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Local ceramic technology of the Pucara of Tilcara during the inka period (Quebrada of Humahuaca, Argentina)

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ABSTRACT

The Pucara of Tilcara is one of the most notable archeological settlements in the Quebrada of Humahuaca in northwestern Argentina. In this paper, we engage in technological and contextual analyses of ceramics excavated from Residential Unit 1 and of collections of ceramics from the site to identify the consumption and use of ceramics that were eminently local in their production. Evidence indicates that Residential Unit 1 functioned as a house-workshop where domestic and craft activities, including pottery and metallurgy, were combined with ritual activities (evidenced by burials under the floor and in the ossuary). The collections of ceramics from Residential Unit 1 reveal a high degree of variation in both the forms and the surface treatments, while the petrographic characteristics of the ceramic pastes analyzed indicate the continuity of local regional manufacturing traditions and little State interference during the Inca occupation of the Quebrada.

Introduction

In the Northwest of Argentina, ceramics are perhaps one of the most rich materials one can use to study Pre-Hispanic social representations. Its versatility has made it, since its appearance, an important expressive resource and a significant medium for the creation of social values. In the morpho-decorative designs, as in the technological attributes corresponding to the different styles, diverse manifestations of the specific sociocultural conditions of each historical period were combined. In this article, we identify changes produced in ceramics of the Quebrada de Humahuaca by Inca domination and its impact on social life.

The Quebrada of Humahuaca is one of the most widely recognized archeological zones in northwestern Argentina and, since the start of the twentieth century, 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 m in altitude. This topography has facilitated its functioning as a natural corridor linking nearby desert-like high altitude regions (the *Puna*) to lower altitude humid valleys (the *Yungas*) located to the east in what is today the province of Jujuy (Albeck, 1992). Similarly to what has been found for other Andean regions, permanent settlement occurred over time, and those settlements transformed into highly complex productive societies (Nielsen, 2001; Tarragó, 2001; Rivolta, 2005).

Around 1000 AD the development of these societies is materially evident through their diverse technologies and the large complexes constructed on promontories, some of which are called *pucaras*. Centuries later, Inca domination of the area marked a milestone in the pre-Hispanic history of the region. Inca authority manifested through the installation of administrative control centers in pre-existing populations, the construction of *tampus*,[1] the remodeling of settlements, the expansion of productive spaces, the construction of road networks and the formation of sacred and ceremonial spaces (Hyslop, 1992; D'Altroy, 2001; Malpass and Alconini, 2010; Santoro et al., 2010).

The richness and abundance of this material evidence in the landscape of the Quebrada awoke the interests of archeologists very early on, sparking extensive excavations of the most conspicuous settlements. The results of these interventions have served to not only characterize these pre-Hispanic agricultural societies and construct chronologies of northwestern Argentina, but also to elaborate models of trans-Andean population dynamics. For these reasons the Pucara of Tilcara has constituted one of the most emblematic archeological sites in the north of Argentina.

While the ceramic collections from the Pucara of Tilcara have been among the most studied of the assemblages from the site (Bregante, 1926; Deambrosis and De Lorenzi, 1973; Cremonte, 1992, 2006; Otero 2006, 2007; López, 2006; Runcio, 2009; Otero and Cremonte, 2010), new methods that permit us to identify the degree of influence that the Inca conquest of the region had on

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[1] *Tampus* functioned like shelters and storage centers and were distributed along the Inka Trail every 20 or 30 km, roughly one day's journey on foot (Hyslop 1992).

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local ceramic technological traditions must be tested. This article responds to this challenge by examining ceramics from Residential Unit 1 with an emphasis on the technological and contextual. In this case, we apply the notion of multi-craft production (Shimada, 2007). This concept is particularly applicable because Residential Unit 1 can be defined as a domestic workshop where different artisans worked at their different crafts, principally metallurgical and pottery production, in the same or adjacent spaces.

To develop these ideas, we first characterize the history of occupation of the Pucara of Tilcara. Then, we move directly on to the case of Residential Unit 1 with the intention of referencing, spatially and temporally, the ceramic collections found in this structure. Aside from studying their stylistic composition, we present a technological analysis of some of the pieces while paying careful attention to the specific variations introduced by Inca domination in the region. We also examine the consumptive practices developed at the site and the population dynamics of the late pre-Hispanic era.

The Pucara: location and description of the site

This archeological site is located in the middle region of the Quebrada of Humahuaca, in the Argentine province of Jujuy (Fig. 1). It has traditionally been characterized as a *pucara* because of its location on a hill approximately 80 m high, on the left bank of the Río Grande of Jujuy. However, despite its high-altitude location (2500 m above sea level) the Pucara of Tilcara is lacking the defensive characteristics seen at other similarly elevated sites in the region. Thus, it is simply defined as an urbanized elevated settlement, over 17.5 hectares in extension. Over 580 enclosures are distributed across this surface, all constructed with double stone and mortar walls (Fig. 1). These enclosures, different in their forms and sizes, correspond to residential complexes and workshops that were dedicated to artisanal work.

A vast network of paths connect different residential sectors to public ones (ceremonial centers and plazas) and cemeteries, that like the corrals, are segregated from the residential areas (Fig. 1). Despite the fact that more than a hundred tombs have been located in these cemeteries, burials in patios and within the enclosures used for everyday activities were common, both under floors and in raised stone chambers.

Today we have 22 radiocarbon dates (AMS y C14) that demonstrate the extended occupation of the settlement, beginning in the twelfth century (AD) and ending in the Hispanic–Indigenous Period in the sixteenth century (AD). Investigations carried out in recent years (Otero, 2013a) demonstrate that the pinnacle of occupation of the site occurred during the Inca period. We can also assert that this site was one of the most important and complex Inca installations in the area. Ethnohistorical research tells us that the region was called *Wamani*, and the Pucara was the capital of the Inca Province of Humahuaca, one of the three large provinces in what is now northwestern Argentina (González, 1982; Williams, 2004). Aside from functioning as a first rate political and administrative center, the Pucara of Tilcara was a productive center of the region with numerous workshops dedicated to the manufacture of goods. These activities became one of the primary sources of tribute to the Inca State.

