NORTH AND SOUTH: HUNTER-GATHERER COMMUNITIES IN THE ANDES MOUNTAINS IN CENTRAL CHILE

Luis E. Cornejo B. and Lorena Sanhueza R.

One of the most serious limitations in studies of prehistoric hunter-gatherer societies based on the archaeological record has been the difficulty of establishing distinctions among groups that inhabited a given area at the same time. This article suggests that, at least during a period ranging from 3000 B.C. to A.D. 1000, the Central Chilean Andes, specifically the Maipo River Valley, was occupied by two groups of hunter-gatherers that were distinct enough for us to propose that they were actually two different social units.

Una de las grandes limitaciones en el estudio de las sociedades de cazadores-recolectores prehistóricas a partir del registro arqueológico ha sido la dificultad para poder establecer distinciones entre grupos que habitaron contemporáneamente un área determinada. En el presente artículo proponemos que, al menos durante un periodo que va entre los años 3000 a.C. y 1000 d.C., la Cordillera Andina de Chile Central, específicamente la cuenca del Río Maipo, fue ocupada por dos grupos de cazadores-recolectores que exhiben diferencias significativas que permiten suponer que ellos representarían a unidades sociales distintas.

While there is no doubt that ancient *Homo sapiens sapiens*, the subspecies that populated the Americas, displayed marked social behavior (e.g., Runciman 2005), contemporary archaeology has to a large extent avoided the fact that one of the main effects of that behavior was the formation of differentiated social groups. Most of the evolutionary approaches that dominate among archaeological theories of hunter-gatherer societies in both north and south America have been mainly content to describe these groups in terms of adaptive strategies; however, as Bettinger (2001:145) states, this only results in a convenient simplification that lumps together settlements, subsistence patterns, and organizational and demographic tactics.

Certainly, one reason to address the distinction between prehistoric human groups as given above is due to a reaction against the classic cultural-historical perspective, which has attempted to define "cultures" on the basis of assumptions that relate material culture covariance to human groups sharing customary ways of doing things (Lanata 2002:260–261). Notwithstanding this reaction, the original push to define "culture" in classic cultural-historical approaches simply sought to take account of a fact observable at any given place and time: that humans tend to interact on a daily basis with a determined group of individuals and not with others, resulting in the formation of social groups that are the only possible context for our biological and psychological development (Leroi-Gourhan 1971).

These groups of people "interacting daily" could be defined as a community, an ontological term that certainly has limitations in archaeological contexts. The main problem that archaeologists face centers on the fact that studies of existing societies usually define social groups in a way that is intimately linked to identity. The difficulty of this in archaeological studies has been clearly defined by researchers such as Hodder (1982) and Jones (1997) and previously explored by us in other contexts in Central Chile (Sanhueza 2004). Given these reflections, in this paper we have chosen to take

Luis E. Cornejo B. ■ Museo Chileno de Arte Precolombino. Bandera 361, Santiago, Chile. (lcornejo@museoprecolombino.cl)

Lorena Sanhueza R. ■ Departamento de Antropología, Facultad de Ciencias Sociales, Universidad de Chile. Ignacio Carrera Pinto 1045, Ñuñoa, Santiago, Chile. (loresan@uchile.cl)

Latin American Antiquity 22(4), 2011, pp. 487–504

the route defined by the notion of *habitus,* described by Bourdieu (1977), which we believe can indeed be addressed in any archaeological context, especially if materialized in the social category of "community" (Yaeger 2000; Yaeger and Canuto 2000).

Habitus is founded upon a materialist perspective of social life and can be understood as a set of dispositions that generate patterns of action (Bourdieu 1977) and which forms all aspects of the social lives of those who have been raised within it. In this sense, by identifying in the material culture and in the settlement of a hunter-gatherer group a series of recurring arbitrary decisions, we can delineate groups of individuals who share the same *habitus* and, ultimately, the same social unit. Still, the kind of social unit referred to here has yet to be defined.

In our previous exploration of these topics (Sanhueza 2004), we proposed that those social units could be described within the concept of community, which is understood as "an ever-emergent social institution that generates and is generated by suprahousehold interactions that are structured and synchronized by a set of places within a particular span of time." (Yaeger and Canuto 2000:5).

From our perspective, following Yaeger and Canuto (2000), in the definition of community, "the key is mutual and frequent interaction between individuals, since this is based on and simultaneously generates assumptions and shared understandings that can be used in the development of common identities. That is, the regular meeting of individuals in a common area is essential to allow this interaction..." (Sanhueza 2004:14 [translation by the authors]). In this space-time interaction among individuals, the actions of each are determined by the material conditions and social and cultural structures (Yaeger 2000:125) in such a way that daily life, routines, and processes of socialization become central to the construction of *habitus*.

These perspectives are especially interesting when focused on the problem of defining prehistoric social groups, as the archaeological record is precisely the material outcome of socially structured action. Consequently, the observable patterns in that record, once formation processes are evaluated, enable us to reconstruct patterns of human interaction, and therefore to reconstruct communities.

In the paragraphs below, we will attempt to apply this approach in the context of hunter-gatherers that inhabited the Central Chilean Andes between 3000 B.C. and A.D. 1000, where we believe it is possible to identify one community in the north of the cordilleran Maipo Basin and another, distinct one, in the south.

Geography and Cultural Context

Central Chile is a narrow strip of land, 120 km at its widest point, situated between the Andes Mountains and the Pacific Ocean (Figure 1). In general the landscape is dominated by two mountain ranges—the Andes in the east, reaching altitudes of 6,000 m asl, and the Coastal Range in the west, with an average height of 2,000 m asl and a few peaks around 3,000 m asl. Between these two ranges sits an alluvial plain called the Central Valley, which is interrupted by spurs coming down from both ranges that almost meet in the middle. West of the Coastal Range is a coastal plain that can reach up to 5 km in width. In general, the region has a temperate climate and principally a sclerophyllous forest ecology, though the six million-plus people now inhabiting the greater metropolis of Santiago in the Central Valley have produced a landscape shaped more by human activity (urbanization, agriculture, industry, etc.) In regard to the region's paleoclimate, studies conducted in Central Chile (Heusser 1990; Jenny et al. 2002a, 2002b; Villagrán and Varela 1990; Villa-Martínez et al. 2003, 2004) propose that the present climate, characterized by El Niño events and clearly marked seasons, was established around 3200 B.P. Before that time, the region went through a dry climatic period that peaked around 5700 B.P.

On the eastern side, in present-day Argentina, the Andes are broader than in Chile, sloping down over almost 100 km to the expansive plains of the Argentine Pampa in Cuyo Province. The ocean-laden moisture brought from the east is retained by the Andes, producing a land of extreme dryness and variable landscapes, including mountains furrowed by wide valleys, the eastern plain, and the volcanic zone of La Payunia. Precipitation varies from sector to sector here, as does the availability of permanent water sources, which affects the availability of both plants and animals (Neme and Gil 2008).

The part of Central Chile with which we are concerned here is the Maipo River basin (Figure 2), which covers an area of approximately 4,900 km^2.

