Replacement or extension? Changes in the economy of the Selk'nam hunter-gatherer groups of central Isla Grande de Tierra del Fuego in the XIXth Century

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Abstract

Tierra del Fuego has a large documentary register concerning the original huntergatherer societies as well as the arrival of European sailors, since the sixteenth century, and the establishment of settlers since mid-nineteenth century. The archaeological record lets verify changes and continuities in aboriginal way of life during the forced contact period, until the disappearance of Indian societies. In this paper we discuss two aspects that we could analyze from the archaeological record of Ewan site: utilization of new raw materials and new faunal resources.

Key words: archaeology, economy, resources, lithic, fauna

Introduction

Before the arrival of Europeans, the subsistence of the huntergatherer Selk'nam society was based on the exploitation of animal resources, including guanacos, rodents, birds, mollusks, as well as on collection of different varieties of plants and fungi. The technology used for the exploitation of these resources included diverse artifacts made with raw materials such as rocks, shells, bones, etc. All the resources used and consumed were of local origin.

The coasts of Tierra del Fuego island were explored since the discovery or the Strait by Magellan's expedition in 1520. Anyway, due to its insular character and its geographic situation in the circumpolar area, Tierra del Fuego remained without European colonization until practically the late XIX century.

Nevertheless, since the first ship wrecks and still before the European settlers' established in the Island, the Selk'nam groups had access to non local (European) raw materials and began to take advantage of them. Then, with the establishment of Europeans, other resources were incorporated; they produced important changes in the economy, in some cases extending the spectrum of local resources, or replacing them in others. This situation remained almost unchanged until the collapse of the native societies (Martinic2002).

Evidence of these changes can be found not only in written documents but also in the Archaeological record. We will mention as example the case study of the Ewan site, in which, based on the archaeological materials, it is possible to discuss the changes that occurred, particularly in two scopes: lithic technology and exploitation of ovine cattle.

Human and geographic setting

The Isla Grande of Tierra del Fuego is located in the South end of the American continent, between the 52° and 56°S, and 63° and 75°W. Several environments are represented in the island, but its spinal axis is undoubtedly the Andes mountain range (Fig.1).

The entire island's mountain zone has chains and depressed valleys oriented West-East, responding to their main axis. The western section of the Magellan Straitand the Fagnano lake occupy the main depression of a fault zone that continues to wards the east, passing through the north of Isla de los Estados (Mansur 2002).



Figure 1. Geographic location of Isla Grande Tierra del Fuego

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Tierra del Fuego was populated about 10,000 years ago by nomadic hunter-gatherers who had developed generalized strategies for exploitation of land resources (Massone 2002). They arrived from the North, through the connection between the Isla Grande and continental Patagonia that existed in the area of the Magellan Strait, at the end of the last ice age. Slowly, they occupied almost all the territory of the Isla Grande. A second wave of population arrived by sea, sailing from island to island, from Western Patagonia, as early as 7,000 years ago (Piana 2010). These "sea nomads" were hunter-gatherer-fishers that mostly relied on maritime resources and they populated the southern coastal areas of Tierra del Fuego.

At the time of Europeans' arrival to the region, the central and northern zones of the island were the territory of the Selk'nam people, hunter gatherers who occupied both inner and coastal zones. The southern coast of Isla Grande, as well as the islands that extend towards the south, until the Cape Horn, were inhabited by the hunter-gathererfishers, the Yámana,

As mentioned in the introduction, in our investigation it was possible to study some of the changes produced by the contact with the European settlers, based on the record of an archaeological locality situated in the Ewan river valley, in the central zone of the island. This locality, called *Ewan*, is formed by two sites separated around 200m from each other. The site Ewan I is characterized by the presence of a conical log structure, still standing. Oral tradition from settlers in the area suggested that it was a ceremonial Selk'nam hut. According to this information, it was the place where a Hain ceremony had been carried out, this is the Selk'nam ritual for the initiation of young males who become adults. Field work developed in this site included excavations inside and outside the hut as well as analysis of different classes of archaeological materials. (Fig.2).

The second site, Ewan II, is about 200 meters away to the west from Ewan I. Excavation revealed a collapsed hut structure, smaller than Ewan I, where there also was a big combustion area in the central part of the hut. As well as Ewan I, most of the archaeological materials were in or around the combustion structures (Fig.2).