Craft production was dedicated to the manufacture of ornamental and symbolic goods, like pendants, figures for ritual use or *illas*, and plaques fabricated in different varieties of valves and stones including onyx, limestone, flint and alabaster (Krapovickas, 1958/1959; Otero, 2013a). Likewise, metal objects with symbolic uses were produced, like glasses, discs and *tumis*. Metal and stone were used to elaborate hundreds of instruments and tools for other productive activities. This is the case with stone spindle whorls made of limestone and alabaster, and knives, chisels and stamps made of metal and alabaster (Otero, 2013b).

A great portion of this production would have been transported to Cuzco or other Inca provinces. This is clear because among the great number of contexts studied at the Pucara we only found the material remains of manufacture of these goods and not the final products. Likewise, complete alabaster figures or pendants do not appear in other archaeological sites of the Quebrada de Humahuaca.

The great number of workshops found in the Pucara, so far more than sixty, and the attributes of more than a hundred of these alabaster figures, ornamental preforms, spindle whorls and limestone preforms indicate that this artisanal activity was standardized and developed on a large scale. Manufacturing parameters of these goods would have been established by the Inca and represented the imposition of a new technological and stylistic tradition, one not seen before in the region. With respect to the changes produced during the Inca period we can consider that even though imposed stylistic modifications on metallurgical production are possible, local knowledge of minerals, their smelting and molding would have had to be taken advantage of. In fact, to even obtain the primary materials of silver, bronze, copper and gold, the local socio-economic structure of the region had to be taken advantage of González (2004); Lechtman (2007).

Elite groups linked to the State would have resided in the Pucara for different ends. These functionaries, aside from organizing the socio-political activities of the region in order to legitimize state power and promote Inca religious foundations, would have principally controlled specialized artisanal production. By contextualizing the material in the collections of two museums of the Faculty of Philosophy and Letters of the University of Buenos Aires, we have determined that these residences were dispersed among the numerous lapidary and metallurgical workshops that occupied the most elevated sectors of the site.

The diversity of objects clearly related to the Incas found in the most elevated sectors of the Pucara reveal that State organization was strongly interwoven with the local society. In these sectors different kind of inca objects were found like stone mace heads in star and circular forms, *keros*, *tumis*, tumblers, discs and plaques made of silver, bronze and gold. Similarly, an important number of Imperial Inca ceramic pieces have been found, such as *aríbalos*, plates and different kinds of jars (narrow-necked and wide necked) and Provincial ceramic vessels, like plates with duck heads, jars and bowls in the styles Inca Paya, Inca Yavi–Chicha and Inca Pacajes (Fig. 2), concentrated on the top of the Pucara of Tilcara, the very same area of Inca administrative structures. It is worth noting that just as Bray (2004) argues in her study comparing state ceramics found in the Cuzco region to those from the provinces, among the Inca vessels found in the Pucara the *aríbalos* are the forms most commonly represented. Among the Provincial styles, as in other enclaves that were located great distances from the center of the empire, the *aríbalos*, plates and pedestal-based pots were the Inca paraphernalia of functionaries and representatives of the State (Bray, 2003a,b).

Aside from affecting metallurgical and lapidary practices, the introduction of technological and stylistic changes can also be seen in other productive areas, like textiles and ceramics. While these were not changes mandated by the State to fulfill demands from outside of the Quebrada —ceramics from this area did not circulate throughout *Tawantinsuyu* as a prestige good like other styles of ceramics from the Northwest of Argentina— the changes were possibly introduced by the State to integrate new kinds of messages to transform local identity, through cohabitation with groups from other provinces, *mitmaqkunas*[2], and/or as a response by the local population to the process of domination.

[2] *Mitmaqkunas*: those moved by the Inka from one area to another to fulfill work requirements involved in the control and administration of Inka enclaves.

Fig. 1. Location of the Pucara of Tilcara in the province of Jujuy, Argentina, and map of the Pucara of Tilcara. Map created by Lanzelotti et al. (2012) based on Zaburlín's original (2006).

Fig. 2. Aríbalo Cuzco Polychrome (MEJBA 35100). Inca Provincial Pitcher (MEJBA 8610). Ceramic Toad, Inca Pacajes style (MT 2242-MEJBA 3707). MT refers to the numbering of the pieces used in the catalogues of the Archeological Museum "Dr. E. Casanova" in Tilcara, Faculty of Philosophy and Letter of the University of Buenos Aires. MEJBA, refers to the numbers of objects according to the records of the Ethnographic Museum, "J.B. Ambrosetti", Faculty of Philosophy and Letters of the University of Buenos Aires.

Fig. 3. Pelike (MT 2696-MEJBA 5085). Ornithoform Plate (MT 2284- MEJBA 3708). Aribaloide (MT 2252-MEJBA 35101).

The introduction of new ceramic forms in the region can be easily identified, in forms such as ornithoform plates, keriform tumblers, *aribaloides* (pieces that imitate some of the attributes of the Inca *aríbalos*) or *pelikes* (vessels with truncated cone-like or concave necks, a very prominent angular point at the joint with the lower and middle portions of the form, and vertical handles hammered to the upper part of the form and neck) (Fig. 3). New representational forms are also seen, indicating not only the adoption of new motifs but also the reconfiguration of local iconography, as can be observed in the *pelikes* (Fig. 3). These pieces, considered as a whole, are determinative of the mixed Inca style of the region, *Humahuaca Inca*.