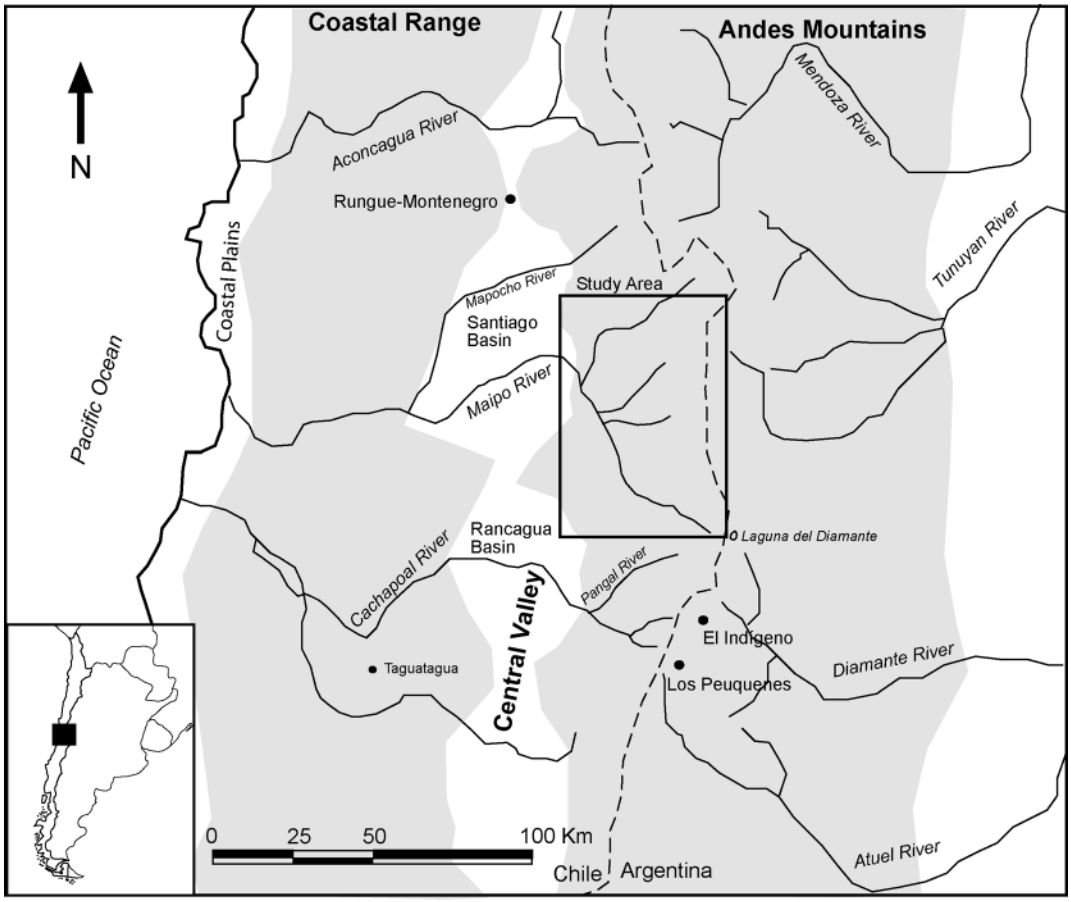
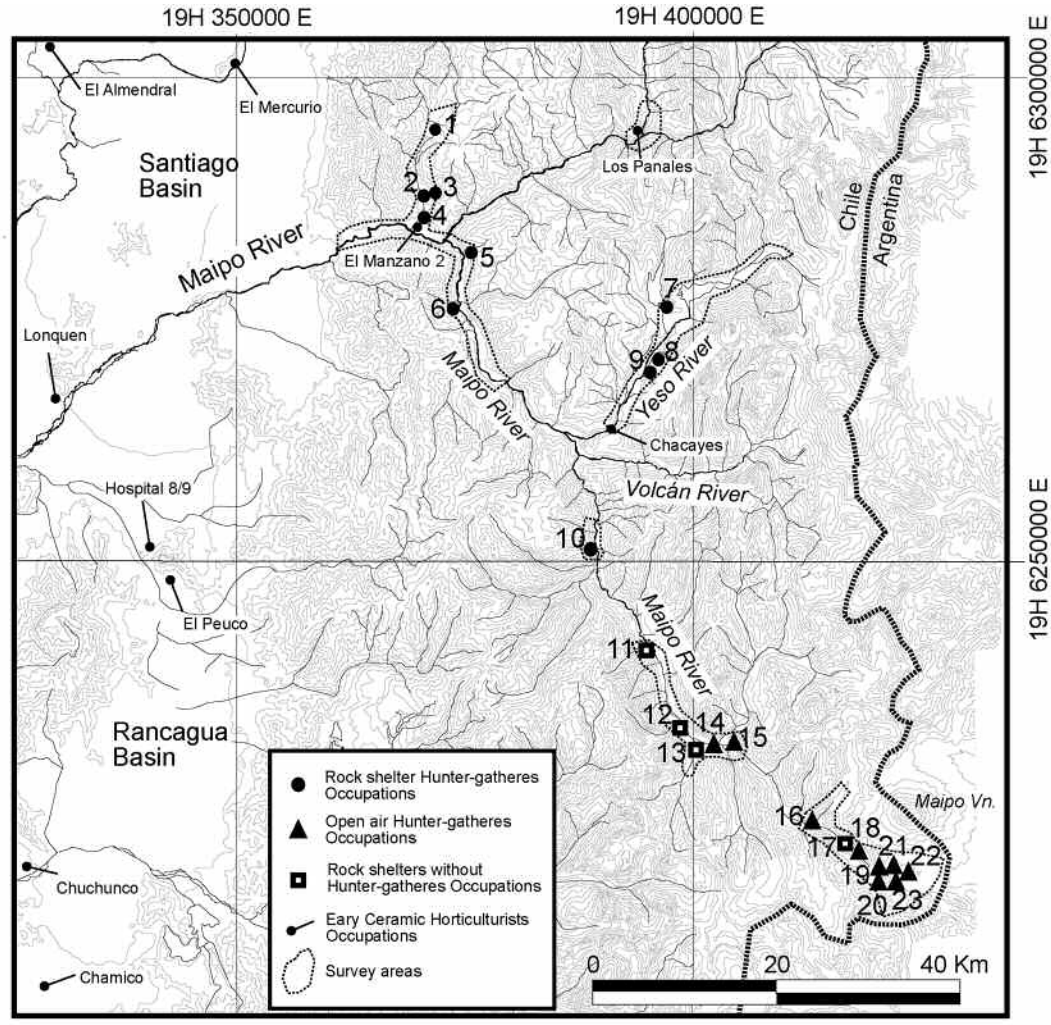


Figure 1. The study area in the context of the region, including Central Chile and the Andean mountains of the Argentine province of Cuyo.

The mountainous terrain here, with altitudes ranging from 1,000 to 6,000 m asl over a 65-km wide transect, means that most of the area consists of steep hillsides with a high degree of crionival retention at altitudes over 4,500 m asl (Börgel 1983:105). The massif is composed of three ranges running north-south, from the foothills bordering the Central Valley to the top of the watershed where the highest peaks and volcanoes can be found. In this valley, access to the eastern side of the Andes is afforded through a few high passes, none of which are available year-round. This mountainous region has been engraved by watercourses that transect the terrain with river valleys, ravines, and gorges, some of which run through glacial valleys positioned over tectonic fault lines. These tributaries enable the formation of fluvial terraces that can reach up to 1 km wide under 1500 m asl, though they are narrower at higher altitudes. Above 2,000 m asl are some glacier-fed lakes, some of considerable size, such as Laguna Negra.

The high altitude of the Andes Mountains in our area of study is a key factor in shaping the climate, as it affects the amount of snowfall recorded above 1,800 m asl. Here, the Mediterranean climate that is characteristic of Central Chile is modulated by the effect of intermontane valleys and the three large mountain chains of the Andes (Romero 1985). The biogeography consists primarily of three north-south bands that are strongly influenced by altitude. In the lowest band is the Sclerophyllous Forest, followed by the Spiny-Andean Scrubland, both unique ecologies that exist only in Central Chile between the Aconcagua and Maule rivers. The highest band contains the Andean steppe characteristic of the upper Andean mountains (Quintanilla 1983). No



1) Los Azules 1; 2) El Manzano 1; 3) La Batea 1; 4) Tío Coco; 5) La Paloma; 6) Condominio 1;
7) Las Morrenas 1; 8) Las Cortaderas 2; 9) Las Cortaderas 3; 10) Los Queltehues; 11) Las Damas
12) Pampa Avión; 13) Río Blanco; 14) El Plomo; 15) Holoceno; 16) Cruz de Piedra; 17) Las Tórtolas
18) Los Flojos; 19) Vega Linda; 20) El Aro; 21) El Olvido; 22) Las Covachas and 23) Las Perdidas

Figure 2. Distribution of archaeological sites studied in the mountain range of the Maipo River Basin.

specific studies on the paleoclimate of these mountains have been conducted to date.

From a cultural and historical perspective, Central Chile has been populated for close to 14,000 years, with the earliest occupations recorded at the Paleoindian site of Tagua Tagua (Montané 1968; Nuñez et al. 1994). After this colonizing period came a sequence of Archaic hunter-gatherer groups, which can be grouped into four distinct periods (Cornejo 2010; Cornejo et al. 1998). The events of interest in this paper began in the final part of this sequence. The Archaic IV (ca. 3000 to 300 B.C.) is considered a separate period mainly because of the apparent change in group mobility, which becomes markedly logistical and includes abundant settlements, used both as worksites and way stations. This is the first time in the local archaeological record that there is evidence of *Chenopodium quinua* crops (Planella et al. 2007), which very likely were obtained through long distance trade from horticulturalists in the northeast (now Argentina).

Despite this exchange, it was not until the end of the Archaic IV period that these plant resources would be grown locally. That shift, coupled with the introduction of ceramics, defines the beginning of the Early Ceramic period (ca 300 B.C. to A.D. 1000). This was a time of great diversity in the region, with at least three distinct groups coexisting, defined on the basis of ceramic styles, funeral practices, diet, and settlement patterns. On the one hand were two semi-sedentary groups, called Bato and Llolleo, who practiced horticulture and produced ceramics (Falabella and Sanhueza 2005-06; Falabella and Stehberg 1989; Sanhueza et al. 2003). Living alongside them, especially in the mountainous zones where they shared close quarters, were hunter-gatherer groups that continued the highly mobile way of life of their Archaic ancestors (Cornejo and Sanhueza 2003), using a limited number of ceramic pots.

Around A.D. 1000, probably over a period of no more than 100 years (Cornejo 2009), the Aconcagua groups that characterize the so-called Late Intermediate Ceramic Period emerged (Durán and Planella 1989; Sánchez and Massone 2000). The appearance of these groups put an end to the previous cultural diversity and pushed the hunter-gatherer groups up into the high Andean valleys. The Aconcagua groups would be much more dependent on growing crops than their ancestors (Falabella et al. 2007). Finally, in the first decade of the 15th Century, this territory was annexed by the Inka Empire.

Archaeological Study of the Maipo River Valley

Taking into account the geography of the mountainous reaches of the Maipo River valley, our efforts in different research projects over the past 20 years have concentrated on the alluvial plains of rivers and streams flowing through the basin. Our systematic field surveys include excavations of a number of sites occupied by hunter-gatherer groups at different times (Figure 2 and Table 1). This work has enabled us to construct a picture of the human settlement of this mountain valley (Cornejo and Simonetti 1992, 1993, 1999; Cornejo et al. 1998; Cornejo 2005, 2009).

The sequence of hunter-gatherer groups that are the focus of our study covers all of the Archaic periods described above, with the earliest times represented in the lower levels of the El Manzano 1 rock shelter (Cornejo and Saavedra 2003), dated at 9870 ± 250 B.P. (BETA 70120; charred material, δ^{13}= –25.0 ‰). At the other end of the time scale, the sites in this region have been instrumental in establishing the continuation of the hunter-gatherer way of life until times when most inhabitants of Central Chile had turned to a more sedentary way of life, producing ceramics and depending to some degree on crops (Cornejo and Sanhueza 2003). The latest evidence of hunter-gatherer occupation during the Early Ceramic Period is found at the Las Cortaderas 2 rock shelter, dated to A.D. 950 ± 80 (Thermoluminescence UCTL 1301).[1]

Most excavations in these sites have been conducted to obtain a significant sample of cultural material to help define the precise chronology, type of occupation, resources used, and main technologies employed. The study of these variables has focused mainly on stratigraphic analysis and the two material classes best preserved in these contexts: stone and ceramic artifacts. Other remains found at the sites, notably botanical and faunal remains, of great interest at specific sites (Planella et al. 2007), but are not present region-wide due to problems with conservation and therefore cannot be used in the type of analysis proposed here.

