Andreas Pastoors & Bärbel Auffermann (eds.):
Pleistocene foragers on the Iberian Peninsula: Their culture and environment.
Festschrift in honour of Gerd-Christian Weniger for his sixtieth birthday.
Wissenschaftliche Schriften des Neanderthal Museums 7, Mettmann 2013.

RELATIONSHIPS AND CONTACTS OF THE PLEISTOCENE HUNTER-GATHERER SOCIETIES WITH MODE III TECHNOLOGY BETWEEN NORTHERN AFRICA AND THE SOUTHERN IBERIAN PENINSULA

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Abstract

We present the natural environment of the historic region of the Strait of Gibraltar. We evaluate the similarities in the south of the Iberian Peninsula and North Africa in geography, geology, environment and resources. The paper shows a summary of the important research carried out about the history of hunter-gatherer societies in this area. We emphasise the importance of the similarities of the Mode I and II technologies. On the other hand specifically, the Mode III technology scene is valued on both sides of this Atlantic and Mediterranean region. We reflect on the similarity of exploitation in order to make use of the marine resources by different human groups.

Keywords

Strait of Gibraltar, Pleistocene, hunter-gatherer societies, Mode III technology, relationship, contact

Introduction

We have been developing research projects in the region of the Strait of Gibraltar in the south of the Iberian Peninsula and North Africa for several years, as we are interested in the study of the possible relationships and contacts of prehistoric societies between both shores (Ramos 1998, 2002, 2012). This region was inhabited by diverse societies during the Pleistocene and Holocene periods, where the resources of hunting, fishing and gathering were exploited. There is a historical and archaeological sequence with many similarities in the technology and the way of life. The explanation models that have predominated so far have been based on diffusion ideas. So, as a working hypothesis, we propose that technological similarities are the result of the relationships and contacts within the framework of the typical mobility of hunter-gatherer societies (Bate 1986; Weniger 1991; Ramos 1999). The effects of the regressions and coast line changes have been decisive factors for the Strait of Gibraltar (Rodríguez Vidal et al. 2004), facilitating the contacts among settlers in the Pleistocene. The study of this matter requires good knowledge of geology, fauna and environment. The archaeological analysis needs to frame the technology on a broad view of human contacts from an economic and social perspective of anthropology and history. We consider thus, the Strait as a bridge and not as a barrier (Tarradell 1959). Moreover, we consider that we have to overcome the simple criteria of the biology-culture relationship. The documentation of the exploitation of the marine resources on both coasts by different human groups allows us to see an effect on the peculiarities of the ways of life of different human groups in the region.

Environment - The concept of historic region for the area of the Straits of Gibraltar

The natural region of the Strait of Gibraltar is a warm zone located between Europe and Africa in mid-latitudes. It extends into the European area, from the Iberian Moroccan Gulf to the West (Vanney & Menanteau 2004), including the Portuguese region of the Algarve, the Gulf of Cadiz and the coastal area of Campo de Gibraltar. On the other hand, to the east, we can find the Bay of Malaga and the Axarquia coast of Malaga. In the area of North Africa it goes from the Peninsula Coastal Tangerine to the Alborán basin, including the surroundings of Tanger, the coastal region of Tetouan, and the Eastern Rif and Oued Mouluya. The indicated areas of North Africa and southern Europe show many similarities in geology, geography, environment, climate, wildlife, vegetation and resources. We consider them historically similar regions (Sanoja & Vargas 1999, 5) because of their similarities in the historical succession and the peculiar

exploitation of the environment by the societies throughout history. The region also has an Atlantic-Mediterranean situation that has given it a peculiar geographical and historical character (Arteaga & Hoffmann 1999). This entire historic region of the Strait of Gibraltar is a strategic place for understanding the early human occupation of Europe and the continuity of settlements during the course of the Pleistocene and Holocene (Ramos 2002; Otte 2011). Traditionally, the technical and cultural developments have been explained from the north to the south. Classical explanations have always been used within the cultural historicism. There have been many prejudices about the technical achievements and progress of African archaeology (Ramos 2008; Ramos et al. 2008a).

