

ON CACHE RECOGNITION AN EXAMPLE FROM THE AREA OF THE CHICO RIVER PATAGONIA, ARGENTINA

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ABSTRACT

Caches are places where people store and hide artifacts, food, medicine bundles and/or equipment for their future recovery and utilization. In this paper, we discuss the existence of a cache in La Gruta area, north of Chico river, Argentine Patagonia, being this an area with chronological data ranging from ca. 10,845 years to 1,450 uncalibrated years B.P. The position of the assemblage recovered at El Escondrijo site suggests that the artifacts were deposited together. The place where the artifacts were found can be easily seen and reached and, besides, it can be easily located too. Recovered artifacts differ from other assemblages of the area. The main macroscopic differences lie in the excellent quality of raw material used, which was not identified within natural sources in the surroundings, in its color and in the high frequency of bifaces in early stages of manufacture. The fragmentation index of this site is the lowest one identified in the area. Microwear analysis shows that these artifacts have very few microwear traces, which could be related to hide. These data suggest that El Escondrijo is probably a banking cache, which existence could be related to the lack of raw material of a similar quality to the south of this area, outside the Deseado Massif.

RESUMEN

Los escondrijos son lugares adonde la gente almacena y esconde artefactos, alimentos, artículos medicinales y/o equipamiento para su recuperación y utilización futura. En este trabajo se discute la existencia de un escondrijo en el área de La Gruta, al norte del río Chico, en la Patagonia argentina, adonde hay dataciones que se extienden entre ca. 10,845 y 1,450 años A.P. La posición del conjunto recuperado en el sitio El Escondrijo -sobre la superficie, probablemente procedente de una pequeña oquedad por debajo de un afloramiento- sugiere que los artefactos fueron depositados juntos. El lugar en el que los artefactos fueron encontrados es visible y fácilmente localizable y alcanzable. Las características de los artefactos recuperados en este sitio difieren de las de los otros conjuntos del área. Las principales diferencias macroscópicas residen en la excelente calidad de la materia prima utilizada -que no se ha identificado en la inmediata vecindad-, su color y la alta frecuencia de bifaces en estadios iniciales de manufactura. El índice de fragmentación del sitio es el menor identificado en el área. Los análisis de microdesgaste muestran que estos artefactos tienen muy pocos rastros de uso, que pueden relacionarse con cuero. Estos datos sugieren que este

sitio es probablemente un escondrijo, pudiendo ser clasificado como un "banking cache". Su existencia podría relacionarse con la falta de materias primas de calidad similar al sur del área.

Hunter-gatherers use different strategies in order to deal with incongruences in the available resources in the area where they live (for example Bamforth 1986; Binford 1979; Bousman 1993; Nelson 1991; Odell 1996; Torrence 1983). Among them, we can mention the existence of gear which is not used at any one time, which Binford (1978, 1979) divides between passive and insurance gear. The first one is seasonal, almost always associated with a seasonal occupied residential location (Binford 1978, 1979). Insurance gear is cached throughout the region and it is related to future needs in the location. It consists of food and equipment supplies distributed throughout hunter-gatherers' territory as site furniture at locations not in use, as caches at stream crossings in well-known caves and rock crevices, adjacent to sites or in deliberately constructed rock caching facilities (among others Binford 1978, Binford 1979). They are part of a planning strategy in order to deal with future needs (Binford 1978, 1979). Binford (1979) has found out in his ethnoarchaeological works that 9 percent of all the cached items were stored within the village, while 40 percent was identified outside the village as caches or as site furniture at locations used for hunting sheep or caribu. This fact can have important consequences for the distribution of the archaeological record. Of course, items which are stored can be considered cached when people go away and leave them (Collins 1999).

Here, we discuss the existence of a cache in La Gruta area, north of the Chico River (Santa Cruz province), Argentine Patagonia, being this an area with chronological data ranging from ca. 10,845 years B.P. to 1,400 uncalibrated years B.P. (Franco et al. 2010). Different criteria for its identification are used, including the location of the finding spot, tool-types recovered, raw material, colour, fragmentation index and microwear traces.

GENERAL BACKGROUND

Caches are places where people store and hide artifacts, food, medicine bundles and/or equipment for their future recovery and utilization (among others Binford 1978, 1979; Kornfeld et al. 1990; Collins 1999; Ballenger 1996; Deller and Ellis 2001; Amick 2004). Archaeologists' only possibility of recognizing them is inversely related to the recovery of items cached by prehistoric populations. This means that we only recover a minimal number of the caches that are built.

In spite of this low recovery possibility, caches have been identified in different places and time frames, including not only artifacts but also food, frequently isolated from habitation sites (for example Kornfeld et al. 1990; Bement 1991; Miller et al. 1991; Ballenger 1996; Collins 1999; Meltzer 2002; Franco 2004).