The vast majority of mountain settlements studied have occupations dating from both periods of interest in this paper (Table 1), including those sites that were also occupied prior to those times (El Manzano 1, La Batea 1, and Los Queltehues). Two elements that are significant in establishing the continuity of the hunter-gatherer mode of subsistence stand out in these contexts. First, a comparison of the stone technologies prevalent during the Early Ceramic and Archaic occupations yields a continuous emphasis on curation (Cornejo and Sanhueza 2003) and therefore a strong focus on biface technologies and the use of materials that are suitable for this kind of reduction, mainly silex (chert or flint) and obsidian (Cornejo and Galarce 2010). This reiterated emphasis among hunter-gatherer groups of the Early Ceramic period distinguishes them markedly from their horticulturalist and semi-sedentary contemporaries, who employed primarily expedient lithic technologies. Second, in the hunter-gatherer contexts of the Early Ceramic period, the ceramics pre-

Table 1. Rock Shelters and Open Air Archaeological Sites in the Study Area.

N°	Site	Type	Area	Chronology
1	Los Azules 1	Rock shelter	North	PAT[a]: A.D. 710±130 (UCTL 328)[b]
2	El Manzano 1	Rock shelter	North	ARCIV: No dates. Assignation by stratigraphy
				PAT: A.D. 715±100 (UCTL 746)[b]
				PAT: A.D. 925± 110 (UCTL 747)[b]
3	La Batea 1	Rock shelter	North	ARCIV: 2390±130 B.P. (BETA 27504; charred material, δ^{13}= -25.0 ‰)
				ARCIV: 4240±70 B.P. (BETA 32627; charred material, δ^{13} = -25.0 ‰)
				ARCIV: 4460±180 B.P. (BETA 26375; charred material, δ^{13} = -25.0 ‰)
				PAT: 1500±280 B.P. (BETA 265376; charred material, δ^{13} = -25.0 ‰)
				PAT: 1590±100 B.P. (BETA 27503; charred material, δ^{13} = -25.0 ‰)
4	Tío Coco	Rock shelter	North	PAT: No dates. PAT Pottery
5	La Paloma	Rock shelter	North	PAT: 1700±60 B.P. (BETA 131338; charred material, δ^{13} = -25.0 ‰)
				ARCIV: 3020±50 B.P. (BETA 27504; charred material, δ^{13} = -22.8 ‰)
6	Condominio 1	Rock shelter	North	PAT: No dates. PAT Pottery
				ARCIV: 3150±60 B.P. (BETA 136136; charred seeds, δ^{13} =-25.0 ‰)
7	Las Morrenas 1	Rock shelter	North	PAT: No dates. PAT Pottery
				ARCIV: 2960±40 B.P. (BETA 146230; charred seeds, δ^{13} =-25.0 ‰)
				ARCIV: 3080±50 B.P. (BETA 127529; charred seeds, δ^{13} =-23.7 ‰)
				ARCIV: 3300±50 (BETA 127528; charred seeds, δ^{13} =-23,6 ‰)
8	Las Cortaderas 2	Rock shelter	North	PAT: A.D. 1050±80 (UCTL 1301)[b]
				ARCIV: 3970±50 B.P. (BETA 128512; charred seeds, δ^{13} =-25.0 ‰)
9	Las Cortaderas 3	Rock shelter	North	PAT: No dates. PAT Pottery
				ARCIV: 3920±80 B.P. (BETA 128512; charred seeds, δ^{13} =-25.0 ‰)
10	Los Queltehues	Rock shelter	North	PAT: A.D. 805±60 (UCTL 1208)[b]
11	Las Damas	Rock shelter	South	PAT: No dates. PAT Pottery
				PIT: No dates. PIT Pottery
12	Pampa Avión	Rock shelter	South	PAT: No dates. PAT Pottery
				PIT: 540±50 B.P. (BETA 227743; charred material, δ^{13} =-23.1 ‰)
13	Río Blanco	Rock shelter	South	PAT: A.D. 720±130 (UCTL 1977)[b]
				PAT: A.D. 1120±90 (UCTL 1978)[b]
14	El Plomo	Open air	South	ARCIV: 3170±40 B.P. (BETA 245600; charred material, δ^{13} =-21.2 ‰)
15	Holoceno	Open air	South	ARCIV: 4110±70 B.P. (BETA 227740; charred material, δ^{13} =-22.4 ‰)
				ARCIV: 4350±40 B.P. (BETA 227741; charred material, δ^{13} =-22.4 ‰)
				ARCIV: 4440±40 B.P. (BETA 227742; charred material, δ^{13} =-21.9 ‰)
				ARCIV: 4710±50 B.P. (BETA 218335; charred material, δ^{13} =-21.9 ‰)
16	Cruz de Piedra	Open air w/ structures	South	PIT: No dates. PIT Pottery
17	Las Tórtolas	Rock shelter	South	PIT: No dates. PIT Pottery
				PAT: No dates. PAT Pottery
18	Los Flojos	Open air w/ structures	South	PIT: No dates. PIT Pottery
				PAT: No dates. PAT Pottery
19	Vega Linda	Open air w/ structures	South	PIT: No dates. PIT Pottery
				PAT: No dates. PAT Pottery
				ARCIV: 2530±40 B.P. (BETA 245600; charred material, δ^{13} =-22.4 ‰)
				ARCIV: 2540±40 B.P. (BETA 245601; charred material, δ^{13} =-24.3 ‰)
20	El Aro	Open air w/ structures	South	No dates. PAT Pottery
21	El Olvido	Open air w/ structures	South	No dates. PAT Pottery
22	Las Covachas	Open air w/ structures	South	No dates. PAT Pottery
23	Las Perdidas	Open air w/ structures	South	PAT: 1890±40 B.P. (BETA 245596; charred material, δ^{13} =-23.9 ‰)
				ARCIV: 3620±40 B.P. (BETA 245600; charred material, δ^{13} =-22.7 ‰)

[a]Spanish abbreviation: ARCIV: Archaic IV Period, PAT: Early Ceramic Period, PIT: Late Intermediate Ceramic Period
[b]Thermoluminescence dates (Department of Physics, PUC)

sent display highly diverse production patterns (Cornejo and Sanhueza 2003), which could mean that they were not produced by the people who used them, or at least that they were produced using different technological traditions. These traits can be identified in most of the sites with Archaic IV occupations that were subsequently occupied by hunter-gatherers in the Early Ceramic period (83.3 percent).

Material Basis for Social Differentiation Between Hunter-Gatherer Groups in the Maipo Region

The archaeological context studied in the mountainous reaches of the Maipo valley presents three material patterns, and we propose that these provide the material basis for the definition of two contemporaneous and coexisting groups of hunter-gatherers within the time frame of site occupations dated in the Archaic IV and Early Ceramic periods. These patterns correspond to distinct aspects of the social life of the two groups, which could have exhibited differentiated *habitus*. For this reason their spatial covariance is highly significant in our differentiation of one group, which occupied the northern mountain reaches of the Maipo River basin, from the other, which occupied the southern sector.

The Venues

In any society, the selection of a place to live is a decision that centers on what Giddens (2003) calls "venues", that is, the place around which the members of the group organize their daily lives, movements, and attendant social relations. In the archaeological record, the venues that are most evident are camps, either permanent or transitory. These places can be used by whole families or only by certain members, and can be occupied continually or only at certain times of the year. Moreover, the tendency to remain at the site during the day may or may not be the same for all members of the group. Thus, archaeological settlements are the foundation upon which the social relations of production operate. Examining the physical characteristics of these places will allow us to discern some aspects of these relations, and to see how they became fundamental agents in constructing the *habitus.*

From our archaeological perspective, it is clearly impossible to identify all conceivable factors that a given group of people might take into account when selecting their venues of operation, and particularly to separate those variables from insignificant ones, or from those that simply reflect unchanging features of the environment (e.g., association with water courses in mountain environments). Fortunately, in this study the archaeological context offers a dichotomy of possible choices that would have been significant for any human group seeking to settle in any region: whether to occupy natural shelters, either caves or rock shelters, or to settle in the open air.

In our case, this dichotomy between natural shelter venues and open-air venues is an active agent in differentiating the human territories of the northern and southern mountainous sectors of the Maipo Basin. Observation of the distribution of hunter-gatherer sites from the Archaic IV and Early Ceramic periods (Figure 2) clearly shows that in the north all recorded site occupations were associated with rock shelters, while in the south all occupations were located in open air settlements, despite the availability of rock shelters. In these open sites the harsh mountain conditions forced the inhabitants to construct artificial shelters, either from light materials (tent-like structures) or with generally simple dry-stone walls.

Certain considerations should be taken into account when evaluating this dichotomy. On the one hand, in the north practically all available habitable rock shelters display human occupation by hunter-gatherers of the Archaic IV and Early Ceramic periods, while hunter-gatherer occupation of open air sites has only been detected in earlier periods[2] and not for the time period studied here. Conversely, in the south, while rock shelters offering good conditions for shelter do exist, there is no evidence of their occupation by hunter-gatherer groups. Four rock shelters (Río Blanco, Las Damas, Pampa Avión 1 and Las Tórtolas) have been excavated in this area, and although they have evidence of human occupations, none of them reveal their inhabitation by hunter-gatherer groups. There are no occupation layers without ceramics, and they exhibit more regularity in traits than do those from open sites. Furthermore, the lithic technology is highly expedient, principally in coarse-grained raw materials (Cornejo and Sanhueza 2011).

This last point provides the strongest evidence in support of the dichotomy proposed here. As Fig-

ure 2 shows, the open-air hunter-gatherer settlements from the Archaic IV and the Early Ceramic periods in the south are found near rock shelters; in fact, these rock shelters were occupied by other groups of people, at least during the Early Ceramic period. The best case in point is the Río Blanco rock shelter, which shows evidence of a highly expedient lithic technology and a ceramic assemblage that shows greater homogeneity in manufacture technology and a larger number of decorated vessels. These factors suggest an occupation in close temporal and spatial proximity to open-air hunter-gatherer camps like Las Perdidas or Vega Linda by other groups that cannot be assimilated to them or more precisely defined at the moment. Also very close to this rock shelter are the open-air sites of El Plomo and Holoceno, with occupations from the Archaic IV period (see Figure 2 and Table 1). Like other rock shelters, Río Blanco offers the type of shelter that is highly suited to the high mountain climate, but in both El Plomo and Holoceno, the hunter-gatherer groups chose to ignore it and use open spaces.