History of research - Different approaches to Africanism

In a previous work, we developed a historiographical assessment essay of the region, from an external view of this discipline. This involves analysing the researchers' historical and sociological context, as well as the circumstances of the times and the trends in the methodology. This is how we explain the formation of Africanism in the 19th and 20th centuries of Spanish archaeological tradition (Ramos 2008). During times of the imperialist development, the official scientific opinion could not accept that the advances in technology and art came from Africa. Especially since the national bourgeoisie was extracting resources from that continent and considered its inhabitants savages (Kuper 1973; Rossi & O'Higgins 1980). Clear examples are seen in the idea of Breuil (1921) about Palaeolithic art from the discovery of caves like Ardales and Pileta. Starting with the work of Bosch, two different views were generated on the valuation of African cultures as a dynamic phenomenon and the important role it played in the formation of the concept *pueblos de España*, so-called by Bosch (1932, 1944). On the other side, and after the Spanish Civil War, ethnocentric tendencies from north to south dominated the explanatory models of the so-called *pueblo hispánico* by Martinez Santa-Olalla (1946) and by Almagro (1946, 1958). Only Pericot kept Bosch's ideas as he was also interested in African prehistory. He worked hard on the relationship between the Solutrean and Aterian periods (Pericot 1942; Pericot & Tarradell 1962). Tarradel studied new samples in archaeological excavations in the caves of Kaf That el Gar and Gar Cahal, with Neolithic occupations and recent prehistory. He expressed the concept of *Círculo del Estrecho* in a typical idea of cultural historicism as *Kulturkreise* and proposed the bridge idea and cultural relationships between the two shores of the Neolithic (Tarradell 1958, 1959). After the independence of Morocco Spanish, prehistorians were no longer interested in African issues. An Eurocentric view of the explanation of cultural models became popular. We consider that the historiographical revision of these issues must take into account the history of the Spanish protectorate of Morocco in its institutional framework, in the activities carried out there, as well as in its historical-cultural research tendencies. So, we are interested in the lines of the fieldwork, the production of the archaeologists and the context of international research. The history of research on Palaeolithic studies in the south of the Iberian Peninsula already has some papers in its line of research (Ramos 1994; Estevez & Vila 1999). Studies have been renewed and updated. We studied the context and the historical, economic and policy circumstances of each period (Diaz-Andreu 2002). This sociological frame allows us to understand the ideology of the investigators, the acceptance of some approaches and rejection of others in relation to the thought of the time (Moro & González Morales 2004).

The Strait of Gibraltar in the Quaternary

Traditional studies have organised the Quaternary stratigraphy in Europe according to the succession of cold and warm periods. In North Africa, they have been structured by the succession of wet stages and other drier stages (Texier et al. 1985, 1994; Raynal et al. 1988). In the south of the Iberian Peninsula, taking latitude and micro fauna studies into account, biocenogram analysis show a new biostratigraphic and

palaeoecological synthesis. A generalised predominance of good climatic conditions has been proved and so, the concept of a Mediterranean Interglacial can be accepted. It has been confirmed that the cold times were fewer and less intense (Ruiz Bustos 1997). These climatic oscillations transformed the nature with a direct impact on the environment, vegetation and wildlife. Their registers tag the climatic changes as very outstanding and moreover, having a significant impact on prehistoric societies. All these considerations at the regional level had an effect on the palaeotopography of the region of the Strait of Gibraltar, which varied strongly in the different stages of the Quaternary (Rodríguez Vidal et al. 2004), in relation to global climate history. The complexity and tectonic uplift of the region has also been affected significantly (Rodríguez Vidal & Cáceres 2005). In the cold stages, the sea level dropped sharply, to 120-130 meters below the current level (Collina-Girard 2001; Bouzouggar 2003). At those times, the coasts would have been nearer. There would have been broad valleys and a lot of islands would have been located in the strait, which are nowadays submerged. Thus the distance from one coast of the Strait of Gibraltar to the other decreased to a few kilometres only, so human groups of hunter-gatherer-fishers who settled at sites in the region in the Middle and Upper Pleistocene had no natural insurmountable barriers to limit their mobility between both sides. In addition, today there are submerged vast areas that were used and exploited by prehistoric societies during cold times and that are now covered by the sea. All of this stresses the idea that the crossing of the strait by these societies is a probable hypothesis.

