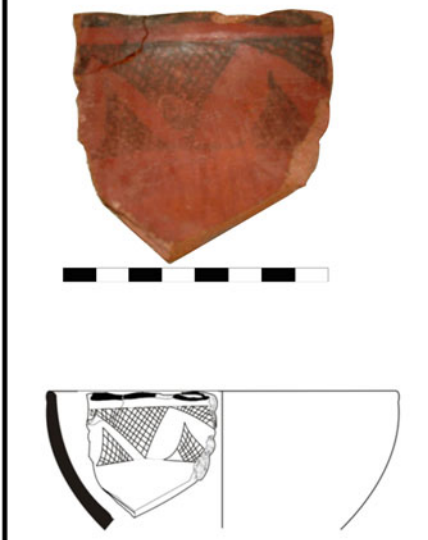


Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-N1-1569
Ceramic type: Ordinary
Height of the fragment: 60 mm
Thickness of the wall: 9 mm
Rim diameter: 200 mm
Surface treatment:
external: smoothed ordinary
inner: smoothed ordinary
Form and context: Fragment of cooking pot with short hyperboloid neck and everted rim. Its flat lip presents short parallel incised lines. It was found on the area outside Terrace 3 tombs.
Chronology: Inca Period

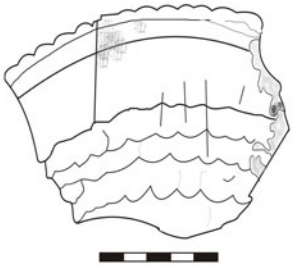
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C20-G4-1566
Ceramic style: Inca Paya
Height of the fragment: 70 mm
Thickness of the wall: 5 mm
Surface treatment:
external: polished with red slip
inner: polished, painted black on brown
Form and context: Bowl fragment with simple profile, decorated with ostriches (*suri*) on the inner surface. It was found on the area outside Terrace 3 tombs.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C4-LM-1504
Ceramic type: Interior Polished Black Bowls
Height of the fragment: 70 mm
Thickness of the wall: 5 mm
Rim diameter: 164 mm
Surface treatment:
external: smoothed with red slip
inner: polished black
Form and context: Bowl with tangential point in the upper 1/3 of the body and slightly inverted rim. It was found on Terrace 3 wall cleaning.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-LM-388
Ceramic type: Inca Paya
Height of the fragment: 70 mm
Thickness of the wall: 5 mm
Rim diameter: 200 mm
Surface treatment:
external: polished with red slip
inner: polished, painted black on red
Form and context: Bowl with inflection point in the upper 1/3 of the body and direct rim. It's decorated with reticulated triangles forming opposing and alternating designs. It was found on the area outside Terrace 3 tombs.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-913
Ceramic type: Corrugated
Height of the fragment: 100 mm
Thickness of the wall: 5 mm
Surface treatment:
external: corrugated
inner: smoothed ordinary
Form and context: Fragment of cooking-storage vessel with everted rim. The external surface is corrugated. It was found on the area outside Terrace 3 tombs.
Chronology: Inca Period

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C6-LM-758
Ceramic type: Incised
Height of the fragment: 110 mm
Thickness of the wall: 4 mm
Surface treatment:
external: smoothed incised
inner: smoothed ordinary
Form and context: Fragment of cooking pot with everted rim and rounded lip. It's decorated with incised lines forming and angle on the neck area. It was found on the area outside Terrace 3 tombs.
Chronology: Inca Period

