

SUB-ZONE 1: MAURITANIA - WESTERN SAHARA

Joaquim SOLER SUBILS
Institut für Ur- und Frugeschichte und Archäologie
des Mittelalters (Tübingen, Germany)

1. Profile of Zone:

The archaeological context

Although archaeological research in the Western Sahara has not been so long and intense as in the neighbouring countries of Morocco, Algeria and Mauritania, since the forties we know that the rock art heritage of this zone is huge and diverse.

Rock art is more abundant in the eastern part of the country, whereas it disappears towards the coast (fig. 1). However the presence of some sites on the coast (in El Aaiún, for example) indicates that the reason of such gradual disappearance may be due to geological reasons. The Neogene coastal platform is a flatland constituted by fossiliferous limestone and dunes, without caves or rock-shelters of importance. That context is less prone to rock art production or preservation.

The Western Saharan images belong to several different traditions, which at the moment we can poorly relate with each other.

Some natural particularities explain a part of the regional diversity for the rock art in the Western Sahara. The rock-shelters of the Zemmur, for example, are favourable to paintings and not to engravings, whereas the thousands of fine dark horizontal slabs found in the north-east (a zone with scarce or inexistent rock-shelters) were engaging for the engravers.

The differences in the styles and the subjects depicted, on the other hand is a result of social and ecological changes. Unfortunately at this moment we can only notice those historical and ecological changes in the rock art, but we are still unable to explain what produced such evolutions in the prehistory of the Western Sahara. The classical and recurrent invocation of the increasing aridity may not be enough to find an explanation for all that diversity.

The lack of other complementary archaeological data impedes such relational endeavours. At this moment we only have traditions or styles, which at least allow us to link some of the Western Saharan images with those found in other areas of the desert.

Apart from Holocene rock art, the Western Saharan archaeological heritage covers a wide time-span. There are surface sites with lithic industries (dating to the Lower Paleolithic, the Aterian and the Neolithic), sites rich in pottery remains, and preislamic monuments and funerary constructions.

Excavations have been undertaken on surface sites near the coast (Risier 1996), on funerary constructions (Balbín 1973, Brooks *et alii* 2006) and in the Zemmur rock-shelters (Universitat de Girona, work in progress) but at this moment it is difficult to truly relate their evidence with the rock art.

From a more general point of view, one of the main obstacles towards a more concrete and better dated cultural sequence in the Western Sahara is the absence of long stratigraphies. We have no caves with many successive human occupations and most of the sites, stratified or not, have bad preservation conditions for the organic materials due to the dominance of the sandstone or granitic substrate.

Therefore, the Western Saharan zones with a high density of stratified prehistoric images and styles are a valuable resource to study the succession of the social and ecological changes in the region.

Rock art traditions in the Western Sahara and Mauritania

In those territories the images consist of engravings, paintings, handprints, carvings and combinations of those techniques. Several traditions and styles have been documented since the beginning of rock art research. Before 1975 most of the syntheses were based upon the engravings because only a few paintings were known. Now, after the discovery of many painted sites in the Zemmur, we can complete the previous studies.

We have followed Rodrigo de Balbín Behrmann's rock art classification (Balbín 1975) to explain the engraved traditions in the Western Sahara, with some complements from Pellicer & Acosta 1972 and Pellicer *et alii* 1973 (especially for the southern areas of the country). The paintings have been grouped following our own work in the Zemmur (Soler *et alii* 2006b). The syntheses on the Mauritanian rock art traditions were written by Théodore Monod (Monod 1938), Raymond Mauny (Mauny 1954) and Robert Vernet (Vernet 1993, 1996).

Engravings of the First Period (mainly Tazina style)

Along the Saguia el Hamra, its tributaries and in the eastern hammada there are many sites with incised engravings on stone slabs. Huge concentrations exist around the city of Smara and along the wadi Laauach el Tel·li (Milburn 1972, Pellicer & Acosta 1972, Soler Masferrer *et alii* 2001). Many of them belong to the Tazina style, with figures incised and distorted, especially in their extremities, which have a tendency to elongate in an unrealistic way. Also there are incomprehensible added lines or others which cut indiscriminately through the bodies, making it very difficult to understand the compositions. The figures are idealized and have exaggerated anatomical parts, specially the horns. Some figures share anatomical parts making the compositions still more difficult to read.

