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An Offprint of
THE ARCHAEOLOGY OF HOUSEHOLD

edited by

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Domestic Space: Analysis of the Activities of a Hunter-Gatherer Social Unit at the Southern End of the American Continent

Jordi Estévez Escalera and Ignacio Clemente Conte

Introduction

From the middle of the 1980s we have carried out a series of ethnoarchaeological research projects on the northern coast of the Beagle Channel –Tierra del Fuego – Argentina (Fig. 5.1). This area was inhabited by groups of hunters-fishers-gatherers from approximately 6500 BP until the first half of the 20th century. These groups, named after the first contacts with Europeans as Yaghanes or Yamanas, were observed moving with canoes along the Fuegian channels. The information written by travelers,

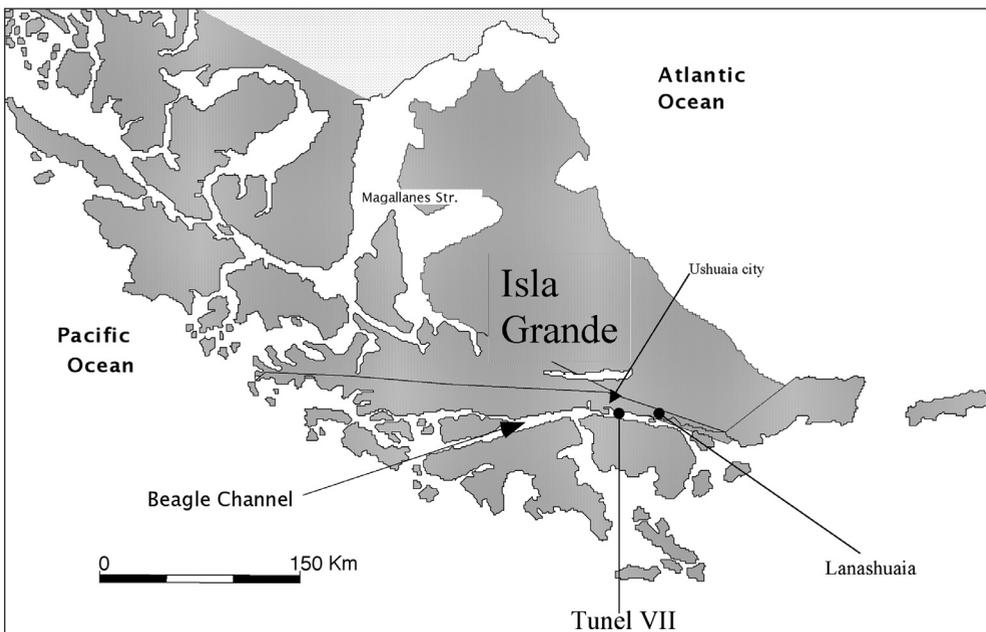


Figure 5.1. Map of Tierra del Fuego showing the location of the sites cited in the text.

missionaries and ethnographers about these Fuegian groups is extensive. Luís A. Orquera and Ernesto L. Piana (1999) compiled these sources, which describe the variability of the products manufactured and consumed by the Yamana. The Austrian missionary Patter Gusinde, who visited the area in the 1920s, described the beliefs, ceremonies and rituals, as well as other aspects of Yamana social life (Gusinde 1937). Large collections of ethnographic material held in European and American museums allowed us to study the items from an archaeological perspective (Estevez and Vila 2006). These conditions, as well as minor paleoenvironmental change, make this area a perfect subject to carry out ethnoarchaeological studies.

We define Ethnoarchaeology as a method to test analytical procedures, not simply as a system to provide analogy by observing living people. These data are used to test the methodology of excavation and archaeological analyses. Conclusions are evaluated through comparison with archived written and graphic sources. Ethnographic sources provide indirect information since they are biased from the perspective of the European observer; however, they illustrate all that we know about the organisation of Yamana people for production and their mechanisms for social reproduction. The next step is to look for the analytical methods, which use only archaeological (direct) sources, necessary to achieve a similar level of understanding about social organisation. We can, in this way, evaluate and calibrate the methods and apply them to prehistoric situations. (Vila and Wünsch 1990; Vila and Piana 1993; Vila 1998; Vila and Estévez 1999). In addition to the archaeological excavations, we also carried out complementary programs of experimental replications, taphonomical observations and experiments, and sampling tests. These were used to increase the understanding of the archaeological evidence as well as to evaluate the credibility of the ethnographic information.

The huts

The specific interest of this paper is the archaeological analysis of a daily domestic living space of Yamana. Domestic life of the Yamana is described and depicted in ethnographic records and in a film. These groups constructed simple huts to provide shelter from climate conditions. Each hut lodged a social reproductive unit. The described huts generally had a hemispherical shape, but in some cases they were conical. They were approximately 3.5 m in diameter and were constructed with sticks and branches, then finished or waterproofed by covering them partly with grasses and hides of sea lions (Fig. 5.2).

There was a central hearth and some times other secondary small hearths or embers inside to better distribute the heat. The garbage of consumption was discarded to the periphery of the hut. Generally the entrance faced towards the sea. Daily activities including the production and consumption of goods were carried out both inside and outside of the hut.

During our work in Tierra del Fuego we excavated a ritual hut that had also been

Figure 5.2. Picture of a Yamana hut from the end of the 19th century.



described by the missionary Gusinde. This allowed us to evaluate the differences between habitual and special constructions (Vila 2004).

Túnel VII

The site Túnel VII is placed on the banks of the northern coast of the Beagle Channel, 54° 49' 15" of southern latitude and 68° 09' 20" of western longitude, in a little cove a dozen of kilometres to the east of the city of Ushuaia. It is a shell midden deposit site, and like other shell middens presents a very good preservation of archaeological evidence. The dendrochronological information places these occupations between the end of the 18th and the end of the 19th century (Piana and Orquera 1996), already after the contact with Europeans.

We first excavated an area of 72 m², focusing later on an area of 32 m² in which the centre and the periphery of an occupation unit was located. The centre of the occupation was a circle of 3.5 m with a large hearth in the middle (Fig. 5.3). It was surrounded with accumulations of food waste (mainly the shells of mussels and other mollusks) and residues relating to varied processes of work and consumption. This pattern of residue accumulation creates the typical ring aspect observed in the shell-middens of this area.

The excavation methods employed have allowed us to dissect the palimpsest and to differentiate 274 stratigraphic units that correspond to punctual episodes of garbage deposition (Orquera 1996; Orquera and Piana 1996). It was therefore possible to establish a detailed sequence of the dynamics of occupation. With micro-stratigraphic analyses (Estévez and Vila 2000) we could identify a superposition of hearths, separated by thin layers of sediment, which correspond to short periods of abandonment (Fig. 5.4). The hearths were only slightly displaced from one occupation to the next. We could also isolate the marks of small postholes, marking an almost circular perimeter.