Schiffer (1987) distinguishes between secular and ritual caches (see also Collins 1999). Among the secular ones, this author includes banking and abandonment caches (Schiffer 1987, Collins 1999). While in a banking cache, people hide or bury artifacts -especially valuable ones- for their later recovery and use (see Schiffer 1987; Collins 1999), an "abandonment" cache consists of utilitarian objects of less intrinsic value, which are being left at sites to which a group anticipates returning (Schiffer 1987; Collins 1999).

A ritual cache must consist of a "reasonably discrete concentration of artifacts, usually not found in a secondary refuse deposit" (Schiffer 1987: 79). According to this author, ritual caches generally contain complete artifacts, frequently unused, which are intact or easily restored.

Different authors (Schiffer 1987; Collins 1999; Amick 2004) believe that it is difficult to differentiate between ritual and banking caches, being the cached objects the best way of discriminating between them. We agree with them and we believe that the presence of complete artifacts, frequently unused, can be related both to banking and ritual caches, being the context essential for distinguishing between them.

Caches have been identified in America during different time frames. In North America, for example, more than forty caches are reported during Late Pleistocene/Early Holocene times (Deller et al. 2009). Meltzer (2002), based on the high frequency of caches in Clovis times, states that stone caches are very useful for the exploration of unknown environments because they make re-supply available without a long return to the quarry. They are artificial re-supply spots, which anticipate and compensate the lack of knowledge of the environment (Meltzer 2002). On the other side, Collins (1999) thinks that the high frequency of Clovis caches is due to the predictability of hunter-gatherers' movements. This could be the case in areas which lack high quality rocks or where they don't have an even distribution. In south Patagonia, Franco (2002, 2004) expects a higher frequency of caches during a stabilization phase of space occupation (*sensu* Borrero 1994–95). This is a moment when all available spaces are known and, in which, density dependent pressures are present. Because of this reason, items included in caches can be more frequently recovered by prehistoric populations.

Archaeological lithic recognized caches are composed of a dozen to one hundred or more artifacts, including for example bifaces, projectile points, scrapers (among others Bement 1991; Miller et al. 1991; Collins 1999; Meltzer 2002; Amick 2004). The criteria for their recognition have varied, including their localization -generally in easily identified areas- and the artifacts characteristics. Among the last ones, an important emphasis has been placed on the excellent quality of the raw material used for this purpose, but also their provenance, size (bigger sizes than the ones recovered in the area), degree of standardization and low frequency of microwear traces are taken into account (among others Kuhn 1992; Collins 1999; Franco 2002, Meltzer 2002; Amick 2004; Franco 2004). In general, we can say that in order to be a part of a cache, artifacts must have a remaining useful life. The raw material characteristics can vary depending on the function of the cache. However, we believe artifacts included in caches should be

different from the ones recovered in the regional archaeological record in their size and degree of completeness (Franco 2004). Because of this, it is required good knowledge of the regional archaeological record in order to recognize a cache.

La Gruta area

This area is located north of the Chico river basin, which is a permanent stream (Figure 1). Today it is dominated by closed depressions in volcanic rocks that may contain seasonal lagoons and occasionally permanent bodies of water. It corresponds to the southern spurs of the Deseado Massif, which has abundant silicified ignimbrites, silicified wood, tuffs and epithermal quartz veins, with abundant silicification in some areas, and the presence of chalcidies, jasper and opal, corresponding to Chon Aike and La Matilde Formations (among others Panza and Marín 1998; Panza and Haller 2002; Echeveste 2005) (Figure 2). Silicified rocks seem to be least frequent at the south of the Massif, where La Gruta area is located (Franco et al. 2009). South of the Massif, basic rocks related to different volcanic episodes are frequent (among others Russo and Flores 1972; Russo et al. 1980; Panza and Franchi 2002;), being silicified rocks of excellent or good flintknapping quality present only in very small sizes in certain areas (Franco and Cirigliano 2009), probably coming from cavities in basic rocks.

Archaeological studies in La Gruta area began in 2006, being their aim the understanding of the effect of different variables –such as water, caves and rocks of excellent quality- in hunter-gatherers' behavior. Lithic raw material primary and secondary sources, surface artifacts and rock art were systematically recorded (Franco et al. 2009). Most of the tools are unifacially retouched, being end and side-scrapers the most frequent ones. Most of surface artifacts are fragmented.