Large studies perspective on the stages of the lower Pleistocene

The research on the first human occupation in North Africa (Sahnouni 2006; Raynal et al. 2010) had a direct impact on studies in southern Europe (Carbonell et al. 2008), raising the idea of early occupations in the Pleistocene in the Iberian Peninsula. The similarities in technology and geographical proximity lead us to think of possible entries of African groups who were carriers of Mode I and II technology into the south and southeast of the Iberian Peninsula (Ramos 2011). There is no clear evidence of human fossils (Aguirre 2000), but the lithic artefacts have been well-stratified as belonging to Mode I or *Culturas iniciales de las graveras* so-called by Vallespí (1992). Basically they are pieces of quartz and flint used in the depressions of Granada and the quartzite used in Lower Andalusia.

The Mode I technology documented in settlements of North Africa, as in Ain Hanech (Sahnouni 2006), shows similarities with the novelties that the Orce region offers (Gibert et al. 1998; Toro et al. 2009).

For Mode II, the technology of the sets of handaxes, cleavers and trihedral pieces shows a clear relationship with technological similarities between the two sets. The contrast of the classic sequence of Morocco of the so-called *Civilisation du biface* (Biberson 1961; Camps 1974; Nehren 1992), updated in the works of Raynal, consider chronologies of around one Million years for the beginning of this technology (Raynal et al. 2010). A technical similarity between the handaxes of Ternifine (Argelia) and the ones of the Iberian Peninsula has been proposed (Sharon 2011). The technology in the south of the Iberian Peninsula has been classified as Early Acheulean Iberian and full Acheulean (Vallespí 1992). The relationships with the communities of North African origin seem to be obvious. This could explain the origin of the technology of handaxes, cleavers and trihedral pieces (Camps 1974; Otte 1996, 2011;, Ramos 2002, 2011). The technological possibilities as consequences of the relationships must be formulated again as something that goes beyond purely typology. These contacts must be placed in relation to the movements of social groups in significant territories. However, the importance of African technology in the south of the Iberian Peninsula is quite evident. Here we see a great expansion of the inhabitant territories. In chronological times of Middle Pleistocene, human groups with full Acheulean technology expand from the western river basins' high terraces of the Guadalquivir (Vallespí 1992, 1999), to the High Guadalquivir river and to the interior basin rivers, as Guadalete river (Giles et al. 1996) or in endorheic basins in the interior, as in Cueva del Angel with abundant wildlife

(Barroso et al. 2011); as well as in rivers at the Atlantic Coast of Cádiz (Ramos 2008) and in the Campo de Gibraltar (Castañeda et al. 2008). The rivers became an authentic axis of the settlements and there is a very significant relationship between sites and places with water. We can now define these groups as social formations, whose anthropology in these latitudes is unknown. Adaptationist models reduce these groups to simple predators or scavengers, along the lines of local network of hominids (Gamble 1993). But we have data to value them as bands, with demographic variables and relationships in their composition, sex and growth (Aguirre 1996, 134).

Overview of the hunter-gatherer societies with Mode III technology in North Africa