The results of the field research and from the different lines of analyses implemented (spatial, carpology, anthracology, dendrochronology, lithic analysis, archeozoological analysis, etc.) allowed to confirm our first hypothesis on the site. Ewan is the camp of a Selk'nam group who established there to celebrate the Hain ceremony. Ewan I is the ceremonial hut, where as Ewan II corresponds to the domestic zone, where small huts were installed for the families to live during the time of the ceremony. The dendrochronological study of the logs that form the ceremonial hut allowed to determine that it was built in the spring 1905 (Mansur*etal.*, 2007, Mansurand Piqué 2008, 2009; Bogdanovic *et al.* 2009; Mansur & Piqué 2012).



Figure 2.A. Ewan I; B. Ewan II (A - De Angelis, H. B - Mansur M. E.)

The colonization of Tierra del Fuego and the exploitation of ovine cattle

Since its discovery in the XVI century, the fuegian archipelago was a target of interest for the Europeans, for many reasons such as the discovery of the Terra Australis, the establishment of commercial navigation routes, the search of precious spices and metals, the seals exploitation, diverse scientific objectives, etc.

The first contact between Europeans and the hunter-gatherer Selk'nam took place in 1580, when some of the members of the Sarmiento de Gamboa expedition disembarked in the North coast of the island. The expedition was trying to recognize the Strait, to determine optimal places for future settlements and to foment the good relations with the natives. This way, it was hoped to obtain interpreters and informants, to know more about their customs and to find out about the resources that the island offered, in particular the precious spices and metals. Never the less, the objective of fomenting good relations failed, from the moment they took a native by force, which finished in a skirmish in Bahía Gente Grande. This capture is the first of a long series of "kidnappings" that took place in the Island; it inaugurates the "style" of interaction that the Colonizers established with the natives (Mansur 2006).

Since then and during three centuries, Spanish expeditions, as well as English, French and Dutch expeditions, sporadically passed through the area. By the late XVIII century and early XIX, the outer coasts of the magellanic-fuegian archipelago were visited by seal hunters and expeditionaries; among them was Captain R. Fitz Roy, commanding the Beagle, who discovered the channel that today takes the name of the brig. In his second expedition, Fitz Roy was accompanied by the young naturalist Charles Darwin (*cf.* Piana 2010).

The first colonization attempts in the region, although unfruitful, were those carried out by Spaniards in the Magellan Strait region during the XVII century. Nevertheless, the effective colonization of Tierra del Fuego just begins at the end of the XIX century, with the installation of an Anglican mission directed by Rev. Thomas Bridges, who settled on the Beagle Channel area in 1869. Shortly after, starting in 1893, a Salesian mission settled in the northern section of Tierra del Fuego.

In 1886, the Bridges family established the Harberton estancia, on lands donated by the Argentine government. Towards the end of the century, other estancias dedicated to sheep breeding were established in the northern zone of the island. Among the oldest is Estancia Maria Behety, founded by Jose Menendez in 1899 to the north of the Rio Grande.

The success of the sheep ranchers' colonization was due to several factors, among them the high quality of the grasslands, that made possible the adaptation and fast proliferation of the wool cattle imported from the Malvinas archipelago. Secondly, to State policies, oriented towards favoring the access to lands; they mobilized businessmen who, in few years made important investments in property. Thirdly, to the increasing demand of farming products ingeneral, and in particular the high price of wool in the international market, along with the possibility of a direct connection with Europe through Punta Arenas. And finally, to the

affluence of immigrants with experience in ovine cattle, coming mostly from Scotland and Malvinas islands, which guaranteed the availability of specialized manpower (Luiz and Schillat 1998).

In the South end of Patagonia, the first essay in sheep raising was carried out in early 1877.

Three hundred sheep coming from the Malvinas islands were disembarked in the Isabel island, in the Magellan Strait, rented by the magellanic government to the British Henry L. Reynard. This contingent can be considered as the origin of the ovine settling in the austral region. During the following years the operation extended to the continental territory, occupying and filling with ovines the northern coast of the Magellan Strait and progressively all the inner lands. In 1878, the second remittance of sheep from Malvinas was brought in; it was placed in the Marta and Magdalena islands. Of these, the majority died of scabies and lack of water and nourishment (Duran1943).