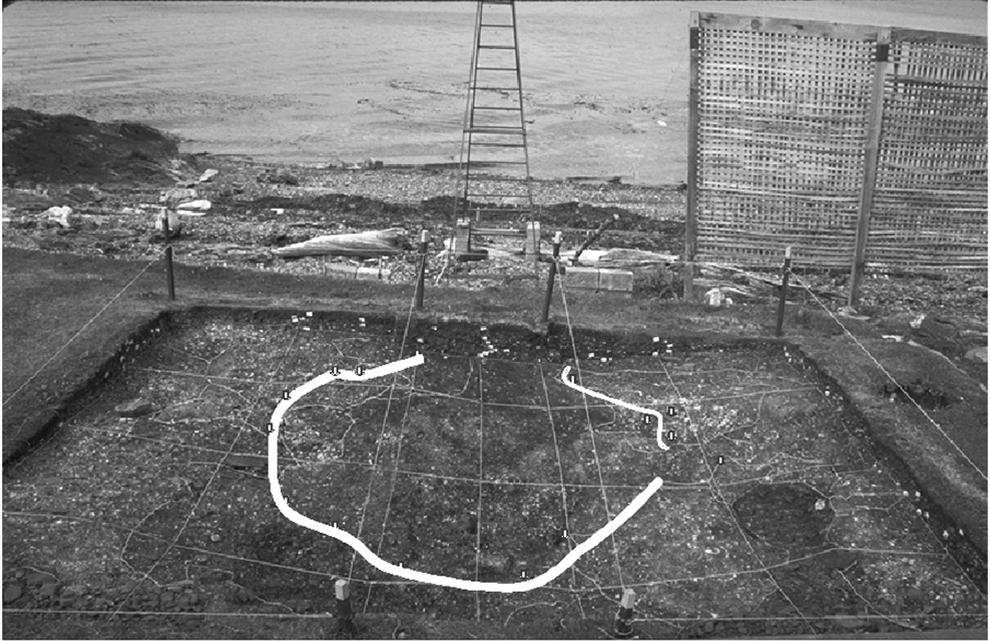


Figure 5.3. Excavation of the site Tunel VII remarking the periphery line of the hut and the location of the central fireplace.

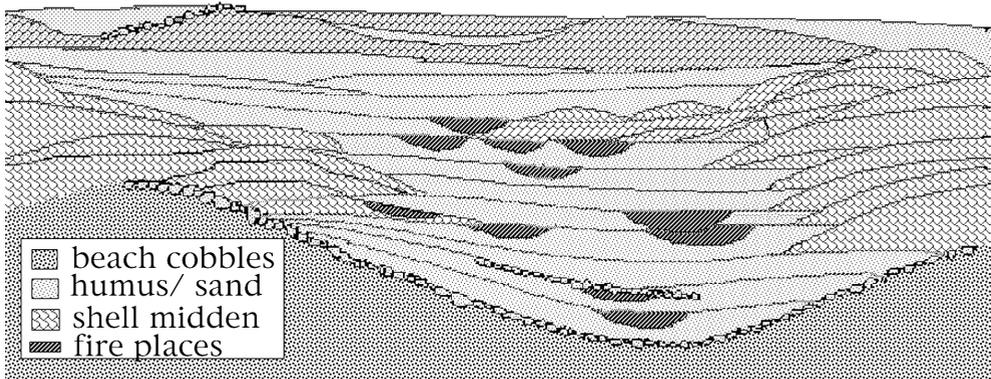


Figure 5.4. Scheme of the stratigraphy of Tunel VII site.

This has allowed us to verify the existence of at least ten discontinuous occupation episodes in which a hut centred on this space was constructed repeatedly (Fig. 5.5). Around these huts people also fulfilled other activities of production and consumption that left garbage and other remains evacuated from the inside of the hut deposited in this surrounding area.

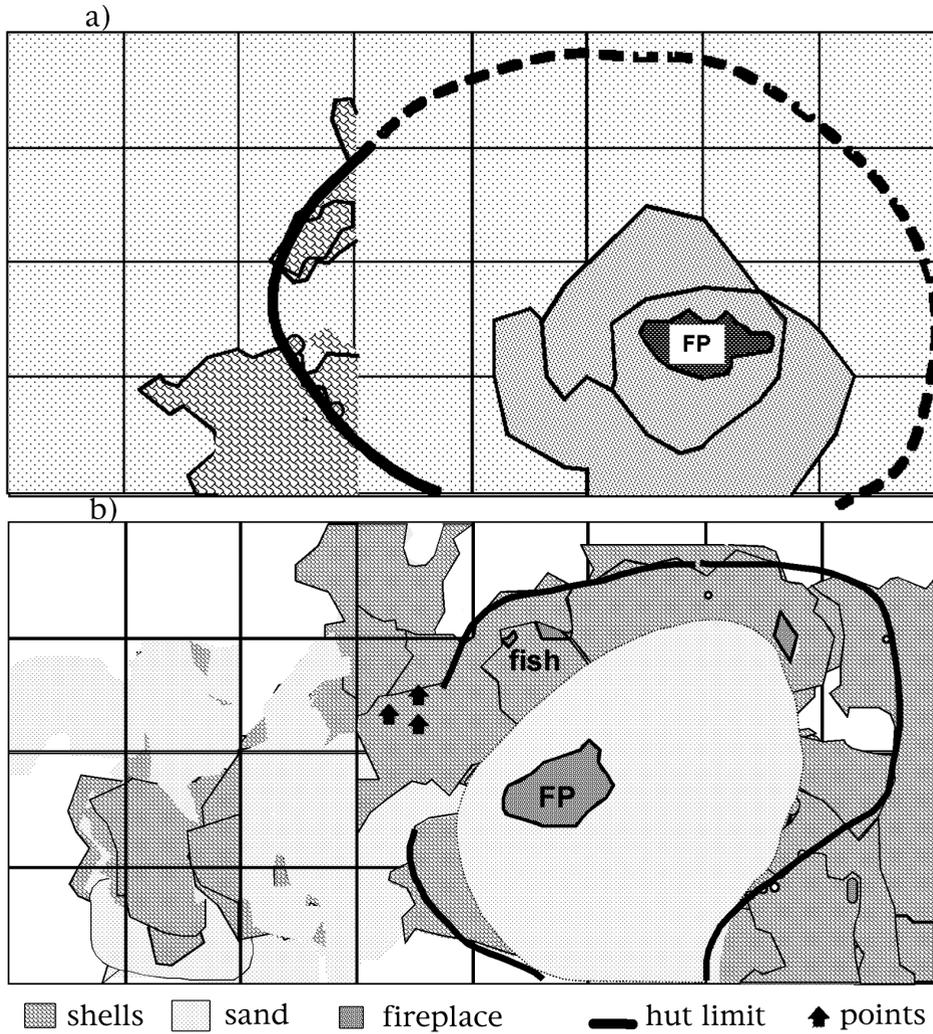


Figure 5.5 a) Schematic plan of the first occupation, and b) for the eighth occupation episodes of Tunnel VII.

