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The Structuration of Hunting Landscape: Interrelations Between People and Vicuñas in the Area of the Salar de Antofalla, Catamarca Province, Argentina

La Estructuración del Paisaje Cazador: Interrelaciones entre personas y vicuñas en el área del Salar de Antofalla, Provincia de Catamarca, Argentina

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Resumen

Las vicuñas han sido un recurso relevante en la economía de las poblaciones humanas de la región andina desde hace 10.000 años hasta la actualidad. Sin embargo, la manera en la que estos animales fueron atrapados continúa siendo hasta el momento un interrogante poco explorado desde la literatura especializada. Esto se puede explicar debido a que la interacción entre humanos y vicuñas no se reduce simplemente al control de los primeros, sino que las segundas también imponen sus decisiones y sus comportamientos complejizando la posibilidad de la caza. Además, el espacio y la tecnología también juegan un rol relevante en esta relación. Es por ello que la cacería de vicuñas debe ser comprendida como una red de relaciones que sustentó y en la cual se sustentaron estos fenómenos en la Puna de Atacama. Pero ahora bien, ¿cómo podemos analizar estas manifestaciones desde la arqueología? Una de las opciones más ricas para enfrentar este hecho social es el paisaje, ya que el mismo es estructurado, organizado, preparado por parte de los cazadores para lograr apropiarse de este recurso. Asimismo, este paisaje también se encuentra demarcado por parte de las vicuñas, por ejemplo a través de los caminos que utilizan en repetidas oportunidades y que son sus vías de escape en caso de encontrarse acorraladas. En este trabajo pretendemos mostrar algunas huellas de la estructuración de este paisaje en el área del Salar de Antofalla, Depto. Antofagasta de la Sierra, Provincia de Catamarca, Argentina, analizando su relación con las actividades de caza y proponiendo algunas categorías de análisis relevantes para discutir esta problemática. Pensando el paisaje como un

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conjunto de relaciones entre diferentes factores que entran en juego en el desarrollo de la vida cotidiana, la metodología que hemos desarrollado para llevar adelante esta investigación se basa en la sistematización de la información de prospecciones intensivas de la quebrada de Antofalla, generando un modelo del espacio en el cual se marcan aquellos sectores aprovechados por los cazadores para atrapar a las vicuñas y explicando cómo pueden haber sido estos procesos. En este sentido entran en juego tanto la topografía como los recursos, las evidencias arqueológicas y las áreas donde se mueven rutinariamente las vicuñas.

Palabras Clave: Cacería, paisaje, vicuñas, Antofalla.

Abstract

Vicuñas have been a relevant resource in the economy of human populations of the Andes for 10.000 years ago until now. However, the way these animals were trapped continues being up to this moment a very poorly explored question in specialized literature. This can be explained due to the fact that the interaction between humans and vicuñas does not simply reduce to the control of the first ones, but that the second ones also impose their decisions and behaviors complicating hunting's possibilities. Besides, space and technology also play a relevant role in this relation. That is why hunting of vicuñas must be comprehended as a sustained net of relations in which these phenomena were sustained in the Puna de Atacama. But now, yet, how can we analyze these manifestations from archaeology? One of the richest options in order to deal this social fact is the landscape, due that it is structured, organized, prepared by hunters to achieve the appropriation of this resource. Also, this landscape is demarcated by the vicuñas, for example through the paths they use repeatedly and which are they ways to escape in case they find themselves corralled. In this paper we try to show some of the traces of the structure of this landscape in the area of the Salar de Antofalla, Dpto. Antofagasta de la Sierra, Catamarca Province, Argentina, analyzing their relation with hunting activities and proposing some categories of relevant analysis in order to discuss these issues. Considering the landscape as a grouping of relations between different factors which take place in the development of everyday life, the methodology we have developed in order to carry forward this investigation is based on the systematization of the information of intensive surveys of the Antofalla valley, generating a model of the space in which the zones exploited by hunters in order to trap vicuñas are marked and explaining how this processes could have been. In this connection, the topography, the resources, the archaeological evidences and the areas where vicuñas move daily are taken into account.

Key words: Hunting, landscape, vicuñas, Antofalla.

Introduction

One of the most important economic activities for human societies in pre-Columbian times is hunting. This practice has the characteristic that the capture is done using a device, as for example a spear or a gun and the use of certain characteristic of the environment. For archaeology, these hunting activities have been studied from three principal points of view: the weapons that are used (Núñez 1980, Aschero et al. 1991, Aschero and Martinez 2001, Hocsman 2002, Martínez 2003, Ratto 2003, Moreno 2005 in order to name just some ones), the zooarchaeology, the analysis of the hunted animals and the way they profited from them (Yacobaccio and Madero 1992, Elkin 1996, Haber 1999a, Yacobaccio 2001a, Revuelta 2005) and finally, the landscape (Aschero and Martínez 2001, Haber 2003a and b).

In this work, we are especially interested in the last point of view, the landscape, particularly referred to the wild camelid hunting in the Antofalla valley, Antofagasta de la Sierra Department, Catamarca Province, Argentina (Figure 1).

Which is the importance of studying this problem? The relevance is given due to the exploitation of this animal by local people during approximately 11.000 years of occupation of the studied area. The source of this information is placed mainly in the Antofagasta de la Sierra basin (Aschero et al. 1991, Aschero et al. 1993-94, Elkin 1996, Pintar 1996, Olivera 1997, Aschero y Martínez 2001, Hocsman 2002, 2006, Martínez 2003) and other sites of *Puna* landscape in Salta, Jujuy and Catamarca (Aguerre *et al.* 1973, Fernandez Distel 1986, Yacobaccio 1988, 2001a; Yacobaccio and Madero 1992, Yacobaccio et al. 1994, Haber 2003a, 2003b; Ratto 2003, Moreno 2009) That is why it is so important to analyse this practices which have been done beyond political, social and economical changes, at least until the 1960s.

We believe that in order to perform this, it is necessary to explain some concepts. First of all, the hunting explained as a social practice cannot be taken as an external and isolated fact from the rest of the social everyday dynamic. Second, that the landscape in which the hunting takes place, must be thought as a place with a story that is been told and constructed everyday by the people who live in this place and have, during the long term of occupation, hunted in this area.

That is why we will at first analyse the importance of the camelid hunting for the local population through history. Then we will centre on the conception of landscape, emphasizing the implication for archaeology and next we shall get in to the case which interests us, keeping a register of the methodology used for the study of the hunting landscape in the Antofalla valley, and finally analyse how the hunters structured this landscape through all times and how it was useful to the reproduction or modification of interpersonal relations through time.

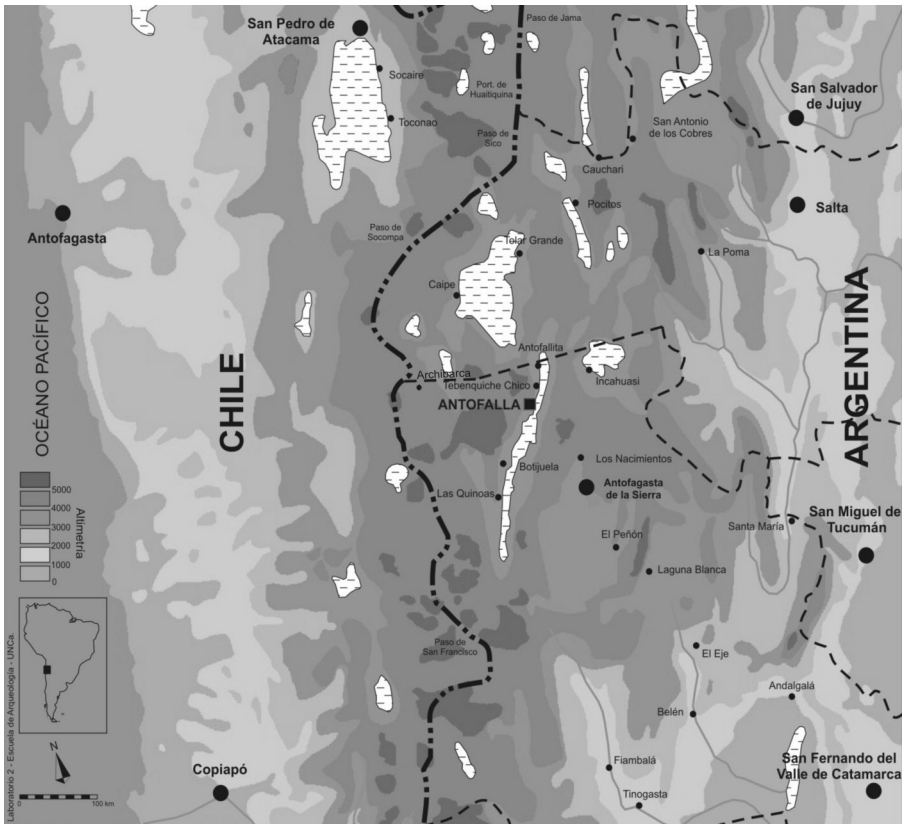

Figure 1: Map of the studied area were are placed some of the sites named in the article

Figura 1: Mapa del área de estudio indicando los sitios nombrados en este trabajo.