The third sheep breeder was Don Mario Marius, who placed 500 sheep in the San Gregorio Bay. He then sold to Jose Menendez and Menendez the animals and the rights, thus beginning the current cattle exploitation of the Menendez Behety Company in 1878. By 1883, there were around 30,000 sheep (Duran 1943).

At the beginning of the last decade of the XIX century, the first sheep farming companies devoted to wool production were formed in vast extensions of rented public land: the Tierra del Fuego Sheep Farming Co and the Phillip Bay Sheep Farming Co., both with head quarters in London, and the Sociedad Explotadora de Tierra del Fuego (organized in 1893). These three sheep farming companies would monopolize practically all the favorable territories of the Chilean sector of the Isla Grande to the north of parallel 54. Towards the end of the XIX century, the first estancias were settled north of the Rio Grande; they brought sheep herds, causing conflicts with the Selk'nam people, who were expelled from their territories and persecuted (Fig.3).



Figure 3.Shepherds (Parmigiani. V.)

Changes in the Selk'nam economy

Since the beginning of the XX century, different missionaries and ethnographers observed the way of life of aboriginal groups that inhabited the Isla Grande; they described it in numerous different written sources. Among them, we could mention the work of M. Gusinde (1937), A. Chapman1986, 2008), L. Bridges (1951), A. De Agostini (1956), C. Gallardo 1910, J. Emperaire (1955). Most of them reflect, in an explicit or implicit way, the changes occurred along this process.

Animal resources

The Selk'nam people exploited the diverse animal resources present in the island, such as birds, fish and rodents. However, all the documents coincide in indicating that the most exploited animal resource was the guanaco (*Lamaguanicoe*) (Fig.4). Its use was not reduced just to food, but to the whole economic sphere (clothing, technology, etc). Moreover, the guanaco integrated the symbolic world of the Selk'nam society, taking part in myths, rites and songs of the everyday life, as well as of the Hain ceremony (Parmigiani *et Seal.* 2013).



Figure 4. Guanaco (Lamaguanicoe) (Parmigiani, V)

One of the first extensive quotes about utilization of guanaco products in technology is that of C. Gallardo (1910). He describes what products were obtained from it and how they were employed by the Selk'nam people. Among these he mentions:

- Wool, fat and skin: wool to clean the children; fat, to prepare the *ákel*, red paint used for leathers treatment, or to grease different parts of the body such as hair, face and hands every morning, etc; skin, to elaborate elements of clothing (cloaks or fur blankets, skirts, genital covers, foot wear), bags and containers; to make the tent for dwelling, mattresses for the children, etc. (Fig.5)
- Bones, for many different purposes, such as making wedges to split wood; once burned, to make with them white paint; to carve awls, arrow tips, harpoon sand knives; to use as dish plates, etc;
- Nerves, to make ropes, laces, nets, cords of all thicknesses; to sew clothes, the tent, the bags, to tie the arrow tips or the feathers to the arrow, to make the string of the bow, for the necklaces and bracelets, etc.



Figure 5. Utilization of guanaco hides for clothing. (Gallardo 1910, p. 195)

The installation in the island of the first estancias for sheep farming modified the pasture territory for the guanacos (that on the eyes of the farmers were considered as competitors of ewes). Sheep farming also affected the presence of *tucutucu* rodents, since sheep trampling destroyed the caves in which these lived, also modifying their distribution. On the other hand, sheep appeared like a new resource for the hunter-gatherer societies, as they were much easier to hunt than guanacos.

This situation is presented in different documents; some of them indicate that the only risk for ovine farms were the incursions and assaults of the natives, who constituted an obstacle to the activity during several years. This fact explains the character of the relationships between the new settlers and the natives. For example, in 1891 the Tierra del Fuego Sheep Farming Co., after losing 2500 sheep – a quarter of the total grant of the establishment situated in the Primera Angostura of the Strait, on the Chilean territory –, demanded the implementation of measures to protect the business investments (Luizand Schillat 1998).