Test pits were made in different rockshelters and caves in the area. Four dates between 10,845 and 10,200 uncalibrated years B.P. were obtained in a test pit made in a small cave (La Gruta, laguna 2, cueva 1) discovered in the cliff wall of one closed

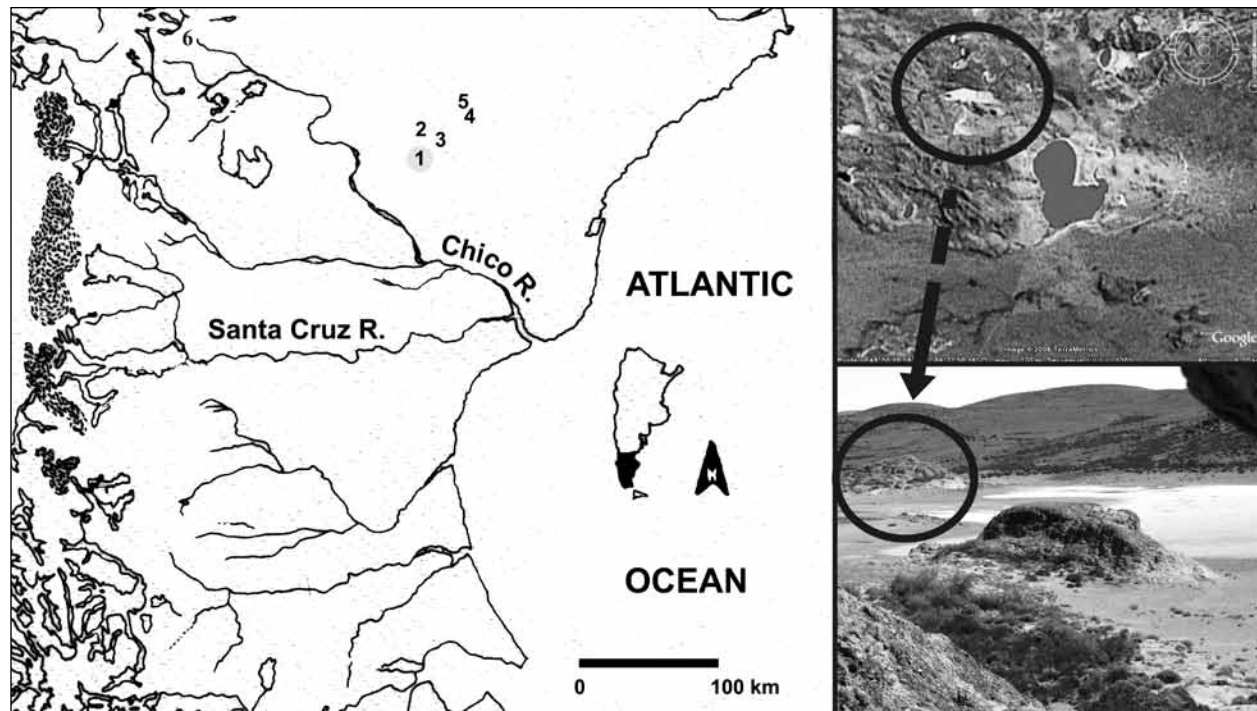


Figure 1. Areas mentioned in the text and sites with early human occupation close to them. References: 1. La Gruta, 2. La Martita, 3. El Verano, 4. Casa del Minero, 5. Cueva Túnel. In the close-up, an arrow points to El Escondrijo site.

depression that contains a seasonal lagoon (Franco et al. 2010). The youngest dates at the same lagoon range from ca. 1,890 to 1,450 years B.P. Most of the artifacts recovered at this test pit were small size flakes, although the presence of unifacial tools was recorded. They were associated with hearths. Most of the artifacts was made of chalcedony and siliceous rocks (Franco et al. 2010). Some of the chalcedony may have been imported as it was not identified in the immediate vicinity (*sensu* Meltzer 1989). Black and grey obsidian was also recovered, and based on geochemical data available for Patagonia they probably came from 158 km to the north, from Pampa del Asador (among others Stern 1999, 2000).

The early dates obtained in La Gruta area are consistent with the results obtained by other researchers to the north. Paunero has obtained dates of ca. 11,000 uncalibrated years B.P. at Casa del Minero—located at 61 km to the northeast—and Cueva Túnel (Cardich and Paunero 2000; Paunero et al. 2007; Paunero 2009). In addition, closer to La Gruta area, dates corresponding to the Early Holocene were obtained at cave 4 of La Martita

and El Verano (among others Aguerre 1997, 2003; Aguerre and Pagano 2003; Durán et al. 2003), at ca. 32 and 21 km from La Gruta lagoon. Most of the tools are unifacially retouched, although bifaces were recovered in the oldest deposits of La Martita and El Verano, as well as bifacial thinning flakes. The oldest deposits of La Martita were dated at 8,000 years B.P. (Aguerre 2003). Big artifacts were recovered in these deposits. Among them, we can mention the presence of unifacially retouched end-scrapers, as well as foliated artifacts, bifacial preforms and unstemmed triangular projectile points, bifacially thinned (Aguerre 2003). End and side-scrapers as well as projectile points recovered at El Verano are similar to the ones recovered at the earliest deposits of La Martita (Durán et al. 2003). Black obsidian was recovered both at La Martita and El Verano (Aguerre 2003, Durán et al. 2003).