The problem with setting up a definition of the Mousterian technology in North Africa has been around a long time. Classical authors of prehistory of the region have been discussing the distribution, composition and technology of the samples (Balout 1955; Vaufrey 1955; Camps 1974; Bordes 1976-1977) since the 1950s. There are more open air sites and stratified settlements with chronology are still scarce. They were traditionally characterised by the presence of points and classical well-defined scrapers. In Djebel Irhoud, Ennouchi associated classic Mousterian industry with anthropological archives, which were considered as Neanderthals at that time (Ennouchi 1962). The stratigraphic potential was also assessed in the 1950s with the study of the cave of Dar es Soltan, which presented levels with Mousterian, Aterian and Neolithic technology (Ruhlmann 1951). We indicate also that in the Ceuta environments, these industries were already defined, as well as on the terraces of the river Martil in Tetouan (Tarradell & Garriga 1951), indicating the presence of these industries on marine terraces near Ceuta and Beni Gorfet (Moran 1941). Posac (1956) also identified Mousterian lithic assemblages in the surroundings of Melilla and Nador (Bravo & Bellver 2004). Pericot & Tarradell (1962) created a synthesis of the results in the 1950s about the origin, definition of technology, stratification and the links with the previous sets. Another synthesis work was presented by Hahn (1984) proposing the research situations and covering the entire Palaeolithic sequence of North Africa and Southern Europe. Undoubtedly, the compendium work of Nehren (1992) brought forward a synthesis of all the problems associated with Mousterian technology. It considered the beginnings of the dates before 100,000 years and saw a clear relationship with the tradition of Final Acheulean techno-complex substrate. In the last few years, a renewed interest has increased and induced several international projects. The work of the *Mission Archéologique et Paléontologique Française au Maroc* generated new data. In this context, the project called *Mission au Maroc Oriental*, with Wengler presented an overview of the caves of Jebel Irhoud, Bel Kifan Ghomari and Pigeons in Taforalt (Wengler 1985-1986), and a profound study in the cave of Rhafas (Wengler et al. 2001; Mercier et al. 2007). The projects of collaboration between the *Institut National des Sciences de l'Archéologie et du Patrimoine* (INSAP, Rabat) and the *Kommission für Archäologie Ausereuropäischer Kulturen* (KAAK, Bonn) des *Deutschen Archäologischen Instituts* in the eastern Rif area, are providing new information (Mikdad et al. 2000; Mikdad & Eiwanger, 2005; Eiwanger 2001, 2004; Linstädter et al. 2012). There is also an ongoing project in northern Morocco, developed by the University of Cadiz, University Abdelmalek Esaadi (Tetouan) and the INSAP (Rabat) (Ramos et al. 2008b, 2011a). The project carried out between the INSAP and University of Liege in the region of Tangier (Bouzouggar 2003; Otte et al. 2004) is also of interest. In all of these projects, new locations in caves, shelters and open air sites have been discovered, which can be framed in the normative standards of the Middle Palaeolithic. It is necessary to emphasise the locations in the Eastern Rif that have Middle Palaeolithic layers stratified at the base of the caves Ifri El Baroud and Ifri n'Ammar (Mikdad et al. 2000; Mikdad & Eiwanger 2005; Eiwanger 2001, 2004; Nami & Moser 2010). We must indicate the novelty of the situation in Ifri n'Ammar of interlayer and Aterian Mousterian levels, between 171 ± 6 and 83 ± 6 ka BP (Nami & Moser 2010, 35) and the consideration by part of its excavators as being a facies of the Mousterian in the framework of the variability of this technology (Linstädter et al. 2012). This new reality of international