In order to evaluate the technological changes in local pottery we analyzed ceramic samples from one structure located on the southeastern slope of the Pucara, identified as Residential Unit 1 (Tarragó, 1992; Otero, 2006) (Fig. 1). While this structure is one of a hundred of residential buildings distributed throughout the Pucara, we selected samples for analysis from this Unit because it has been so intensively studied. The reconstruction of its history through excavation, radiocarbon dates of the contexts, and analysis of the materials allowed us to characterize it as a house, while aside from functioning as a residence was also a workshop dedicated to metallurgical and ceramic production (Tarragó and González, 1998; Otero and Cremonte, 2010; Otero and Ochoa, 2011; Otero, 2013a). During the Inca period, the inhabitants of a preexisting domestic unit could engage in artisanal activity either part or full-time regulated by Inca administration. This indicates the incorporation of local artisans into the policies of production that were implemented in a center of importance for the Inca, like the Pucara of Tilcara. Thus, a study of the technological attributes of the ceramics allow to estimate the degree of change introduced by the Imperial annexation of the region on the most basic form of organization of the local population.

Residential Unit 1

The building structure is composed of a grand central patio of 40 sq. meters (R3.1) surrounded by enclosures of various sizes (R1, R2, R3.2 y R3.3) (Fig. 4). To the east of Recinto 3.2, a fourth room was found that is identified as N4. Up to now, of the total surface area of the 160 sq. meter unit, 127 sq. meters have been excavated along with 5 sq. meters of a waste area in Basural 2 (Fig. 4). The results of these excavations permit us to distinguish different areas of activity in a detail and a sequence of the different uses of the residence.

In all the excavated areas day to day activities have been detected, like the processing and consumption of food, principally camelid meats (*Camelidae ind.*) and maíze (*Zea mays*). These activities also include artisanal tasks and plentiful evidence of the manufacture of ceramics was also found. Among this evidence, we can cite clay lumps, pigments, and tools used to form dishware, like spatulas and instruments for polishing. Evidence of many practices related to metallurgy were also found: molds, pieces of copper mineral, residues from smelting, drops of copper metal, hammers, anvils, mortars, polishers, and deer antlers, used like picks to extract minerals from its source (Angiorama, 2005). Aside from these, high oxygenation combustion hearth, used in the smelting of metals, was found in the central patio and in two enclosures (Tarragó and González, 1998).

During the Inca period, the production of metal goods, unlike ceramic production, would have responded to the demands of the State. The discovery of different kinds of molds show that pieces of great value were manufactured here, such as silver and bronze discs that were exhibited in religious spheres (González, 1992).

The specialized producers that occupied this house workshop developed metallurgy in a nearly exclusive form, for which they would have been rewarded with foodstuffs and the primary materials used in activities like the elaboration of textiles. Whether all the artisans involved in metallurgical activities lived in the house is not possible to determine, though it can be affirmed that a domestic group which had its origins in the moments prior to Inca domination resided there. The results of eleven radiocarbon dates obtained from the floors of the dwelling and from the tombs of children and adults (S1, 2, 3, 4 y 5), located inside the residence prove this (Fig. 4). These dates also reveal that occupation of the residence began in the twelfth century (AD) and ended in the sixteenth century (AD) (Fig. 5).

The samples and approaches for the study

The ceramic assemblage recuperated from Residential Unit 1 (not counting the samples from Basural 2) includes 5170 fragments. Overall, the ceramics of Unit 1 include the regional Humahuaca style characterized by geometric iconography in Black on Red (B/R) that was developed from the 11th century up to the Hispanic–Indigenous period with variations during the Inca Period.

To classify the ceramics of Residential Unit 1, we followed the methodological proposal of Orton et al. (1993) that begins by ordering fragments into *sherd families* (SF). In each SF, both the vessels and specimens that had been reconstructed were included as well as those that did not attach to the same piece.

Of the sherd sample, 54% (N 2802) were ordered into 224 SF which were primarily distributed between those styles recognized for the Inca Period (Table 1). The most represented style for both the open forms (big platters and regular bowls/*pucos*) and for the closed ones (pitchers and cooking pots) is Humahuaca B/R (Black on Red). In this style the motifs correspond for the most part to spirals, reticulated bands, triangles, semi-circumferences, parallel lines, and other motifs which are symmetrically structured or rotating. The next styles according to their percentages of appearance are, for the *pucos*, Black Polished Interior, and Poma B/R decorated on the external surface with black curvilinear bands (Table 1). Among the Black Polished Interior bowls different variations can be identified by the type of treatment applied to the external surface (Polished Brown, Red, Grey, etc...). This variation

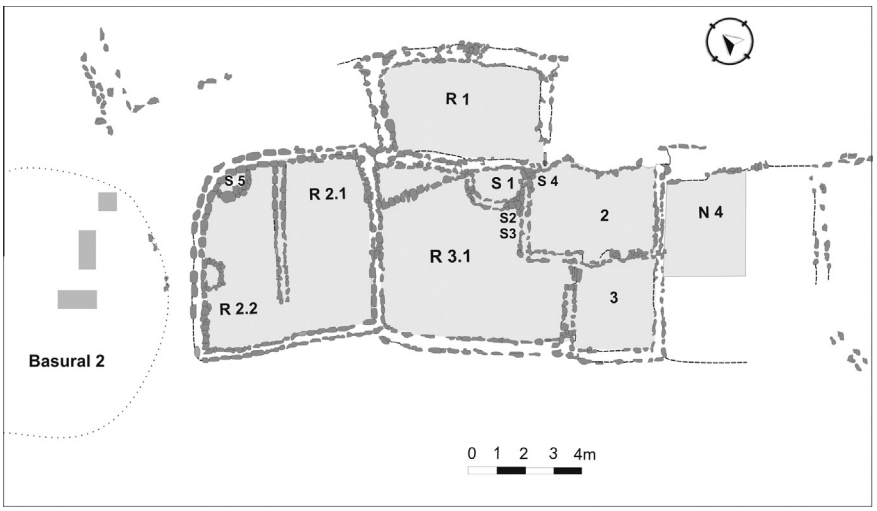

Fig. 4. Residential Unit 1 after excavation. Areas of intervention are in grey (modified from Tarragó (1992)).