The generation of the evidence

People established the first occupation on the very little cobble beach. They probably slightly dug out the surface, making more regular a round narrow concavity by pushing some pebbles in a very rough way. They placed a hearth in the centre of the concavity. Later they occupied the same concavity where it had accumulated a light layer of humus and sand. The margins of the concavity increased in height due to residue deposition, largely due to the high volume of the consumed molluscs (Fig. 5.4).

The layer of humus that accumulated, especially in the centre of the concavity during periods of abandonment, allows us to establish the interruptions and to attribute most of the units of deposit to individual occupation episodes. Of course the continuity of the sequence of occupations and the sedimentary dynamics (bioturbation and slides of the mollusc heaps) does not allow us to completely discount a certain mixture of materials from different occupations. An extensive task of lithic and bone reassembly and rejoining has been undertaken in an attempt to evaluate the range of sediment movements.

The generated record has allowed us a qualitative approach to the dynamics and variability of the different occupations, the seasonal nature and the predominant activities in each of them (Estévez and Vila 2006b). The first two occupations are difficult to distinguish since it is only possible to identify the discontinuity between them in the centre of the concavity. The first occupation corresponds to the first settlement, when the hut was constructed on the beach. The second unit would be related with the second moment of occupation after a temporary abandonment of the hut, as is observed in the stratigraphy (Estévez and Vila 2000). Both occupations likely occurred in spring. The first occupation shows little bone artefacts; relatively few sea lion remains, but contains cetacean and some guanaco bones, and a strange consumption of austral parakeet (Mameli and Estévez 2004). The second occupation involved more stone knapping, bone working, sea lion consumption and working cetacean bones. People deposited consumed shells in midden on the south-west side of the hut.

The later occupations happened at different seasons. From the fourth occupation people began to accumulate rubbish on the eastern side of the hut, and the centre of the hut became clearly narrowed and encircled by the shell-midden amounts. During the fifth occupation (in winter) the entrance was oriented to the west and secondary fireplaces were situated in this direction, close to the entrance. During the next occupation the fireplace was again in the centre. A secondary hearth was placed on the outside of the structure, while the opening was directed again to the south, facing the sea. The next was a short winter occupation. The following two were summer occupations spaced more closely together in time. The occupations were linked with high levels of fish consumption and were almost only identifiable by a slight displacement of the central fireplaces. The last was for a short period during summer with lithic tools for animal processing and low but varied animal consumption. After this the centre of the concavity was no longer occupied as the central place for the huts, but covered by remains coming from other neighboring areas.

During all the occupations other huts occupied the beach alternatively or simultaneously. This can make it difficult to establish whether the remains accumulated on the very periphery of the excavated area relate to the activities within our hut or by another hut situated west of ours.

The residues of consumption were deposited by dropping and by simply sweeping towards the periphery of the living area. We assume that residues of small size (little secondary knapping flakes and minor pieces of bones, such as phalanges, chips of bone

working) would be the best marker for places of production; although we believe that in the less well-swept outside areas, garbage or amortised tools would be dropped down at the end of the work.

Residues of food consumption include the remains of molluscs and other marine invertebrates, birds, marine mammals and guanacos (Estévez and Martínez 1997; Estévez *et al.* 2001). There are also bone residues from the production (masses of origin, residues and chips) and discard of instruments (harpoons, wedges, spatulas or smoothers, retouchers) and necklace beads. Finally there are lots of residues from the production and the consumption of lithic tools.

Ethnohistorical information about Yamana lithic tool use present contradictions with the archaeological information recovered (Mameli *et al.* 2005). Many ethnohistoric sources assessed that the Yamana were unable to work stone and therefore they had to acquire the arrows and other lithic weapon by exchange with the Ona, their neighbors from the north of the Isla Grande de Tierra del Fuego (Terradas *et al.* 1999). The large quantity of lithic remains recovered, Tierra del Fuego for instance in Túnel VII (22, 323), shows the opposite, since they demonstrate a good skill in this activity.

Igneous rocks such as rhyolite and cinerite, belonging to Lemaire's geologic formation (Caminos 1980), were the most used for the manufacture of lithic tools (Clemente 1997; Terradas 1999; Clemente and Terradas 1993). Raw material could be gathered as boulders or cobbles along the beaches and on the moraine deposits remaining today along the northern coast of the Beagle Channel. The relative frequencies in the rocks (rhyolite and cinerite) gathered in Túnel VII is similar to the quantities represented in these secondary deposits. Nevertheless, it seems that after the stones were brought to the settlement people preferred to use cinerite rather than rhyolite for certain activities (Clemente and Terradas 1993). This can be explained by several factors. One is that people can obtain sharper knife-edges by flaking cinerite, a finer grained mineral that does not blunt so easily as rhyolite. The blocks of rhyolite usually present more internal fissures and are therefore more difficult to manage by flaking. As a result, rhyolite flaking produces a greater quantity of residues. The bifacial reduction of stone by narrow (pressure) retouch to manufacture products such as arrow points and daggers also produces a lot of residue.

The analyses of lithic technology recovered from Túnel VII and a contemporaneous site, Lanashuaia, allows us to distinguish two different processes related to lithic production (Pie and Vila 1990). On one hand there is bifacial reduction of cores, which is "stadial flaking" (Gyria 1997), for producing bifacial scrapers and the tips of larger weapons. This flaking technique generates numerous chips and/or residues. We also noted the accidental fracture of bifacial by-products (normally discarded and not used as instruments) in different stages of manufacture. This occurs especially at the more delicate moments of making stems and fins on the arrow and dagger points (Clemente 1997). This system of flaking uses a hard hammerstone for the first stadiums of flaking, and a retoucher – made of guanaco's metapodia – to continue the flaking by pressure to get the stems and fins. Another documented type of flaking is direct percussion to get flakes that

could be used immediately, or slightly retouched (to shape them into scrapers). These fast produced flakes also could be transformed to arrow tips by pressure retouch.

Spatial analysis of the evidence and its spatial structure: the distribution of residues.

We have considered the lithic and bone remains to carry out this spatial distribution analysis. The recovery methodology applied during the excavation has been very important to our aim. The residues were recovered by thin units of deposit and by a grid of half square meters. Almost all of the objects (lithic remains and bone over 2 cm) were localised and recorded by its centimetre position in the grid.

This record allows us to analyse with accuracy the position of every object in space relative to synchronic and diachronic relations. Likewise, it is possible to analyse recurrences in the management of space and to establish a general pattern of spatial arrangement strategies (Wünsch 1996).