Camelid hunting through time

The camelids has been one of the most important economic resources for local populations since the first human occupations in the region until now (Hermitte 1972, Hermitte and Klein 1973, Yacobaccio 1988, Aschero et al. 1991, Elkin 1992, Yacobaccio and Madero 1992, Aschero et al 1993-94, Yacobaccio et al. 1994, Pintar 1996, Olivera 1997, Yacobaccio et al 1997-98, Haber 1999a, 2003a, Aschero and Martínez 2001, Ratto 2003, Mastrangelo 2004). From archaeology, investigations have show its importance during the times when the groups had hunting- gathering economies. During this time, a great quantity of projectile points was manufactured and spaces were organized through different structures in order to be able to hunt these animals.

During the late Holocene a transformation of the local economy might have happened, due to the introduction of agriculture and herding, also generating modifications in the settlement patterns and in the social relations. It has even been assessed that the herding was the central strategy of subsistence, determining the practice of other activities such as caring of the herds (Nuñez 1981, 1989, Yacobaccio 1988, 2001a and b; Aschero *et al.* 1991, Olivera 1991, 2001, Podestá 1991, Reigadas 1992, 1994a and b, Olivera and Elkin 1994, Yacobaccio et al. 1994, Yacobaccio et al 1997-98, Hocsman 2002).

However, different investigations in the northwest of Argentina, show an important role of one of the wild camelid in the area the vicuña (*Vicugna vicugna*), in societies with economies based on agriculture and herdering, recovering in the archaeofaunistic records, higher percentages of vicuñas instead to llamas, which would show the importance of this resource (Yacobaccio and Madero 1992, Elkin 1996, Haber 1999b). In the same direction, the characteristics of the irrigation networks show a relevant roll of the agricultural practice during the first millennium of the era (Quesada 2001, 2007). That is why what was mentioned as a cut off by the archaeological discourse, was not such. The vicuñas continued being profited by these societies, despite of the economic basis of the local population. This does not mean that a very substantial change took place in the daily organization of human populations, but that these societies did not change directly into herders and that their economic, political and social organization was modified maintaining traditions which lasted from earlier times

During the Inka period and as showed in historical chronicles, the vicuña should have recovered its important "economic-ritual" role by taking part of the chaku celebrations in honour of the Inka (Puló 1998, 2000; Ratto 2003). This ritual consisted in the preparation of a big circle of persons with ropes and pieces of cloth in which a great quantity of vicuñas was entered and hunted, giving the meat and the wool to the Inka. It seems that this practice had a severe control by the Inka state, as showed in several ethno-historical chronicles (Cieza de León [1553] 1984, Murra [1978] 1999, Polo de Ondegardo [1571] 1990). In Argentine Northwestern, the Inka empire interest was focused in mining activities (Olivera 1991) or even in the reproduction and shearing of vicuña wool (Gambier and Michieli 1986). Nevertheless, in many areas, such as the *Puna* landscape, this control could be not so severe and it is possible too that a traditional exploitation of resources took place, because of the lack of material evidences about Inka settlements.

This can also be added to the data about the early colony, when the vicuña had been one of the principal resources for the payment of tributes by the local people due to their characteristic (possible to be changed for metallic, raw material, convertible into manufactured goods which could be sold at the market or object to be accepted as a "money of the earth"). In this way "the wool of the vicuña transformed itself in one of the possible options which the local populations had in order to accomplish with the requirements of the colony politics" (Lema 2004: 162, author translation).

So we can say that the vicuñas wool gets a relevant role in the local populations economy because it was the good which allowed them to accomplish with the tribute (Lema 2004, 2006 Yacobaccio *et al*. 2007). The vicuñas wool are therefore thought as the only way to obtain resources by part of the indigenous populations. However these fibres were goods which allowed an articulation with the emergent markets in the Spanish colony, as it accomplished with the requirements in order to be considered as money of the earth (Haber 1999a, 2003c; Lema 2004). This situation interpreted as excessive hunting of vicuñas, added to the lack of appropriate technology to shear the animals without killing them, could have leaded to a considerable reduction, jeopardizing the populations, being apparently responsible of it the indigenous who lived in these regions (Puló 1998, Yacobaccio *et al*. 2007).

In the republican period (XIX century) the importance of the hunting of vicuñas would continue being central for the local populations, providing

a resource which was possible to interchange for goods from other regions. So, the hunting of vicuñas added to other species, provided from an excessive source, even more important than agriculture. This activity resulted in resources like meat, fibres and leather. However, the most important resource had been the vicuña wool which allowed them to exchange for other goods in places like Cachi or Northern Chile (Benedetti 2005),

> *"The commercial exchange consists in the sale of vicuñas, llamas, sheep and goats leather and wool, to which you may add the furs of animals obtained through hunting. Another product which is exchanged for corn or flour, are the wool cloths which they spin and knit with primitive methods which are very much appreciated by experts" (Catalano 1930 in Benedetti 2005:400, author translation).*

In the travellers vision this local economies are based in a landscape understand in terms of marginality (Haber 1999a, 2003c) which supposes a dependence practically exclusive from vicuñas hunting, as it can come out from the following statement: "There are extended moors and there live seven vicuña and guanacos hunting native families" (Bertrand 1885 en Benedetti 2005, author translation).

The vicuñas wool and its commercialization have been an important axis for the local economies. This situation continued until, at least the 1970s where 50% of the economical active women in Belén (province of Catamarca) were *chals* and *ponchos* weavers from llamas and vicuñas (Mastrangelo 2004). Meanwhile some of the men were raw materials gatherers and others were in charge of selling in other places of the North-Western provinces of Argentina.

However and because of the "criminal" behaviour of the vicuña hunters[1] (Vitry 1990), state strategies of control were generated tending to forbid its hunting and commercialization. This situation started at the beginning of the XX Century and lasts until today, where the preservation and interventionist discourse is always performative on the local populations. These laws banned completely the hunting of the vicuña and in the last twenty years several projects regarding conservation and sustainable use of the vicuña by the local populations have been developed (Puló 1998, 2000; Vilá 2006).

For instance in the Province of Catamarca, in the Laguna Blanca Biosphere Reservation, periodical confines organized by the province state and the local community are fulfilled. At the end of the activity, the

community keeps a part of the sheared wool, while the province government gets another percentage which is afterwards sold in around U$S 300 per kilogram to artisans of the province (La Union Newspaper 07/07/2006). Besides the high price, which is difficult for an artisan to get in order to buy the fibre, the other trouble is that these type of projects generates, and has been recurrently criticized in the projects of local developments in Argentina, is that the confines are made when the govern asks for them, while the local people cannot use that resource if it is not made through state control and in the periods determined by it.

Landscapes and metaphors

Until this point, we have show the relevance of camelid hunting for the peoples that lived and lives in these areas. To continue with this paper we will try to understand the way hunters and preys relates each other in the landscape.

In archaeology one main aspect is landscape (Clarke 1977, Foley 1981, Binford 1982, Bender 1993, Ingold 1993, Thomas 1996, Tilley 1994, Criado Boado 1999, Anschuetz *et al.* 2001, Curtoni 2007). It has been taken from different theoretical and methodological perspectives, covering variable chronological periods and associating them to different practices. We can resume the theoretical and methodological perspective of the landscape in two perspectives. From one side an environmental vision, in which the ecosystem and its interaction with human populations is analysed, with a deterministic point of view. From the other side, with a landscape vision, that is to say, considering the environment as a dynamic aspect, which is moulded by the people, but which at the same time constructs these persons and plays an important role in the conformation of the social relations (Milton 1997).

The first focus tries to comprehend the way environment moulds the culture, determining the way in which certain environmental aspects such as the climate, the topography, the flora, the fauna, and so on, determined the way human groups adapted and in that way constructed plausible models to be translated to other human groups which shared similar environmental factors. This environment acts as a limit for the human development, practically making cultural decisions impossible (Binford 1965, Harris 1993, Milton 1997).

This perspective was criticised by those who affirmed that the environment could be constructed by human societies. Some authors proposed that the environment could be completely changed by social beings, arriving to a point in which the environment did not matter and only the cultural decisions which modified and structured the landscape in accordance to their needs, should be taken into account (Milton 1997, Ingold 2000b). This radical perspective was also strongly criticised, because it is undeniable that the environment imposes some parameters that cannot be modified in accordance to the necessities and in the same way, if it could be possible, the cultural decisions are carried out in relation to the environment (Ingold 1993, 2000b).

The radical perspectives, regarding both, one or the other end, are not the answer to a problem like the interaction between people and landscapes in the past. That is why we believe that a perspective which analyses in which way the landscape is structured, organised and modified by the people at the same time they are constructed by the landscapes, is an important alternative for the development of the proposed problem here (Ingold 2000a and b).

These radical visions share a perspective of the landscape as something outside which does not allow the free development or that could be changed in accordance to the needs. However, in diverse ethnographic investigations it is clear that the people do not relate themselves with the landscape in terms of something extern that must be modified, but that it is part of the universe itself, where every aspect of the daily life gets related in order to make sense (Politis 1996, Ulloa 2004, Descola 2005).