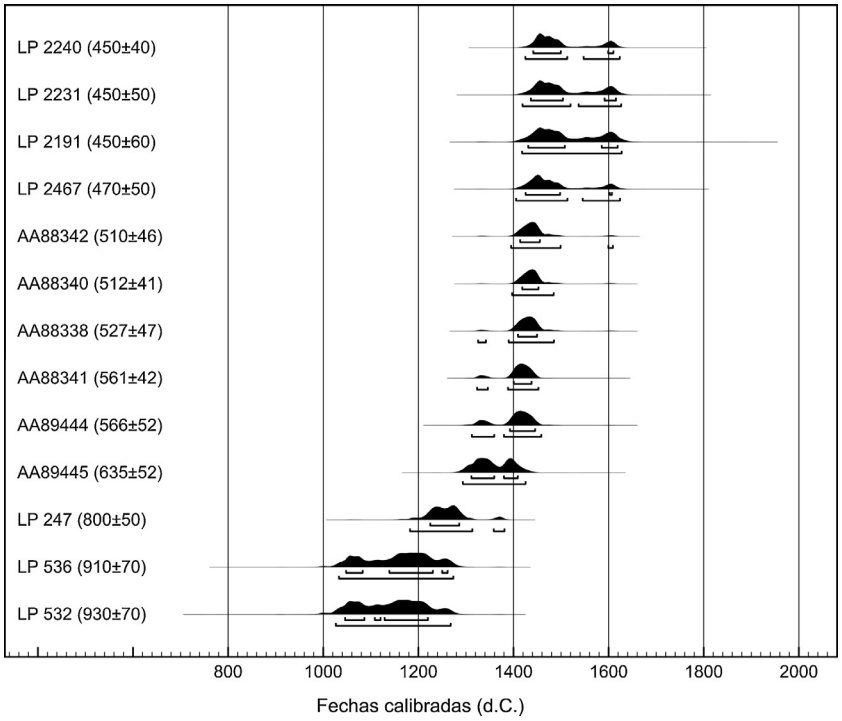

Fig. 5. Dates of Residential Unit 1. Calibration Curve ShCal04 (Mc Cormac et al., 2004); Software utilized OxCal v4.1.6 (Bronk Ramsey, 2009).

corresponds to the variety of local traditions that continued to be produced and consumed during the Inca Period.

Among those vessels which registered new decorative and formal attributes, the Humahuaca Inca B/R, Humahuaca Inca B/P (Black on Purple), Humahuaca Brown Polished and the Humahuaca Inca Black Polished Interior Smoothed Exterior (Table 1) styles predominate. The majority of this last style corresponds to *pucos* with side handles, a form typical of this period that has not yet been registered in pre-Inca contexts.

It is worth mentioning that in some cases the SF were classified as B/R Indeterminate due to the fragmentary nature or smallness of the fragments that did not allow us to determine whether they really pertained to Humahuaca B/R or Humahuaca Inca B/R. As well as, in the cases of those SF that were only made up of sherds that were components of the body of a ceramic vessel it was very difficult to distinguish between pitchers, aribaloides or *pelikes*. Thus, to prevent classification errors we used more generic categories, like "restricted piece" (Table 1). On the other hand, we also distinguished assemblages that were only represented by fragments of polished red, purple or brown surfaces. To these varieties we added the term "indeterminate", as it could be part of a form decorated in black yet that remained unrecognizable because the sherds were only fragments of the base, body, neck or edge of a vessel and did not possess any identifying paint.

One interesting result of the classification is the recognition of new forms and types of surface treatments that up until now had not been defined for the Quebrada. This includes the "restricted pieces" of various forms with marled sufaces, including a pot with an everted frontal edge that turns outward, with flattened lateral sides where the handles are located. The diameter of the neck is

Table 1
Classification of the ceramic assemblage according to style and form.

Style	Humahuaca						Humahuaca Inca								B/R	Ordi-	Red	Purple	Brown	Combed	Angosto	Angosto	Poma	Yavi-	Hispanic-	Indet.	Total
Form	B/R	B & W/R	PS	RS	BPI		B/R	B/P	B/Br	BPI	RPI	B & P I	B & Br I	BrP	Undete-rmined	nary	Polished or Smoothed	Polished or Smoothed	Polished or Smoothed	or Marled	Chico Inciso (local)	Chico Inciso (non local)	B/R	Chicha	indigenous		
Large restricted piece														1		6	8	1		3						6	**25**
Small restricted piece														1												1	**2**
Pitcher	5	1					2	4	1					1	6	2	8	1	5		2			1		1	**40**
Small pitcher	3						4	1							1	1	1	1							1		**13**
Pot				1				1	1							2	1			4	4	1				1	**16**
Small pot			1	1										1		1						1				2	**7**
Aribaloide							1	1																			**2**
Jug																1											**1**
Asymetric jug																1											**1**
Short glass					2																						**2**
Glass																							1				**1**
Cuenco	1							2																			**3**
Virque										1	1																**2**
Puco with side handles										3																	**3**
Puco	3				26				1	7	6	2	3	3									23		1	1	**76**
Small *puco*					4									1		1											**6**
Platter	13						1	7	1	1					1												**24**
Total	**25**	**1**		**1**	**2**	**32**	**8**	**16**	**4**	**12**	**7**	**2**	**3**	**8**	**8**	**15**	**18**	3	5	**7**	**6**	**2**	**24**	**1**	**2**	**12**	**224**

B/R: black on red, B & W/R: Black and White on Red, PS: purple smoothed, RS: red smoothed, BPI: black polished interior, B/P: black on purple, B/Br: black on brown, RPI: red polished interior, B & P I: black and purple interior, B & Br Interior: black and brown interior, BrP: brown polished.