collaboration between Moroccans and colleagues from other European countries is generating new registers and important data and a final chronostratigraphy of the advanced and superior Middle Pleistocene in Morocco. We must also mention the interesting research of Wengler's team at Grotte du Rhafas. It is located in eastern Morocco, south of Oujda and is an important stratigraphic filler with more than 4 meters in width (potential), with 101 levels and slightly carbonated layers alternating with calcareous crusts. There are 30 archaeological levels, with Mousterian evidence and transition to the Aterian. It is providing interesting information about palaeobotanic, faunal, raw materials, activity areas in the domestic space and an interesting technology register. The predominance of scrapers is highlighted. The lower levels have an Acheulean tradition. The upper ones present sets that can be defined as type Ferrassie Mousterian and typical Mousterian rich in scrapers, where end scrapers and pedunculate points are introduced which announce the transition to an Aterian technology. The documentation of numerous open air sites in the Oujda Mountains that offer palaeobotanical, faunal, and technological data and lithic raw material analysis (Wengler et al. 2001) are also of interest. In this region, studies in the interesting cave of Guenfouda have also begun (Aouraghe et al. 2008). Besides, we want to state that in the region of Tetouan, numerous evidence of sites has been found with Mode III technology on the river terraces (Ramos et al. 2008b, 2011a). In the framework of international cooperation, interesting developments are to be expected in the continuation of excavations in the cave of Taforalt, in a collaborative programme between the INSAP and the University of Oxford (Bouzouggar & Barton 2005, 2012). According to everything mentioned before, the presence of Mousterian technology in North Africa is evident. Although there are still only a few stratified sites, a new dynamic of research is significant in this region such as Central Tunis, the Algeria coast, eastern and western Morocco. Here a Mousterian that reaches early chronologies, stratigraphically well situated in the Middle Pleistocene, has been documented. The sites of Aïn Metherchem (Hajri 2007), Aïn El Guettar (Belhouchet & Aouadi 2007) and the formations of Temara, The Mnasra, El Harhoura 2 (Nespoulet et al. 2008a, 2008b, 2011) and Dar es Soltane (Barton et al. 2009) are being handled in this way. Historical contexts such as the shelter of Benzú located between 254 ± 17 ka BP (stratum 2) and 70 ka BP (stratum 7) (Ramos et al. 2008c, 2011b) indicate the old highlighted Mode III technology, which is confirmed in places like Ifri n'Ammar, between 171 ± 12 and 83 ± 6 ka BP (Nami & Moser 2010, 35) and Djebel Iroud with an occupation between 190 and 106 ka BP (Grün & Stringer 1991; Smith et al. 2007). We recall that the anthropological archives in the Iberian Peninsula of these chronologies are, on the one hand, human descendants of *Homo heidelbergensis* and *Homo sapiens neanderthalensis*. We have seen clearly that in North Africa, the possibility of Neanderthal archives existed, but later were considered as *Homo sapiens sapiens*, even primitives (Hublin 1989; Debénath 2001; Zouak 2001, 154), valuing the human groups which elaborated the Aterian technology (Zouak 2001, 155; 2007) as anatomically modern humans. We hope that the continuity of the research of the settlements and projects mentioned above will support the ongoing interesting discussions about technology and anthropology of human groups in North Africa and their expected relationships with the groups of the Iberian Peninsula. By now, we know that the North African Mousterian is ancient (less than 200,000 years). This situation contrasts with the most recent chronologies of the south of the Iberia Peninsula. There are still clear problems that need to be solved to achieve the necessary continuity in the research of this zone, on the one hand the relations of Modes II and III technology, as well as the origin of the interstratification of Aterian and Mousterian artefacts, in sites like Sidi Said (Tipasa Algeria) (Hajri 2007), or Ifri n'Ammar (Nami & Moser 2010, 35).

All of this represents a difficulty that is directly related to the occupations of the south of the Iberian Peninsula, but we can thus state an incontestable fact: The great antiquity of the Mode III-Mousterian techno-complexes in North Africa.

