

Conclusions and New Avenues for Analysis

Conclusiones y nuevas vías de análisis

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Received: 25-10-2014

Accepted: 12-11-2014

ABSTRACT

Main conclusions achieved by the ARPA project are discussed in the present paper. Although we do not discard previous sporadic visits, up to now, the oldest evidences of human regular use of the Oukaïmeden Valley date back to the Late Neolithic, coinciding with changes in the African Monsoon. Combining archaeology, paleoecological information, 14C, art, and statistics and using GIS tools, we offer an interpretation of the human use of the valley in Prehistory.

KEY WORDS: rock art, tumuli, archaeology, RCC, weapons, anthropomorphs, environment, GIS.

RESUMEN

El artículo discute las principales conclusiones del proyecto ARPA. Sin negar la posibilidad de visitas esporádicas previas, la evidencia más antigua del uso humano regular del Valle de Oukaïmeden se remonta al Neolítico reciente, coincidiendo con cambios en el Monzón africano. Combinando arqueología, información paleoecológica, C-14, arte y estadística y mediante herramientas SIG, ofrecemos una interpretación del uso humano del valle en la Prehistoria.

PALABRAS CLAVE: arte rupestre, túmulos, arqueología, CCR, armas, antropomorfos, ambiente, SIG.

Coda

Through this project we have attempted to test several hypotheses. Firstly, that the human use of the Oukaïmeden Valley on a regular basis began relatively late. This would correspond to the desiccation process of the Sahara, which began after 3500 calBC coinciding with the African Monsoon retreat (Brooks, 2006:32-34; López and López 2008: 3-5; Fletcher and Zielhofer 2013: 19). Paleoecological analyses implemented by the ARPA project, and archaeological findings produced during our field campaigns 2008-2011, point to the Late Neolithic as the period when a more systematic use of the valley resources by humans began (See above this book). Other mountain areas, such as the French and Swiss Alps (Walsh *et al.* 2006; Curdy 2007) or the Pindus mountain chain in the Greek Macedonia (Efstratiou *et al.* 2006: 424) seem to have been also regularly frequented around the Late Neolithic to Bronze Age. Up to now, there are no evidences in Oukaïmeden of previous sporadic expeditions for hunting or gathering during the Mesolithic or the Early Neolithic times, although we cannot discard this possibility. Other mountain areas on the contrary, as the Pindus Mountains were sporadically visited during the Late Pleistocene warm climatic oscillations, corresponding to different moments within the Middle and Late Paleolithic times. The existence of different types of chert and quartz, as well as hunting activities, would explain these early expeditions (Efstratiou *et al.* 2006:429). Alps also show quite early visits to areas above 2000 m.a.s.l. during the Mesolithic (Walsh *et al.* 2006:440; Curdy 2007:102-104). Anyway, as in Oukaïmeden, it seems that a more systematic pattern of human exploitation of high mountain domains started later, at the Late Neolithic or even the Bronze Age, under a pastoral basis (Curdy 2007:104-105; Walsh *et al.* 2006:449; Efstratiou *et al.* 2006:429).

Paleoecological analyses performed by ARPA indicate a very fragile landscape in Oukaïmeden, which was never densely forested and was sensitive to both human and climatic induced changes. We are able to detect human impact on this environment from the very beginning (See Chapter Vegetation). In the Pindus Mountains, which are also a high-mountain Mediterranean domain, forest degradation was in tune with a more intense pastoral-hunting exploitation by humans from Late Neolithic/Early Bronze Age onwards (Efstratiou *et al.* 2006: 231). On the contrary, the Alpine environment suffered low human impact, with a relatively dense forest at high altitudes, till the Early Bronze Age, when a drier and warmer

climate brought changes in the forest cover promoting pastoralism at high altitudes (Walsh *et al.* 2006: 449).

Our second hypothesis was that rock art was connected with these more systematic pastoral practices, in the sense that these engravings were a mnemonic device that helped to remember and to build memory for people that periodically went up to the summer pastures. In that way, spatial analysis performed by using SIG devices shows that the earliest rock art engravings were located close to the best lines of movement and how gradually, movement was conditioned by the rock art location (see Chapter GIS).