Regarding this perspective, the landscape can be considered in terms of a metaphor where social relations and different live aspects develop. With metaphor we represent that the landscape tells a story and that the material aspects of the landscape refer to significant which are not present there (Potter 2004). In this way, the landscape relates mostly with those aspects that are felt and experienced by the people, which are geographic aspects that form the landscape. However it is not so, that this last ones are put at one side, but that it is important to analyse them in relation to human perception.

So, landscape can be interpreted as a place created by people, which is impregnated with human actions and meanings. These actions have the power of being reservoirs of the lived experiences by the human populations along time, settling in the mind (Haber 1999a). That is why by moving along in a determinate landscape, they embodiment experiences that are

in the future incorporated to the memory of the subjects. In this way the human bodies connect with the landscape and with the material aspects present in them, in such a way that they last through the time, perpetuating and rebuilding the cultural significance (Potter 2004). So only "… living in the landscape, it turns into part of us and we turn into part of it" (Ingold 1993: 154). In this manner at the same time we structure, prepare and live the landscape, we build our identity in relationship to the landscape and to the other beings which share that landscape.

In this way the concept of livelihood, of living a space becomes relevant, because the daily relation, observation, the cultivating of the fields, the hunting of some animals, the raising up of children and every type of practice is done within the framework of that landscape and it is in the framework of each of these experiences that a metaphor is built, because several aspects of it takes us to vivid experiences in the past. These metaphors have to reproduce along the time in order to be kept in the memory and for that to happen, the sedimentation of meanings through routine and periodical procedures (Haber 1999a), as, for example, the use of certain spaces for the hunting of a determined animal. The landscape so tells a story that is qualitative and heterogeneous (Ingold 1993), or still better, polysemic (Bender 1993), because the stories which are told, are different and correspond to the personal experiences of each agent.

We do not want to express that the landscape is a mental image put into the memory, which acts like a kind of painting, because in this way it turns into something static, which can be passed from generation to generation, but cannot be modified. Inside the phenomenological vision of the landscape, it is dynamic and daily changeable, according to life experiences (Ingold 1993). These dynamic landscapes includes the modifications performed by human agents and animals and are those prints which we can recover and use to study the way this agents relate and construct each other. The vicuñas leaves evidences like prints on the roads, places to sleep, nests, organic remains, etc. We need to work around these material traces in order to observe and rebuild the significant of each one.

The hunting landscape

In this work we are interested in analyse particularly the hunting landscapes. These imply a frame where people relate between themselves and with the species they pretend to capture. But, these relations imply a multiplicity of factors which give sense to this practice. Among these factors,

we have got, as said before, the landscape with all its implications we marked in the former section. Another aspect is the relation among the people and the animals. These could be defined as the relationship between a hunter and its prey. However, this relationship is never so simple and its complexity lays in the cosmovision of the human populations. In several ethnographic investigations hunting is considered as an interpersonal relationship due to the fact that nature and of course the animals which are pretended to be hunted are not conceived as an external object, but as a part of a relation in which nature is the provider of resources in the same way as in the family the parents supply food to their children,

> *"Hunting distinguishes itself not as a technical manipulation of natural world, but as a type of interpersonal dialogue, which is integral to the total process of the social life where humans so as animals are made with their particular identities and purposes" (Ingold 2000b: 49).*

In the vicuñas case, these animals are recognized as *salqa*[2] (Grebe 1984, Arnold et al. 1992, Haber 1999b, 2003a, 2007), belonging to the *Pachamama* who offers to the local people these animals to be profited of whenever they are not hunted in excess or for fun. In these cases the Pachamama generates punishments, as we can see in the following fragment,

> *"It happened along time ago, a man who used to kill very much of the animals of the Pacha. The man died, no one knew who killed him. They found the body three or four years afterwards, when nothing was left. He was found by another man in the field, who had got lost, like the other one. The Pacha ate him. All right, if the Pacha killed him it was because he had killed so much of her cattle" (García and Rolandi 2000: 171, author translation).*

In this way the local cosmovision about the vicuña generates some kind of local taboo against indiscriminative hunting, believe we can date back in the past like a tradition that has maintained itself through the time. This local forbidding has been nowadays replaced by the banned of vicuñas hunting declared by the national state and the different vicuña provinces since the decade of 1960 (Puló 1998, Vilá 2006).

This seems to imply hunting not as an act of finalization of a life, but of regeneration and reproduction of live (Haber 1999b, 2003a, 2007, Ingold 2000a) through the implantation of certain parameters inside the

cosmovision of these populations, where the separation between nature and culture or between mind and body, centres for the comprehension of the occidental ontology, presents flexible boundaries or even erases them.

Another important issue are the weapons used in order to performance the hunting of these animals. We understand the manufacture of these not only as the activities and physical actions of production and use, but as an intersubjective field of relations implicit in the daily practice, building and reproducing power relations among the social subjects (Pfaffenberger 1992, 1999; Dobres and Hoffman 1994, 1999; Dobres 1995, 1999, 2000). We hereby refer that the weapons production technology must be a component to analyse in relation to the whole factor which implies in the development of the daily life and which has not to be isolated and analysed as an adaptative factor determined by the structure of the environment. When we state that the technology is a field of relations, the factors get in touch, structuring the social relationships, and at the same time, technology is being structured by the same factors. So we can think in a routinization of daily practices in relationship with the maintenance and reproduction of the social relations and the construction of identities (Thomas 1996, Moreno 2005).

In this way, the weapons used for the practice of hunting becomes in another central factor to the conformation of the senses and the construction of a hunting landscape in terms of a metaphor about the relations between the different factors. In the special case of vicuñas hunting, the weapons used are mainly points of projectiles, which have been modified across the time and are chronological marks of the use of this tools, and also builders of identities inside the social groups.

Previous investigations in the area

The issue of the vicuña hunting in the area of the Puna de Atacama has being central in the archaeological investigations about hunters-gatherers. However, also in societies with economies based on agriculture and herdering (Aschero et al. 1991, Yacobaccio and Madero 1992, Yacobaccio et al. 1994, 1997-98, Pintar 1996 and Ratto 2003 among others), this specie was recognized as a central resource, being more extended than the domesticated llama, such as shown in the high representations of vicuñas bone specimens in stratigraphic excavations performed in the area (Yacobaccio and Madero 1992, Elkin 1996, Haber 1999a, Revuelta 2005). Despite of it, the herdering and the origin of the domestication of the llama tended to leave at one side

the problematic of hunting, generating a modification in the cosmovision of local populations, who would turn into herders, as we have shown before.

In the Punean area of the province of Catamarca, several investigations have been developed among which we can name the ones performed starting by the analysis of the bone remainders in Antofagasta de la Sierra (Elkin 1996) or the ones fulfilled by Ratto (2003) in Chaschuil, Tinogasta Department, where a comparison was performed between the practice of hunting in extractive societies and productive societies. A very important contribution for this work, has been the analysis which was done by Aschero and Martínez (2001) about the spatial organization of hunters in the area of Antofagasta de la Sierra. They developed hunting models based in the types of projectile points recovered from the excavation of Quebrada Seca 3 (QS3). These authors assure that,

> *"the hunting of camelids was the main activity for subsisting, inclusive during late moments under the full establishment of agricultural practices (though) the hunting plus the gathering domain the way and strategies for survival of the major part of the history of the man in the puna desert, until pasturing and agriculture, as modes of productive survival, started to acquire preponderance in these economies" (Aschero and Martinez 2001:216, author translation. Also see Martinez 2003).*

In order to build its model these authors lean on the analysis of the systems of weapons, the archaeofaunistic record, the ethology of the camelids, the topographic characteristic of the archaeological sites and the probable organization of the hunters. Mixing up these factors, Aschero and Martinez (2001) generate three hunting models for different moments.

- Hunting in open spaces (8660+-80 BP and 8640 +-80 BP): hunting at a distance in open spaces (pampas and flat lowlands) using the propeller. The hunting would have been made in ambush and approach, without harness or persecution.

- Hunting by interception: this may vary between the one in which a propeller was used (8670+-110 BP and 7350+-80 BP) from that one with a throwing lance (7130+-110 BP and 6080+-70 BP). In the first case it is stated that some people carry the troops of camelids towards narrow passes. For the second case, the same scenario is repeated, but with necessity of harnessing the animals, reduction of the shooting

distance and better hiding conditions, as for example by the building of parapets.

- Hunting in ambush and use of propellers: (7130+-110 BP and 6080+-70 BP): hunting parapets were used in combination with the natural topographic characteristics of the field. It differences from the former one in the great quantity of built parapets and the greater social participation.