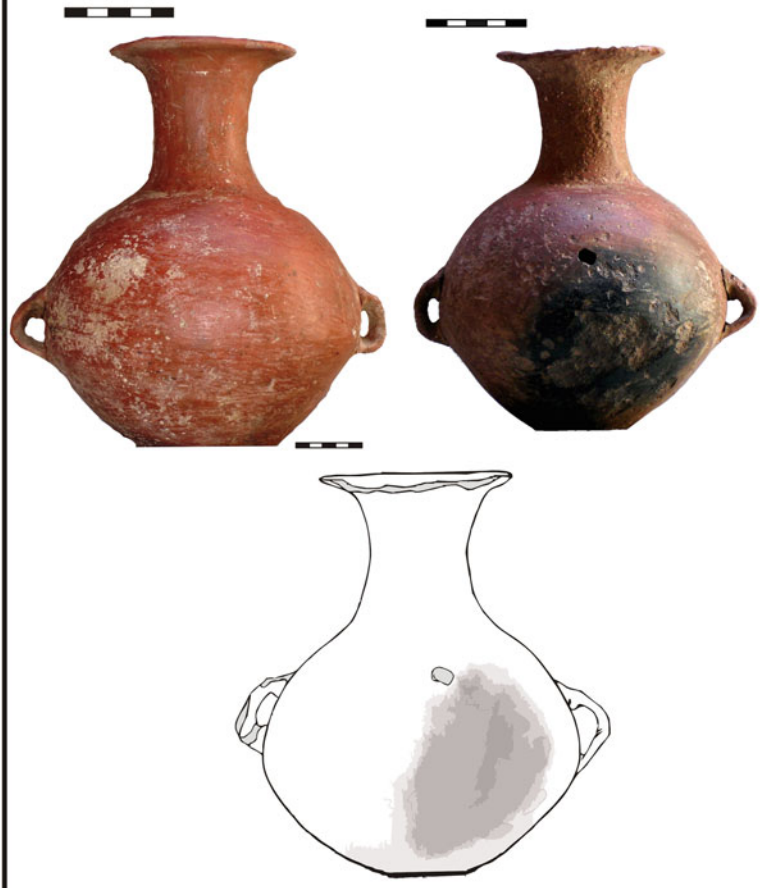
Site: Esquina de Huajra (SJUJ-TUM10)
ID: Tum10-T3-C21-Tumba 4-1029
Ceramic type: Polished Pink
Height of the piece: 130 mm
Thickness of the wall: 3 mm
Maximum diameter: 145 mm
Base diameter: 40 mm
Surface treatment:
external: polished with pink slip
inner: ordinary smoothed

Form and context: Local manufacture *aríbalo* with inflected profile; it presents a flat base and vertical handles stick on the body. The vessel has an eroded surface and the neck has been cut off. It correspods to Tomb 4 grave godos (Terraza 3).

Chronology: Inca Period.

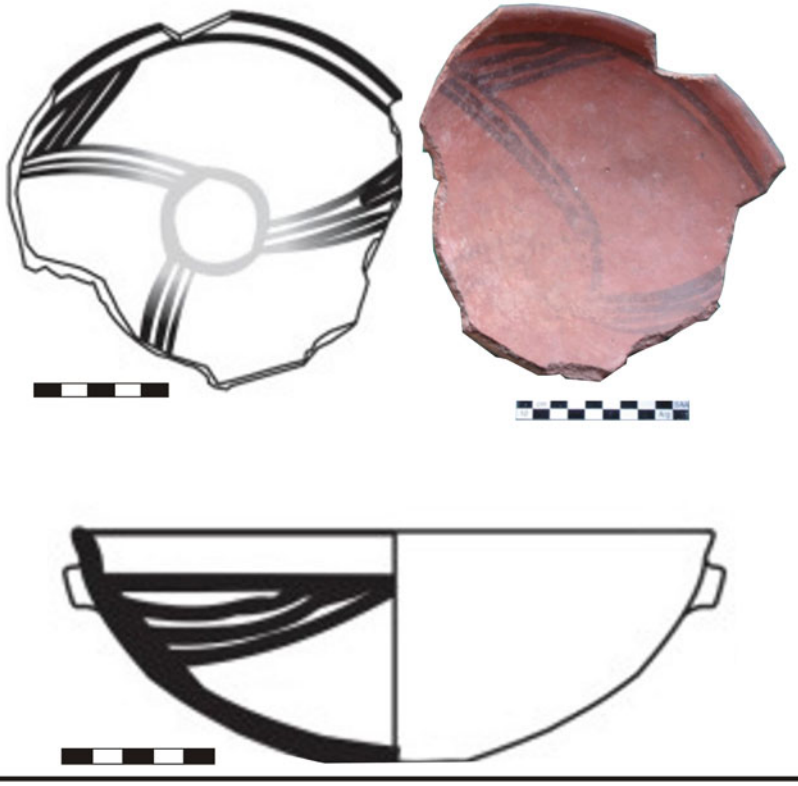
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-Tumba 4-1005
Ceramic type: Polished Pink
Height of the piece: 190 mm
Height of the neck: 75 mm
Thickness of the wall: 3 mm
Maximum diameter: 145 mm
Minimum diameter: 15 mm
Rim diameter: 90 mm
Base diameter: 40 mm