First we want to establish a comparative analysis between the first occupation and the full palimpsest. This is based on the distribution of consumption goods and residues, which show differences in the comparative patterns. This demonstrates how the compilation of the variable activities undertaken through the whole occupation varies from the information provided by a single occupation moment.

We visually study the distribution of the different items by half square metres. To analyse this distribution we will highlight two levels of concentrations in the squares: first those with a number of items higher than the average, and second those with quantities greater than one standard deviation above the average.

We present the results of the distribution of lithic remains from Túnel VII for the whole sample of occupations as well as those from the first occupation episode. Thus, we try to observe if the distribution of the whole palimpsest reflects, at some level, the same distribution patterns that are observed at the first moment of occupation of the Yamana hut.

In this heuristic essay, to demonstrate difference in discard patterns we visually analyse the distributions of the general categories of residues mentioned above. Other synthetic categories that may better represent concrete processes of work are not generated or addressed. Bone residues are distinguished by categories of birds, sea lions (fragments of the axial skeleton, extremities and flippers) and cetacean (major and minor fragments), as well as elements produced during the manufacture and discard of instruments and other bone objects.

For the lithic instruments usage, we are not going to enumerate the actions and worked materials involved since these have already been the aim of other papers (see Clemente 1996; 1997; 2005). We think that for our purpose, and according to the subject of this volume, it turns out to be more interesting to see if spatially specific distributions exist for different production activities carried out in the unit studied.

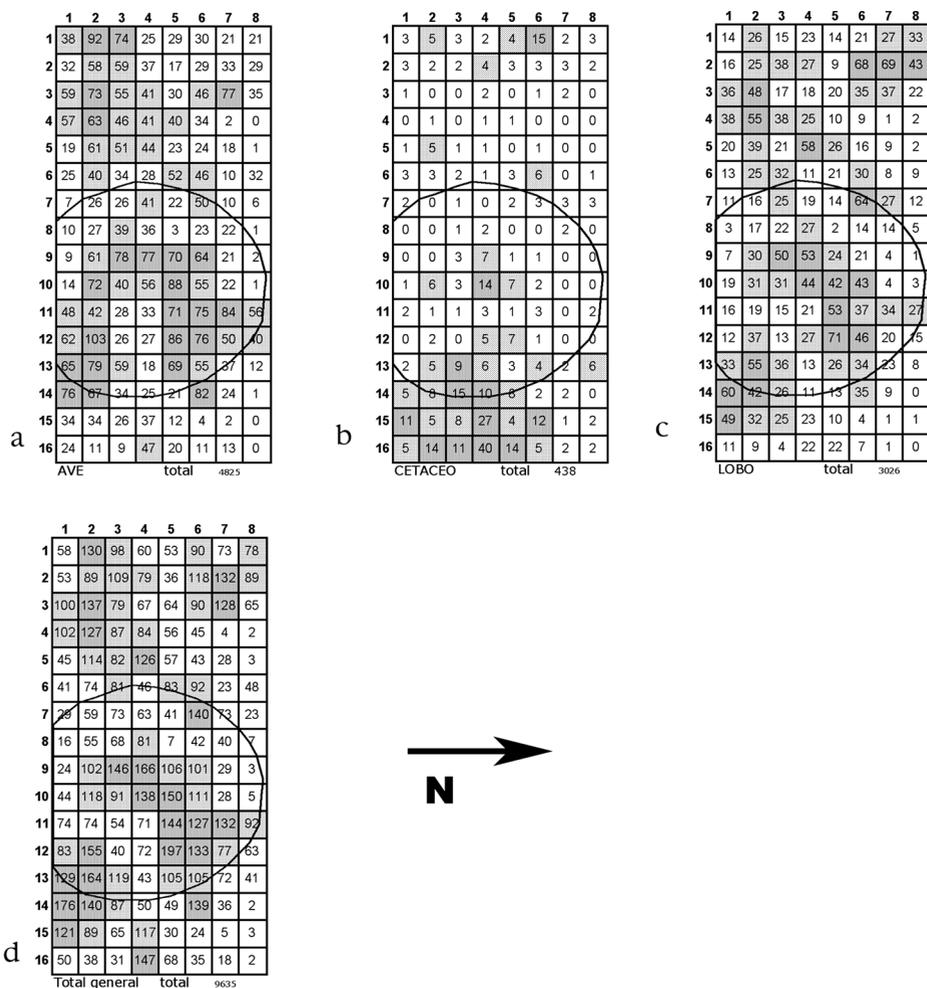


Figure 5.6. Absolute frequencies distribution of the whole sample of faunal remains categories produced during 10 occupations. a) Total bird bones, b) total cetaceous bones, c) total sea lion bones, d) total bone remains.

We believe that if this is the case, then the functional analysis turns out again to be fundamental to characterise the domestic space of hunter-gatherer societies.

Spatial distribution analysis

Faunal remains from the complete sample of nine occupation episodes concentrate on the NW of the interior of the huts (Fig. 5.6). There is also a concentration in the south-eastern limit of the same hut and two more concentrations outside of the hut

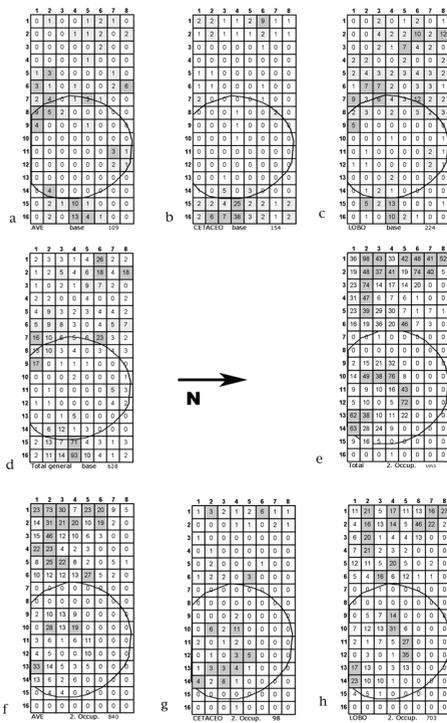


Figure 5.7. Absolute frequencies distribution of the sample of faunal remains categories produced during the first occupations. a) bird bones in basal level, b) cetaceous bones in basal level, c) sea lion bones in basal level, d) total bone remains in basal level, e) total bone remains in second occupation, f) bird bones in second occupation, g) cetaceous bones in second occupation, h) sea lion bones in second occupation.

that characterises the whole picture of the palimpsest, which is the main accumulation of bone refuse inside of the huts. In the second phase of occupation there are a few noticeable accumulations in the west of the excavated area. These correspond to accumulations of refuse that developed in part from an adjacent hut. It is also remarkable that in this phase of the accumulation, cetacean remains no longer concentrate in the east (Fig. 5.7).