The use of animal resources at the Ewan site

The archeozoological analysis offered important results for the interpretation of both excavated sites of Ewan locality (Camarós and Parmigiani 2007, Camaros *et al.* 2009, Mansur and Pique 2012). In general, bone remains were deteriorated by thermal alteration and consequently very fragmented. Consequently, the analysis was based on the study of these fragments, most of them smaller to 2 cm. We concentrated in counting them, determining degrees of thermal alteration and, whenever possible, attributing them to an anatomical and taxonomical categories. From this analysis 30,933 fragments were counted, from which 821 could be determined anatomically and taxonomically.

In the domestic hut (Ewan II – Structure 1) the bone remains correspond mainly to guanaco (*Lamaguanicoe*) and sheep (*Ovisaries*), although there are also remains attributable to fish, rodents, foxes and birds (Graphic 1). They show different degrees of thermal alteration, from unaltered to calcinated bone fragments. They are distributed all over the site, so much inside the fireplace and in its immediate peripheries outside of it.



Graphic 1.Bone remains in Ewan I and Ewan II

On the contrary, within the ceremonial hut (Ewan I), all the bone remains were burnt, very fragmented and concentrated in the fireplace

area. Most of the fragments that could be identified belong to guanaco. There is a scarce representation of rodents, fish and birds; in contrast, no sheep remains were identified in the site.

The lithic technology

The search of good quality lithic raw materials for stone tool knapping is an important activity for the hunter-gatherer societies. For the Selk'nam people, it required moving through certain distances, due mainly to the fact that the rocks utilized, although abundant, are not everywhere, but only in specific places.

The local lithic raw materials (referring to all rocks pertaining to the geological formations of the island) generally appear in redeposited geological units (secondary quarries) originated by glacier movement. They correspond mainly to the Yaganand Le Maire formations. It has to be mentioned that primary out crops also exist, but they present major access difficulties. From a technological point of view, these rocks are characterized by their good to average quality for knapping; some of them are very hard; certain rocks, like quartz, present irregular fractures.

Nevertheless, these raw materials allowed the manufacture of a wide variety of lithic artifacts, such as arrow heads, knives, scrapers, etc. (De Angelis 2013) (Fig. 6).



Figure 6. Instruments made with local raw materials. A. Side scrapers; B. End scrapers

Along with these strategies for raw material provision, evidences exist of exchanges with groups that lived in other zones of the archipelago; this is the case of the obsidian, for example, originating in the Chilean area.

With the arrival of the first European ships and even before, with the first ship wrecks occurred near the fueguian archipelago, several materials of industrial origin began to arrive to shores. Among these materials, we can mention fragments of metal and glass.

Written data

Most of the written documents, since those produced by the first travellers to the researches published by etnographers in the XX th Century, refer to the exchanges of materials between the hunter-gatherer groups and the sailors; they also mention the collection on the beaches of different European materials, such as glass fragments, bottles, metals and other ship wreck remains arrived to shores (Outes 1906; Gallardo 1910; M. Gusinde 1935; Lothrop 1928).

The provision of raw material was normally on the beaches, by remnants of glass from shipwrecks:

"From what they can get on the coasts, thrown by the sea, the most used is the glass, for the manufacture of arrow heads called JEURRT; in addition they use such material to make scrapers with which they prepare hide sand woods to make the arrows, to make themselves incisions when they want to show testimony of their sorrow, to make teeth on the knife blade so that it can cut, and sometimes even as a cutting tool" (Gallardo 1910, p. 261). "...they abandoned the use of stone and nowadays, it can be assured that, except for rare cases, no other arrow heads are being made, but the glass ones." (Gallardo 1910, p. 277).

Regarding the manufacture of artifacts, the most cited is the confection of scrapers and arrowheads, by means of pressure retouching: "... The bones called COJEURRASSHE... with which, as if it were a clamp, small pieces are taken out from the stone or glass and thus forming the cute arrow heads that we know" (ibid., 272). (Fig. 7).



Figure 7. Selk'nam man making an instrument by pressure flaking. (Gallardo1910, p. 272)

Finally, regarding its hafting: 'Like brush, scrape or scraper they use[...] the CHAHAM, tool in which the iron [...] is replaced by a piece of glass, shell or stone". 'It is used for thinning and smoothing wood, as well as for scraping leather [...]'' (Gallardo 1910, p. 269).