25 cm and the body approximately 35 cm, possibly reaching 50 cm in height. Another interesting form is that of the *virques*, that can be singled out as sharing characteristics with those vessels used today in the Quebrada and Puna of Jujuy to make *chicha* (Cremonte et al., 2009). *Virques* are large, wide mouthed vessels, with everted necks, double horizontal handles, nearly circular in form. At last, Angosto Chico Inciso (Small Narrow Incised) vessels have been identified as pitchers and pots elaborated in the Tilcara area and in the southern and eastern regions of the Quebrada.

In contrast to the other structures at the Pucara where State representatives and members of the local elite lived, in the Unit 1 we identified only one Yavi Chicha vessel that originated from the Puna of Jujuy. In the Argentina Northwest the Yavi–Chicha style, fine high quality pieces, appear frequently in Inca Period settlements. They indicate the existence of connections between local elite groups and the installation of *mitmaqkunas* from the altiplano by the Inca adminstration (Cremonte, 2012). This scarcity could indicate the differential consumption of styles that was linked to the social hierarchy of those occupying this archaeological site.

Despite the low incidence of appearance of non-local styles, shown in Table 1, the sample is highly heterogeneous in its composition. Within each ceramic type a wide variability of forms, sizes, and decorative designs can be seen. This variability could be a reflection of the lack of standardized norms of production, because as has been mentioned, the ceramics of the Quebrada were not highly valued by the State. However, despite the incorporation of new ceramic forms, the pottery production was made to a very small-scale to supply a restricted consumption.

To move forward in the characterization of the different variants, we complemented the stylistic analysis of 28 sherd families (SF) with a petrographic study of the ceramic pastes cut into thin sections. In particular, we selected vessels presenting attributes that appear to have been transformations or incorporations during the Inca Period, or that reveal attributes that have not yet been identified. As can be seen in Table 2, we selected five vessels from different forms with marled or combed surfaces, three *pucos* and an Black Polished Interior short glass, two Poma B/R *pucos*, three Angosto Chico Inciso restricted pieces, seven B/R vessels, a pitcher of B and W/R (Black and white on red), a B/P pitcher (Black on purple), Red Polished and Brown Polished ones, and an Purple Polished Interior *puco*.

The petrographic analysis was carried out with a polarizing Leica DM750P microscope and entailed the following procedure: (a) registering the structures of the clay matrices (Curtois, 1976); (b) measuring the size of the nonplastic inclusions and cavities in microns (100 measurements for thin sections) and (c) petrographic identification of the nonplastic inclusions and their distribution (Freestone, 1991) by point counter (300 points per thin section). In Table 2 we indicate the percentages of nonplastic inclusions larger than 15 μm present in the pastes studied, as well as the number of order of the same, their origin and the corresponding ceramic type.

Technological and stylistic variations in the ceramics of Residential Unit 1

To a great degree, the ceramic pastes of the vessels selected for petrographic analysis from Residential Unit 1 do not diverge from the technological traditions prevalent in the Quebrada of Humahuaca. These pastes characteristically present themselves with abundant lithoclastic inclusions of chalk and phyllite (ground rock) added as antiplastic. The granulometry of these inclusions is generally medium to thick sand sized and occupies an average of 30% of the paste, whose clay matrix is in general red and of a pseudolepidoblastic structure. The fragments of rocks mentioned are characteristic of the Puncoviscana Formation and widely found in the region (Turner, 1960).

Table 2
Ceramic pastes from the Pucara of Tilcara. Quantitative data of nonplastic inclusions > 15 Mm (%) per Point Counting.

Thin Section N°	Type	SF	Mtx	Cav	Qz	Pg	Bi	Mu	Dac	Phy/Sl	SS	Qzite	Lut/Arcl	Gr	T
1	***puco* B/R**	**2**	61.59	5.67	6.98	0	0	0	0	18.34	3.49	3.93	0	0	0
2	**pitcher B/R**	**16**	49.79	6.34	7.51	0.42	0	0	0	31.2	0	4.74	0	0	0
3	***puco* Poma B/R**	**30**	64.76	5.4	2.15	0.72	0	0	0	26.97	0	0	0	0	0
4	***puco* Poma B/R**	**31**	61.73	5.77	1.64	0	0	0	0	30.86	0	0	0	0	0
5	**pitcher B/R**	**17**	66.22	5.44	3.55	0.38	0	0	0	14.41	0	0	10	0	0
6	**pot ACHI**	**7**	42.63	5.61	10.7	0.39	0	0	0	6.17	3.1	3.1	8	0	20.3
7	**platter B/R**	**13**	36.43	8.92	8.1	0.81	0	0	0	42.51	0	3.23	0	0	0
8	**pot ACHI**	**8**	50.89	5.92	3.83	1.61	0	0	0	33.75	4	0	0	0	0
9	***puco* Bl. Polished Int.**	**24**	64.08	3.68	1.63	0	0	0	0	28.61	0	0	2	0	0
10	**short glass Black Int.**	**5**	57.5	6.82	2.72	0	0	0	0	24.8	0	0	0	0	8.16
11	***puco* Bl. Polished Int.**	**11**	70.32	4.48	1.63	0	0	0	0	21.54	0	2.03	0	0	0
12	***puco* Bl. Polished Int.**	**20**	59.35	9.36	1.62	0	0	0	0	29.26	0	0.41	0	0	0
13	**pitcher Br. Polished**	**6**	46.8	4.8	12.8	3.2	0	0	0	28.4	2.4	1.6	0	0	0
14	***virque* marled**	**50**	61.88	10.4	6.44	1.48	0	0	0	4.95	14.85	0	0	0	0
15	**pitcher ACHI**	**94**	43.87	9.9	11.79	2.83	0	0	0	0	5.67	0	7.07	0	18.87
16	**platter B/P**	**46**	49.37	15.38	6.41	0.64	0.96	0	0	24.68	2.5	0	0	0	0
17	**platter B/Br**	**45**	49.8	11.52	4.11	0	0	0	0	32.92	1.65	0	0	0	0
18	**pitcher B/R**	**43**	58.82	10.3	4.41	0	0	0	0	22.06	4.41	0	0	0	0
19	**pitcher Red Polished**	**47**	56.41	8.8	5.86	2.93	0	0	2.93	12.82	8.79	0	0	1.46	0
20	**pot marled**	**48**	55.19	11.81	5.51	1.57	0	0	0	23.62	2.3	0	0	0	0
21	***virque* marled**	**51**	43.33	10.62	12.39	3.96	0	0	0	22.62	5.31	0	0	1.77	0
22	***puco* Bl. Polished Int.**	**55**	65.78	5.98	3.26	0.54	0	0.54	0	16.3	3.8	0	3.8	0	0
23	**pot marled**	**66**	69.04	5.81	1.93	0	0	0	0	23.22	0	0	0	0	0
24	***puco* Pur. Polished Int.**	**73**	54.84	15.74	2.53	1.01	0	0	0	24.36	1.52	0	0	0	0
25	**pitcher B and W/R**	**76**	52.9	4.07	3.49	0.58	0	0	0	28.49	7.56	0	0	2.91	0
26	**pitcher B/P**	**77**	64.55	3.8	3.8	0.63	0	0	0	19.62	7.6	0	0	0	0
27	**pitcher B/R**	**79**	61.84	10.63	2.41	0.97	0	0	0	21.74	2.41	0	0	0	0
28	**pitcher B/R**	**80**	66.18	8.27	6.01	0.75	0	0	0	14.28	4.51	0	0	0	0