The residues from the manufacture of bone objects (for the most part chips from cutting cetacean bones were found inside in the south-east and in a smaller deposit in the western periphery of the huts. The necklace beads were basically left inside the structure.

As we can observe in Figure 5.8a, the most significant concentrations of the lithic

to the south-west and north-west. This later concentration could originate from residues of neighboring huts. Finally, there is an accumulation concentrated towards the west on the outside limits of the hut. Birds and sea lions are the categories that contribute to the accumulation inside the hut. Bird remains also greatly contribute to the accumulation in the south-west, whereas sea lion is a large contributor to the north-west concentration. Finally cetacean bones and lesser birds are the remains that accumulated on the outside of the hut to the east.

Comparing this situation with that of the first episode of occupation we verify that notable differences do exist: during the first episode most of the fauna concentrates on the external periphery of the hut and on a large spot to west and north-west. Birds were recovered in large quantities in the south-west, with another strong concentration in east. Sea lion remains are spread over the whole external western area and on a secondary spot in the east. Finally, the cetacean concentrates outside of the hut on the east. It is after the second phase of occupation when bone refuse begins to accumulate inside the space of the hut. This produces the accumulation

remains are in three discrete areas of the excavated surface. The largest extension corresponds to the space occupied by the hut; however, considering the number of remains the most important concentration is located to the north-west of the excavation. Greater importance may be found there considering that the concentration may continue towards the west (over the unexcavated area). The third concentration, although less important in extension and by number of items, is located between the previous two concentrations outside of the hut to the west. Figure 5.8b reflects the fragments and chips (FST and LST) smaller than 2 cm that are residues generated from lithic production. Other lithic residues are located in the same areas, which might indicate that these are the places where people manufactured lithic instruments. Figure 5.8c shows the location of the hammerstones and anvils. That they are located mainly inside the hut and within its immediate periphery indicate that they were used in flaking close to the areas of lithic production or that these were very controlled instruments ready for use as soon as needed.

Figures 5.8d–8h show the lithic tools used to work different materials. Wood is one of the most commonly worked materials (Fig. 5.8d) using lithic tools. This work was done mainly in the exterior of the hut, although some woodworking was also carried out inside the structure. It will be interesting, in future works, to consider

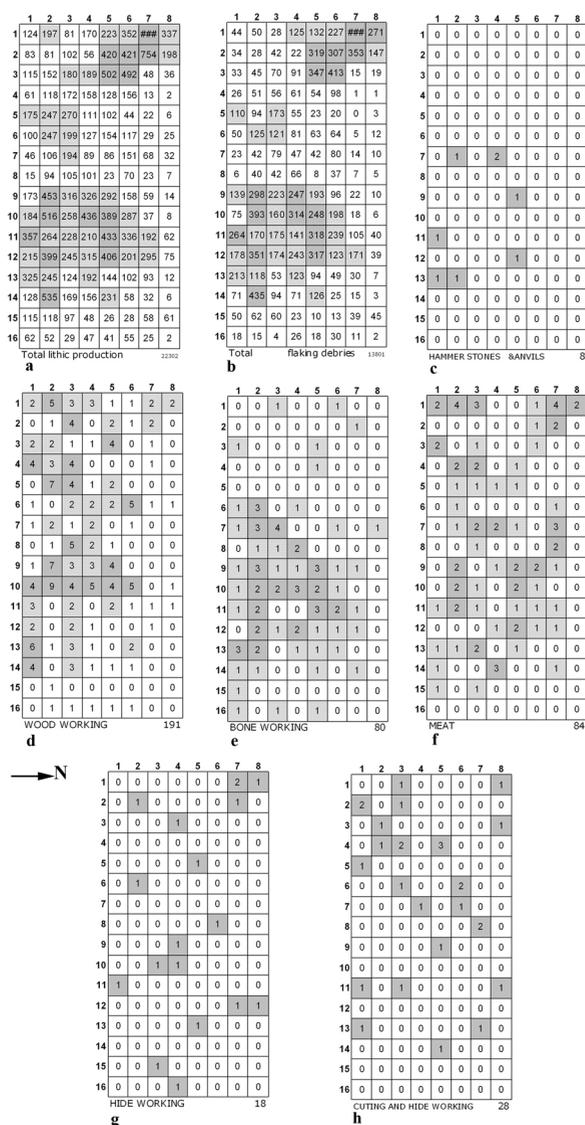


Figure 5.8. Absolute frequencies distribution of the whole sample of lithic products during 10 occupations.

the size of the tools used and the actions realised. This would verify if there was some selection of tool characteristics according to the activities undertaken in a specific location. Nevertheless, bone working concentrates in the area related to the interior of the hut (Fig. 5.8e), whereas the tools for butchering (dismembering and filleting) are scattered over almost the whole excavated area, with major concentrations in the west part of the grid (especially the butchering of sea lions) and in the hut interior (meat cutting related to consumption and cooking). The next two figures (Figs 5.8g and 8h) show the distribution of the instruments that have worked skin: hide scrapers (Fig. 5.8g) or skin knives (Fig. 5.8h). Knives involved in the mentioned skin cutting are mostly distributed outside of the hut. They may also be related to activities such as butchering and skinning the animals before the dismembering them into smaller pieces. Skinning and dismembering was also done inside the hut, although with less intensity. This may be related to the fact that the skins of small mammals and some birds, such as cormorants, penguins, etc. were used by the Yamana to manufacture certain products (loincloths, belts or hair bands) that could be produced inside of the hut. Two concentrations of bird bones occur there. Tools, which demonstrate the transverse movements for scrapping leather, are distributed over the whole area, inside as well as outside of the hut. Anyway, it is logical to assume that the skins of the large animals should be cleaned and scraped outside of the hut since the central interior hearth would create a space problem for such activities. We must also remember that, according to ethnographic information and corroborated by the analysis of ethnographic materials (Mansur 1983; Mansur and Clemente in press), Yamana people also worked skin, using knives and scrapers made of *Aulacomya* shells.

To compare the global picture of the palimpsest formed by the ten occupation episodes described above, we have considered separately the lithic remains related to the first activities developed in the place (shown in Fig. 5.9a–9e) and the activities realised during a second occupation episode after a temporary abandonment (Fig. 5.9f–9i). In the first occupation people carried out stone flaking preferably in the central and eastern sector of the excavated grid (Fig. 5.9a). The instruments for woodworking lie, for the most part, to the exterior of the hut, in the central and western part of the grid (Fig. 5.9b). Perhaps these activities might be related to the building of the hut. Whereas the set of instruments related to soft cutting (animal matter, that is butchering) were found mainly in the exterior (western sector) (Fig. 5.9d). The tools for working hard materials (bone) concentrate inside or in the close surroundings of the hut (see Fig. 5.9c). Although some examples were found inside the hut, instruments related to skin working (Fig. 5.9e) were mainly recovered in the exterior towards the western sector. This also coincides with a butchering activity area.