In the Antofalla area, Haber (2003a and b, 2007) performed an investigation regarding the hunting of the vicuña in the Archibarca basin. This work is useful for us for the problem present here. In this work some relevant landscape aspects were analysed for the comprehension of the organization of hunting activities. Structures were described, such as trenches, hiding places for meat, lines of stones, etc., which allowed to understand how the landscape was prepared to start a relationship between people and vicuñas. In the same way the analysed lithic technology showed that the landscape was equipped with medium flakes and nucleus which could have served as basic forms or for the preparation of these ones in any moment when necessary. In this way Haber (2003a) considers the area of Archibarca as a trap, a device build by the humans to attract preys to their death. In order for this trap to be effective, it had to be constructed having in mind the knowledge the hunters have of their preys, as, for example, behaviour, movements, reactions, weaknesses etc.

The Antofalla valley

The Antofalla valley is placed in the NW angle of the Antofagasta de la Sierra Department, Province of Catamarca, Argentina (Figure 1). It is one of the valleys that comes down to the Salar of Antofalla, following the water course which is originated in a water spring situated approximately at 4.100 m above sea level and which in its lowest part forms like a debris cone with an approximately highness above the sea level of 3.400 m until reaching the Salar de Antofalla. This particularity of the hydraulic regime forms a flat lowland landscape around the water course, being the rest of the landscape arid (Figure 2).

This area of the Puna de Atacama distinguishes itself for its arid climate, strong climatic variations between day and night, low vegetation, topography brooks, with intense slopes and big altitudes. The rain is principally snow, with predomination of the ones who happen in the higher peaks (Haber 1999a). Despite the puna has been defined as a rather

homogeneous landscape, as if it were a high plateau, it has got very high landscape variability, which is relevant for the comprehension of the hunting landscape (Haber 1999a). This happens in the same way in the Antofalla valley. That is why one of its characteristics is the presence of low lands, canyons, narrow passes and other valley landscapes in the inside of the Antofalla valley which would be profited by the hunters in order to prepare spaces, to which small hiding places were added (like trenches or parapets[3]) or of determination of movement (such as lines of rocks), forming traps for the vicuñas which passed among these spaces (Haber 2003b).

The vegetable species available in this zone (as for example *Adesmia sp., Stipa sp. or Cortadeira sp.*) are specially used by the Andean camelids for their food, generating a concentration of resources around the water founds, where all animal species approach looking for food and water.

The vicuñas have occupied these landscapes along the time, being this landscape the one they adapt best. Their bodies are specially adapted for the great height in these places, being able to run with great speed among the rugged puna geography. They have got a social organization based in the existence of familiar groups, young male troops and lonely males. The average size of the families is very stable comparing interpopulations (one male, three or four females and two or three breeds). The male establishes and maintains a permanent territory during his reproductive life. This territory normally has a sleeping zone in the highest area, a feeding territory a little lower and a water source. The territorial limits are determined by "bosteaderos", which are useful for the orientation of the members of the family group and also points from where the prevailing male threatens strange vicuñas and by means of ritual voiding of excrement reinforces the limits of his territory (Wheeler 2006).

Nowadays, in the Antofalla valley there live about 30 to 50 people, which perform several productive activities along it, such as the breeding of llamas and sheeps and agriculture of potatoes, garlic, corn, beans, etc.

Figure 2: General view of the Antofalla valley extracted from Google Earth
Figura 2: Vista general de la quebrada de Antofalla extraída de Google Earth.

Description of archaeological landscape of antofalla

In the Antofalla valley multiple material aspects can be observed, which relate with hunting practice along time. In order to register this variety we performed an intensive prospection of the whole valley, with groups of persons separated each 40 m. In this work three principal categories of material traces were identified: sites with structures, dispersion of materials and isolated findings. The information resulting from these prospections was systematised through several databases and incorporated to specific software for the analysis of the geographic information which we will comment hereunder.

The sites were separated in some basic interpretative categories, as for example, trenches, apachetas, dispersion of artefacts, etc (Haber 2003a). This allowed us to understand the location along the Antofalla valley and in this way, to analyse the structuring of the hunting landscape.

Through the systematic field survey carried on in the Antofalla valley, a total of 1900 sites were recognised, in an area of 32 km^2. Among them a high percentage is related to agricultural activities (terraces, canals etc) and shepherd (runs, shelters, etc.) others to hunting activities and finally various graves were registered, which had been excavated in some moment in the past. The sites related with hunting activities were defined in

construction based categories and at the same time functionally interpreted. The descriptive category was based in the structures shape, as for example circular shape, quadrangular, in arc shape, aligned, accumulation of blocks, rock shelters, etc. The volume and maximal height of the structure was also described. Also if it was associated with surface materials and which kind of, that is to say, lithic, pottery, bones, glass, etc. and its location in relation to the surrounding landscape. So for example, it was quoted if it was located in high zones, near a dale, depression.

Meanwhile the interpretative classes were related with the possible function of the structure, and they were defined as trenches, barrows, shelters, hiding places, landmarks, traps for foxes (Haber 2003a y b). In our case, we will focus in some types of sites which we will now describe (Figure 3):

- Trenches: they are structures made by stone blocks in most of the cases in arrow or half-moon shapes. Their protections are related to narrow passes, paths or are located in the higher hillside. They are formed by a simple wall with an average length of 1,5 m., and the maximal height of 0.7 m. We can observe diverse sizes and constructive forms but the principle is always the same in all cases, give the hunter a hiding place for possible preys. As we expressed, this structures are usually located in high zones but its "simple"[4] constructive mode makes it practically impossible to difference them from other accumulated rocks.

- Meat hoard (Haber 2003b): they are accumulations of rocks which are some centimetres above the floor level, reaching up to 0.6 m height. They have irregular shape and a diameter of approximately 1.5 or 2 m. In most of the cases they are found, the same as the trenches, in high areas and in the break of the slopes. In some cases bones can be seen inside which can be associated with stone tools and debitage which could indicate the possible use of these as hiding places of hunted animals meanwhile hunting continues in the zone. They used to have interstices between the rocks which protect the meat from the sun, generating very cool places. We registered one of these hiding places, which had inside rests of a sheep.

- Alignments: of great dimensions, up to 25 or 30 m., are conformed by small rocks and which in many occasions are related to small landmarks in its beginnings or endings. In many opportunities in the Antofalla valley these lines go through depressed areas and get together in higher areas, where the landmarks are situated. This is

different from the alignments which Haber (2003b) described in Archibarca and which in mainly of the cases were located in depressed areas, planes and small slopes in intermediate spaces between the areas to eat (flat lowland) and to rest (mountains) used by the vicuñas. They do look alike in association to monticules of rocks although in Archibarca they use to be on the sides of the alignments while in Antofalla they locate preferably in the higher parts.

- Shelters: small closed structures, generally in circular or semicircular shape and which could give temporary shelter or a hiding place to the hunters. The dimensions were small reaching in average 1.5 m of diameter and a maximal height of 0.8 m. These shelters are generally found in association with lithic or ceramic material so they possibly were used as activity areas during the time a person stayed there.

- Landmarks: There are stone accumulations used as landmarks (as boundaries of herdering territories for example). We could identify three different constructive ways. The first one are represented by the apachetas, which are accumulation placed vertically reaching 1 m. high and a diameter of 0,5 m. Other type of landmark is constructed putting one or two small rocks over a bigger one. Finally we could identify long thinner blocks placed vertically with small rocks supporting the base

- Dispersions: areas where great quantity of archaeological material on the surface could be registered, in most of the cases lithics. Some of these dispersions which can be confined in polygons of various hundreds of meters and others restricted to some little ones. The dispersions of lithic material were defined as activity areas, areas to prepare lithic objects and areas for the supply of raw material and for the manufacturing of lithic objects.

- Residential sites: these are structures of very important sizes which have sub-structures inside. Several of these structures were found, along the valley and generally they have rectangular forms with smaller structures inside and a great quantity of lithic, bone and ceramic material on the surface. It is probable that these placed have been reused along time.

- Table: These are stones united in an area of approximately 1 m. of diameter placed with its plain faces looking up. Their function is to place the hunted vicuña to process the meat and the leather without ruin it (Haber personal communication)