Those northern engravings are less varied than those attributed to the Tazina style all over the Sahara, which are dated *grosso modo* between 4,500 and 2,500 BP (Muzzolini 1995). In the immense site of Sluguilla Lawash (figs. 2, 3), however, there are no horses, carts or clear scenes of domestication and only a few human figures. In both Rodrigo de Balbín's and our point of view, the themes of this first period or style could also evoke the world of the hunter and a much earlier chronology than the proposed by Alfred Muzzolini.

Engravings of the Second Period

This second tradition of engravings is characterized by thinner and recurrent incisions in contrast with the deeper and wider ones of the first period. Most of the animals depicted are still wild but undoubtedly domestic cattle also appear now. Human depictions are now more frequent; they have more attributes and carry more objects (throwing sticks, axes and bags) than in the previous period. In essence the objects are the same as before (but without bows). Rodrigo de Balbín relates this period to the Saharan Bovidian phase, which he dates between 7,000 and 3,600 BP on the basis of radiocarbon dates from the excavations in Uan Muhuggiag (Acacus, Libya).

Engravings of the Third Period (Lybico-Berbers included)

The images of this phase are represented with a wide pecked line or are entirely carved. However, some engravings are still incised, for example those depicting horses, which here have an important chronological meaning.

Aside from horses, the species depicted are similar to those in the previous period and big wild animals, like rhinoceros and giraffes, are still represented. Humans now carry less objects than in the previous period: feathers, bags between the legs, bows, spears and daggers.

The first depictions of carts date from this third period, Gleibat Musdat being the key-site in the Tiris (Pellicer *et alii* 1973-1974) and Aouieght in Mauritania (Vernet 1993). The pecked engravings of Blugzeimat (fig. 4) (Soler Masferrer 1999) and the fine carved engravings of Gleb Dan-Dan (fig. 5) could also date to this third phase.

Balbín dates this phase between 3,500 and 2,400 BP. However, we should also take into account the later Lybico-Berber engravings and paintings, which appear at the end of the period. Lybico-Berber art was produced until the arabization of the country, which is still not clear (Balbín 1975). During the XVth century a Lybico-Berber alphabet was still in use (García 2002). In the Western Sahara, the last of the Lybico-Berber period is not so present as in Mauritania, where many more camels were depicted. This animal was introduced a little after 2.000 BP (Wilson 1984).

The pictorial styles from the Zemmur

One of the major discoveries in the last decade was that of the painted rock-shelters in the hilly Zemmur region, in the north-eastern Western Sahara. The rock-shelters are found along the low sandstone hills. High concentrations exist in the sites of Wadi Kenta (26 rock-shelters), Wadi Ymal (2 rock-shelters), Asako (1 rock-shelter), Rekeiz Ajahfun (1 rock-shelter), Rekeiz Lemgasem (80 rock-shelters) (Soler Subils *et alii* 2006) and Bou Dheir (Brooks *et alii* 2003). The Mauritanian sites of Oumag Chegag and Oumat el Lham (Monod 1951) belong to the same geographical area and the same rock art tradition.

In order to account for the diversity of images and to study the evolution of the paintings, several styles were defined and dated on the basis of the depictions of fauna, weapons and texts. As a result, the most ancient one, the Dancers' Style, seems to belong to an early or medium Bronze Age (3,800-3,200 BP, in the Mediterranean and Atlas chronology), as the depiction of halberds shows (fig. 6). The most recent one, the Linear Style (fig. 7), could date between 2,400 and 2,000 BP because of the presence of Lybico-Berber texts and the lack of camels. The ages of the Shaped, Stroked and Dark Figures styles (fig. 8) would be between the ages of the Dancers' and the Linear styles (besides, as overlaps occur, the three styles seem to be contemporary). Finally, there is also a unique ancient Arabic text (fig. 9), which might represent the historic ages after the XVth century AD. It was not possible to get a radiometric age for any style: the chemical tests on some painted samples did not detect enough organic material to allow for ¹⁴C dates.