THE SHELTER OF BENZÚ

The shelter of Benzú site is located on the North African coast at the Strait of Gibraltar (Ramos et al. 2008) ca. 230 m from the current coastline at an altitude of 63 meters asl. It is by the Algarrobo creek and in the Ballenera Bay, thus there is a predominance of a coastal environment in a large part of its occupation. A researcher team from the University of Cadiz carried out six excavation campaigns (Ramos et al. 2001b). Ten archaeological levels were documented and seven of them show human occupation in the Middle and Upper Pleistocene. Datings of level 10 (Th/U, IGM: ± 70 ka), level 7, level 5 (OSL, Shfd 020136: 168 ± 11 ka), level 3b (Th/U, IGM: 173 ± 10 ka) and level 2 (OSL, Shfd 020135: 254 ± 17 ka) are available. Studies about the micromorphology and bioerosive processes in the shelter of Benzú environment show that the erosive formation could be older than the human occupation, prior to the MIS 9 (Abad et al. 2007). The pollen analysis of the shelter of Benzú, shows a homogeneous composition along the sequence. The regional vegetation is mainly constituted by *Cedrus* and *Pinus* to a lesser extent. The local vegetation is characterised by *Quercus* sp., *Olea*, *Ceratonia siliqua* and riverbank trees as *Alnus*, *Salix* and *Ulmus*. The herbaceous group consists mostly of steppe plants (*Artemisia*, *Asteraceae* and *Chenopodiaceae*). The shrub layer, with *Ericaceae* and *Juniperus*, does not play an important role in the vegetation. This composition defines conditions of a Mediterranean character, fundamentally dry. The existence of water channels more or less permanent and ponds are also proved, they favour the development of riverbank and aquatic taxonomy. Throughout the sequence, variations and changes occurred in a trend to a decrease of the rate of humidity. There was a cyclical stage with the installation of a forest with warm and Mediterranean components together with a diverse shrub and herbaceous presence and a high representation of riverside taxons and water elements (Ruiz Zapata & Gil 2003). The terrestrial fauna was amply documented, with medium and small sized bone samples, as a consequence of an intense human activity. Medium sized bone fragments of mammals and shrapnel pieces were found as well as humeral diaphysis fragments of medium-sized ungulates. There are intentionally fractured fragments that present clear evidence of having been burned (Arribas et al. 2006). Bovid and other herbivore remains were documented too, and zooarchaeological and taxonomic analysis are still in progress (Monclova et al. 2011). The lithic industry is clearly one of a Mode III-Mousterian, with the predominance of Levallois class, and an outstanding presence of centripetal cores. Among the flakes, there is a major quantity of internal flakes, but also there are a representative quantity of levallois technique flakes. Among the retouched artefacts, the scrapers are important, and there are also points, and to a lesser extent, notches and denticulates. This technology is documented very uniformly in the layers 1 to 7. Raw materials as siliceous sandstones and radiolarites from a local origin are documented also (Domínguez-Bella et al. 2006). The research team is currently in the study phase and working on a preliminary report of this first stage of works. The shelter of Benzú provides clear evidence of exploitation of these coastal resources, highlighting the presence of shell fragments (mainly *Patellidae*), throughout the stratigraphic sequence from level 7 to level 1, and ichthyofauna at level 5a (Ramos et al. 2011c; Cantillo & Soriguer 2011). With respect to the marine shell fragments documented, there is a clear predominance of the *Gastropoda* class over the *Bivalvia* class, highlighting the group of non-spiral gastropods, and in particular the *Patellidae* family in all stratigraphic levels, followed by *Siphonariidae* from which *Siphonaria pectinata* is its maximum exponent. We have documented examples of *Patella* sp., *Patella rustic* and *Patella Cerulean* and *Siphonaria pectinata*, among others. In the case of the bivalves, their presence is demonstrated by the remains of *Tapes decussatus* species found at level 6 as well as other *Glycimeridae* family species. These species were collected near the coast as an important feeding resource associated with these human groups with Mode III technology (Ramos & Cantillo 2011).