Thus, the reiterated selection of two different kinds of "venues" by the north and south groups suggests the existence of two different social organizations. This implication can be derived from the physical characteristics of the places themselves. While rock shelters offer safety and shelter, their small size limits the number of potential occupants. Furthermore, as rock shelters are stationary, the movement through the territory must be coordinated with predetermined venues. In contrast, installing camps in open spaces involves no *a priori* limitation of movement (although groups probably did not consider all places suitable for settlement), and the number of people that can be accommodated is much more flexible, depending mainly on the group's ability to construct shelters.

Therefore, the consistent selection of a certain type of venue reflects the different conceptions that each group had of its social organization: who would participate in each type of activity; how these activities would be carried out; and the way in which nonhuman components (e.g., game animals, resource gathering areas, meeting points, etc.) were integrated into peoples' daily lives. Obviously, our case study is strongly impacted by the fact that we are seeing only a part of the northern and southern social territories, an issue that we discuss below.

Lithic Raw Materials

For human groups heavily reliant on stone technology, the raw materials they need are without doubt a very important resource. This is especially true in this case, where the technology of these hunter-gatherers had a curated emphasis, meaning that not all rocks were considered suitable for use (Cornejo and Galarce 2010). The bifacial character of curated technology requires suitable rocks that are generally fine grained and exhibit conchoidal fracture. In our region, these technological requirements were met principally by silex and obsidian. Furthermore, these rocks are not available throughout the region but only at specific points, meaning that obtaining them requires social planning.

The comparison of the frequencies with which these materials were used gives us significant evidence to address our problem. The selection of rocks to supply the technological system implies rules that tell us about the social control of resources and how this control is embodied through the definition of territoriality. This coincides with observations made through the study of settlements as venues; indeed, the issues are clearly related, as some of the settlements studied were certainly linked to the gathering of raw materials.

As Figure 3 shows, when a scatterplot of settlements is graphed against the variables 'frequency of obsidian' and 'frequency of silex' among stone tool byproducts, three relatively clear groupings emerge (Table 2). Practically every settlement in the northern Maipo sector—all of which are rock shelters occupied by hunter-gatherers in the Archaic IV and/or Early Ceramic periods—exhibits less than 30 percent obsidian and more than 30 percent silex. In contrast, sites with more than 30 percent obsidian and less than 30 percent silex are almost exclusively open air hunter-gatherer settlements of the Archaic IV or Early Ceramic periods located on the southern side of the Maipo. Sites with frequencies of less than 10 percent obsidian and less than 30 percent silex include three settlements (Las Damas, Pampa Avión and Las Tórtolas) from the Early Ceramic period and/or later, located under rock shelters in the southern Maipo sector. These last cases are clearly differentiated from the rest by the low frequency of rocks that are suitable for bifacial knapping, their technological emphasis clearly being more expedient. Lastly, there are also some

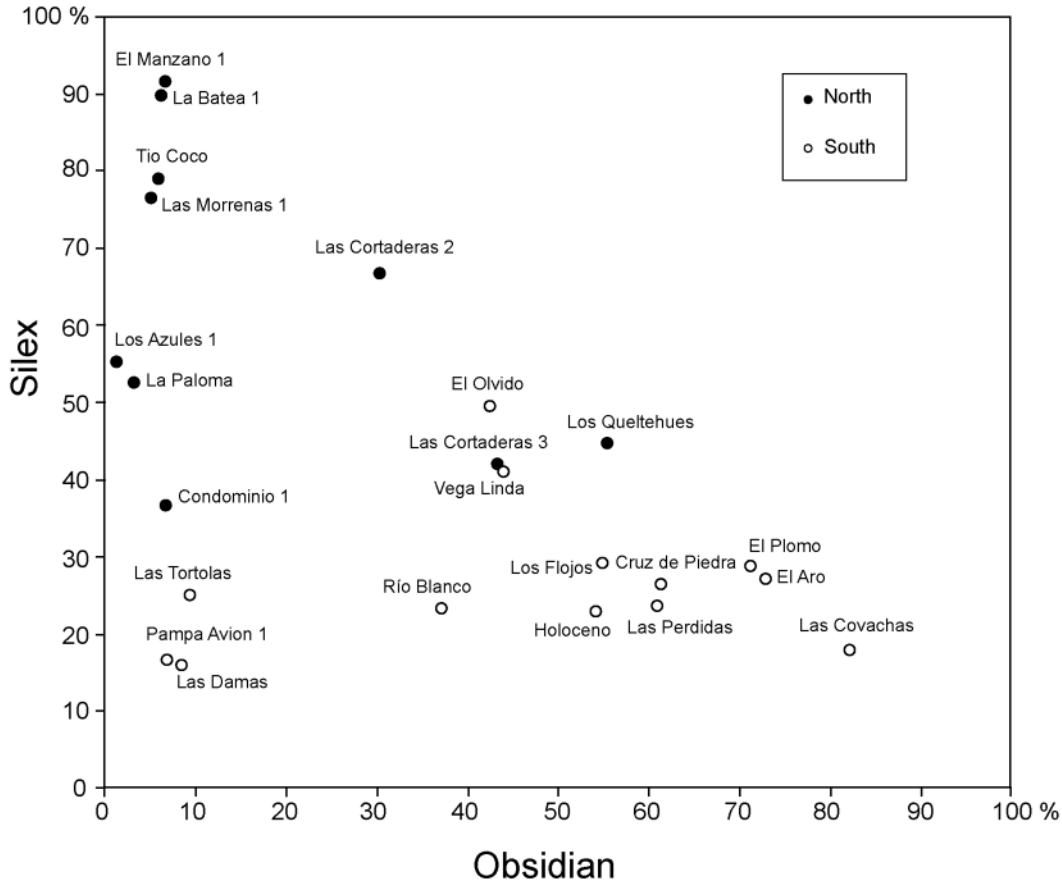


Figure 3. Scatterplot of frequencies of obsidian and silex on sites from the north and south Maipo Basin.

sites that do not fit the characteristics of the defined groups: the rock shelters at Las Cortaderas 2 and 3, Los Queltehues, and Río Blanco, which are discussed below.

This differential distribution of raw material usage could in principle be thought of as the obvious result of the spatial relation between settlements and the sources of raw materials. Data from our own field surveys show that silex sources predominate in the north, while in the south the obsidian associated with the Maipo volcano and the nearby Laguna del Diamante is a major source (De Francesco et al. 2006). Nevertheless, such an approach does not take into account the small spatial scale involved: it is only 100 km from the headwaters of the El Manzano stream, where the most northerly source of silex is found, to the obsidian source at Laguna del Diamante.

Analysis of the distribution of settlements studied here emphasizes this point: no further than 4 km from the Las Morrenas 1 rock shelter, which has less than 10 percent obsidian, is the Las Cortaderas 3 rock shelter, with over 50 percent obsidian. Furthermore, despite being close to the obsidian source at Laguna del Diamante (a little over 12 km away), the inhabitants of Las Tórtolas cave left no more than 10 percent obsidian behind among their stone knapping byproducts, a situation that is repeated at other rock shelters occupied in this period in the southern Maipo. In fact, in the case of obsidian, when the linear distance from the nearest known source (Laguna del Diamante) is compared to the quantity of core byproducts at each site, the percentage of the variation in obsidian quantity cannot be explained by distance, inasmuch as a strong fall in the frequency of obsidian occurs ca. 50 km from the source. In fact, only 51 percent of the variation in the percentage of obsidian at the sites can be explained by distance when applying a linear correlation ($r^2 = .51$), and only 59 percent

Table 2. Comparison of Proportion of Different Lithic Raw Materials between Sites of Different Areas.

Site	Area	Obsidian	Silex	Fine-grained aphanitic igneous	Coarse-grained porphyritic igneous
El Aro	South	72.8	27.2	.0	.0
Vega Linda	South	43.8	41.2	9.0	6.0
El Olvido	South	42.4	49.4	8.0	.2
La Perdida	South	60.9	23.6	14.5	1.0
Las Covachas	South	82.1	17.9	.0	.0
Cruz de Piedra	South	61.3	26.5	7.5	4.7
Los Flojos	South	54.8	29.0	12.9	3.3
El Manzano 1	North	6.7	91.5	1.3	.5
La Batea 1	North	6.2	89.8	2.3	1.7
Tio Coco	North	5.9	78.9	4.5	10.7
Los Azules 1	North	1.3	55.2	34.6	8.9
Condominio 1	North	6.7	36.6	34.6	22.1
La Paloma	North	3.2	52.6	35.8	8.4
Las Morrenas 1	North	5.8	76.3	5.0	12.9
Las Cortaderas 2	North	30.3	66.7	2.3	.7
Las Cortaderas 3	North	43.3	41.8	5.9	9.0
Los Queltehues	South	55.4	44.6	.0	.0
Rio Blanco	South	37.1	23.3	23.1	16.5
Pampa Avion	South	6.9	16.7	48.9	27.5
Las Damas	South	8.5	15.9	51.3	24.3
Las Tortolas	South	9.4	25.0	13.0	52.6
Holoceno	South	54.1	22.9	17.0	6.0
El Plomo	South	71.2	28.7	.1	.0

of the variation when applying a logarithmically transformed percentage of obsidian ($r^2 = .59$). Thus, for example, Figure 4 shows that a significant proportion of cases (39.1 percent) are outside the 95 percent confidence interval when you plot the frequency of obsidian at each site against distance to the nearest source of obsidian (Laguna del Diamante).