El Escondrijo site

El Escondrijo site was found during the surveys made in La Gruta area. It is located at one side of the seasonal lagoon where it is found the site with

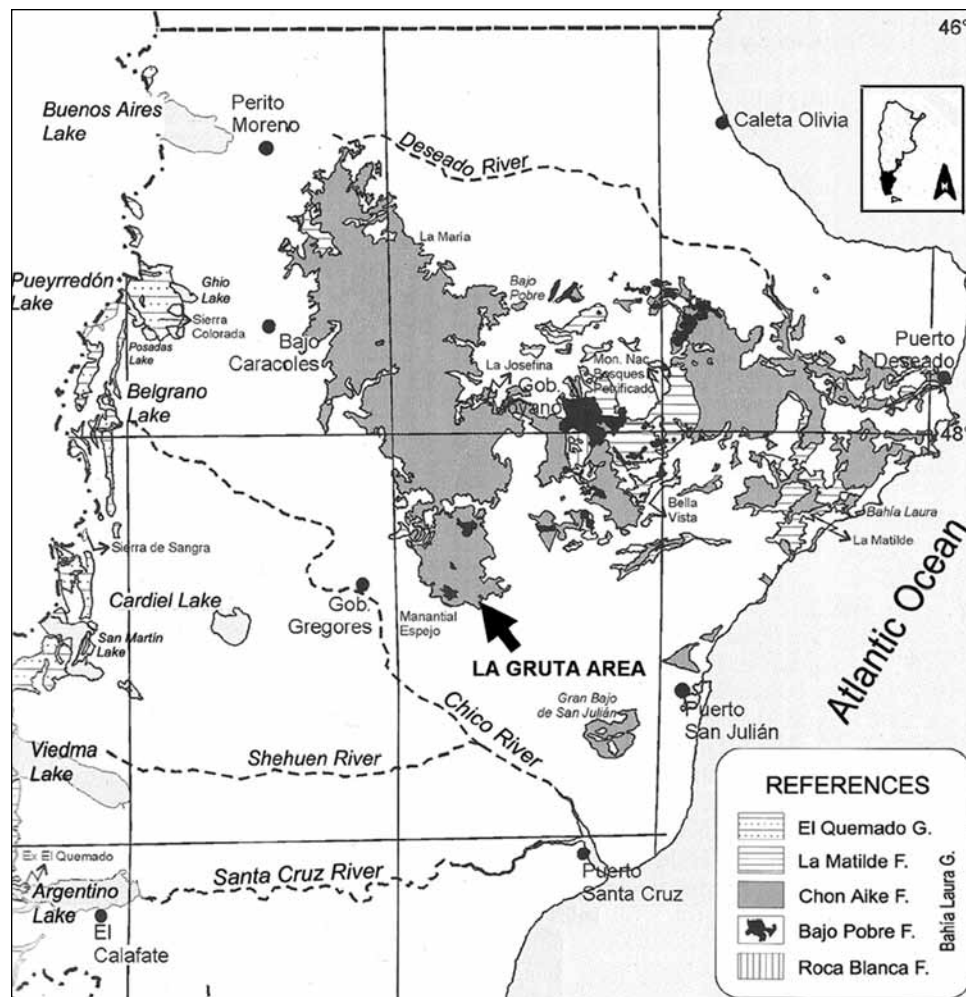


Figure 2. Jurassic volcanism in Santa Cruz province (modified from Panza and Haller 2002). La Gruta area is indicated.

the earliest human occupations in La Gruta area (Figure 1). It is a place easily recognizable and reachable. Artifacts were recovered on surface, in a small drainage emanating from the mouth of a small cavity in a rock outcrop (Figure 3). Plant remains probably corresponding to an animal den were found inside the cavity. There are also still some artifacts within this cavity, which lie above the plant remains.

Artifacts analyzed here had been found in the slope, removed from their original position probably by animal and water action. The artifacts were carefully recorded in their position within a grid. Their macroscopic and technical characteristics as well as the raw material on which they were manufactured differ from the ones recovered in surface in the area.

MACROSCOPIC ANALYSIS

All the retrieved artifacts from El Escondrijo site were analyzed. Unifacial artifacts were identified according to Aschero’s classification (1975, 1983), which is widely used in Argentina and proves to be of great utility for comparative purposes (table 1). Bifaces were analyzed using Callahan’s classification (Callahan 1996).

The sample is primarily composed by bifaces (58% of the sample, Table 1), which correspond to stages 2 and 3 of manufacture according to Callahan’s classification (Table 2). It also includes end-scrapers, side-scrapers, a notch, retouched and non-retouched flakes (Table 1). One of the side-scrapers was manufactured on a biface, which also corresponds to an early stage of manufacture.