Surface treatment:
external: polished with pink slip
inner: smoothed ordinary
Form and context: Local manufacture *aríbalo* with inflected profile, everted rim and rounded lip; it presents a flat base and vertical handles stick on the body. O the upper body, it presents a small sub-circular orifice. It correspods to Tomb 4 grave godos (Terraza 3).
Chronology: Inca Period.



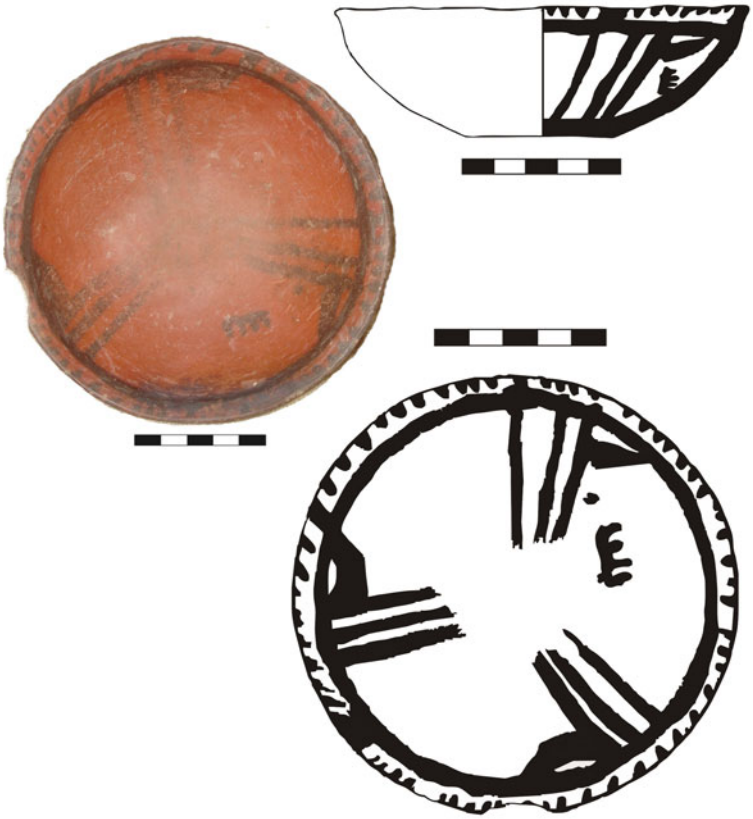
Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-Tumba 4-1004
Ceramic style: Humahuaca-Inca
Height of the piece: 70 mm
Thickness of the wall: 5 mm
Rim diameter: 210 mm
Base diameter: 70 mm
Surface treatment:
external: smoothed ordinary
inner: polished, painted black on red

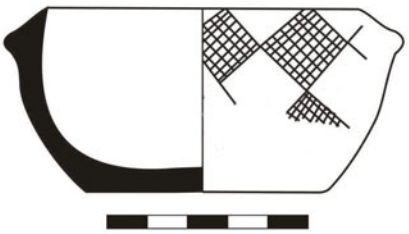
Form and context: Porringer with inflection point in the upper ¼ of the body, everted rim and curve walls; its handles are stick on the body. It presents a combination of a black line on the lip and a line below it, of which three sets of oblique lines come down, they meet at a circle painted on the inner base, each of these sets is associated with concentric semicircles. It correspods to Tomb 4 grave godos (Terrace 3).
Chronology: Inca Period.



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-Tumba 4-1003
Ceramic style: Humahuaca-Inca
Height of the piece: 40 mm
Thickness of the wall: 5 mm
Rim diameter: 135 mm
Base diameter: 50 mm
Surface treatment:
external: polished with red slip
inner: polished, painted black on red.

Form and context: Porringer with inflection point in the upper ¼ of the body, everted rim and curve walls; its handles are stick on the body. It presents a black line on the lip, short parallel lines on the inner rim, a black line parallel to the rim of which three set of lines come down, each set associated to a black semicircle; a "comb" appears isolated. It correspods to Tomb 4 grave godos (Terrace 3).
Chronology: Inca Period.