The frequency of silex and obsidian vs. the location of the site (north or south) also indicates circulation of raw materials between these two areas. A clue to this possible circulation of silex for use as raw material in the south may be found in the significantly different thicknesses of striking platforms for flakes from silex cores[3] found in the north and south ($z = 9.10$ $p < 0.01$), with smaller ones in the south. This could be interpreted as the result of knapping of smaller pieces, of a more advanced stage of reduction (e.g. biface work), or even of the resharpening of artifacts, which would be consistent with a scenario in which the raw material was obtained from distant sources as a result of exchange.

A good guide to the distances these groups usually traveled to obtain raw materials for stone tools can be found in our recent studies of the sources of obsidian found at several sites in the Maipo Basin (Duran et al. 2004; Giesso et al. 2010). These studies showed that both in the south and in the north the main source is Paramillos (a subsource of Laguna del Diamante) and Laguna del Diamante (73.4 percent), although several samples came from a source located 140 linear kilometers to the south (Las Cargas, 18.3 percent) and other still unknown sources (8.1 percent). In an even more extreme example, studies of obsidian samples found at horticultural settlements from the Early Ceramic period in the Lower Maipo Valley have shown that some samples come from a source located 300 km to the south (Laguna del Maule).

Thus, we believe that the pronounced difference in the distribution and characteristics of silex and obsidian between north and south is not a consequence of the natural dispersion of the raw materials from their sources to the sites where they were used, but of two different social appropriations of nature, which, though not completely exclusive (as obsidian has been found in the north after being brought from the south), defined different tendencies in resource tenure that can be conceptualized as different modes of appropriation (Ingold 1987:133). This implies the existence of

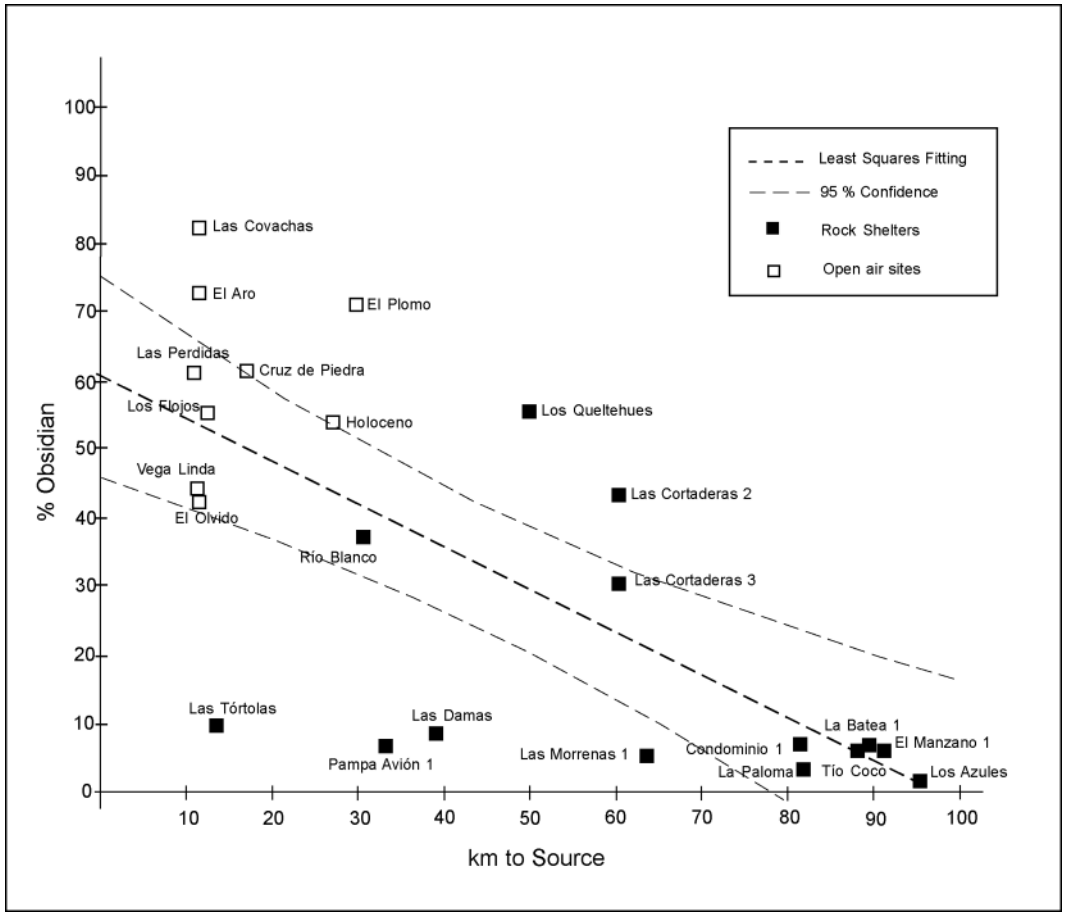


Figure 4. Dispersion graph of frequency of obsidian and distance to the nearest obsidian source (Laguna del Diamante).

social norms governing access to such resources, both within and among groups, reflected in differentiated access to raw materials for stone tool making.

In regard to sites that do not fit into this model, when territory is related to the types of sites occupied and frequency of raw stone tool material found, the results vary. As mentioned above, at the Río Blanco rock shelter in the southern Maipo, occupation by a different group is probable. This group used a simple and expedient stone tool technology based heavily on coarse-grained rocks; however, one of their motives for ascending into the mountains may have been to search for obsidian for knapping specific tools, especially projectile points. This group would have used the rock shelter as an occasional shelter. Other rock shelters in the southern Maipo (Pampa Avión, Las Damas, and Las Tórtolas) probably were used similarly.

The situation at the Los Queltehues rock shelter is a little more complicated. The context studied at this site represents hunter-gatherer occupations from the Archaic III until the Early Ceramic period, and contradictory features (a rock shelter with a high percentage of obsidian) could be related to its intermediate location between the north and south, as described in detail below. In fact, a recent study of this site by Peñaloza (2009) has verified that the frequencies of the two raw materials in worked stone tools oscillated over time, with equal usage occurring in the Archaic III, a predominance of silex used in the Archaic IV, and a predominance of obsidian during the Early Ceramic period. A similar situation may occur in with the Las Cortaderas 2 and Las Cortaderas 3 rock shelters.

Pottery

The hunter-gatherers of the Early Ceramic period

used ceramic vessels, the fragmented remains of which have been found at different settlements. In general terms, ceramic usage was utilitarian and included small pots and jars displaying clear evidence of having been used over fire (Jara 2008), probably during food preparation. Remains of other vessels, of finer workmanship and finish, are also found in these contexts and seem not to have been used for the same type of activities.

We have previously suggested that the ceramics used by these groups were diverse, not only in their surfaces and thicknesses, which indicate different types of vessels, but especially in the raw materials that were used to make them (Cornejo and Sanhueza 2003). The diversity of ceramic pastes has been confirmed by the addition of a number of mountain sites to the original study sample. This trend is particularly striking when one compares the ceramic paste diversity of northern Maipo hunter-gatherer settlements to the contemporaneous horticultural and ceramic-making peoples of the Santiago or Rancagua basins in the Central Valley (Figure 1), as the latter groups generally exhibit a much lower level of diversity (Table 3). However, it should be noted that certain horticultural settlements in the Central Valley also display a relatively high degree of diversity.

Beyond the general similarities of the ceramics of these hunter-gatherer groups, differences can be discerned between the ceramic contexts of the northern and southern Maipo, differences that we consider significant, despite the fact that the quantity of ceramics found at these sites is very small, especially in the southern sector. Thus, while the northern sector sites exhibit the same families of ceramic pastes[4] as the southern contexts (Table 4), the frequency distribution is somewhat different. In the northern sector, the Granitic family (GR) is the most frequent, but relatively high and comparable frequencies of the Unimodal Volcanic (V), Volcanic + White (VB) and Volcanic + Granitic (VGR) families are also found. In southern contexts, however, the V family is most frequent, followed by GR and VB, and to a lesser extent, VGR. In both localities the White Inclusion (B) Family is uncommon. Paste families exhibit much less diversity at open air hunter-gatherer sites in the southern Maipo ($\bar{x}$ % H Ideal = 70.3 s =16.5) sector than in the rock shelters used by hunter-gatherers in the northern Maipo ($\bar{x}$ % H Ideal = 56.7 s =22.1). In fact, the variation in clay family patterns in the south could be compared to those of the settlements used by the horticulturalists of the Santiago Basin (Table 3),[5] but the lithic technology, highly curated, suggests that these occupations are not Santiago Basin horticulturalists. In fact, there is no evidence in any of the Central Valley residential camps of significant amounts of obsidian, practically the only raw material that exhibits curated technology among these groups.

From a stylistic perspective, decorated sherds are extremely scarce in these contexts, and those that have been found present decorations that are typical of the Early Ceramic period in Central Chile—the horticultural and ceramic-making groups known as Llolleo and Bato. In the northern sector, sherds with incised lines and dots and specular iron ore are present only at Las Morrenas 1 and Los Queltehues, while an appliqué band of incised points located at the union of the body and the neck of the vessel is a feature found only at El Manzano 1 and Los Queltehues. Incised lines-and-dots decoration is characteristic of the Bato groups, and hematite iron appears in both Bato and Llolleo. The appliqué band is more characteristic of Llolleo, especially the mountain settlement at Los Panales, but has also been recorded in other mountain horticulturalist sites, such as the El Manzano 2 settlement and the Chacayes cemetery.

In the south, however, ceramic decorations are limited to crosshatched incisions located in the neck of the vessels, which are typical of Llolleo. This type of decoration has also been found in a significant frequency in the above-mentioned Río Blanco rock shelter, and has also been recorded at trans-Andean sites at the nearby Laguna el Diamante (Durán et al. 2006) and at El Indígeno (Lagiglia 1997).