Figure 3. Distribution of the artifacts in El Escondrijo site. The mouth of the small cavity and artifacts in the drainage emanating from it can be seen.

Table 1. Composition of El Escondrijo assemblage

Specimen-Tool types	Total
Bifaces	47
Side-scrapers	3
End-scrapers	2
Retouched flakes	4
Notches	1
Flakes	25
Total	82

The composition of the assemblage differs from other ones recovered in the area, which are mainly composed by unifacial tools.

Most of the artifacts recovered from El Escondrijo were made of excellent quality chert (78 artifacts = 95.12 percent of the sample). The colours of

these artifacts –mainly gray and violet, N7/, 5B5/1, 5GY5/1, 5/2 and 4/3 according to Munsell (1992)- are very different from the colours of the artifacts recovered in the area. The artifacts also show differences in colour and brightness among different scars, suggesting that they have been thermal treated. The most frequently used raw material is not available nearby (see Franco and Cirigliano 2009, Franco et al. 2009), and it is very different from the ones recovered at the area (Figures 4 and 5). Information on regional availability of raw materials suggests that it probably comes from the north, from distances of at least 60 km –near Casa del Minero- where raw materials of excellent quality are more frequent (Franco et al. 2009, Skarbun 2009).

The fragmentation index of the artifacts recovered at El Escondrijo is 0.06, the lowest one in the area. It is important to point out that it was

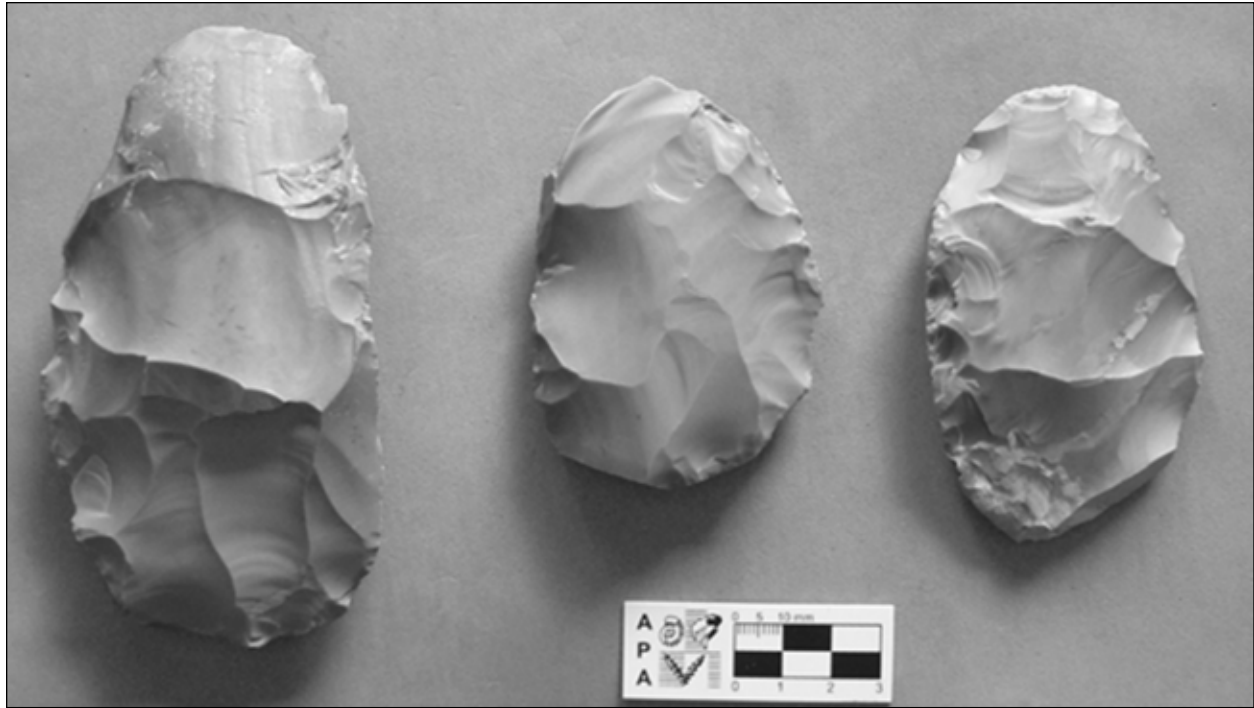


Figure 4. Some bifaces recovered at El Escondrijo site.