The chronology of the oldest paintings in the Zemmur overlaps with Rodrigo de Balbín's last Third Phase. However the weapons and the themes depicted, and the lack of clear horses and carts in the paintings, relate the paintings more to Balbín's Second Period. In this problematic case, we rely more upon the themes depicted than upon the approximate and barely verified chronology available. Therefore we are more confident of a link between the oldest Zemmur paintings and Rodrigo de Balbín's Second Period.

The paintings and engravings of the Adrar

In Mauritania, rock art is concentrated west of Bir Mogrein (the Mauritanian prolongation of the Zemmur) and in the Adrar, Tagant and Tichitt-Walatta areas. It is absent in the extreme southern regions. The engravings of big wild fauna (elephants, rhinoceros and giraffes) are mostly found in the Zemmur and the Adrar (Vernet 1993).

The Mauritanian rock art depicts recurrent images of wild animals, cattle and hunts of ostriches or antelopes. There are some exceptions such as the hunts of elephants and gazelles and scenes of collective activities (dance, fight). Cattle is the most depicted theme.

Following Robert Vernet (1993), the most ancient rock art of Mauritania would date to the Neolithic (perhaps sometime before 4,000 BP) and belong to pastoral societies, being more naturalistic first and becoming more and more stereotyped until the Lybico-Berber compositions dated to the third and the second millennium BP.

The Neolithic or pastoral images are restricted to the north (Zemmur), with some exceptions found in the central Adrar. Most of the Mauritanian rock art belongs to the posterior Lybico-Berber period, when horses and carts were engraved. This is also the latest Mauritanian rock art (Vernet 1993).

In the Adrar there are around 30 rock art sites but the catalogue is not completed. The most important sites are Taoujafet, Tensès and Amogjar. This is the area with the most naturalistic rock-paintings in Mauritania (Favotti 1960). In Tensès, scenes with humans, wild animals and cattle are depicted, whereas in Amogjar cattle predominate.

In Amogjar eight different groups of paintings have been discovered (Vernet 2006). The most ancient ones belong to Neolithic pastoral communities. The depictions of horses indicate that some of the paintings may be recent. However no Lybico-Berber inscriptions or camel depictions (which belong to the last Mauritanian rock art tradition) have been discovered. The main themes are the wild fauna, the herds of cattle and human collective scenes (dances, horsemen). They seem unrelated to the other paintings found in the Zemmur or in the Tagant.

In general Vernet (1993) proposes a chronology between 4,000 and 2,500 BP for the paintings in the Adrar because there are no carts or metallic weapons.

The two most significant engraved sites in the Adrar are those from El Beyyed (Monod 1938) and El Rhallouiya (Vernet 1996). The latter has a particular interest due to the superimpositions of engravings from three different periods. Among the ancient engravings (4,000 – 2,500 BP) there still are depictions of wild fauna, which are superimposed by more recent figures of cattle and carts (2,500 – 2,000 BP) (figs. 10, 11). Finally, with a lighter patina, cattle are related to Lybico-Berber texts. These last engravings are dated to around 2,000 BP (Vernet 1993, 1996).

In the Adrar most of the engravings are pecked. Cattle are ornamented with pendants (very unusual objects in the Western Sahara); they carry goods and propel carts.

The recent paintings of the Tagant

The paintings of this area seem to be recent, as the depiction of horses in the site of Tinchmart denotes (Senones & Puigauveau 1939). Cattle are also present (Vernet 1993).

Between the Tagant and Tichitt areas, some more painted rock-shelters were recently documented in the Guilemsi (fig. 14). They seem to date between 4,000 and 3,000 BP and consist of depictions of wild fauna, domestic ridden cattle, carts driven by cattle, humans, handprints and non-figurative images.