Production of ceramics among highly mobile groups has been recognized for some time now, based on both ethnographic (Arnold 1985) and archaeological case studies (Eerkens 2003; González 2005; Politis et al; 2001). Although some specific features of this kind of ceramic production have been identified, related to the weight and volume of the vessels and the variability of raw materials used in their production (Eerkens 2003; Simms et al. 1997), clearly any ceramic production must have its own technological style or "recipe" (Lemonnier 1992) that ensures the viability of production for each group, and that can be partially

Table 3. Comparison of the Diversity of Ceramic Paste Patterns between Hunter-gatherers and Horticulturists of Early Ceramic Period.

Site	*N*	N° Patterns	*H*[a]	*%H* Ideal[b]	Location	Cultural Asignation
El Aro	8	3	.90	24.1	South Maipo Range	PAT[c] Hunter-gatherer
Las Covachas	11	5	1.47	39.4	South Maipo Range	PAT Hunter-gatherer
Condominio 1	9	5	1.52	40.7	North Maipo Range	PAT Hunter-gatherer
El Mercurio	2134	12	1.86	49.8	Santiago Basin	PAT Horticulturists
Lonquen	544	10	1.96	52.5	Santiago Basin	PAT Horticulturists
El Olvido	13	8	1.99	53.3	South Maipo Range	PAT Hunter-gatherer
Chuchunco	267	21	2.18	58.4	Rancagua Basin	PAT Horticulturists
El Almendral	119	15	2.2	58.9	Santiago Basin	PAT Horticulturists
Las Cortaderas 1	25	12	2.24	60.1	North Maipo Range	PAT Hunter-gatherer
El Peuco	1003	33	2.27	60.8	Rancagua Basin	PAT Horticulturists
Chamico	266	26	2.33	62.4	Rancagua Basin	PAT Horticulturists
Llanos de Rungue	99	19	2.42	64.8	Runge-Montenegro	PAT Hunter-gatherer
LD4[d]	125	25	2.46	65.9	South Maipo Range	PAT Hunter-gatherer
Los Panales	392	21	2.51	67.2	North Maipo Range	PAT Horticulturists
La Paloma	23	15	2.61	69.9	North Maipo Range	PAT Hunter-gatherer
Hospital 8/9	608	25	2.8	75.1l	Santiago Basin	PAT Horticulturists
Las Perdidas	64	22	2.82	75.6	South Maipo Range	PAT Hunter-gatherer
Los Valles 4	265	31	2.88	77.2	Runge-Montenegro	PAT Hunter-gatherer
Las Morrenas 1	217	33	3.03	81.2	North Maipo Range	PAT Hunter-gatherer
Vega Linda	51	26	3.06	82.1	South Maipo Range	PAT Hunter-gatherer
El Manzano 1	144	35	3.19	85.5	North Maipo Range	PAT Hunter-gatherer
La Batea 1	148	42	3.27	87.6	North Maipo Range	PAT Hunter-gatherer

[a]Shannon-Weaver Diversity Test.
[b]Calculation of percentage of H relative to H expected when ideally all classes are present and the individuals are proportionately distributed in them (Ideal H = -ln (maximum number of classes). Ideal H with 42 patterns is 3.73 in this case.
[c]PAT: Spanish abbreviation for Early Ceramic Period.

reconstructed based on a study of the operational sequence.

The existence of many different clay pastes found in these hunter-gatherer contexts in the northern Maipo sector tends to support the current hypothesis that these groups did not produce their own set of ceramic vessels, but probably obtained them from other ceramic making groups (Cornejo and Sanhueza 2003). Another explanation for this high variability could be that, due to their high mobility, these groups were accessing different sources of raw materials—a characteristic that has been proposed for highly mobile groups (Simms et al. 1997). southern sector sites exhibit less diversity of clay pastes, and this could be explained by the more limited access of these hunter-gatherer groups to different suppliers of ceramic vessels, in this case primarily the Llolleo horticulturist groups from the Rancagua basin in the central Valley. A Llolleo affiliation is suggested both by the decorations that have been found (crosshatched incisions) and the most frequent ceramic paste (V family), which are characteristic elements of that group.

The dichotomous relation between north and south is supported by the stylistic differences mentioned above, which linked the hunter-gatherers of the northern Maipo sector to the Bato groups, and eventually to the Llolleo groups, that established

Table 4. Frequency of Ceramic Pastes Families in North and South Maipo Range.

Location		B	GR	Otro	V	VB	VGR	Total
South Maipo Range	n	1	60	11	122	42	33	269[a]
	%	.37	22.3	4.09	45.35	15.61	12.27	
North Maipo Range	N	7	186	17	140	115	102	567
	%	1.23	32.80	3.00	24.69	20.28	17.99	

[a]The open air site LD4 of Laguna del Diamante (Durán et al. 2006) is included in South Maipo Range because the proximity and context indicates that it belong to the same hunter-gatherer groups.

some settlements in the mountain region (e.g., El Manzano 2, Los Panales) but which were based mainly in the Central Valley. Conversely, hunter-gatherer groups in the southern sector of the Maipo Basin seem to have established relations with the Llolleo groups. The presence of Llolleo pottery elements in the southern sector of the mountain range is not exclusive to the Maipo region, as it has also been recorded in the Cachapoal basin, an area that is connected to the southern Maipo through its tributary, the Pangal river. On the other hand, the decorative features present in the south (cross-hatched incisions) coincide with the significance of this decoration among the Llolleo groups of the southern Santiago basin and the neighboring Rancagua basin (Sanhueza and Falabella 2009).

A separate issue is raised by the discovery of a series of fragments with highly polished surfaces of different colors (orange, light brown, black, and red) and thin walls, which are the remains of restricted vessels, although the fragments are too small to allow any precise inference of their form. Though present in a low frequency, these fragments are found in both the northern and southern Maipo sectors, and in the nearby sites at Laguna del Diamante (LD2 and LD4), and they are a recurring element of the mountain region occupations. This class of ceramic has no known point of reference in Central Chile, but is similar in surface and paste[6] to vessels from La Turquía, a cemetery belonging to the Molle complex located in the Limarí Valley, some 350 km to the north (Iribarren 1958). It also resembles at least one vessel from Chacayes, a horticulturalist cemetery of the Early Ceramic period located in the Maipo Basin, which is similar to more southerly contexts of the Molle culture (Stehberg 1978; Sanhueza 1997). Although data are very scarce and although it would be premature to attempt an explanation, findings suggest that these groups were involved in dynamics of social relations and exchange that extended beyond the Maipo Basin.

Discussion

When understood as the material expression of the *habitus* of a group of individuals who maintained preferential and distinct social relations over time, the variables we have used in this study—settlements, lithic raw materials, and ceramics—point to two well-represented social units, which we can call communities, as defined above. In effect, these variables afford us a view of two distinct ways of prevailing over a segment of the natural, social, and political world within which the groups lived.

Thus, the community of hunter-gatherers that occupied part of the northern Maipo chose to structure their social interactions around shelters already established in the landscape (rock shelters and caves); in other words, stationary places that could always be expected to offer shelter. Those in the south, in contrast, preferred dynamic meeting places that could be located almost anywhere and in which the shelter offered was determined by the amount of work the individuals were willing to invest. These two modes of interaction have different social consequences, but a key aspect related to our present interest is the different ways that productive relations operated in the two groups, given that the difference between having stationary or dynamic social gathering places would affect how the individuals themselves interacted with each other, which must have been distinct in each case.

Because they had two different ways of organizing their social lives, these two communities also had differential access to resources and goods. On the one hand, the stone material that was best suited to bifacial work—and that was essential for maintaining the technology they had chosen over time—defined two different spheres of access to this resource: silex in the north and obsidian in the south. However, this distinction also created points of interaction between the two groups. The few pieces of obsidian found in the northern settlements would have come from the south, and silex found in the south likely came from the north.

In addition, the position of each group within the territory would enhance different networks of relations with the horticultural and ceramic-making groups of the Central Valley. The group in the south would have obtained vessels mainly from Llolleo, while those in the north could have turned to Llolleo, Bato, or other groups for their vessels. This access to items from different ceramic makers could be due to the fact that the distribution of the horticulturists and ceramic making groups of the Central Valley also were different. The northern section of the Central Valley, corresponding to the Santiago basin, shows more or less widespread

occupation by Llolleo and Bato groups, while the southern Rancagua basin was inhabited by Llolleo groups, with no occupations attributable to Bato groups found to date.

This marked spatial difference among north and south mountain communities obviously did not imply that there was a firm line separating the two. All the evidence seems to indicate that the rock shelters of Los Queltehues, Las Cortaderas 2, and Las Cortaderas 3 could represent an area of contact and interaction between these two communities. We believe that it is more likely that these rock shelters were used by the northern group seeking access to the high quality stone resources of the south, namely obsidian, than that southern populations accessed more northerly locations and thereby changed their mode of life. In our view, the use of different types of venues—rock shelters in the north and open areas in the south in this case—is a more determining factor in the social lives of social groups, and therefore we have granted more weight to this aspect in defining these communities.

Analyzed on a larger scale, obviously our picture of the occupation of the mountains surrounding the Maipo River is based on archaeological information from only a fraction of the territory actually occupied by the communities described herein. Nevertheless, the intensity and type of research conducted to date in Maipo valley locations allows the formulation of some general propositions.

Towards the Central Valley, next to the western slopes of the Andes Mountains, no archaeological record of occupations by hunter-gatherers of the Archaic or Early Ceramic periods has been identified in the Central Valley, despite several systematic field surveys (Cornejo et al. 2003-04; Sanhueza et al. 2007) in this area, in what is today the capital city of Santiago. The mountain territory immediately east of the Maipo River valley consists of the Tunuyan River basin, which is practically unknown in terms of its archaeological record.