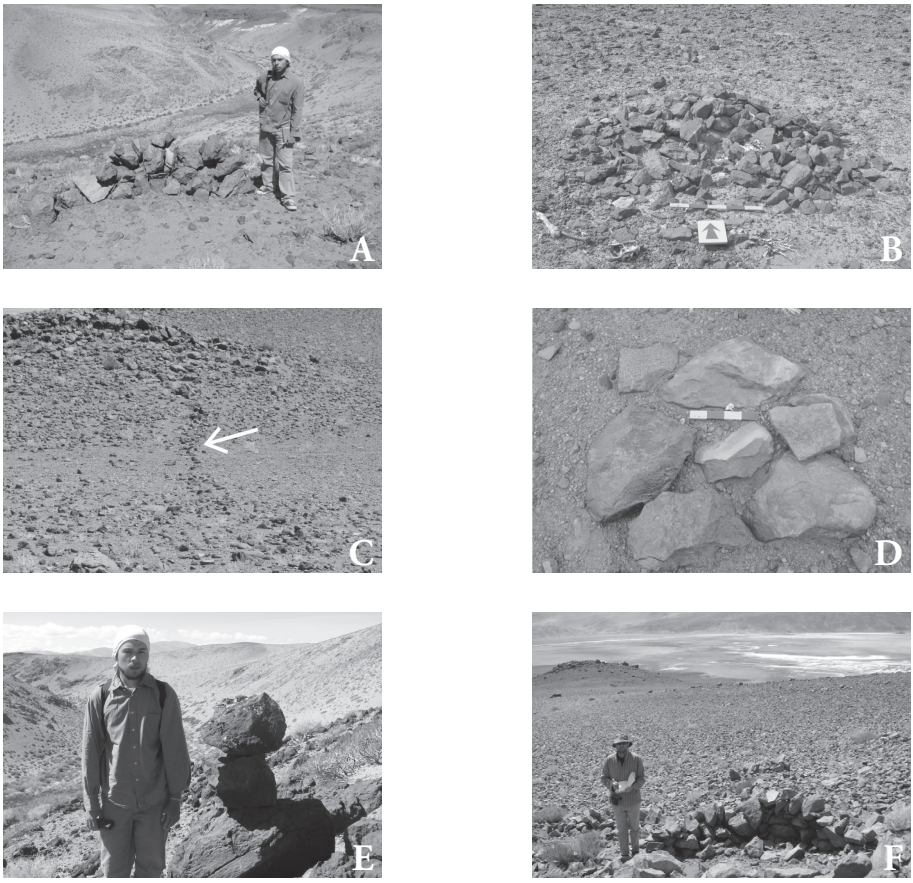

Figure 3: Types of hunting structures identified in the Antofalla valley: A) Trench placed in the crack of the slope. B) Meat hoard were some bones of a sheep can be seen. C) Alignment placed in the lower part of Playa Negra. The arrow shows the alignment D) Table used to cut into logs the hunted animals. E) Landmark placed in the crack of the slope. F) Shelter placed in the upper area of Playa Negra.

Figura 3: Tipos de estructuras de caza identificadas en la quebrada de Antofalla. A) Trincheras ubicadas en el quiebre de pendiente. B) Escondite de carne donde algunos huesos de oveja fueron identificados. C) Alineación ubicada en el sector bajo de Playa Negra. La flecha indica la alineación. D) Mesada utilizada para carnear los animales cazados. E) Mojón ubicado en el quiebre de pendiente. F) Refugio ubicado en el sector más elevado de Playa Negra.

As we can see there are a multiplicity of types of structures used by the hunters in the area of Antofalla, which contribute to the conformation of the landscape in which encounters are produced between them and the vicuñas. These structures are associated in small areas which present characteristics which are relevant for hunting. They are found in narrow passes, zones near to spring water or herdering areas and generally in medium heights which

could show that hunting took place in the late afternoons when vicuñas return to their sleeping places after eating and drinking water.

Organization of hunting landscape

Until here, we have presented the way in which the hunters constructed different structures aimed to hunting and which have lasted along times. However, it is necessary to make a more detailed analysis in order to understand the way in which this landscape was constructed, as also the relationship between hunters, preys, space, weapons, etc. In this context, an important issue must have been the observation of the habits of the vicuñas, analysing the places where they drove along, following the paths which these animals daily use and in this way anticipating the movements of the troop in order to obtain possible targets. In order to succeed, the hunters built structures, principally trenches, which were associated between them in order to hide from vicuñas and in that way achieve its mission. In order to show the association between these structures, which form real material hunting devices, we will present a case verified at the lowest sector of the Antofalla valley (Figures 4 and 5).

This sector is characterized by the presence of a haven which communicates the lower part of the flat lowland with the higher parts where the animals would have rested. We identified a total of 30 trenches, all of them located on the slopes in a relative higher position than the surrounding space. We also registered an alignment of small rocks which cut the haven in east-west direction. Here a landscape is formed in which the vicuñas could have been climbing from the pasture areas towards the rest places, going through the small flat lowland. In this way the hunters would have waited the vicuñas to start climbing towards the rest zones and when they crossed through the flat lowland attacked them. It is possible that some people could have acted as inciters and obliged the vicuñas to direct themselves inevitably towards the haven, thus generating that this space turned into a trap (Haber 2003a). The hunters had to be very well hidden and avoid themselves to be seen due to that any suspect would make that the vicuñas, directed by their *relincho*, would escape towards another place.

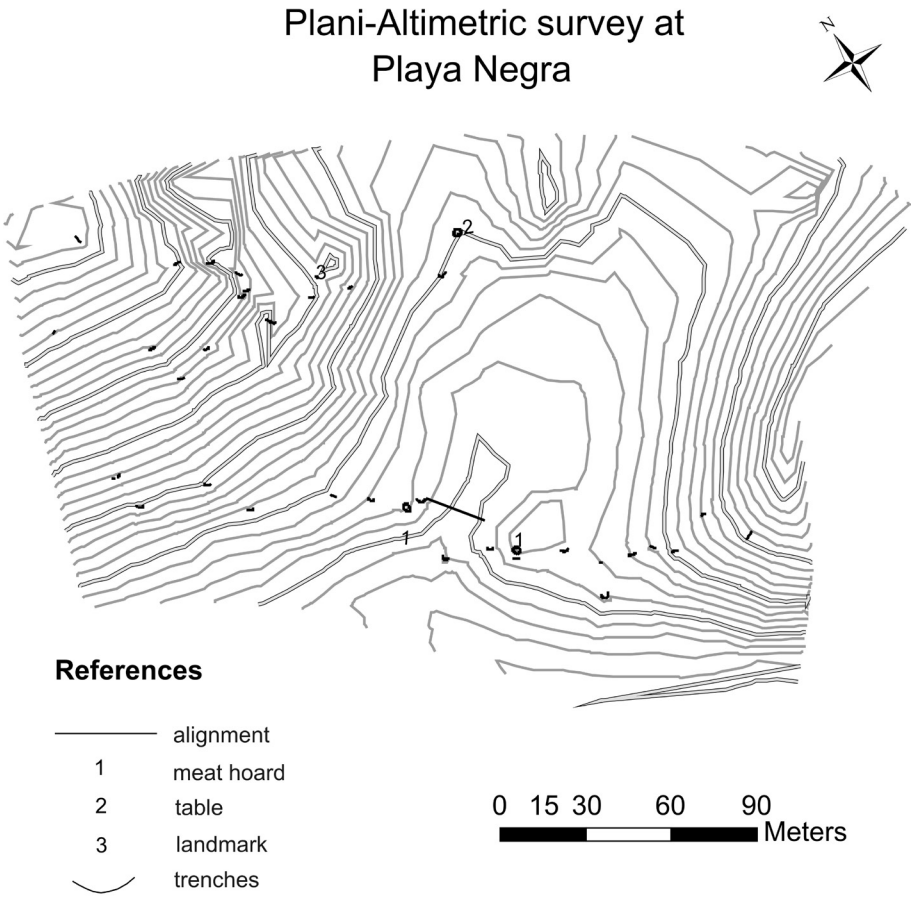

Figure 4: Plani-altimetric survey at Playa Negra. Here we can see the way landscape is used by hunters preparing structures like trenches or alignments to organize the hunting landscape.

Figura 4: Relevamiento plani-altimétrico de Playa Negra. Se puede observar la manera en que el paisaje es utilizado por los cazadores construyendo estructuras como trincheras y alineaciones para organizar el paisaje cazador.

In this landscape the people which took place of the hunting turned into hunters, following certain rules as for example, knowing which structures use, wait for the appropriate moment to attack, prepare and use the weapons, etc. Also after hunting, the animals had to be slaughtered and the flesh distributed. It is possible that this hunting practice involves the participation of a variable number of people, generating a complex logistic in order to reach the desired success.

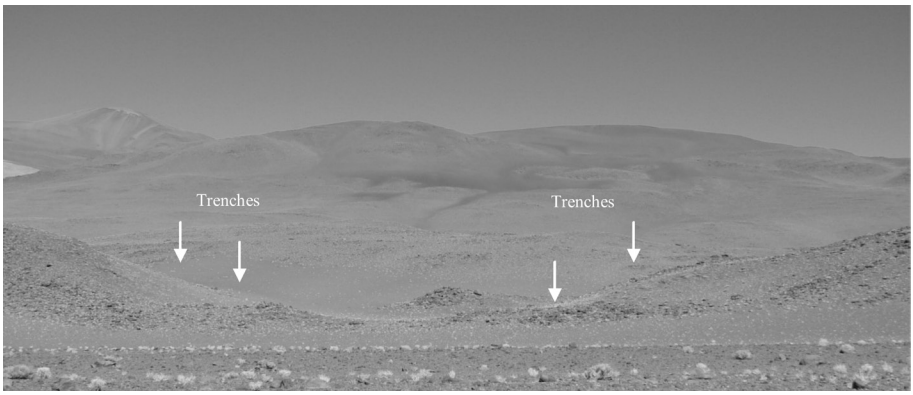

Figure 5: General view of the hunting landscape of Playa Negra. All the trenches are placed on the slope in order to increase hiding in relation to vicuñas.