References: Mtx: clay matrix; Bi: biotite; Qzite: quartzite; T: grog; Pg: plagioclase; Cav: cavities; Mu: muscovite; Dac: dacuite; SS: sandstone; Lut/Arc: lutite/arcilita (light grey); Qz: quartz; Phy/Sl: phyllite/slate; Gr: granite; B/R: black on red; B/P: black on purple; B/Br: black on brown; ACHI: Angosto Chico Inciso (Narrow Small Incised); Bl. Polished Int.: Black Polished Interior; B and W/R: black and white on red.

With regards to the marled examples, two *virques* were selected, two pot and one *puco*. The analysis of one of the marled pots, described by its flattened edges, SF number 48 (thin section number 20 in Table 2), revealed that the piece was manufactured following local techniques. The pastes of a second pot, the one with a narrower neck and sub-globular body (SF no 66, thin section no 23 of Table 2), and those of the *puco* with interior transitions from brown to a polished black (SF no 24, thin section no 9 of Table 2), also coincide with local types. No other *puco* from the collection has either this color combination in its interior or a marled exterior surface.

In contrast, the pastes of the *virques* depart from patterns of local manufacture, possibly reflecting non-local production or an elaboration in the middle regions of the Quebrada but with techniques and inclusions of a different origin. The *virque*, SF number 50 (thin section no 14 of Table 2), presents a high percentage of sandstone, more than the phyllite/slate, nonplastics characteristic of the Quebrada. The *virque* SF number 51 (thin section no 21 of Table 2) presents abundant content of quartz, plagioclases, granite, and to a lesser degree, sandstone.

The technological and stylistic variations of the *virques* could be the result of demographic movements characteristic of Inca domination and even, of the introduction of new practices that were not only new 'ways of doing' pottery (*sensu* Hodder, 1990), but that extended into culinary spheres. The detection of *virques* from the Inca occupation of the Pucara onwards could indicate that the elaboration of *chicha* using these vessels was an adoption produced by Imperial annexation (Cremonte et al., 2009).

Another style that presents a great variety of forms is the Black Polished Interior. Analysis of the *pucos* (SF no 11 and 20, thin sections no 11 y 12 in Table 2) revealed pastes that shared characteristics with other local groups. On the other hand, the pastes of the SF number 20 and 24, are grouped with the Poma B/R *pucos* (SF no 30 y 31, thin sections no 3 y 4 of Table 2) (Fig. 6). *Puco* SF 24 was previously mentioned for its marled exterior.

The pastes of the Poma B/R *pucos* are usually more standardized. Thus, they are frequently ordered into the same group, to which the pastes of the Black Polished Interior *pucos* could be added.

Finally, another example of Black Polished Interior *puco* corresponds to a vessel with straight and everted walls, and a smoothed exterior. Though, instead of a simple *puco*, these might correspond to a *puco* with a side handle, very common in Inca contexts, and only be unrecognizable because of fragmentation. The ceramic paste of this vessel is isolated from the pattern of the Quebrada because of the abundant presence of sandstone (SF no 55, thin section no 22 of Table 2). It shares these characteristics with the Humahuaca B/R *puco* (SF no 2, thin section no 1 in Table 2) and two pitchers, one Humahuaca B/R (SF no 80, thin section no 28, Table 2) and another Humahuaca Inca B/P (SF no 77, thin section no 26, Table 2) (Fig. 7). The pastes of these four ceramics are characterized by being pastes with a percentage of phyllite/slate less than 20%, pelite/claystone between 6% and 8%, and scarce quartz and plagioclase. Due to these mineralogical characteristics, these pastes appear very much like those from the southern and southeastern sectors of the Quebrada.