Towards the north, the studies conducted by Stehberg (1980a, 1980b; Stehberg and Fox 1979) some time ago in the mountains of the Mapocho River basin allow us to suppose that rock shelters found there were inside the territory of the community of hunter-gatherers of the north Maipo. In fact, occupations of hunter-gatherers attributed to the Archaic IV and Early Ceramic periods have been reported in the two rock shelters studied there (Los Llanos and Novillo Muerto). In the northern Aconcagua River mountain valley, we have recently made test pits in 14 rock shelters and four open air sites, and only one of them shows a long term occupation that can be assigned to hunter-gatherers. The other shelters only represent very short occupations, difficult to define in sociocultural terms, while the open-air sites are more permanent occupations of horticulturist groups. This data suggests to us that this Andean valley was not within the territory of north Maipo hunter-gatherer groups.

To the south the situation is different. On the Chilean side of the Andes, in the neighboring Cachapoal River valley, which we have previously studied (Cornejo 2005), there are practically no occupations of hunter-gatherers from the Archaic IV and Early Ceramic periods that are comparable to those in the south Maipo valley. Nevertheless, on the Eastern side of the watershed, in Argentina, a series of settlements has been identified with dry-stone walls, a high frequency of obsidian, and Llolleo ceramics. These occupations should belong to the same community of hunter-gatherers of the Early Ceramic period of the southern Maipo. Some sites have been found not more than 10 km away, in the Laguna del Diamante (Durán et al. 2006); others are further south, in places such as Los Peuquenes (Neme 2002) and El Indígeno (Lagiglia et al. 1994).

Based on this evidence, it is possible to propose that the social group or community of hunter-gatherers of the Archaic IV and Early Ceramic periods identified in the south Maipo valley occupied a much more extensive range that included the mountainous territory between the source of the Maipo River and the Atuel and Diamante rivers across the Andes in Argentina. In addition, at open air sites on both the Chilean and Argentinean sides, the presence of ceramic wares characteristic of the latter part of the sequence in Central Chile, especially from the Aconcagua and Diaguita III traditions, lead us to believe that these hunter-gatherer groups of the high mountain region continued to subsist until the end of the prehistoric period, and would have been included among the hunter-gatherer groups noted in the historical record on both sides of the Andes (Durán 2002; Martínez 1992).

To be sure, the proposal presented here is only one possible view of a complex problem. Its main weak points include the long period of time during which these two communities would have remained in existence, more than 3500 years: we are aware that social contexts are much more dynamic. At the same time, the typical archaeological record of this region has subjected us to some basic limitations, most notably the poor conditions for preservation of organic remains, including bones. This limits opportunities to build points of comparison among the social actions of these groups, such as the distribution of prey in different sites or access to plant resources. However, we believe that the information studied quite solidly delineates the existence of two human communities coexisting at the same time in the Andes Mountains between 33° and 35° south; that these can be differentiated in some basic aspects of their respective social lives; and that they interacted in a certain way.

Acknowledgments: This research was conducted under FONDECYT grant number 1060228. The critique of the anonymous reviewers of the manuscript and editor helped us to clarify our proposal.

References Cited

Arnold, Dean
1985 *Ceramic Theory and Cultural Process*. Cambridge University Press, Cambridge.

Bettinger, Robert
2001 Holocene Hunter-Gatherers. In *Archaeology at the Millenium: A Sourcebook*, edited by Gary M. Feinman and Douglas T. Price, pp. 137–195. Plenum Press, New York.

Börgel, Reinaldo
1983 *Geomorfología*. Colección Geografía de Chile. Instituto Geográfico Militar, Santiago.

Bourdieu, Pierre
1977 *Outline of a Theory of Practice.* Cambridge University Press, Cambridge.

Cornejo, Luis
2005 Del Maipo al Cachapoal: diversidad en las estrategias de ocupación del espacio cordillerano en Chile Central. *Boletín de la Sociedad Chilena de Arqueología* 37/38:75–85.
2009 Hacia una hipótesis sobre el surgimiento de la cultura Aconcagua. In *Actas del XVII Congreso Nacional de Arqueología Chilena*. Sociedad Chilena de Arqueología, Universidad Austral, Valdivia, in press.
2010 Arqueología de cazadores recolectores en Chile Central: una síntesis de lo avanzado, las limitaciones y las aspiraciones. *Revista Werken* 13:69–84.

Cornejo, Luis, and Patricio Galarce
2010 C Index: Dimensioning the Expedient / Curative Continuum in Lithic Technology. *Chungara, Revista de Antropología Chilena* 42(2):393–404.

Cornejo, Luis, and Miguel Saavedra
2003 The end of the pleistocene in central Chile: evidence of economic and cultural diversity. *Current Research in the Pleistocene* 20:12–14.

Cornejo, Luis, and Lorena Sanhueza
2003 Coexistencia de cazadores recolectores y horticultores tempranos en la Cordillera Andina de Chile Central. *Latin American Antiquity* 14(4):389–407.
2011 Caminos que cruzan la Cordillera: el rol del paso del Maipo en la ocupación de la Cordillera en Chile central. *Revista Chilena de Antropología* 23:101–122.

Cornejo, Luis, and Javier Simonetti
1992 Asentamientos prehistóricos en los Andes de Chile Central: tradición y flexibilidad. *Clava* 5:81–98.
1993 Asentamiento humano en los Andes de Chile central: un enfoque alternativo. In *Actas del XII Congreso Nacional de Arqueología Chilena*, tomo 2:373–380. Sociedad Chilena de Arqueología, Temuco, Chile.
1999 De rocas y caminos: espacio y cultura en los Andes de Chile central. *Revista Chilena de Antropología* 14:127–144.

Cornejo, Luis, Fernanda Falabella, and Lorena Sanhueza
2003-04 Patrón de asentamiento y organización social de los grupos aconcagua de la Cuenca del Maipo. *Revista Chilena de Antropología* 17:77–104.

Cornejo, Luis, Miguel Saavedra, and Héctor Vera
1998 Periodificación del Arcaico en Chile central: una propuesta. *Boletín de la Sociedad Chilena de Arqueología* 25:36–39.

De Francesco, Ana Maria, Victor Durán, Andrea Bloise, and Gustavo Neme
2006 Caracterización y procedencia de obsidianas de sitios arqueológicos del área natural protegida Laguna del Diamante (Mendoza, Argentina) con metodología no destructiva por Fluorescencia de Rayos X (XRF). In *Arqueología y ambiente de áreas naturales protegidas de la Provincia de Mendoza*, edited by Victor Durán and Valeria Cortegoso, pp. 53–67. Anales de Arqueología y Etnología, Vol. 61. Facultad de Filosofía y Letras, Universidad Nacional de Cuyo, Mendoza.

Durán, Eliana, and María Teresa Planella
1989 Consolidación agroalfarera: zona central. In *Prehistoria. Culturas de Chile. Desde sus orígenes hasta los albores de la conquista*, edited by Jorge Hidalgo, Virgilio Schiappacasse, Hans Niemeyer, Carlos Aldunate and Iván Solimano, pp. 313–329. Editorial Andrés Bello, Santiago.

Durán, Víctor
2002 *Poblaciones indígenas de Malargüe*. CEIDER Serie Libros N° 1, Mendoza.

Durán, Víctor, Martín Giesso, Michael Glascock, Gustavo Neme, Adolfo Gil, and Lorena Sanhueza
2004 Estudio de fuentes de aprovisionamiento y redes de distribución de obsidiana durante el Holoceno Tardío en el Sur de Mendoza (Argentina). *Estudios Atacameños* 28:25–43.

Durán, Víctor, Gustavo Neme, Valeria Cortegoso, and Adolfo Gil
2006 Arqueología del área natural protegida Laguna del Diamante (Mendoza, Argentina). In *Arqueología y ambiente de áreas naturales protegidas de la Provincia de Mendoza*, edited by Victor Durán and Valeria Cortegoso, pp. 81–134. Anales de Arqueología y Etnología, Vol. 61. Facultad de Filosofía y Letras, Universidad Nacional de Cuyo, Mendoza.

Eerkens, Jelmer
2003 Residential Mobility and Pottery Use in the Western Great Basin. *Current Anthropology* 44(5):728–737.

Falabella, Fernanda, and Lorena Sanhueza
2005-06 Interpretaciones sobre la organización social de los

grupos tempranos de Chile Central: alcances y perspectivas. *Revista Chilena de Antropología* 18:105–134.

Falabella, Fernanda, and Ruben Stehberg
1989 Los inicios del desarrollo agrícola y alfarero: zona central. In *Culturas de Chile. Prehistoria. Desde sus orígenes hasta los albores de la conquista*, edited by Jorge Hidalgo, Virgilio Schiappacasse, Hans Niemeyer, Carlos Aldunate and Iván Solimano, pp. 295–311. Editorial Andrés Bello, Santiago.

Falabella, Fernanda, M. Teresa Planella, Eugenio Aspuillaga, Lorena Sanhueza, and Robert Tykot
2007 Dieta en sociedades alfareras de Chile Central: aporte de análisis de isótopos estables. *Chungara Revista de Antropología Chilena* 39(1):5–27.

Giddens, Anthony
2003 *La construcción de la sociedad. Bases para la teoría de la estructuración.* Amorrortu Editores, Buenos Aires.

Giesso, Martín, Víctor Durán, Gustavo Neme, Michael D. Glascock, Valeria Cortegoso, Adolfo Gil, and Lorena Sanhueza
2010 A Study of Obsidian Source Usage in the Central Andes of Argentina and Chile. *Archaeometry* 53(1):1–21.

González, María Isabel
2005 *Arqueología de alfareros, cazadores y pescadores pampeanos*. Colección Tesis Doctorales. Sociedad Argentina de Antropología, Buenos Aires.

Heusser, Calvin
1990 Ice Age Vegetation and Climate of Subtropical Chile. *Palaeogeography, Palaeoclimatology, Palaeoecology* 80:107–127.

Hodder, Ian
1982 *Symbols in Action*. Cambridge University Press, Cambridge.

Ingold, Tim
1987 *The Appropiation of Nature: Essays on Human Ecology and Social Relations*. University of Iowa Press, Iowa City.

Iribarren, Jorge
1958 Nuevos hallazgos arqueológicos en el cementerio indígena de La Turquía-Hurtado. *Arqueología Chilena* 4:13–40.