Figura 5: Vista general del paisaje cazador de Playa Negra. Todas las trincheras se encuentran ubicadas en las laderas con el objetivo de aumentar el ocultamiento en relación con las vicuñas.

This landscape seems to have been reused over time, being a key of it, the finding of different types of projectile points and also because it is a place the vicuñas have been using to feed themselves until today as we could prove in fieldworks recently performed. In this way these devices turned into sceneries for the encounter of vicuñas and persons, where the landscape, the instruments, the structures conformed one with the others in order to give significance to these encounters. Thus being a reused landscape over time, surely it implied a knowledge of the area by older people which was bequeath to the younger ones, in the same way as the rest of the factors which take place in the practice of vicuña hunting, as for example, the manufacture of tools, the rules of relations with other hunters and with the troops, etc.

These places were reused during long terms including during the occupations which were known as agricultural-pastoral. In several excavations, projectile points and bone remains of vicuñas were recovered, which allows us to assure the continuity of these practices in those moments (Elkin 1996, Olivera 1997, Haber 1999a, 2007; Ratto 2003, Revuelta 2005). Hunting would have played an important role in the economy, generating necessary resources for the reproduction of the social group, as also being a practice which reproduced social relations and the knowledge regarding these practices.

The device described above repeats all along the Antofalla valley, being modified the quantity of structures or the way in which they associate,

but always placing in higher zones in relation to its direct environment and between the feeding areas and the resting areas used by the troops of animals. Facing this reproduction of the space scale of hunting, we could ask ourselves what was the need of the hunters to build this landscape. The first answer relates with the ethological characteristics of these prays, which have the capacity of running away very fast through steep slopes, making a running persecution impossible for the hunters. Equally, these animals perceive jeopardy through their senses, principally through hearing, sight and smell, so hunters had to avoid the perception of danger by the troops and in this way avoid the escape. The trenches devices which we described above, should allow hunters to hide from troops, avoiding being seen until the preys were at a very short distance, the same they had to keep quiet, avoiding the *relincho* to realize of their presence and therefore start the escape. Also the location of the trenches, in intermediate zones between two principal areas of the prey's territory (pastures, water sources and high rocks), allowed to propitiate the encounter with the troops, without them perceiving the danger.

But this explanation allows us to assess how these hunting devices would have functioned. However, as we explained before, these devices reproduce along the whole valley, which would be related to the exploitation of the territories of different troops and to the realization of periodic hunting in order to avoid the animals to perceive every day the jeopardy of being hunted and so leave their territories, moving on to other zones where the contact with hunters would not be so vivid.

These devices might have been used by different generations of hunters through time. However we do not count on absolute chronological information which allows us to precisely locate these structures. The projectile points we recovered associated to these sites gives us a broad timeframe of its exploitation. Through an analysis of the design of the projectile points and the comparison with similar specimens of other areas (principally of the Antofagasta de la Sierra basin and the north of Chile) we can state that from the first human occupations from the zone until the colonial times these sites were exploited by hunters. Through a comparison of the projectile points from a intensive survey of the Antofalla valley with the ones recovered in Quebrada Seca 3 (Antofagasta de la Sierra) (Martinez 2003, Hocsman 2006) and Puripica 1, Puripica 33 and Tuina (North of Chile) (Nuñez 1980) we can observe that correlations can be marked for different temporal moments of the long occupation time which these sites

show (Ratto 2003). In figure 6 the comparisons and temporal adscriptions of the different types of projectile points are shown.

Conclusion

Through these work our concern has been focused in showing in which way the hunters of vicuñas in the area of Antofalla related to their landscape, structuring it but at the same time being structured by their relations with it and by other factors which played a very important role in the hunting, like for example, weapons and animals. We have registered an important quantity of archaeological structures related to hunting activities in the entire Antofalla valley which were used in different moments of the long history of occupation of this place.

We believe that in this long history the vicuña hunting became a traditional practice, performed with social and economic objectives, where hunters constructed themselves, determining its own identity which was transferred from generation to generation and which metaphoric characteristics may be found in these trenches, hiding places and alignments that today are still observed by the people who live nowadays in this place. That is to say that the landscape of the Antofalla valley keeps the memory of the hunters of vicuñas, and also their rules as shows that story about the vicuña hunter trapped by the Pachamama which we commented before.

Through this metaphors in the landscape, so for the ones of hunting, as for the agricultural or herders, enable the construction of identities of the local populations, who nowadays continue fighting for the recognition of their rights and the free appropriation of their resources.

Acknowledgments: I want to thanks to Alejandro Haber for let me do the research about hunting in Antofalla, and for the help in understanding the landscape and the vicuñas. I want to thanks especially to Marion Schwarzenberger who help me substantially in the translation of this article. Also to Patricia Lobo and Enzo Acuña, who made an important job in the fieldwork and in the laboratory. Also to Carlos Aschero, Salomón Hocsman and Jorge Martinez for the information about projectile points and their chronology. Finally and specially, I want to thank to the people of Antofalla, who always help me and gives me and important support in my investigations.

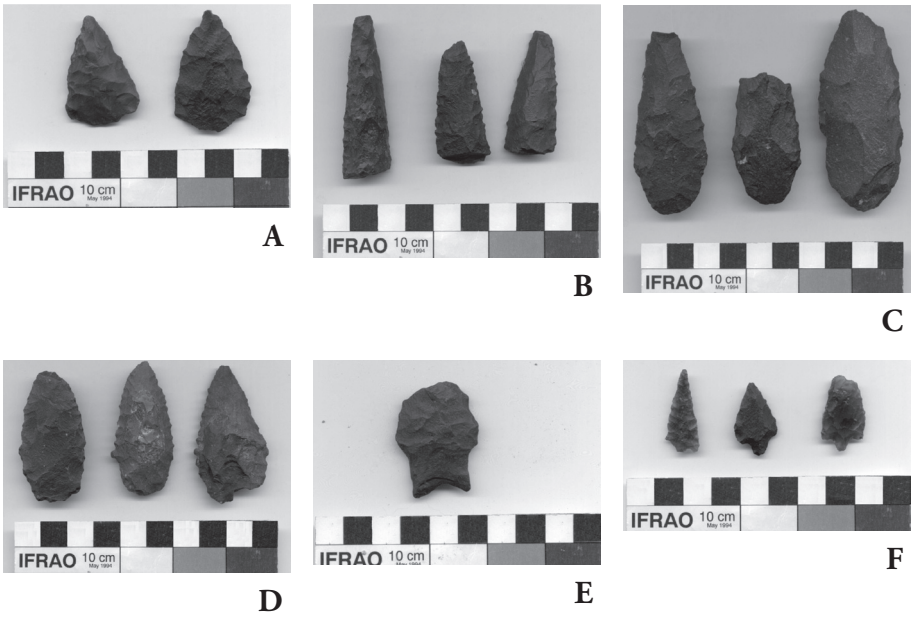

Figure 6: Different types of projectile points from Antofalla valley, corresponding to diverse moments of the human occupation of the area, based on the comparations with other places, mainly Antofagasta de la Sierra. A) Projectile points similar to the QSA type, chronologically situated ca. 9000-8660 BP (Martínez 2003). B) Projectile points similar to the PCzA type, chronologically situated ca. 8670-7220 BP (Martínez 2003). C) Projectile points like the ones recovered at QS3 level 2b10 (6080±70 BP) (Hocsman 2006). D) Projectile points similar to the QSF type corresponding to the chronological group 2 proposed by Hocsman (2006) between ca. 4150-3430 BP. E) Projectile point similar to the QSB type found in diverse moments of the human occupation of the area. It is found in the first times of human occupation in QS3 (9790-7760BP) and also in occupations corresponding to the chronological group 2 (Martínez 2003, Hocsman 2006). F) Small triangular projectile points like the ones found in Tebenquiche Chico for the first millennium of the era (Moreno 2005).

Figura 6: Diferentes tipos de puntas de proyectil recuperados en la quebrada de Antofalla, correspondientes a distintos momentos de la ocupación humana del área, basados en la comparación con otros sitios, principalmente Antofagasta de la Sierra. A) Puntas de proyectil similares al tipo QSA, ubicado cronológicamente ca. 9000-8660 AP (Martínez 2003). B) Puntas de proyectil similares al tipo PCzA, ubicado cronológicamente ca. 8670-7229 (Martínez 2003). C) Puntas de proyectil comparables con las registradas en el nivel 2b10 de QS3 (6080±70 AP). D) Puntas de proyectil similares al tipo QSF correspondientes al grupo cronológico 2 propuesto por Hocsman (2006) entre ca. 4150-3430 AP. E) Punta de proyectil similar al tipo QSB registrado en distintos momentos de la ocupación humana del área. Fue identificada para los primeros momentos de la ocupación de QS3 (9790-7760 AP) y también en ocupaciones correspondientes con el grupo cronológico 2 (Martínez 2003, Hocsman 2006). F) Pequeñas puntas de proyectil triangulares semejantes a las registradas en Tebenquiche Chico para el primer milenio de la era (Moreno 2005).