Within the same assemblage, we identified another Humahuaca Inca *puco* with the same morphological characteristics as the Black Polished Interior described earlier. This is a novel vessel because of its purple colored internal surfaces. Nevertheless, through studying its paste, we determined that it was elaborated locally (SF no 73, thin section no 24 of Table 2). It is similar in its mineral composition to the pastes of the Black Polished Interior *puco* (SF no 11) and the marled pots (SF no 48 y 66) previously described, and to the pastes of the Humahuaca Inca B/R pitcher (SF no 79, thin section

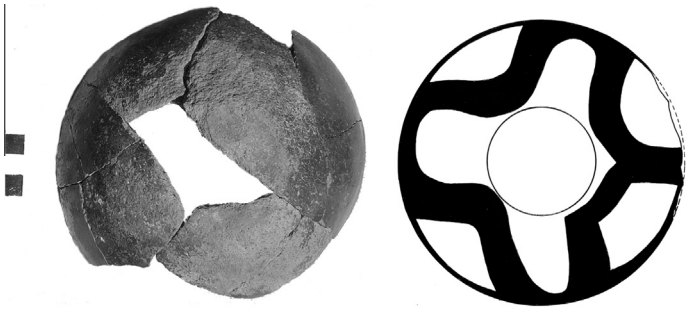

Fig. 6. Puco Poma B/R (SF no 30).

Fig. 7. Puco Humahuaca B/R (SF no 2).

Fig. 8. Fragment of the Humahuaca Inca B/P platter (SF no 46).

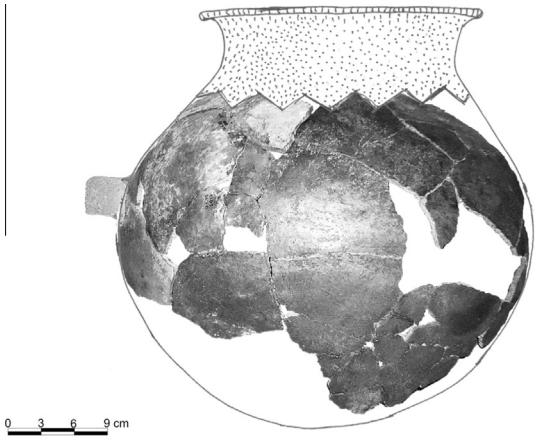

Fig. 10. Pot Angosto Chico Inciso (SF no 7).

no 27 of Table 2), a Humahuaca Inca B/R pitcher (SF no 43, thin section no 18 of Table 2) and a Humahuaca Inca B/P big bowl (SF no 46, thin section no 16 of Table 2). Because of the coloring of its internal surfaces, this last big bowl, like the *puco* from SF no 73, provides us with another variant in the ceramics of the Quebrada. While it is included among the B/P vessels, the purple verges on violet (Fig. 8). Similarly, the structure of the decorative motifs appears to organize the triangle forms and locate them within the decorative fields of fine-lined spirals in new ways.

With regards to the vessels that depart from the local pattern, five pitcher were identified that, like the previous pieces, were selected for study of their pastes because they presented variations of morphology and the decorative register. The pastes of some were isolated individually, as was that of the Humahuaca B/R pitcher, 30 cm in height (SF no 16, thin section no 2 of Table 2) (Fig. 9). Within this set lies the only vessel with quartzite in its paste. The paste of the Humahuaca B and W/R pitcher over 50 cm tall was also separated because it contained almost three percent of granitic rock (SF no 76, thin section no 25 of Table 2) (Fig. 9). Beyond the aggregated white paint and the differences in forms, both pitchers share one of the decorative designs most characteristic of the Quebrada, two fine-lined and meshed reticulated ovals that branch out from the sides and end in a circle.

Another of the pastes isolated because of the presence of granitic rock in low percentages is a Red Polished pitcher (SF no 47, thin section no 19, Table 2). This paste is unique because it contains inclusions of dacite/volcanite, like the pastes of the Red Burnished *pucos* that circulated in the Quebrada during the Inca Period (Cremonte and Botto, 2009). This Red Polished pitcher has morphological traits similar to a Brown Polished pitcher, which was also separated from the group for containing a high quartz content and lower levels of sandstone and quartzite (SF no 6, thin section no 13 of Table 2). The composition of its paste was closely related to the *virque* SF no 51. One can extrapolate that they came from the same place.

Finally, another set that departed from local traditions is that of the pastes that included grog. In this study we have detected this group in three sherd families. One of these is a short glass Black Polished Interior (FF no 5, thin section no 10 of Table 2). The other two are a pot (SF no 7, thin section no 6, Table 2) and a pitcher, both of the Angosto Chico Inciso style (SF no 94, thin section no 15, Table 2) (Fig. 10).

Aside from the grog, the pastes of these last two vessels contained between 3% and 6% de sandstone or quartzite, around 11% quarts and very little plagioclase. This mineralogical profile resembles that of ceramics corresponding to the styles from the Eastern section and borders of the Quebrada (Cremonte, 2006).

The number of fragments found for these two sherd families permitted us to estimate that they were around 50 cm tall. The type of incised decoration varied from one case to the next. In the case of the second pot, the incisions on the neck of the form are pointed and marked by another incised zigzag line. On the pitcher, they are horizontal and extended. Nevertheless, both examples have coarse surfaces on their lower portions, while the middle and top are semi-polished with a brown glaze verging on grey.

Based on the decorative attributes characteristic of these two Angosto Chico Inciso vessels, particularly the roughness of the walls, only three other specimens were identified among the total number of sherd families. For the moment these pieces have not been petrographically analyzed. So we have been unable to determine if they also came from other regions. However, with the pur-

Fig. 9. Left: Fragments of SF number 16 that presented the same stylistic characteristics as piece number MT 2247 exhibited in the "Dr. Casanova" Archeological Museum (FFyL-UBA) (center). Right: Pitcher Humahuaca B and W/R (SF no 76).

pose of approaching the different modalities within this style we studied the ceramic past of one vessel that lacks the roughness of the walls and has instead a smoothed body and extended incisions on the neck (SF no 8, thin section no 8 of Table 2). The results demonstrate that it was manufactured according to the traditional patterns of the region.