Jara, Johanna
2008 Análisis orfo-funcional y de huellas de uso en fragmentos cerámicos de grupos cazadores recolectores tardíos de la precordillera y cordillera de Chile central. Unpublished Professional Practice Report. Departamento de Antropología, Facultad de Ciencias Sociales, Universidad de Chile, Santiago.

Jenny, Bettina, Blas L. Valero-Garcés, Rodrigo Villa-Martínez, Roberto Urrutia, Mebus Geyh, and Heinz Veit
2002a Early to Mid-Holocene Aridity in Central Chile and the southern Westerlies: The Laguna Aculeo Record (34°S). *Quaternary Research* 58:160–170.

Jenny, Bettina, Blas L. Valero-Garcés, Roberto Urrutia, Kerry Kelts, Heinz Veita, Peter G. Appleby, and Mebus Geyhf
2002b Moisture Changes and Fluctuations of the Westerlies in Mediterranean Central Chile During the last 2000 years: The Laguna Aculeo Record (33°50 S). *Quaternary International* 87: 3–18.

Jones, Susan
1997 *The Archaeology of Ethnicity*. Cambridge University Press, Cambridge.

Lagiglia, Humberto
1997 *Arqueología de cazadores-recolectores cordilleranos de altura*. Instituto de Ciencias Natural. Ediciones Ciencia y Arte, San Rafael, Mendoza.

Lagiglia, Humberto, Gustavo Neme, and Adolfo Gil
1994 Informe sobre los trabajos de campo en el sitio El Indígeno (3° campaña arqueológica, febrero 1994). In *Actas del XI Congreso Nacional de Arqueología Argentina*, Vol. 2:119–120. Museo de Historia Natural de San Rafael, San Rafael, Argentina.

Lanata, Jose Luis
2002 Humans and Evolutionary Dynamics. The Last Decades In Archaeology and Anthropology. In *Perspectivas Integradoras entre Arqueología y Evolución,* edited by G. Martinez and J. Lanata, pp. 255–286, Serie Teórica, Vol. 1, INCUAPA. Olavarria, Argentina.

Lemonnier, Pierre
1992 *Elements for an Anthropology of Technology*. Ann Arbor, Michigan.

Leroi-Gourhan, Andre
1971 *El gesto y la palabra*. Publicaciones de la Biblioteca de la Universidad Central de Venezuela, Caracas.

Martínez, Carlos
1992 *Nuestros paisanos los indios*. Emecé editores, Buenos Aires.

Montané, Julio
1968 Paleo-Indian Remains from Laguna Tagua Tagua, Central Chile. *Science* 161:1137–1138.

Neme, Gustavo
2002 Arqueología del Alto Valle del río Atuel: modelos, problemas y perspectivas en el estudio de las Regiones de altura del sur de Mendoza. In *Entre montañas y desiertos: arqueología del sur de Mendoza*, edited by Adolfo Gil and Gustavo Neme, pp. 65–83. Sociedad Argentina de Antropología, Buenos Aires.

Neme, Gustavo, and Adolfo Gil
2008 Biogeografía humana en los Andes Meridionales: tendencias arqueológicas en el sur de Mendoza. *Chungara, Revista de Antropología Chilena* 40(1):5–18.

Nuñez, Lautaro, Juan Varela, Rodolfo Casamiquela, Virgilio Schiappacasse, Hans Niemeyer, and Carolina Villagran
1994 Cuenca de Taguatagua en Chile: el ambiente del Pleistoceno Superior y ocupaciones humanas. *Revista Chilena de Historia Natural* 67:503–519.

Peñaloza, Angela
2009 Sobre el uso de la obsidiana en contextos de cazadores—recolectores Tardíos de Chile central. Unpublished Professional Disertation, Departamento de Antropología, facultad de Ciencias Sociales, Universidad de Chile, Santiago.

Planella, María Teresa, Luis Cornejo, and Blanca Tagle
2007 Alero Las Morrenas 1: evidencias de cultígenos entre cazadores recolectores de finales del período Arcaico en Chile central. *Chungara, Revista de Antropología Chilena* 37(1):59–74.

Politis, Gustavo, Gabriel Martínez, and Marcelo Bonomo
2001 Alfarería temprana en sitios de cazadores recolectores de la Región Pampeana (Argentina). *Latin American Antiquity* 12:167–181.

Quintanilla, Víctor
1983 *Biogeografía.* Colección Geografía de Chile. Instituto Geográfico Militar, Santiago.

Romero, Hugo
1985 *Geografía de los climas*. Colección Geografía de Chile. Instituto Geográfico Militar, Santiago.

Runciman, Walter G.
2005 Stone Age Sociology. *The Journal of the Royal Anthropological Institute* 11:129–142.

Sánchez, Rodrigo and Mauricio Massone
2000 *Cultura aconcagua*. Centro de Investigaciones Diego Barros Arana, Dirección de Bibliotecas, Archivos y Museos, Santiago.

Sanhueza, Lorena
1997 Relaciones llano-cordillera durante el período Agroalfarero Temprano en Chile central: una visión desde la

cerámica. Unpublished Professional Dissertation, Departamento de Antropología, Facultad de Ciencias Sociales, Universidad de Chile, Santiago.

2004 Estilos tecnológicos e identidades sociales durante el Periodo Alfarero Temprano en Chile central: una mirada desde la alfarería. Unpublished Master's Thesis, Departamento de Antropología, Facultad de Ciencias Sociales, Universidad de Chile, Santiago.

Sanhueza, Lorena, Luis Cornejo, and Fernanda Falabella

2007 Patrones de asentamiento en el período Alfarero Temprano de Chile central. *Chungara, Revista de Antropología Chilena* 39(1):103–115.

Sanhueza, Lorena, and Fernanda Falabella

2009 Descomponiendo el Complejo Llolleo: hacia una propuesta de sus niveles mínimos de integración. *Chungara, Revista de Antropología Chilena* 41(2):229–239.

Sanhueza, Lorena, Mario Vásquez, and Fernanda Falabella

2003 Las sociedades alfareras tempranas de la Cuenca de Santiago. *Chungara, Revista de Antropología Chilena* 35:23–50.

Simms, Steven, Jason Bright, and Andrew Ugan

1997 Plain-Ware Ceramics and Residential Mobility: A Case Study From the Great Basin. *Journal of Archaeological Science* 24:779–792.

Stehberg, Rubén

1978 El cementerio Alfarero Temprano de Chacayes, interior del Cajón del Maipo (datado en 430 d.C. Chile). In *Actas y Memorias IV Congreso Nacional de Arqueología Argentina*: 277–295. Revista del Museo de Historia Natural de Mendoza, Mendoza.

1980a Aproximación metodológica al estudio del poblamiento humano en los Andes de Santiago (Chile). *Boletín del Museo Nacional de Historia Natural* 37:9–41.

1980b Ocupaciones prehistóricas en el Arrayán, con especial énfasis en el alero Novillo Muerto. *Boletín del Museo Nacional de Historia Natural* 37:43–62.

Stehberg, Ruben, and Keith Fox

1979 Excavaciones arqueológicas en el alero Los Llanos. Interior del Arrayán, Provincia de Santiago. In *Actas del VII Congreso de Arqueología Chilena*: 217–241. Sociedad Chilena de Arqueologia, Santiago.

Vilches, Flora, and Miguel Saavedra

2005 Arcaico Temprano en los Andes de Chile central. Electronic document, http://www.arqueologia.cl/actas2/vilchesysaavedra.pdf, accessed November 10, 2009.

Villagrán, Carolina, and Juan Varela

1990 Palynological Evidence for Increased Aridity on the Central Chilean Coast During the Holocene. *Quaternary Research* 34:198–207.

Villa-Martínez, Rodrigo, Carolina Villagrán, and Bettina Jenny

2003 The last 7500 cal yr B.P. of Westerly Rainfall in Central Chile Inferred from a High-Resolution Pollen Record from Laguna Aculeo (34°S). *Quaternary Research* 60:284–293.

2004 Pollen Evidence for Late-Holocene Climatic Variability at Laguna de Aculeo, Central Chile (lat. 34 S). *The Holocene* 14(3):361–367.

Yaeger, Jason

2000 The Social Construction of Communities in the Classic Maya Countryside: Strategies of Affiliation in Western Belize. In *The Archaeology of Communities. A New World Perspective*, edited by Marcello Canuto and Jason Yaeger, pp. 123–142. Routledge, New York.

Yaeger, Jason, and Marecello Canuto

2000 Introducing an Archaeology of Communities. In *The Archaeology of Communities. A New World Perspective*, edited by Marcello Canuto and Jason Yaeger, pp. 1–15. Routledge, New York.

Notes

1. This date, as well as others for this period, were obtained using Thermoluminescent (TL) dating of ceramic fragments that were analyzed in the Physics Department of the Universidad Católica de Chile.

2. In fact, for previous periods at least one open-air site has been detected in the north Maipo region: El Manzano 3 (Vilches and Saavedra 2005).

3. Unfortunately the great difference in the amount of obsidian found in the north and the south makes it impossible to perform a statistical test such as that used for silex stones.

4. Description of clay paste families: Unimodal volcanic family (V): inclusions of volcanic origin with a unimodal size distribution. Volcanic + White Family (VB): inclusions of volcanic origin and an abundant proportion of white inclusions in unimodal size. Granitic family (GR): inclusions of granitic origin (quartz, feldspars, amphiboles, biotites). Volcanic + Granitic Family (VGR): with inclusions of volcanic and granitic origin. White inclusion (B) family: with only white inclusion with a unimodal size distribution.

5. It must be noted that the behavior of the data seems to be independent of the number of fragments in each case, as r^2 between % *H* Ideal and the Number of Fragments reaches a value of .001.

6) We had the opportunity to review the clay pastes of some pieces from the cemetery La Turquia during 2008 while the pieces were in the CNCR archaeology laboratory in Santiago, Chile.

Submitted: January 11, 2010; Accepted: March 22, 2010; Revised: May 4, 2010.