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Notes

[1] It is pertinent to comment here, that Vitry (1990) showed criminal action before the law existed. That is to say that despite there was no law determining when a crime is commited, these vicuña hunters were proceeding in a criminal way.

[2] *Salqa* is the andean clasification for the animals that belongs to the earth and do not have an owner between the members of the communities.

[3] We name trenches to the small structures of hiding places in form of arrow, because that is the name the people of Antofalla know.

[4] With simple mode of construction, we refer to that the rocks used by the hunters are the same which are from that place and because they are not very high no attention is paid to them. In order to recognize them one must pass very near.

Bibliography

Aguerre, A., A. Fernández Distel and C. Aschero. 1973. "Hallazgo de un sitio acerámico en la Quebrada de Inca Cueva (Pcia. De Jujuy)". *Relaciones de la Sociedad Argentina de Antropología* VII: 197-235.

Anschuetz, K., R. Wilshusen and C. Scheick. 2001. "An Archaeology of landscape. Perspectives and directions". *Journal of Archaeological Research*, 9(2): 152-197

Arnold, D., D. Jiménez Aruquipa and J. Yapita. 1992. *Hacia un orden andino de las cosas. Tres pistas de los Andes Meridionales*. Hisbol, La Paz.

Aschero, C., D. Elkin and E. Pintar. 1991. "Aprovechamiento de recursos faunísticos y producción lítica en el precerámico tardío. Un caso de estudio: Quebrada Seca 3 (Puna Meridional Argentina)". *Actas del XI Congreso Nacional de Arqueología Chilena* Tomo II: 101-114. Museo Nacional de Historia Natural, Santiago de Chile.

Aschero, C., L. Manzi and A. Gómez. 1993-94. "Producción lítica y uso del espacio en el nivel 2b4 de Quebrada Seca 3". *Relaciones de la Sociedad Argentina de Antropología* XIX: 191-214.

Aschero, C. and J. Martínez. 2001. "Técnicas de caza en Antofagasta de la Sierra, Puna meridional, Argentina". *Relaciones de la Sociedad Argentina de Antropología* XXVI: 215-241.

Bender, B. 1993. "Introduction: Landscape - Meaning and Action". In *Landscape: Politics and perspectives*, edited by B. Bender, pp: 1-18. Berg, Oxford,

Benedetti, A. 2005. *Un territorio andino para un país pampeano. Geografía histórica del Territorio de Los Andes (1900 – 1943).*Unpublished doctoral thesis. Facultad de Filosofía y Letras. Universidad de Buenos Aires.

Binford, L. 1965. "Archaeological systematics and the study of culture process". *American Antiquity* 31: 195-205.

Binford, L. 1982. "The archaeology of place". *Journal of Anthropological Archaeology* 1: 5-31.

Cieza de León, P. [1553] 1984. *La crónica del Perú*. Edición de Manuel Ballesteros. Historia 16, Madrid.

Clarke, D. 1977. *Spatial Archaeology*. Academic Press, London.

Criado Boado, F. 1999. Del Terreno al Espacio: planteamientos y perspectivas para la arqueología del paisaje. *Capa 6.*

Curtoni, R. 2007. *Arqueología y paisaje en el área centro-este de La Pampa.* Unpublished doctoral tesis. Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata.

Descola, P. 2005. *Las lanzas del crepúsculo. Relatos jíbaros. Alta Amazonía*. Fondo de Cultura Económica. Buenos Aires.

Diario La Unión. 07/07/2006. San Fernando del Valle de Catamarca.

Dobres, M. 1995. "Gender and prehistoric technology on the social agency of technical strategies". *World Archaeology* 27(1): 25-49.

Dobres, M. 1999. "Technology´s Links and Chaînes: The Processual Unfolding of Technique and Technician". In *The Social Dynamics of Technology: Practice, Politics and World Views,* edited by M. Dobres

and C. Hoffman, pp: 124-146. Smithsonian Institution Press, Washington.

Dobres, M. 2000. *Technology and Social Agency*. Blackwell Publishers. Oxford

Dobres, M. and C. Hoffman. 1994. "Social Agency and the Dynamics of Prehistoric Technology". *Journal of Archaeological Method and Theory* 1(3): 211-258.

Dobres, M. and C. Hoffman. 1999. "Introduction: A Context for the Present and Future of Technological Studies". In *The Social Dynamics of Technology: Practice, Politics and World Views*, edited by M. Dobres and C. Hoffman, pp: 1-19. Smithsonian Institution Press, Washington.

Elkin, D. 1996. *Arqueozoología de Quebrada Seca 3: indicadores de subsistencia temprana, en la Puna meridional argentina*. Unpublished doctoral tesis, Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Fernández Distel, A. 1986. "Las cuevas de Huachichocana, su posición dentro del precerámico con agricultura incipiente del Noroeste Argentino". *Beitrage zur Allgemeinen und Vergleichenden Archaeologie*, band 8: 353-430.

Foley, R. 1981. "Off-site archaeology: an alternative approach for the short-sited". In *Pattern of the Past: Essays in Honour of David Clarke*, edited by I. Hodder, G. Isaac y N. Hammond, pp: 152-184. Cambridge University Press.

Gambier, M. and C. Michieli. 1986. "Construcciones incaicas y vicuñas en San Guillermo. Un modelo de explotación económica de una región inhóspita". *Publicaciones* (Instituto de Investigaciones Arqueológicas y Museo San Juan)15: 33-67.

García, S and D. Rolandi. 2000. *Cuentos de las tres abuelas*. UNESCO. Proyecto de las Américas, Buenos Aires.

Grebe, M. E. 1984. "Etnozoología andina: concepciones e interacciones del hombre andino con la fauna altiplánica". *Estudios Atacameños* 7:455-472

Haber, A. 1999a. *Una arqueología de los oasis puneños. Domesticidad, interacción e identidad en Antofalla, primer y segundo milenio d.C.* Unpublished doctoral tesis. Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Haber, A. 1999b. "Uywaña, the House and its Indoor Landscape: Oblique Approaches to, and Beyond, Domestication". In *The Prehistory of Food: Appetites for Change,* edited by C. Gosden y J. Hather, pp: 57-82. Routledge, Londres.

Haber, A. 2002. "Hunting after Domestication". Paper presented at Ninth *International Conference of Hunters and Gatherers Societies.* September 2002, Edimburgo.

Haber, A. 2003b. *Informe presentado a la National Geographic Society*. MS.

Haber, A. 2003c. "¿Cómo, cuándo y por qué la Puna se convirtió en texto?". *Pacarina* Año III Nº 3: 169-178.

Haber, A. 2007. "Vicuñas and domesticity". In *Taphonomy and zooarchaeology in Argentina*, edited by M. Gutiérrez, L. Miotti, G. Barrientos, G. Mengoni Goñalons and M. Salemme, pp: 59-70. BAR International Series 1601. Archaeopress. Oxford.

Harris, M. 1993. "Principios teóricos del materialismo cultural". In. *Antropología. Lecturas*, edited by P. Bohannan and M. Glazer, pp: 393-418. Mc. Graw Hill. Madrid.

Hermitte, E. 1972. "Ponchos, weaving and patron-client relations in North West Argentina". In *Structure and process in Latin America,* edited by A. Strickson and S. Greenfield, pp: 159-177. University of New Mexico Press.

Hermitte, E. and H. Klein. 1973. *Crecimiento y estructura de una comunidad provinciana de tejedores de ponchos: Belén 1678-1869*. Documento de Trabajo (DTS 78) del Centro de Investigaciones Sociales, Instituto Torcuato Di Tella.

Hocsman, S. 2002. "¿Cazadores-recolectores complejos en la Puna Meridional Argentina? Entrelazando evidencias del registro arqueológico de Antofagasta de la Sierra". *Relaciones de la Sociedad Argentina de Antropología* XXVII: 193-214.

Hocsman, S. 2006. *Producción lítica, variabilidad y cambio en Antofagasta de la Sierra –ca. 5500 – 1500 AP-*. Unpublished doctoral tesis. Facultad de Ciencias Naturales y Museo. Universidad Nacional de La Plata.

Ingold, T. 1993. "The temporality of the landscape". *World Archaeology* 25: 152-174.

Ingold, T. 2000a. "The optimal forager and economic man". In *The Perception of the Environment: Essays on livelihood, dwelling and skill*, edited by T. Ingold. pp: 27-39. Routledge, Londres.

Ingold, T. 2000b. "Hunting and gathering as ways of perceiving the environment". In *The Perception of the Environment: Essays on livelihood, dwelling and skill,* edited by T. Ingold. pp: 27-39. Routledge, Londres.

Lema, C. 2004. *Tebenquiche Chico en los siglos XVI y XVII.* Unpublished degree tesis. Escuela de Antropología, Facultad de Humanidades y Artes, Universidad Nacional de Rosario.

Lema, C. 2006. "Espacios de resistencia: el caso de Tebenquiche Chico". In *Arqueología histórica en América Latina: Temas y discusiones recientes*, edited by P. Funari and F. Brittez, pp: 71-87. Ediciones Suárez, Mar del Plata.