The strategic occupations of Neanderthal groups with Mode III technology in the southern Iberian Peninsula

The groups of *Homo sapiens neanderthalensi*s occupied a natural environment similar to that of their predecessors, although it is obvious that they had better territorial control and made important progress in the diversity and form of obtaining resources. The technological features, hunting strategies, possible beginning of art developments, their social organisation and the structure of the settlements, show us the Neanderthals as predecessors of the *Homo sapiens sapiens*. Moreover, the *Homo sapiens neanderthalensis* possessed enough anthropological, social and technical features to be considered as hunter-gatherers societies. Anthropologically, there is significant evidence of Neanderthals in the south of the Iberian Peninsula in Cariguela (de Lumley & García Sánchez 1971; Sánchez García et al. 1994; Vega 1990), in Gibraltar (Stringer et al. 2000) and in Zafarraya (Barroso 2003; Barroso & de Lumley 2006). We must mention the population variability of the groups of Neanderthals in the Iberian Peninsula, documented between 170,000 and 30,000 BP (Garralda 2005-2006; Finlayson 2009). There is an interesting chronological archive in Gorham's cave that allows us to locate the extinction of the Neanderthals in the MIS 3, around 31 ka (Finlayson et al. 2006). The data of Zafarraya Boquete cave obtained by 14C and U/Th methods, between 33.4 ka and 25.1 ka BP (Hublin et al. 1995), extended prominently when using other techniques (Barroso 2003, 113). The technology is typical of Mode III, with centripetal cores, flakes of Levallois technique, and scrapers and points that predominate in the group of retouched artefacts (de Lumley 1969; Botella et al. 1986; Vallespí 1986; Vega 1990; Cortes 2007; Finlayson & Giles 2000; Barroso 2003; Ramos 2008). As for the location of the settlements, there are open field habitats in the depression of the Janda, in the foothills, in the river basins (Guadalquivir, Guadalete Guadalhorce, Velez, Genil), and depressions in inland Granada, among others in the high mountain areas of the Serrania de Ronda, in the interior mountains of Malaga as for example in the Palomas cave, Teba (Medianero et al. 2011), in the interior mountains of Cadiz, in the Sierras de Alhama environments, Zafarraya Polje, Alfarnate Depression - Alfarnatejo, Subbetic of Cordoba (Vallespí 1986; Ramos 1988, 2007-2008; Giles et al. 2003; Castañeda et al. 2008; Jennings et al. 2011) and in the mountain ranges of Granada (Vega et al. 1988). It is highly significant that the occupations extended to coastal areas, e.g., at the Bay of Malaga, Bajondillo (Cortés 2007), La Araña (Ramos Fernandez et al. 2003), Gibraltar (Finlayson et al. 2000; Giles et al. 2007), and at beaches as La Barrosa on the Atlantic Coast of Cadiz (Ramos 2008; Ramos 2007-2008). The use of marine resources by these groups started to be documented in Gibraltar (Finlayson 2009; Stringer et al. 2008), and with clear evidence of shellfish gathering in the Bay of Málaga (Cortés et al. 2011). The location of the coastal sites provides new evidence and tells us about the different Quaternary marine changes with transgressions and regressions. (Zazo et al.1997). However, these transformations in the sea levels would have affected the geographic resources (water, travertine) and had consequences for the settlements, as some of them would have been under the sea level in the transgression marine phases (Cortes & Simon 2000). The Neanderthals controlled the natural environment and occupied strategic sites (Zafarraya, Gibraltar, Cariguela, Palomas, Bajondillo, La Araña, etc.). These groups had an organised mobility, which allowed them to be considered as societies. Against those who value them as mere scavenger or opportunistic hunters, the evidence in Gibraltar and Zafarraya indicates a variety of hunted species, and certainly plant hunting. Data from Gorham's cave at level IV show the presence large mammals (*Cervus* sp., *Ursus* sp.) and ichthyofauna, e.g., tuna (Finlayson 2009). It is emphasised that in the Bajondillo cave (Torremolinos, Málaga), located 250 m from the current coastline, 20 archaeological levels with 5.4 m height were documented. A sequence that covers the Middle Palaeolithic to the Neolithic has been studied. The level Bj19 is typical of the Middle Palaeolithic of the south of the Iberian Peninsula (Cortés 2007). El Bajondillo data confirm the exploitation of marine resources around 150 ka BP associated with human groups with Mode III technology, and these groups are considered Neanderthals. Nine categories of marine invertebrates were documented. The mussel

M. galloprovincialis is the dominant species but we also have to mention the presence of two bivalves, (*Glycymeris* sp. and *Tracia* sp.), the goose barnacle *Balanus trigonus*, and the snail *Stramonita haemastoma*, and the bivalves (*Donacilla cornea* and *Glycymeris panopea*) (Cortes et al. 2011, 2). Zafarraya Boquete cave, a settlement of goat hunters (*Capra pyrenaica*), has a large faunal record with alternation of human occupations and other carnivores (panthers, canines, felines). The occupations were seasonal, at the beginning of the summer (Barroso 2003, 169 & 218). The situation of this cave next to Zafarraya Polje demonstrates again the association of the settlements with water points and mountain springs. The documentation in the cave of land molluscs, birds and amphibians suggests a wet environment (Barroso 2003, 513; Barroso & de Lumley 2006). Water was important and basic for the way of life of these groups and the rivers were waterways as the settlement situations demonstrate. The caves are always next to water sources or travertine formations as in Bajondillo (Cortes & Simon 1997; Cortes 2007), in Tajo Dona Ana I (Ramos et al. 1999), in Cariguela (Vega et al. 1988), Zafarraya (Barroso 2003, 513; Barroso & de Lumley 2006), in Horá (Botella et al. 1986), as well as the open air sites that are next to river terraces, lakes or springs (Ramos 2007-2008).