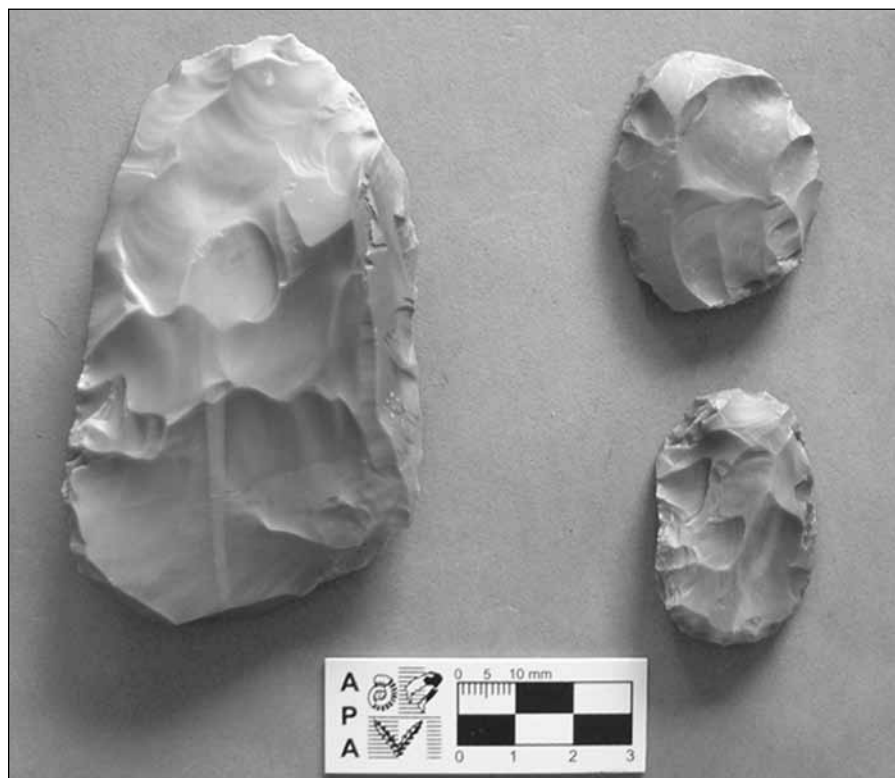


Figure 5. Some bifaces recovered at El Escondrijo site.

Table 2. Individual measurements and stage of manufacture of bifaces. References: n.d.: no data. Measurements of broken artifacts are indicated between brackets.

Stage of					Stage of				
Specimen- Tool Type	maunfac- ture	Length (mm)	Width (mm)	Thickness (mm)	Specimen- Tool Type	maunfac- ture	Length (mm)	Width (mm)	Thickness (mm)
Biface	2	44	29	8	Biface	3	40	29	7
Biface	2	48	38	7	Biface	3	65	47	11
Biface	2	61	57	14	Biface	3	52	40	9
Biface	3	81	58	13	Biface	2	45	40	12
Biface	2	43	38	11	Biface	2	83	47	16
Biface	2	58	30	7	Biface	2	64	48	11
Biface	2	56	39	13	Biface	2	65	30	13
Biface	2	63	43	14	Biface	2	73	54	13
Biface	2	46	28	9	Biface	2	62	47	13
Biface	2	102	58	18	Biface	2	48	42	10
Biface	2	50	34	8	Biface	2	(83)	(45)	(12)
Biface	2	54	38	7	Biface	2	(71)	(62)	(16)
Biface	2	51	31	12	Biface	2	74	54	12
Biface	2	47	31	8	Biface	2	51	37	9
Biface	2	44	37	10	Biface	2	52	39	10
Biface	2	48	41	9	Biface	2	84	59	16
Biface	2	50	36	6	Biface	2	48	31	8
Biface	3	52	42	9	Biface	2	(57)	(45)	(11)
Biface	2	52	39	7	Biface	2	129	73	29
Biface	2	(25)	(21)	(5)	Biface	2	35	25	7
Biface	2	63	47	13	Fragment of biface	n.d.	/33/	/14/	/9/
Biface	2	74	58	11	Fragment of biface	n.d.	/32/	/22/	/8/
Biface	2	73	48	15					
Biface	3	95	38	13					
Biface	3	48	34	8					

possible to refit four artifacts (two bifaces and two flakes) recovered at El Escondrijo, suggesting flintknapping activities at the site.

In general, the assemblage recovered at El Escondrijo differs from the ones identified in the surrounding area. The main differences are those related to the raw material which was used, which is of excellent flintknapping quality, its colour, the tool-types recovered and the fragmentation index of the sample.

It is worth mentioning that, although bifaces are very infrequent in La Gruta area, Aguerre has

recovered this kind of artifacts in the oldest occupations of La Martita cave 4, at 32 km to the northeast (Figure 1). They were also made of excellent quality raw material, which looks very similar to the one mainly used at El Escondrijo (Aguerre 2003). These occupations at La Martita cave are dated between 8,050 and 7,940 years B.P. (Aguerre 2003). The differences between El Escondrijo and La Martita samples lie in the most frequent presence of other tool-types and debitage, as well as a higher fragmentation index in the oldest deposits of La Martita (Aguerre 2003).