On the other hand, if we observe the distributions of the second moment of occupation (Fig. 5.9f–9i) it is apparent that, similar to the analysis of the complete Tunnel VII sample, there are already two definite flaking areas, one inside and one other outside of the hut (Fig. 5.9f). The cores and hammerstones used for lithic production are located inside of the hut. We can also observe two areas for woodworking, one inside

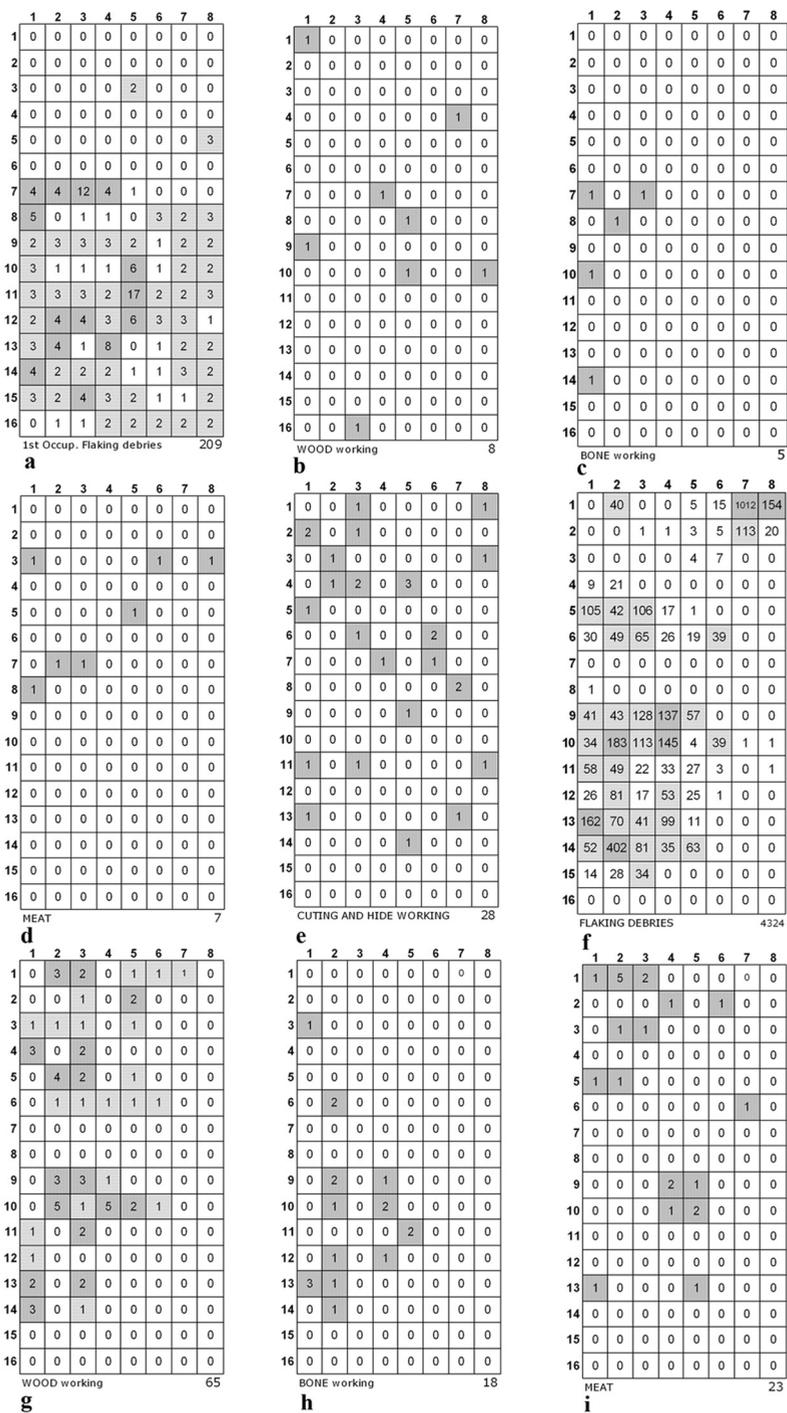


Figure 5.9. Absolute frequencies distribution of the sample of lithic products during the first and second occupations.

the hut and other one in the sector south-west of the grid (Fig. 5.9g). This is the same case for tools used in butchering activities where two separate areas are apparent (Fig. 5.9i). Tools for working bone are mainly located inside the hut (Fig. 5.9h).

As presented earlier, the location of lithic tools in Túnel VII show a spatial distribution of production activities that reflects a social strategy for organising space. Despite the maintenance activities resulting from cleaning and sweeping this domestic space, the same tool types and therefore the activities are found to recur in the same places. This is found both at the general level of the palimpsest, and in the particular case of the first two occupations. In addition to the general manufacture of lithic tools, the interior of the hut was also used for woodworking, processing meat products as well as for working bone to obtain other goods (like harpoons, wedges, necklace beads). It is interesting to note that the hammerstones were kept inside the hut. This was a way to have them always under control, ready to be used when needed. The activities developed outside the hut are certain butchering activities and skinning, as well as woodworking (in the SW sector).

Discussion and Conclusions

The documented activities in Túnel VII are: the arrangement of space, production of goods (which means by-products, products and rejects), consumption of products and especially the management of production waste.

We have tried to analyse spatial arrangement and densities of consumed products by categories resulting from use/wear and technological analysis on lithic and bone residues, as well as from the analysis of faunal resources exploitation.

General trends of the spatial arrangement strategies in Túnel VII show the differences between the inside and outside of the hut. Inside the hut a main fireplace was placed in the centre of a reasonably cleaned, slightly concave surface. Some larger materials are tossed and swept to the periphery of these areas including shells of consumed molluscs. A circle of shell-midden and other waste accumulates around this area, raising a crown that surrounds the centre of this occupied area. Other discarded remains and secondary fireplaces inside the hut can be interpreted as working areas that are close to sitting or sleeping areas. Nevertheless throughout the occupations, the quantity of small remains deposited in the inside of the hut is diffused through maintenance sweeping. As a result, the complete palimpsest shows a significant concentration of remains inside of the hut. Birds were consumed and deposited in concentrated spots, especially in the interior. Outside, there is evidence of working areas and locations with cetacean bone residues. Sea lion (especially the larger individuals) was butchered outside and was consumed both inside and outside of the hut. These remains were unevenly distributed and sometimes shared with other huts.