Archaeological data

Based on different archaeological researches carried out in vast sectors of the Isla Grande de Tierra del Fuego, it was possible to assert the use of glass as lithic raw material for tool manufacture. In the northern part of the island, systematic excavations discovered glass micro flakes in the house N° 89 of the Tres Arroyos site (Massone *et al.*, 1993). In the Beagle Channel area, some artifacts made of glass were also found at Harberton Cementery site (Piana *et al.*, 2006), also in the Recent component of Lancha Packewaia, dated 280 \pm 84 A. P (Orquera *et al.*, 1978) and in a site destroyed by erosive processes in Bahía Cucharita.

Nevertheless, until now, the sites of the Ewan locality are the only sites presenting abundant glass material and showing all the reduction steps towards the manufacture of diverse instruments (Fig.8).



Figure 8. Map of Tierra del Fuego with the archaeological sites

Archaeological materials of the Ewan site

The excavations in Ewan revealed that glass is the only raw material represented in the sites. Nevertheless, the representation of types of artifacts is not the same for both sites (Fig.9 a y b) (De Angelis 2009, De Angelis 2013, De Angelis *et al.* 2010, Mansur and Pique 2012).

The remains are arrow heads, scrapers, and numerous microflakes in Ewan II – structure 1 (the domestic hut), and exclusively microflakes in the case of Ewan I (the ceremonial hut).



Figure 9. A. Instruments of Ewan II; B. Microflakes of Ewan I

The arrow points are made in two colors of glass, green and translucent; all of them show some degree of fracturing. The triangular morphology can be recognized in only two of them; they also presents tem and wings. The scrapers correspond to *ungui* form scrapers, sizing around 2 cm by 2 cm, with fronts made by regular parallel retouch. There is a difference in the colors, since two are made on transparent glass and one on green glass.

The techno-morphologic analysis of microflakes allowed determining that there are important differences between the two sites. One of these concerns the abundance of remains. The number of microflakes of Ewan II - structure 1 is more than 4000, while in Ewan I is only 83. Another important difference is the variety of glass colors represented at the sites, with seven different at Ewan I site and only two at Ewan II (De Angelis 2013, Mansur y Pique 2012).

Discussion and conclusions

The results obtained in the study of the Ewan archaeological locality allow to draw some general conclusions concerning resource management by the Selk'nam people who occupied the sites.

As we previously said, according to dendrochronology and analysis of archaeological materials, the Hainhutin Ewan I was built in spring 1905; the whole occupation lasted at least during the summer 1906. Until then, the contact with European settlers had produced the expulsion of Selk'nam people from the northern territories, their concentration in missions first and in Estancias as workers later.

Consequently, we can suppose that the Selk'nam people who took part in the Ewan Hain were probably not free and had been acculturated. This assumption is confirmed by the analysis of archaeological materials that reveal specific management strategies for animal resources and for lithic/glass raw materials.

In first term, regarding the fauna, a differential management is observed between Ewan I and Ewan II. In Ewan I, the ceremonial hut, around 21,000 bone fragments were recovered; most of them correspond to guanaco remains. In Ewan II, the domestic context, there are only 8,000 bone fragments, and the most represented species are sheep and guanaco. This difference in tax a representation can be interpreted as a difference in the consumption contexts. In Ewan II, the presence of sheep remains in the domestic context reveals the introduction of this resource in the daily life of the Selk'nam people; on the contrary, in Ewan I, in the more traditional, ceremonial context of the Hain ceremony, -the only mammal consumed is guanaco.

Concerning the introduction of glass as raw material for the technology, it is possible to assert a total replacement of raw material, since it was not possible to find evidence of lithic remains. Due to its better quality for knapping, the glass came to totally replace the local rocks.

Ewan represents practically the last moment of the Selk'nam society in the center of the Isla Grande de Tierra del Fuego. For this reason, we believe that the introduction of these two types of resources, and their abundance in late archaeological sites, goes in parallel with the whole acculturation process, as far as this case study dates from the beginning of twentieth century, in a moment when missions were already installed, as well as the estancias.

If this site represents one of the last attempts to express their own tradition by aboriginal people, the archaeological record shows the introduction of sheep, extending the variety of faunal resources exploited in the Selk'nam economy, and replacement of local raw materials for traditional tools manufacture (scrapers, projectile points, etc.).

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