As our samples widened and the results of our petrographic analyses can evaluate with the stylistic characteristics of the vessels, it will be possible to determine if local ceramic emulated other traits aside from the disposition of the extended incisions and coarseness of the surface, like pieces elaborated outside of the middle sector of the Quebrada. More than these stylistic differences, an aspect shared across the different modalities of Angosto Chico Inciso was their function. Generally, in all these vessels we found ample soot on the external walls, produced by repeated exposure to fire.

An aspect we have not mentioned previously was that, with the exception of the *virques* and Angosto Chico Inciso pieces, the vessels that did not follow local patterns, like the Red Polished pitcher (SF no 47) y B and W/R (SF no 76), and the Black Polished Interior *puco* (FF no 55), were found associated with burial events in the central patio. This could indicate the selection of certain ceramics with uncommon characteristics for mortuary offerings. Though, for the markers of use on the vessels, we recognize that like the locally manufactured pieces the pottery included in the burials had also been previously used. Among those markers of use are soot impregnations on the external walls, worn out bases of the closed vessels or worn out internal bases and edges of the open ones.

Conclusions

Through a petrographic study of 28 sherd families, selected from the more than 224 found in Residential Unit 1, we determined that the majority of the vessels analyzed shared the same local patterns of production. Twenty of the twenty eight pastes studied presented a pattern of local manufacture, which permits us to estimate that despite Inca annexation, within domestic spaces no grand technological transformation in the making of ceramics occurred, even in the selection and use of primary materials. The maintenance of certain practices over time, something that permitted the conservation of some of the forms of social reproduction at the domestic level, was due to the fact that State impositions fell upon other productive activities, in particular on lapidary and metallurgical production, as was mentioned earlier.

The diversity of forms and designs indicate that ceramic production was not regulated with the aim of producing standardization of the assemblages to be transported and distributed to other regions. The ceramics of this Unit appear to respond to the stylistic patterns used by the local community. Nevertheless, certain transformations and new representations became included as a consequence of the process of domination; from the local producers as implicit manifestations of resistance perhaps and from the State as articulated messages aimed at legitimizing power via shared language.

With regards to the scale of ceramic production, the findings for this house-workshop do not permit us, for the moment, to determine whether it developed in order to cover the demands of other productive units aside from itself. In contrast to evidence found in other Andean contexts indicating the organization of ceramic production on a large scale in workshops, in the northwest of Argentina we lack this kind of evidence. Everything points to artisanal production occurring for the most part on a domestic level but with evidence of multi-craft production (Shimada, 2007) as is seen in this house workshop.

The composition of this group of ceramics, both numerous and heterogeneous could reflect the existence of different patterns of consumption linked to day to day use of vessels in different culinary activities and more sporadically, in rituals. As we have shown, we identified the inclusion of vessels of different characteristics as mortuary accompaniment with the possible purpose of symbolically connoting the dead. However, despite the large number of individuals identified in the different burials (N 25), the number of ceramics that were incorporated as offerings was low. Only 19 SF were found associated with the burials and just like the vessels found on the floors of habitations, they reveal marks of previous use related to food processing. The selection of pieces and the inclusion of vessels in burials that were not specifically elaborated for this purpose is a marked departure from other areas of the Argentine Northwest, where for contemporary periods it is common that the funerary ceramic show no signs of previous use.

Among the 205 SF that were only linked to culinary activities and possibly to the conservation of other objects, minerals, or pigments, 68 were found in the waste area. This important number of vessel involved in the processing and service of food or in the daily tasks could indicate that the domestic and productive unit occupying this house was composed of various members among whom some would not have resided there but rather go daily to carry out their tasks. On the other hand, the size of some of the vessels with diameters of 35–40 cm at the mouth, reveal that practices of shared consumption were developed among the members. The volumetric capacity of some pitchers and pots with remains of soot in them, of more than 60 l also indicates the cooking of food for large groups. Similarly one must consider the important number of vessels used for the conservation of water needed for ceramic production and metallurgical tasks.

Finally, the general characteristics of this group show that beyond the presence of specialized artisans in the service of the State, Residential Unit 1 continued functioning like a domestic space where the productive unit did not have access to certain goods of preferential use, like Imperial style ceramics or the provincial Inca Pacajes or Inca Paya styles, among others, that circulated for the central southern parts of *Tawantinsuyu*. The vessels from other regions that appeared in this Unit, particularly the South and Eastern borders of the Quebrada of Humahuaca, highlight the fluidity of contact between inhabitants of different zones of the Quebrada and the *Yungas*, located to the east, aiming to gain access to different economic resources in different environments. This might be a reflection of the interdigitated communities and territories of economic exploitation as has been put forth for other areas of the Southern Andes from pre-Inca times through an examination of early colonial sources and ethnography (Ramírez, 1985; Martínez, 1999; Sánchez, 2004; Platt et al., 2006).

During the Inca Period these strategies continued to be practiced with the aim of sustaining the integration of these spaces, thereby ensuring the maintenance and social reproduction of the domestic and productive units that were the definitive base of the state economic system, even despite the influence *mitmaqkunas* from other regions might have had in the families units. For example, in the Pucara of Tilcara, the Yavi–Chicha vessels (originating from the extreme south of the Bolivian highland plateau and the north of Jujuy) and the fine paste Inca ceramics are distributed in the areas around the central Inca ceremonial sectors and in the most elevated parts of the site. These vessels would have been consumed as status goods (Cremonte, 2012). These are only sporadically found in lower status domestic sectors, as we see in Residential Unit 1, and although they would've had a special meaning in these contexts, we do not know the ways in which the inhabitants had access to these goods or how these vessels were distributed in popular sectors. The revisions of collections recuperated through excavations at the Pucara of Tilcara at the start of the twentieth century and the evidence of artisanal production found in Residential Unit 1 permit us to include this site among the most

important centers of the center-southern Andes. At the same time, we propose a reevaluation of its function as a manufacturing center aside from its unquestionable political and symbolic role.

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