Although the two approaches to the Okaïmeden rock art by members of the ARPA team agree that most of zoomorphic depictions are old and datable between Late Neolithic and the Bronze Age, some disagreement appear on the interpretation of the kinds of zoomorphs depicted. Torres and Ruiz-Gálvez interpret that all the portrayed herbivores are bovines, except for some elephants, birds (ostriches) and some few equines, with only one exception, of Libyan-Berber chronology or even later. We think so, not only for technical reasons, but especially because in semiarid Mediterranean contexts bovines represent a mobile wealth, due to its value as draft animal. This would make understandable the costly expeditions -in terms of human energy as well as in mental terms- of entering into marginal domains (*limes*) such as high mountain areas, for these Late Neolithic/Bronze Age first regular users of mountain pastures. Meanwhile, on the basis of taxonomic identification, Collado considers, that in addition to bovines, some wild species such as deers, goats or a wild ass were also depicted, mirroring in that way the importance of hunting as complementary activity among these prehistoric pastoralists. A second disagreement refers to the interpretation of some figures as ostriches by Torres and Ruiz-Gálvez and as female anthropomorphic figures by Collado. This author bases his interpretation not only in morphological conventions, but also in the fact that these figures are concentrated near the *Tizi Igountar*, the main mountain pass to enter the valley from *Ourika* and also because other rock art stations contain male anthropomorphs of the so-called *Suplicié type* in the surrounding area. In such way, both figures are paired, perhaps as symbolic ancestors, guarding the entrance and the rights of entrance (*ibidem*). On the other hand, Torres and Ruiz-Gálvez interpret these figures as birds and most probably ostriches for two reasons. First, because the Correspondent Analysis (and previous analysis carried on by El Ezziani (2004a, 2004b) showed them iso-

lated from anthropomorphs. Secondly, due to their iconographic features (*ibidem*).

GIS analyzes evidence the importance of wetlands and meadows, as most weapon depictions from Pre-Bronze onwards are located close to them. Tumuli are also connected to these resources. Unfortunately, we cannot assign chronology to these burial mounds as all they were either excavated by Malhomme or plundered and almost totally emptied. Anyhow, some clues provided by recent publications in Libyan Fezzan (di Lernia *et al.* 2002) of prehistoric inconspicuous tumuli, some of them with a central cist chamber containing a single or very few burials, and without or with very few grave goods, suggest a prehistoric chronology for the Oukaïmeden tumuli, similar to those of the Libyan Fezzan.

So it seems zoomorph depictions, some weapons – maces – and maybe tumuli were the first graphic signs of this mnemonic device used to build memory throughout Oukaïmeden landscape. In an imprecise moment of the Bronze Age, pressure on the control of summer meadows seems to have grown up, as halberds and grooved daggers make their appearance as an emblem. We consider them to correspond to the Bronze Age not only due to iconographic reasons, but especially because we can prove the human presence in Oukaïmeden at the Mid Second Millennium cal BC.

As mentioned above, there is poor evidence of authentic Early Bronze Age weapons arriving to North Africa, and the only evidence archaeologically attested, comes from North-western Morocco, very far away of the High Atlas Mountains.

Anyhow, it is possible that some few weapons arrived to the African North-western coast, or were seen carried by foreign visitors. We will never know. But some engravings of weapons, especially of halberds are detailed enough, as if they were mimicking actual models. Their value as an emblem would be higher the rarer and exotic these power insignias proved to be (Helms 1988; Ruiz-Gálvez 2008, 2009). Perhaps this emphasis in power insignia would be connected with these drier conditions and more open environment detected by paleoecological analysis between 1500-1370 cal-BC. This in turn could be read as the effect of the 3.7 Ka years Cal BP climatic event, one of the RCC that have marked the Holocene period (Mayewski *et al.* 2004: 251 and ff). The 3.7 Ka years Cal BP affects the Early Bronze Age/Middle Bronze Age transition, and in Mid-Southern Spain is translated to more arid conditions (Carrión *et al.* 2007: 1461). Such event would be partly responsible of the Argaric and las Motillas collapses (Carrión *et al.* 2007; Castro 1999 *et al.* 2000; Fierro *et alii* 2011; Carrión 2001; Benitez de Lugo 2011 :61).

NW Iberia on the contrary, registered a colder and drier period of around 200 years between 1600-1400 calBC (Fábregas *et al.* 2007; Martínez and Sáez 2009). Cooling events are registered as well as much in the *Alborán* Sea as in lake desiccation episodes in Middle Atlas lakes within the interval 3.5--2.5 calKa BP (Fletcher and Zielhofer 2013: 19 and ff).