In addition, we can also conclude that lithic production develops in two clearly differentiated areas: inside the hut and in the exterior towards the most western sector

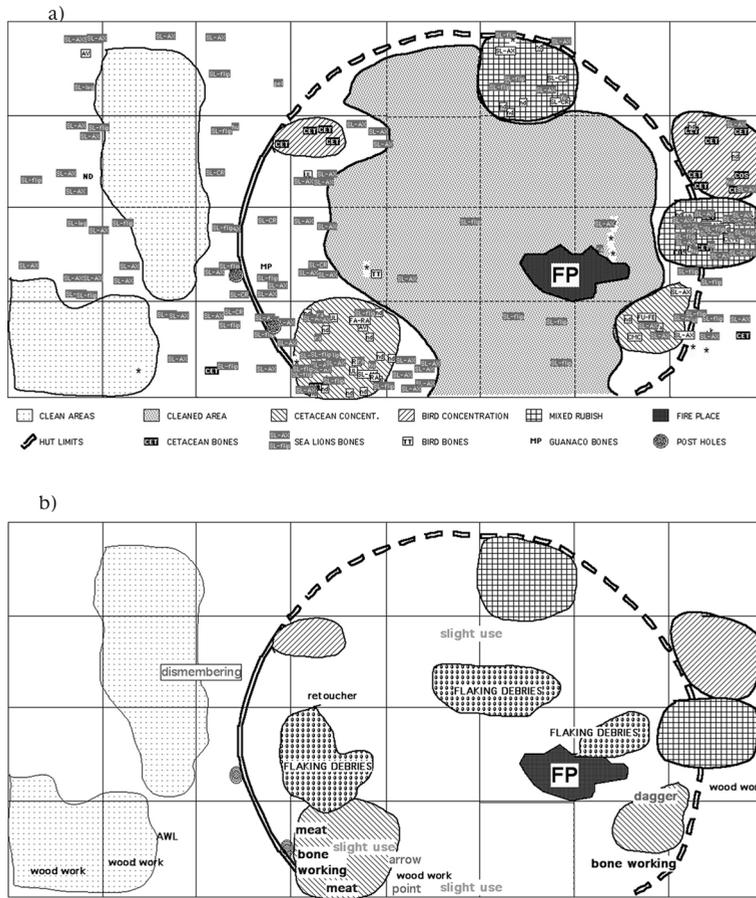


Figure 5.10. a) Map of faunal remains and concentrations. b) Map of the distribution of residues concentrations and used tools in Tunel VII first occupation.

of the excavation. In the exterior people obtained flakes and fragments that could have been used for activities documented in these external areas, especially woodworking and sea lion butchering. Likely due to the more comfortable conditions, the interior of the hut was used for more laborious activities, such as the finishing of bifacial points. The presence of a retoucher inside the hut during the first occupation may support this hypothesis. Although it may also be due to the item being a valued good that, similar to hammerstones, people would want to have under close control to prevent loss, and to have it available when needed.

This general image can be compared with the one that is obtained for the single occupations, similar to this first occupation on which we have centered. Plotting the different types of waste and isolating the visualised accumulations (Fig. 5. 10) allow us to understand how the deposition of residues occurred.

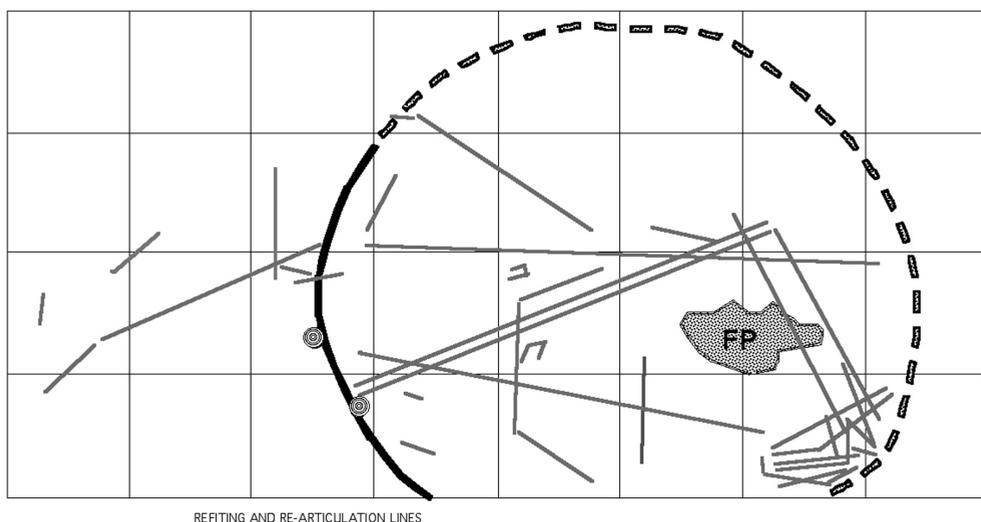


Figure 5.11. Map of the refitting and rearticulation lines in the material deposited during the first occupation of Tunnel VII.

We argue that instruments of work will not always be located in the place where they were used. This results from the activities of cleaning and maintenance of the domestic space displacing and redepositing the items in other places. Nevertheless, the task of deciphering the stratigraphy of Túnel VII (Estévez and Vila 2000), together with the reassembly and the rejoins of skeletons, allow us to assess the general dynamics of deposit. Actually the lines that join pieces, which match or articulate together, show us a dynamic that does not exceed the limits of the build structure (Fig. 5.11). There are lines that cross from east to west in the interior of the hut, others join points in the exterior deposit, and finally we have a set of connections in the deposit of waste that existed in the south-east limit of the structure. These correspond with an area of accumulation of swept garbage of the consumption of birds.

Inside the hut it is possible to identify aggregates of bird remains both to the right and left of the hut entrance, and a third close to the central hearth. A reasonably clean area exists in the centre of the hut and around the hearth. In the periphery, at the rear part of the interior of the hut another accumulation occurs with mixed remains of sea lion and birds. More to the left at the rear there is a small accumulation of cetacean bone chips. It is possible to identify an area with mixed and heterogeneous waste in the periphery to the East of the hut. This includes the remains of birds, cetacean, guanaco and big pieces of consumed of sea lion. More to the north but completely in the exterior to the hut we found an accumulation with cetacean remains of different sizes.

The remains of sea lion are found over the whole western periphery outside of the hut. Nevertheless two areas stay reasonably clean inside this dispersion of remains. In

one of them there were flakes that served for cutting and sawing wood along with a bone awl that could also be used in this type of work (to perforate and to sew pieces of wood or bark, for example). Residues of sea lion surround the other clean area and there is a non-curved tool (a simple flake) that served for butchering animals. The rest of the lithic tools are concentrated inside the hut, and we can correlate them to works that were fulfilled there: maintenance tasks of the instruments, retouching for final shaping of tools (a used retoucher and three concentration areas of flaking residues), as well as rejected or unfinished elements from manufacture or broken, amortised elements (fragments of arrow points and dagger points).