CONCLUSIONS - SIMILAR WAYS OF LIFE FOR HUMAN GROUPS ON BOTH SIDES

At the time of this research, the chronologies of the studied sites in the south of the Iberian Peninsula are more recent than those in North Africa (Finlayson et al. 2000; Finlayson et al. 2006; Barroso 2003). On the other hand, we have to point out the great similarity among the sites with Mode III-Mousterian technology on both sides. In both cases, the industry is well-defined by a series of retouched scrapers and Mousterian points. We believe that such technological similarities are much more than polygenic convergences. We propose as a working hypothesis that these similarities are the result of sociocultural relations. These contacts among human groups likely occurred in the context of social mobility, in possible displacements in the region, in cold phases of the Pleistocene, when the coasts were closer to each other (Rodríguez Vidal et al. 2004; Flemming et al. 2003). We have directly studied the technology of the sites in the Axarquia of Malaga (Ramos 1988), on the Atlantic Coast of Cádiz (Ramos 2008), in the Guadalteba area (Medianero et al. 2011) in the south of the Iberian Peninsula and the shelter of Benzú (Ramos et al. 2008 c) and in the region of Tetouan (Ramos et al. 2008b, 2011a) in North Africa. This experience in the analysis of Mode III technology on both sides allows us to confirm that there is a great similarity in the types of cores, flakes and retouched artefacts. They show the same processes of working. Moreover, we consider the idea of contact by teaching and diffusion of the anthropological knowledge in the framework of these societies (Otte 1995) and their mobility features (Weniger 1991). But besides these techniques, we want to reflect on the similarities in the framework of the ways of life. The exploitation of marine resources in the Middle and Upper Pleistocene by Palaeolithic societies on both sides has been studied during the last few years (Finlayson 2009; Zilhão et al. 2010; Collonese et al. 2011; Cortés et al. 2011; Ramos et al. 2011c; Ramos & Cantillo 2011). In the south of the Iberian Peninsula, the authors of these gathering activities and the utilisation of marine resources were Neanderthals (Stringer et al. 2008; Finlayson 2009; Cortés et al. 2011). In North Africa, the *Homo sapiens sapiens* are supposed to be the authors of the Mousterian and Aterian type technologies (Hublin 1989; Garcea 2004; Zouak 2001, 2007; Barton et al. 2008). The truth is that these activities and work practices of shellfish and the use of marine resources have been documented in both shores associated to the Mode III technology (Ramos et al. 2011c; Ramos & Cantillo 2011). We do not consider biotechnological criteria, technology, with an association with technology-culture, but the reality is that they appear again, when we explain the human geographic expansions in relation to the biological changes (Klein 2008), and it is on the basis of the current problem for the explanation of the step from Neanderthal to modern humans (Mellars 1999; Zilhão 2008). The new studies in southern Europe confirm that Neanderthals already knew the social and economic activities and practices of

shellfishing as well as marine resource exploitation ways, which were very similar to those of modern groups on the coastline environments. From our methodology (Arteaga et al. 1998; Ramos 1999; Arteaga 2002), the situation indicates that, despite the fact that anthropological traditions have considered these two human groups to be different, the hunter-gatherer societies, exploiters of marine resources on both sides of the Strait of Gibraltar, really carried out the same mode of working, in the framework of a similar way of life. The discussion is wide open because it touches the assessment of the biological conception of the modern human species. Traditionally, the activities of shellfishing have been associated with one of the main characteristics of the modern groups. The major part of this debate was initiated by African sites. The circumstances of the investigation made South and East Africa the place where these issues were mostly investigated (McBrearty & Brooks 2000; Conard 2005; McBrearty 2007). We are convinced that this situation will change very soon and that the continuity of the studies in North Africa will provide many surprises (Balter 2011). Specifically in the historical region of the Strait of Gibraltar, Benzú data confirm the presence for now, of these practices of the use of marine resources in the entire sequence, from over 250 ka BP. This represents finds that are nearly 70,000 years older than the archives of South Africa. From this perspective, the South African technology is considered as Middle Stone Age (McBrearty & Brooks 2000; Conard 2005; McBrearty 2007; Marean et al. 2007). We have evidence of the Mode III-classic Mousterian technology in Benzú, although we do not yet know the creators. To conclude, we want to emphasise the idea that these groups of people from both sides of the Strait of Gibraltar shared the same technology and had similar modes of life. Without any doubt, the historical region of the Strait of Gibraltar still has much to contribute to these studies along with Benzú data and other deposits known in Northern Morocco, so they will be of great interest to these debates (Ramos et al. 2011c).

Acknowledgements

I would like to thank Andreas Pastoors for his kind invitation to participate in this Festschrift. I also want to thank my colleagues in the projects of Benzú and the archaeology map of Northern Morocco. Finally, I am very grateful to my wife, Purificación Garcia for the translation of this paper.

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