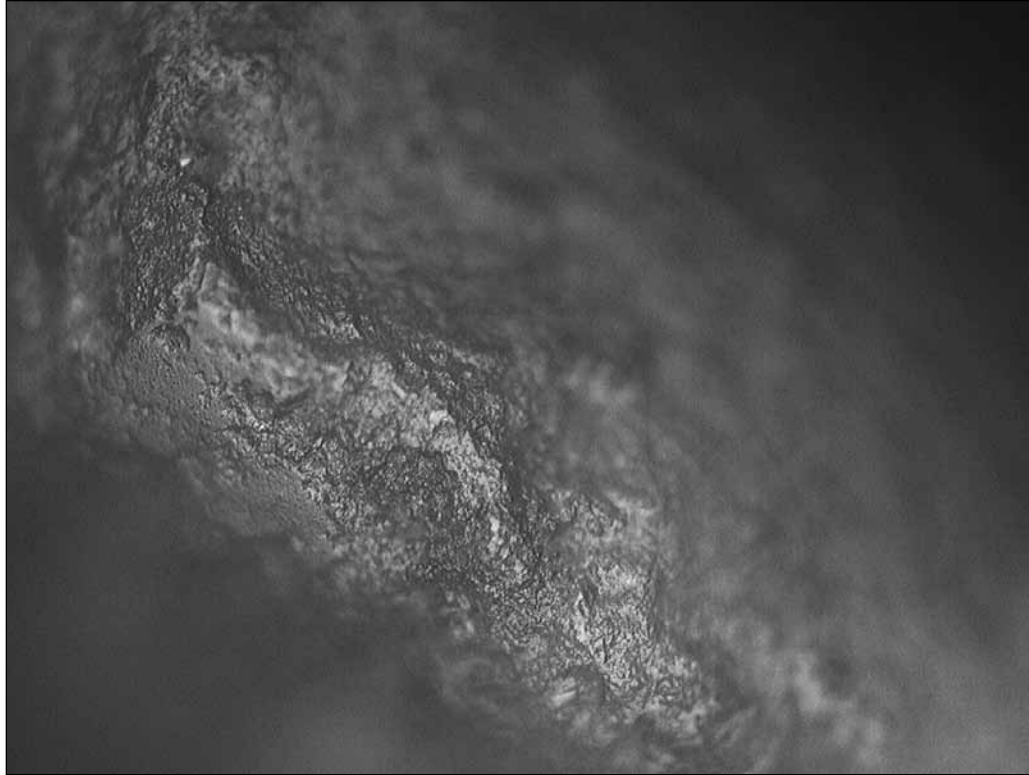


Figure 6. Hide-micropolish on a biface

Microwear analysis

Microwear analysis is an important source of information about human activities in the past (among others Tringham et al. 1974; Keeley 1977; Odell 1977; Mansur-Fanchomme 1983; Plisson 1985; Anderson et al. 1993; Castro 1994; Álvarez 2002). In this case, this analysis was carried out with an Olympus BX51M microscope using 200X. A traditional traceological approach (among others Semenov 1964; Keeley 1977) was performed, analyzing microscopic surfaces alterations and describing microwear variables in an optic qualitative way. In the case of micropolish and striations, variables analyzed were the presence/absence, distribution, orientation and intensity of them. Morphological edge damage (scars, half-moon breakage and rounding) was also evaluated (among others Semenov 1964; Tringham et al. 1974; Keeley 1977; Odell 1977; Mansur-Fanchomme 1983; Plisson 1985; Anderson et al. 1993; Castro 1994; Álvarez 2002). Not other methodological approach was used (for example Ibáñez Estévez and González Urquijo 2000; Toselli et al. 2005).

The whole sample recovered from El Escondrijo was analyzed ($n = 82$ artifacts). There were 55 artifacts (67.1 percent of the sample) which have neither recognizable micro surface alterations -such as polishing and striations- nor microscopic edge morphologic alterations -such as micro scars which could be related to use-. Within the remaining 32.9 percent of the sample ($n = 27$) there are artifacts with microwear traces, some of them related to cultural activities and other ones to post-depositional processes.

Three artifacts (3.66 percent of the sample) have a diagnostic micro-polish, which can be attributed to hide (Figure 6), following Keeley's definition of hide micropolish on flint (Keeley 1977). It should be mentioned that, although there is not a reference collection made on the raw material used for the manufacture of the cached artifacts, its homogeneity and fine grain suggest that it will develop similar polishes to the ones observed by Keeley on flint. Kinematic could not be identified. Other three artifacts (3.66 percent of the total sample recovered at the site) have a microscopic altera-