There are also horses ridden by men with shields and spears. Finally some recent Lybico-Berber texts are also present (Challis *et alii* 2005, Campbell *et alii* 2006).

The late paintings and engravings of Tichitt-Walatta

Most of the images from this region are engraved, although some paintings exist. The wild animals are absent but a few giraffes have been recorded. The two main themes of the region are the engravings of cattle and later Lybico-Berber engravings representing horse and camel riders hunting ostriches and gazelles (Vernet 1993, Holl 2002). The more ancient cattle already depicted drive carts but, in contrast to the Adrar, they do not carry goods.

Despite those depictions of cattle, the images are somewhat different from the rest of those found in Mauritania. Their genitals or hooves link them to more eastern groups.

More to the south, in the wadi Jrid (Ayoun Province), five more painted rock-shelters were discovered in 2004. Scenes with horses, mounted or not, predominate among those images but non-figurative images are also present (Campbell *et alii* 2006).

2. *Links with other zones:*

The most exciting work still to be done in the Western Sahara and Mauritania is to truly relate the engravings with the paintings and to obtain well dated successions of styles or traditions.

On the other hand, the picture we get of the late prehistory in the West of the Sahara is very regional and fragmented. Although we are aware of the regional particularities of the rock art in the West of the Sahara, only by comparing them will it be possible to understand the causes of such particularities.

In the Western Sahara there are internal differences which should be explained, if possible in relation to social and ecological changes. In the past, for example, it has been said that the southern rock art traditions from the Western Sahara were different from those found in the north because of different Neolithic traditions (Pellicer & Acosta 1972). The arguments were reasonable and coherent with the data available at that time. Our recent work in the Lejuad cave, however, may change those ideas until a certain point because stylistic links between both zones begin to appear as research advances (Universitat de Girona, work in progress).

In general it is possible to relate the rock art from the Western Sahara with other areas of the Saharan Occident from stylistic elements, particularly with southern Morocco and Mauritania. The comparison of images from the Western Sahara with those from the Central Sahara indicates some thematic similarities within some groups or periods, but the stylistic links are weak or nonexistent.

The Tazina style. A northern Saharan tradition

The Tazina style is one of the best documented Western Saharan rock art traditions. The sites consist of kilometric extensions of Devonian engraved slabs on the banks of the wadis (as the mentioned Laauach el Tel-li). In the Zemmur mountains, the coastal platforms and the Tiris we find no examples of Tazina style engravings. The lack of the horizontal stone slabs which support these engravings could explain this fact.

The same Tazina style is found in southern Morocco, along the wadi Draa, in the nearby Ouarkziz, Bani and Sarho mountain chains (Searight 2004) and in the southern slopes of the Algerian Saharian Atlas (Muzzolini 1995). In those zones, as along the Saguia el Hamra drainage basin, important wadis flow towards the Atlantic in a Saharan environment. At this moment we could consider it the most typical north-western Saharan rock art tradition.

It has been said that the Tazina style is also found in the Central Sahara, in the Tassili, Mathendous, Air and Djado massifs (Muzzolini 1995). However, those seem only anecdotal compared with the numerous, dense and typical examples available in the Saharan Occident. Maybe we are confused due to a too simple Tazina style definition which may mask a more complex reality.

The Zemmur

The styles recognized in the painted rock-shelters of the Zemmur do not have the same long-range regional links as the Tazina style: they seem very particular to the Western Sahara. They show a few thematic similarities with the engravings of Balbín's Second Period.

The style of the Dark Figures may also be present in Laouianate, in southern Morocco (Searight & Martinet 2001-2002) and without doubt in the Devil's cave in Lejuad (Tiris area). Whereas in the Zemmur the style refers to paintings, in the Devil's cave the images in this Dark Figures style consist of reliefs. It is a peculiar case of the same style found with both paintings and engravings (fig. 13). Despite those long-range links, the Dark Figures style is limited to the West of the Sahara.