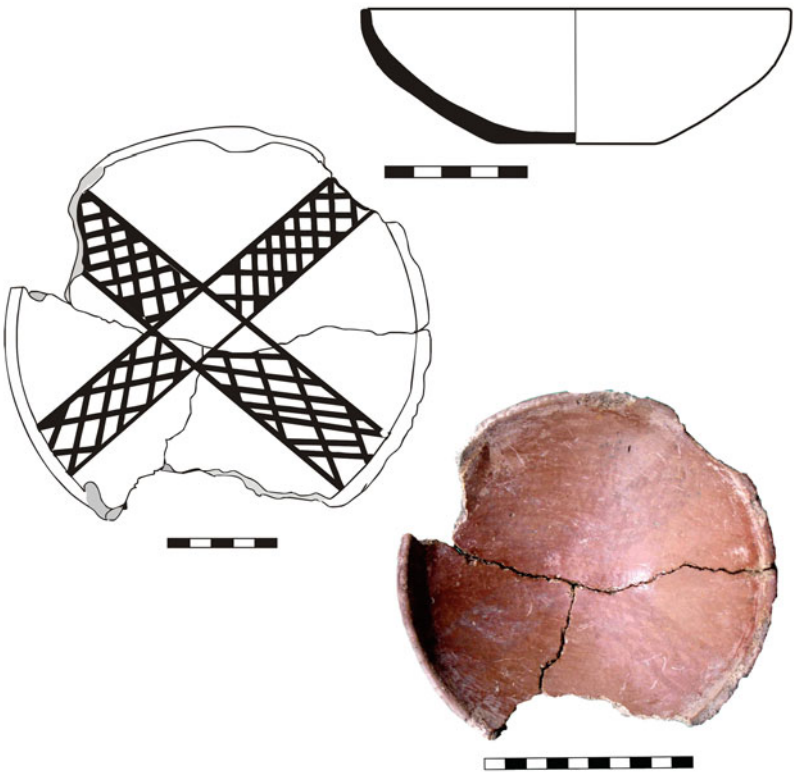




Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C21-Tumba 5-1487
Ceramic style: Inca Paya
Height of the piece: 48 mm
Thickness of the wall: 5 mm
Rim diameter: 80 mm
Base diameter: 60 mm
Surface treatment:
external: polished, painted black on purple
inner: eroded surface
Form and context: Bowl with simple profile, inverted rim and wide base. The external surface is decorated with reticulated rhombus painted in very fine line. It correspods to Tomb 5 grave godos (Terrace 3).

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-C20-Tumba 3-1436
Ceramic style: Yavi-Chicha
Height of the piece: 25 mm
Thickness of the wall: 5 mm
Rim diameter: 120 mm
Base diameter: 45 mm
Surface treatment:
external: polished black
inner: polished black
Form and context: Plate with inflected profile, direct rim and flat base. It correspods to Tomb 3 grave goods (Terrace 3).
Chronology: Inca Period.

Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-G9-C21-800-898-899
Ceramic style: Humahuaca-Inca
Height of the piece: 48 mm
Thickness of the wall: 7 mm
Rim diameter: 155 mm
Base diameter: 55 mm
Surface treatment:
external: polished brown
inner: polished, painted black on brown
Form and context: Plate with simple profile, direct rim, thinned lip and thin walls. I's decorated with reticulated bands that form a cross. It was found in the area outside the tombs in Terrace 3.
Chronology: Inca Period



Site: Esquina de Huajra SJUJ-TUM10
ID: Tum10-T3-G9-C21-Tumba 4
Ceramic style: Humahuaca-Inca
Height of the piece: 270 mm
Thickness of the wall: 6 mm
Maximum diameter: 310 mm
Base diameter: 90 mm
Surface treatment:
external: polished, painted black on red
inner: ordinary
Form and context: Pitcher with flat base and vertical handles. It's decorated with a black line that delimitates the decorative field, where alternate pennants are repeated in a horizontal sequence along the body of the vessel. It corresponds to Tomb 4 grave goods (Terrace 3).
Chronology: Inca Period