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Rock art of the upper Lluta valley, northernmost of Chile (South Central Andes): A visual approach to socio-economic changes between Archaic and Formative periods (6,000–1,500 years BP)

Carole Dudognon ^{a,*}, Marcela Sepúlveda ^b^a Université Toulouse Jean Jaurès, UMR 5608, Laboratoire TRACES, CREAP, France^b Universidad de Tarapacá, Instituto de Alta Investigación, Laboratorio de Análisis e Investigaciones Arqueométricas – Laboratorio de Arqueología y Paleoambiente, Arica, Chile

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ABSTRACT

Though they are generally characterized on the basis of faunal remains or lithic industries, in the highlands of northernmost Chile, the cultural aspects of the socio-economic changes, between Archaic and Formative periods (6000–1500 years BP), from hunter-gatherer to pastoral modes of life, a consequence of the domestication of camelids, can be discussed through the numerous scenes painted on the stone surfaces of rock shelters. The originality of these representations lies in the precision with which certain practices are represented, and in the socio-economic and symbolic relationships that between humans and animals, specifically with the camelids of the Andes. The present study is based on the analysis of these scenes, with the human-animal relationship, and the graphic superpositions, at six rock-art sites in the upper Lluta valley in *precordillera* or andean foothill, of the northernmost of Chile. We observe that the technical investment and the objective of the scenes become increasingly complex and focused on the control and possible protection of the animal. In the absence of archaeological contexts related to domestication in this region of the South Central Andes, this new study provides an innovative approach to the progressive changes of practices related to animal management, several hundreds of miles from the area where *in situ* domestication is evidenced.

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1. Introduction

In the Atacama Desert in the northernmost of Chile, at an altitude of more than 2800 m, first human presence is only known through a few archaeological sites that indicate sporadic occupation from the Early Archaic period, around 10,500 years BP (Aldenderfer, 1999; Osorio et al., 2011), with few signs of substantial change until Formative period or andean Neolithic, around 1500 years BP (Sepúlveda et al., 2013; Osorio et al., 2016). As no residential structures are known for these periods, the painted rock art of the region known at a few hundred sites represents one of the significant sources for understanding the occupation of the area and socio-cultural context of the related populations. Exposed on the walls of rock shelters and ravines, the panels are composed of

different scenes depicting increasingly complex relationships with camelids, the principal animal represented.

These paintings, charged with a symbolic function, present an opportunity to approach the socio-economic contexts of the hunter-gatherers populations of the highlands over the course of a profound and progressive change in their relationship with camelids (Izeta, 2008). The domestication and subsequent management of these animals during the Archaic Period is considered one of the major developments in andean societies, constituting a fundamental element of the economy, ideology, and daily life in general. Camelids present an important dietary resource, but also provide a range of secondary products (hides, wool, fat, bones) and are used as beasts of burden (Bonavia, 1996; Mengoni Goñalons, 2008).

The pictorial practice in the upper Lluta valley in the *Precordillera*, between 2.800 and 3.800 masl, presents a certain thematic and stylistic coherence with a vaster region, and the term “*tradición andina*” (Guffroy, 1999) or “Naturalist Tradition” in southern Peru, other regions from northern Chile, and western Argentina captures

* Corresponding author.

E-mail address: carole.dudognon@dbmail.com (C. Dudognon).

this concept in large part. Even if research has identified several shared stylistic elements, the chronology of the representations remains varied. Numerous excavation programs have allowed for works of rock art to be situated in a long tradition that extends from the Archaic period (10,500 years BP) to the Formative around 1500 years BP (Santoro and Chacama, 1982; Muelle and Ravines, 1986; Klarich and Aldenderfer, 2001; Gallardo, 2001; Aschero, 2006; Nuñez et al., 2006; Gallardo and Yacobaccio, 2007; Yacobaccio et al., 2008; Sepúlveda et al., 2010, 2013).

Changes from the Archaic to the Formative periods are characterized in the South Central Andes by a suite of socio-economic innovations that took place between almost 6000 and 3700 years BP. Among them, are: sedentism (Nuñez, 1976; 1982; Aldenderfer, 1990; Lavallée, 2006), increased social complexity (Aldenderfer, 1990, 1998; Nuñez et al., 2006; Kaulicke, 2007; Uribe, 2008), the consolidation and domestication of animals and plants (Lavallée and Julien, 1980; Lavallée and Lumbreras, 1985; Wheeler, 1999; Yacobaccio, 2003; Cartajena et al., 2005, 2007; Gallardo and Yacobaccio, 2005), in addition to the development of novel technologies in ceramic, metal, cotton and wool cloth, and innovations in water management related to agricultural practices (Lumbreras, 2006). The research conducted over the past decade attributes the rock art of the Naturalist Tradition from northernmost of Chile to the end of the Middle Archaic, around 6000 BP. This practice became more and more pronounced between 6000 and 4000 BP (Late Archaic) and continued with some stylistic variations into the Formative period (Sepúlveda, 2011; Sepúlveda et al., 2013).