As we have commented earlier, in the second moment of occupation the remains of birds spread over the whole western part of the interior of the hut and the area occupied by the remains of sea lion is also extended towards the hut's interior, whereas other spots of little cetacean remains are found inside the hut.

After these analyses we can assess that certain, but not all of the general tendencies observed in the general distribution of all the products recur in the analysis of the first occupation, which by principle could be the most affected by taphonomic factors and by the proper human activities that followed later on the same place.

The distribution of all the remains in a sample of different recurrent occupations (a palimpsest) compared with the analysis of the different occupation levels in a deposit (like that in Túnel VII), where it is possible to identify and separate short moments of occupation and deposit, make it possible to identify if there are tendencies and recurrences in the deposit of the tools and remains. These correlations are the result of strategies relating to the organisation of space for certain activities. The recurrence of this organisation of the deposit and of the re-localisation of remains indicates the strength of the rules in the management of the space. The strategies appear to be less determined by processes related to subsistence and environmental constraints; rather, the use of space is more dependent on the variables of social organisation, which inform us about the social relationships.

To obtain our final goal we have to continue with the analysis of all the distributions and individual reassemblies, but also must look for synthetic categories that are more representative of the real social value of the produced and consumed goods. This has to consider other variables like the raw material used and different utility indices. Other information can come from the horizontal distribution of other categories, such as those derived from the soil micromorphology, fat and phytolith analysis of sediments, as well as from the ethnographic, experimental and taphonomical approaches. We will continue this analysis for all the occupations of Túnel VII. Then we will be able to compare them with the occupations of other sites of the Tierra del Fuego hunter-gatherer groups that we are presently being analysed.

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References

- Caminos, R. (1989) Cordillera Fueguina. *Segundo Simposio de Geografía Regional Argentina* 2, 1463–1501.
- Clemente Conte, I. (2005) The manufacture and use of leather consumption goods by the Yamana of Tunel VII, Northern coast of Beagle Channel (Argentina): an ethnographic evaluation and its archaeological comparison. In X. Terradas (ed.) *Lithic Toolkits in Ethnoarchaeological Contexts. (Proceedings of the XIVth UISPP Congress)*, 41–45. Oxford, Archaeopress, British Archaeological Report S1370.
- Clemente Conte, I. (1997) *Los instrumentos líticos de Túnel VII: una aproximación etnoarqueológica*. Madrid, UAB-CSIC, Treballs d’Etnoarqueologia, 2.
- Clemente Conte, I. (1996) *Instrumentos de trabajo lítico de los yámanas (canoeros-nómadas de la Tierra del Fuego): una perspectiva desde el análisis funcional*. Unpublished PhD. Thesis, Universitat Autònoma de Barcelona.
- Clemente Conte, I. and Terradas, X. (1993) Matières premières et fonctions: l’exemple de l’outillage lithique des yamana (Terre de Feu). In P. C. Anderson, S. Beyries, M. Otte and H. Plisson (eds) *Traces et fonction: le gestes retrouvés*, 513–521. Liège, CNRS, ERAUL 50 (II).
- Estévez, J. and Martínez, J. (1997) Archaeozoological researches at the Beagle Channel, Argentina. *Anthropozoologica* 25–26, 237–246.
- Estévez, J., Piana, E., Schiavini, A. and Juan-Muns, J. (2001) Archaeological analysis of shell midden in the Beagle Channel, Tierra del Fuego Island. *International Journal of Osteoarchaeology* 11, 24–33.
- Estévez, J. and Vila, A. (2000) Estratigrafías en contexto. *KREI* 5, 29–61.
- Estévez, J. and Vila, A. (2006) Variability in the lithic and faunal record through ten reoccupations of a XIX century Yamana hut. *Journal of Anthropological Archaeology* 25, 408–423.
- Gyria, E. Y. (1997) *Tehnologičeskii Analiz kamennij industrii. Metodika mikro-makroanaliz devnij orudij truda*. Sant Petersburg, Rossijskaia Akademia Nauk. Institut Istorii Materialnoi Kulturi.
- Gusinde, M. (1937) *Die Feuerlandindianer. 2 Band. Die Yamana*. Mödling bei Wien, Verlag der Internat, Zeitschrift Anthropos.
- Mameli, L. and Estévez, J. (2004) *Etnoarqueología de aves: el ejemplo del extremo sur americano*. Treballs d’Etnoarqueologia 5. Madrid, CSIC.
- Mameli, L., Estévez, J. and Piana, E. L. (2005) Deep impact: stones in bones. Some thoughts about the ethno-archaeology contrast. A view from Tierra del Fuego. In X. Terradas (ed.) *Stone Tools in Ethnoarchaeological Contexts (Proceedings of the XIVth UISPP Congress)*, 9–18. Oxford, Archaeopress, British Archaeological Report S1370.
- Mansur, M. E. (1983) *Traces d’utilisation et technologie lithique: exemples de la Patagonie*. Unpublished PhD. Thesis, Université de Bourdeaux I.
- Mansur, M. E. and Clemente, I. (in press) ¿Tecnologías invisibles? Confección, uso y conservación de instrumentos de valva en Tierra del Fuego. In *Actas del XIV Congreso Nacional de Arqueología Argentina*. Rosario.
- Orquera, L. A. (1996) Túnel VII: la estratigrafía. In J. Estévez and A. Vila (eds) *Encuentros en los conchales fueguinos*, 83–103. Madrid-Barcelona, CSIC-UAB, Treballs d’Etnoarqueologia 1.

- Orquera, L. A. and Piana, E. L. (1999) *La vida material y social de los Yámana*. Buenos Aires, Instituto Fueguino de Investigaciones Científicas-Eudeba.
- Orquera, L. A. and Piana, E. L. (1996). Túnel VII: la excavación. In J. Estévez and A. Vila (eds) *Encuentros en los conchales fueguinos*, 47–82. Madrid-Barcelona, CSIC-UAB, Treballs d'Etnoarqueologia 1.
- Pié, J. and Vila, A. (1992) Relaciones entre objetivos y métodos en el estudio de la industria lítica. In R. Mora, X. Terradas, A. Parpal, and C. Plana (eds) *Tecnología y cadenas operativas líticas*, 271–278. Barcelona, Universitat Autònoma de Barcelona, Treballs d'Arqueologia 1.
- Terradas, X. (2001) *La gestión de los recursos minerales en las sociedades cazadoras-recolectoras*. Madrid, CSIC, Treballs d'Etnoarqueologia 4.
- Terradas, X. (1997) Lithic raw material procurement strategies of the Yamana people (Tierra del Fuego, Argentina). In R. Schild and Z. Sulgostowska (eds) *Man and Flint*, 123–126. Warszawa, Institute of Archaeology and Ethnology-Polish Academy of Sciences.