Of course, we are not suggesting that human action is determined by environmental situations, although under low technological conditions, human beings are more vulnerable to them. Nevertheless, we believe in the flexibility and the capacity of resilience of human societies and therefore we interpreted the engraving of Bronze Age weapons as reflecting a tighter control of critical resources such as the high mountain summer pastures in answer to worse conditions in the lowlands. That could also explain the greater tendency in the Bronze Age rock art stations than in those of Pre-Bronze chronology to be placed close to wet areas and meadows, a tendency that went on well into the Libyan-Berber I and II Periods (See Chapter GIS, fig. 11). Perhaps the human figure could have emerged as a consequence of a stronger and more restricted group identity, implying the exclusion of others, that is, of those who were not group members. This strict differentiation between group members and strangers would have been derived of a process of stricter regulation of rights on high mountain resources. In Collado's view, anthropomorphs were present in the iconographic repertoire of Oukaïmeden's rock art from the very beginning, although in Bronze Age became more frequent, evolving from naturalism to schematism Galán agrees with this view and see a more gradual evolution of weapons and anthropomorphic depictions. Meanwhile Torres and Ruiz-Gálvez, assume this evolution from naturalistic to schematic types-which is coherent and fits well with earlier proposals (Ezziani 2004a, 2004b)-, but consider the appearance of anthropomorphic depictions to have taken place later, at the Bronze Age/Libyan-Berber I transition. They also consider that, although some isolated human depictions could have a Prehistoric chronology, they should be considered exceptional examples. They argue that there are very few cases of anthropomorphic figures associated to Bronze Age halberds in Oukaïmeden, as well as in the neighbour *Yagour* plateau. In these cases, halberds are also very schematic, as if very long time would had passed between first depictions of halberds and these.

A further step in the valley appropriation is given in the next Libyan-Berber Period, when secondary pasture areas, previously almost unexploited, were put under control. GIS analysis have shown, that

distances to main mobility lines increased through time, increasing from Pre-Bronze Age to Bronze Age, and from that moment to Libyan-Berber times (See Chapter GIS figure 3 and tables 1 and 2). We could read on it the process of progressive appropriation of the valley, from the better and fresh pastures to the secondary and lower quality grazing areas (See also Chapter Art figure 17). If the climatic event of 2800 calBP (850 calBC) (Fletcher and Zielhofer 2013) had an impact on the area -as has been suggested somewhere- then we have an explanation of the progressive colonization of marginal areas of pastures. Not only the number of engravings around wetlands and meadows increased during the Libyan-Berber Period I but also, as some of us have suggested, the unrest became visible through scenes of combat or murdering of an heroic ancestor, the so-called *Supliciés* in the French tradition. As much Collado as Torres and Ruiz-Gálvez agree on the fact that they are older than other more schematic human depictions, some of them accompanied of weapons but not surrounded by arrows and spears as the *Supliciés*. Then, we can assume either that tension about the rights of the pastures decreased progressively or that property rights were negotiated and became established through the language embedded in rock art. Perhaps the fact of growing visual territorial control, as well as of the mobility network that reached its height at the Libyan-Berber Period II, could be better understood under the context of firmly control of exploitation areas among different groups (See Chapter GIS, figs. 5 and 6).

Surprisingly, we were not able to gather any proof of human dwelling in Oukaïmeden during the Libyan-Berber Periods I and II. On the contrary, not only rock art depictions of these periods are the more abundant, but also palaeoecological analysis proved human activities in the area at these times. This is not an isolated case, as a similar phenomenon is detected in French Alps, where archaeological and paleoecological evidences do not match.

While archaeological data are ambiguous during the Iron Age, pollen and anthracological analyses prove human activities connected to pastoralism (Walsh et al. 2006: 5450-451). As such coincidental situations cannot be accidental, it is possible that expeditions to high mountain pastures became more irregular during the First Millennium calBC. In the Alpine case a warming of climate is argued as explanation (ibidem 2006: 445).

In our case, the pollen sequence shows the alternation of dry and humid periods, perhaps doing the pattern of high mountain frequentation more irregular and therefore, more needed of a symbolic control of resources through a mnemonic device such as art.

Anyway, more analysis and researches are needed on a-up to now- much unknown historical phase as the Libyan-Berber Period, in order to put together rock art, dwelling and mortuary sites and territorial organization. Especially in areas as Oukaïmeden, sedimentological and paleoclimatic samples should be analysed to reconstruct environmental conditions between the First Millennium calBC and Mid-First Millennium AD. As we have seen in *Abadsan* Shelter (see above this book), different periods of abandon, flooding and dragging processes, affected the formation of the archaeological soil. Two of these moments can be placed thanks to 14C at 130-350 calAD and 1320-1460 calAD. In the case of the Elephant Frieze, where two Libyan-Berber scripts overlap other engravings, ARPA's team obtained several C14 from wood or charcoal coming from clearly manmade bonfires. They date unknown human activities on the spot at different periods, as the Second Millennium/First Millennium calBC transition, Mid-First Millennium calBC and First Millennium AD (See ve this book). No evidences, either of dwelling, rock carving, flint knapping or whatever kind of other human activities on the spot could be witnessed. Therefore, we reiterate, sedimentological and paleolimatic analyzes are urgently needed.