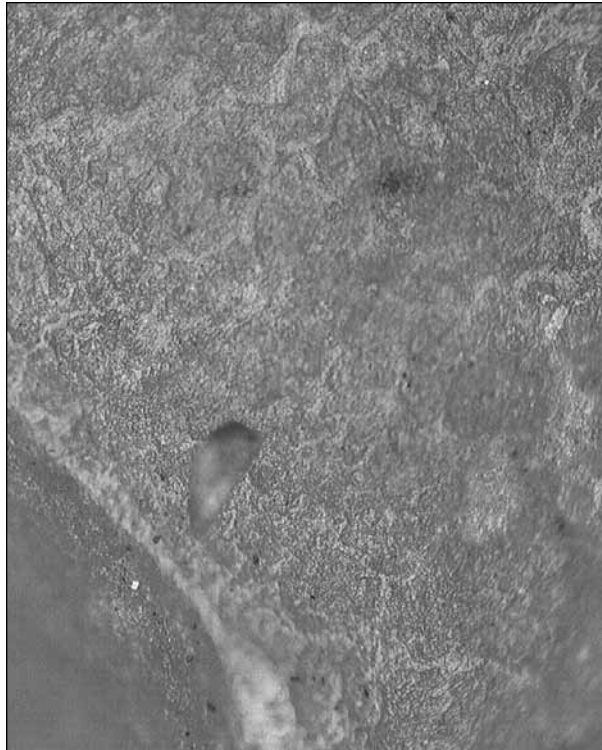


Figure 7. Non-diagnostic polish on a biface.

tion which can be described as an initial non-diagnostic polish (Figure 7) (Vaughan 1981, Mansur-Franchomme 1986). These microwear alterations developed on isolated points restricted to elevated microareas close to the working edges, suggesting its probably human origin. Five of these artifacts with microwear traces can be macroscopically and technologically classified as bifaces. One of them is an end-scraper (Table 3).

Twenty-one artifacts (25.61 percent of the total sample) show an alteration over the whole surface or in localized areas not related to a functional edge. They can be described as a luster of variable intensity. Although a detailed analysis was not performed, we believe it can be related to the action of natural processes -like wind and/or water-. In this sense, it is worth pointing out that the artifacts herein described have been removed from their original position by running water and exposed in a very abrasive substratum, in a cold, windy environment (see for example Keeley 1977; Mansur-Franchomme 1983).

Table 3. Artifacts with evidences of micro-wear probably related to human activities recovered at El Escondrijo. Percentages of the total sample are indicated (n = 82).

Micro-wear traces	End-		Total
	Bifaces	scrapers	
Diagnostic polish (hide working)	3 (3,66%)	0	3 (3,66%)
Non-diagnostic polish	2 (2,44%)	1 (1,22%)	3 (3,66%)

We had already mentioned that the macroscopic characteristics of the artifacts tend to suggest the existence of heat treatment. Sometimes heat treatment produces a sort of alteration that could be described as luster or homogeneous softy brightness recognizable under microscope (among others Clemente-Conte 1997; Collins and Fenwick 1974; Terradas and Gibaja 2001). In El Escondrijo case, a general homogenous luster can be recognized, but at the moment it is not possible to attribute it to heat treatment.

DISCUSSIONS AND CONCLUSIONS

Artifacts which have been recovered from El Escondrijo site differ from other assemblages in the area. The site is composed mainly by bifaces in early stages of manufacture, made of an excellent quality raw material which is not available in the immediate vicinity. The low fragmentation index as well as the size of the artifacts suggests that these artifacts were left in this place for their future use. Microwear analysis indicate that only very few specimenes have wear that can be related to hide-working. The position of the assemblage recovered at El Escondrijo -probably coming from a cavity within an outcrop- suggests that the artifacts were deposited together. The localization of the assemblage—in a place which is easily visible and reachable—along with the already mentioned characteristics of the artifacts suggests that El Escondrijo is probably a cache. The excellent quality of the raw material, not available in the immediate vicinity, the size of the artifacts and the low

fragmentation index suggest that El Escondrijo is a banking cache. Its existence could be related to the lack of raw material of this quality south of this area, where siliceous rocks of very good quality are present in small sizes, in specific places within this space. Because of this, El Escondrijo could be considered an utilitarian cache intended to reduce travel costs to the south of the Massif. The refitting of bifaces and flakes artifacts suggests that El Escondrijo is not a ritual cache.

Bifaces are not frequent in La Gruta area. However, they had been recovered in stratigraphy in La Martita cave 4 (32 km to the north) and dated at 8,000 years B.P. Similarity in the macroscopic and technological characteristics of the artifacts and similarity in raw material used suggests the existence of a common way of manufacturing artifacts, indicating that the recovered assemblage probably dates from the same time span. Further analysis is needed in order to test this hypothesis. They should include further stratigraphic information as well as a detailed analysis of the characteristics of the artifacts. If they correspond to the same time span and if we take into account that there are sites dated at 10,800 years B.P. in the nearby, we could say that this cache does not correspond to the initial exploration of the area. It could probably be related, however, to the initial colonization of these spaces (*sensu* Borrero 1994-95). We hope that further research will help to clarify this topic.

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