Martínez, J. 2003. *Ocupaciones humanas tempranas y tecnología de caza en la microrregión de Antofagasta de la Sierra (10000-7000 AP)*. Unpublished doctoral tesis. Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán.

Mastrangelo, A. 2004. *Las niñas Gutiérrez y la mina Alumbrera. La articulación con la economía mundial de una localidad del Noroeste Argentino*. Antropofagia, Serie Etnografía, Buenos Aires.

Milton, K. 1997. "Ecologías: Antropología, cultura y entorno". *Revista Internacional de Ciencias Sociales* 154: 1-25

Moreno, E. 2005. *Artefactos y prácticas. Análisis tecno-funcional de los materiales líticos de Tebenquiche Chico 1*. Unpublished degree tesis. Escuela de Arqueología. Universidad Nacional de Catamarca.

Moreno, E. 2009. "El paisaje cazador en la quebrada de Antofalla. Antofagasta de la Sierra, Catamarca". *La Zaranda de Ideas* 5: 101-120.

Murra, J. [1978] 1999. *La organización económica del Estado Inca*. 6º Edición. Siglo Veintiuno, México DF.

Núñez, L. 1980. "Cazadores tempranos en andes meridionales. Evaluación cronológica de las industrias líticas del norte de chile". *Boletín de Antropología Americana* 2: 87-120.

Núñez, L. 1981. "Asentamientos de cazadores-recolectores tardíos en la Puna de Atacama: hacia el sedentarismo". *Chungara* 8: 137-168.

Núñez, L. 1989. "Hacia la producción de alimentos y la vida sedentaria". In *Culturas de Chile: Prehistoria*, edited by J. Hidalgo, V. Schiappacasse, H. Niemeyer, C. Aldunate and I. Solimano, pp: 81-106. Editorial Andrés Bello, Santiago.

Olivera, D. 1991. "El Formativo en Antofagasta de la Sierra (Puna meridional Argentina). Análisis de sus posibles relaciones con contextos arqueológicos agro-alfareros tempranos del Noroeste Argentino y Norte de Chile". *Actas de XI Congreso Nacional de Arqueología Chilena*. Tomo II: 61-78. Museo Nacional de Historia Natural, Santiago.

Olivera, D. 1997. "La importancia del recurso Camelidae en la Puna de Atacama entre los 10.000 y 500 años A. P". *Estudios Atacameños* 14: 29-41.

Olivera, D. 2001. "Sociedades agropastoriles tempranas: El formativo inferior del Noroeste Argentino". In *Historia Argentina Prehispánica*, edited by E. Berberian and A. Nielsen, pp: 83-126. Ed. Brujas, Buenos Aires.

Olivera, D and D. Elkin. 1994. "De cazadores y pastores: El proceso de domesticación de Camélidos en la Puna Meridional Argentina". In *Zooarqueología de Camélidos. Perspectivas teóricas y metodológicas (1ª parte)* edited by G. Mengoni Goñalons, D. Olivera and H. Yacobaccio, vol 1: 95-124. Grupo de zooarqueología de camélidos. Ediciones del Tridente, Buenos Aires.

Pfaffenberger, B. 1992. "Social Anthropology of Technology". *Annual Review of Anthropology* 21: 491-516

Pfaffenberger, B. 1999. "Worlds in the Making: Technological Activities and the Construction of Intersubjective Meaning". In *The Social Dinamics of Technology: Practice, Politics and World Views,* edited by

M. Dobres and C. Hoffman, pp: 147-165. Smithsonian Institution Press, Washington.

Pintar, E. 1996. *Prehistoric Holocene adaptations to the Salt Puna of Northwest Argentina*. Unpublished doctoral tesis. Southern Methodist University, Dallas.

Podesta, M. 1991. "Cazadores y pastores de la Puna: apuntes sobre manifestaciones de arte rupestre". *Shincal* 3: 12-16.

Politis, G. 1996. *Nukak*. Instituto Amazónico de Investigaciones Científicas Sinchi, Bogotá.

Polo de Ondegardo [1571] 1990. *El mundo de los Incas.* Edición de Laura González y Alicia Alonso. Historia 16, Madrid.

Potter, J. 2004. "The creation of person, the creation of place: hunting landscape in the American Southwest". *American Antiquity* 69(2): 322-338.

Puló, M. 1998. "La vicuña: el oro que camina por los andes". *Andes: Antropología e historia* 9: 243-280.

Puló, M. 2000. "Desarrollo sustentable y la realidad social del NOA". *Trabajo presentado en el 1º Congreso de Ambiente y Calidad de Vida*. Octubre 2000, Facultad de Tecnología y Ciencias Aplicadas. Universidad Nacional de Catamarca.

Quesada, M. 2001. *Tecnología agrícola y producción campesina en la Puna de Atacama, Iº Milenio d.C.* Unpublished degree tesis. Escuela de Arqueología. Universidad Nacional de Catamarca.

Quesada, M. 2007. *Paisajes agrarios del área de Antofalla. Procesos de trabajo y escalas sociales de la producción agrícola. (Primer y segundo milenios d.C.).* Unpublished doctoral tesis, Universidad Nacional de La Plata.

Ratto, N. 2003. *Estrategias de caza y propiedades del registro arqueológico en la Puna de Chaschuil (Departamento de Tinogasta, Catamarca, Argentina).* Unpublished doctoral tesis. Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Reigadas. M. 1992. "La punta del ovillo: determinación de domesticación y pastoreo a partir del análisis microscópico de fibras y folículos pilosos de camélidos". *Arqueología* 2: 9-52.

Reigadas. M. 1994a. "Caracterización de tipos de camélidos domésticos actuales para el estudio de fibras arqueológicas en tiempos de transición y consolidación de la domesticación animal". In *Zooarqueología de Camélidos. Perspectivas teóricas y metodológicas (1ª parte)* edited by G. Mengoni Goñalons, D. Olivera and H. Yacobaccio vol 1: 125-154. Grupo de Zooarqueología de Camélidos. Ediciones del Tridente, Buenos Aires.

Reigadas. M. 1994b. "Las fibras como indicador temprano del control cultural de camélidos en el NOA". *Estudios Atacameños* 11: 53-72.

Revuelta, C 2005. *Apropiación social y vicuñas. Análisis zooarqueológico de la unidad doméstica TC1. Oasis de Tebenquiche Chico – Primer milenio d.C.* Unpublished degree tesis. Escuela de Arqueología, Universidad Nacional de Catamarca.

Ulloa, A. 2004. *La construcción del nativo ecológico. Complejidades, paradojas y dilemas de la relación entre los movimientos indígenas y el ambientalismo en Colombia*. Instituto Colombiano de Antropología e Historia, Bogotá.

Thomas, J. 1996. *Time, culture and identity. An interpretative archaeology*. Routledge, Londres.

Tilley, M. 1994. *A phenomenology of landscapes: Places paths and monuments*. Berg Publishers, Londres.

Vilá, B. (ed) 2006. *Investigación, conservación y manejo de vicuñas*. Proyecto MACS-Argentina, Buenos Aires.

Vitry, R. 1990. "Bandidos y vicuñeros de la puna". *Todo es Historia* 279: 7-25.

Wheeler, J. 2006. "Historia natural de la vicuña". In *Investigación, conservación y manejo de vicuñas*, edited by B. Vilá, pp: 25-35. Proyecto MACS, Buenos Aires.

Yacobaccio, H. 1988. "Camélidos, domesticación y tamaño de la muestra. Reflexiones sobre la utilización animal prehistórica en los Andes". In *De procesos, contextos y otros huesos,* edited by A. Haber and N. Ratto, pp: 91-100. Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Yacobaccio, H. 2001a. "Cazadores complejos y domesticación de camélidos". In *El uso de los camélidos a través del tiempo*, edited by G.

Mengoni, D. Olivera and H. Yacobaccio, pp: 261-282. Ediciones del tridente, Buenos Aires.

Yacobaccio, H. 2001b. "La domesticación de camélidos en el Noroeste Argentino". In *Historia Argentina Prehispánica,* edited by E. Berberian and A. Nielsen, pp: 7-40. Ed. Brujas, Buenos Aires.

Yacobaccio, H and C. Madero. 1992. "Zooarqueología de Huachichocana III (Jujuy, Argentina)". *Arqueología* 2: 149-188.

Yacobaccio, H., D. Elkin and D. Olivera. 1994. "¿El fin de las sociedades cazadoras? El proceso de domesticación animal en los Andes Centro Sur". In *Arqueología de cazadores-recolectores: Límites, casos y aperturas*, edited by J.L. Lanata and L. Borrero, pp: 23-32. Arqueología contemporánea 5 (Edición Especial). Buenos Aires.

Yacobaccio, H., C. Madero, M. Malmierca and M. Reigadas. 1997-98. "Caza, domesticación y pastoreo de camélidos en la Puna Argentina". *Relaciones* XXII-XXIII: 389-418.

Yacobaccio, H., L. Kilian and B. Vilá. 2007. "El negocio de los cueros y lanas de vicuñas. Explotación de la vicuña durante el período colonial (1535 – 1810)". *Todo es Historia* 483: 16-21.