The rock art of the Naturalist Tradition is almost exclusively based on the depiction of animals, with camelids playing a central role. Depicted in a “naturalist” style, camelids were at first absent from depictions of human activities and entered into them to eventually become the principal figures. An in-depth study of the representations painted at six rock shelters at Vilacaurani, Incani, and Anocariri in the highlands of far northern Chile offers interesting data based on the interpretation of scenes that could be chronologically sequenced in a study of superpositions of paintings that anchors the representational practices in the socio-economic practices of a relative chronology that would have unfolded between the Late Archaic and Formative periods.

2. Regional settings

A few environmental and archaeological “landmarks” indicate the coherence of these six study sites. In a limited geographic expanse subject to extreme but rich environmental conditions, large mammals (camelids, cervids and carnivores) gravitate toward the boundary-zone with several ecological zones that shift with altitude. In this region, the rugged relief of the *Precordillera* presents numerous advantageous areas close to flowing water that support various species of plants and animals characteristic of highlands (Villagrán et al., 2003; García and Sepúlveda, 2011). Situated at altitudes between 3200 and 3800 masl, Vilacaurani, Incani I, II, and II, and Anocariri, at the upper Lluta valley, climb along a narrow geological band called the *precordillera*, where the relief is marked by large rivers that flow east and west, toward the Pacific Ocean and the Desert, respectively (Fig. 1). The *precordillera* ecologically correspond to the *pre-puna* (2.600–3.200 masl) and *puna* (3200–4000 masl), at the boundary between two major ecosystems: the pampa of the desert, and the *altiplano* (high plains). Dominated by shrubby plants, the *pre-puna* and *puna* biotopes are home to numerous mammals, including guanaco, the taruca (a small Andean cervid), and the puma, all endemic species, as well as numerous birds and rodents. The ecological richness of these places is often invoked as an explanation for human settlement because the rich biomass presents an ideal environment for hunting, as well

as for herding and pastoralism because the annual climatic variations normally provide year-round forage and present a great stability in time (García and Sepúlveda, 2011). These activities are largely represented on the walls of the rock art sites (Niemeyer, 1972; Santoro and Dauelsberg, 1985; Sepúlveda, 2011; Sepúlveda et al., 2010, 2013; Dudognon and Sepúlveda, 2013, 2015). The artists drew inspiration from the surrounding environment in its totality in the creation of their works, but representations of interactions with camelids are the most numerous.

3. Material and methods

3.1. Painted rock-art sites

The shelters of Vilacaurani and Incani I, II, and III were described in the 1970s by H. Niemeyer (1972), while Anocariri I and II were not discovered until the 1980s (Santoro and Dauelsberg, 1985). The first excavations undertaken at the foot of the walls of several painted rock-art sites in the *precordillera* allowed Niemeyer to assign a cultural context to the paintings. He considered attribution of all rock art painting to the pre-Inca epoch, almost 750 and 500 BP to be the most viable hypothesis, though specialists working in neighboring countries already considered the art form to be much older (Cardich, 1964; Ravines, 1967; Muelle, 1970). Niemeyer's work centered primarily on the artistic study of the paintings, led him to emphasize the stylistic coherence between sites that opposed naturalistic camelids with more schematic human figures (Niemeyer, 1972). The term “naturalist” is employed in reference to the detail and precision displayed by the animal figures, of which certain features like the rump, the hooves, and the lower line of the belly are accentuated to emphasize the wild and “natural” character of the animals. Niemeyer places this artistic treatment in opposition to that of human figures, summarizing the latter as “stick-figures” (Mostny and Niemeyer, 1983), in the creation of a symbolic universe by idealized camelids and by human figures that have been simplified to an extreme.

In the 1980s, Santoro and Chacama (1982) provided a different archaeological context for these paintings with the discovery at the site of Patapatane of a painted part of panel in a stratified layer dated to 4000 years BP. The excavations of Piñuta attest to the presence of pigments between strata of the Late Archaic (3800 years BP) and the Formative, around 2500 BP (Santoro et Dauelsberg, 1985; Santoro, 1989). This work also led to the discovery of the site of Anocariri, which was not excavated but bears rock art attributed to the context of a pastoral society. One scene, without a precise chronological attribution, is interpreted as an enclosure where camelids attached at the neck may be part of a corral by herders (Santoro and Dauelsberg, 1985: 81). The chronological association of pastoralism with the Formative period was called into question by the sites of Itiza and Mullipungo, in the high Tignamar basin, in the upper Azapa valley, southern from Lluta Valley, by Schiappacasse and Niemeyer (1996). These data are confirmed by recent research in the same basin by Sepúlveda and collaborators, which identified an occupation of painted rock art sites at the end of the Middle Archaic (6000–4000 years BP) and Formative Period (3700–1500 years BP) (Sepúlveda, 2011; Sepúlveda et al., 2013) although no direct link between the panels and the archaeological levels has been shown, and there is no direct dating.

The reassessment of these artistic expressions, particularly from the Naturalistic Tradition, with the advent of recent methodological advances, has given new life to their study (Cerrillo Cuenca and Sepúlveda, 2015; Dudognon and Sepúlveda, 2015). For these traditions, a certain “naturalist” homogeneity stands out in the treatment of animal figures, but recent research emphasizes the variety in the representation of the human form (Sepúlveda, 2011;

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