The later Linear Style of paintings, associated to Lybico-Berber texts, is also found in several caves of Lejuad (Devil's cave, Painted cave, Lejuad Station IV, Lejuad Station V) (Pellicer *et alii* 1973-1974) and in the Wadi Draa and Anti-Atlas areas (Salih & Heckendorf 2002, Searight 2004). We should relate that style to the images of the Lybico-Berber period found in southern Morocco, the Canary Islands and the rest of the Saharan Occident. The Western Sahara lacks the typical Libyan Warriors group found more to the east, in the Iforas and Air massifs.

3. Known sites:

In the Western Sahara, huge and gorgeous rock art sites could be fair candidates for the World Heritage List. The political problems of the region and the interruption of all research between the seventies and the nineties explain why no petition has yet been presented. The research developed since 1995 has provided the basis to submit sites to the Tentative List but no action has been undertaken due to legal trouble: the United Nations do not consider the Western Sahara as a state but as a territory still awaiting decolonization.

Fortunately Mauritania is a different case and has two properties inscribed on the World Heritage List: the Banc d'Arguin National Park (1989), and the ancient Ksour of Ouadane, Chinguetti, Tichitt and Oualata (1996). Mauritania has three properties submitted to the Tentative List: the cultural landscape of Azougui (2001), the archaeological site of Kumbi Saleh (2001) and the archaeological site of Tegdaoust (2001). They have not been inscribed in the Heritage List for their rock art. Some areas could be fair candidates but deeper studies of the Mauritanian rock art are needed before submission and proper evaluation. The Zemmur area which lies both in the Western Sahara and Mauritania, in contrast, could already be an excellent candidate.

It would be infinitely tedious to enumerate here the around 170 rock art sites from the Western Sahara and Mauritania which are not listed or identified by ICOMOS. We prefer to provide a comprehensive bibliography and a map which shows the geographical distribution of the sites (fig. 1).

With the exception of Monod 1938 and Almagro 1946, who collected all the data available at the time, the main syntheses on Western Saharan rock art date to the seventies. In Pellicer & Acosta 1972 the engravings in the Tazina style from the northern Western Sahara, the Saguia el Hamra and its tributaries have been studied and the well-known sites of Tasua, Suiel, Ashli Bukerch, Laauach el Tel·li and others presented.

The same authors also published a later study of the engravings and paintings from the southern zone (Pellicer *et alii* 1973-1974), especially Gleibat Musdat and the sites in Lejuad. In 1975 was also published a wide abstract of Rodrigo de Balbín Berhmann's doctoral thesis (Balbín 1975). Although without images, it gives a huge list of sites. Many of them are listed in the work of the Pellicer and Acosta's team, Rodrigo de Balbín (Balbín 1975), and Herbert Nowak, Sigrid and Dieter Ortner (Nowak *et alii* 1975). The studies complement each other and allow a better determination of the names and localizations of the sites. An introduction to the site of Sluguilla Lawash can be found in Soler Masferrer *et alii* 2001 and a general view of the rock art and the history of the Western Sahara in Soler Masferrer *et alii* 1999. A wide abstract of the rock-paintings of the Zemmur can be read in Soler Subils *et alii* 2006. Finally, the most accurate information about Mauritanian rock art can be found in the studies of Robert Vernet (Vernet 1993, 1996).

4. **Significant Rock Art Sites:**

The most significant Western Saharan rock art sites are those which offer valuable archaeological information. Among them, we count the site of Sluguilla Lawash, because it has not been spoiled like those around Smara, the painted rock-shelters of Rekeiz Lemgasem and the sites in Lejuad.

Sluguilla Lawash is the site with Tazina style engravings along the wadi Laauach el Tel-li, which stretches over 35 kilometers in an east-west direction. The site was very partially known before the war (Pellicer & Acosta 1972, Milburn 1972, Balbín 1975). Current research has shown that small tributaries of the main wadi separate the concentrations of slabs, deeply engraved with depictions of cattle, antelopes, giraffes, rhinoceros, elephants and a few humans (Soler Masferrer *et alii* 2001). The abundance of Devonian quartzite and sandstone slabs minimized the need for superimpositions and favoured the spread of the engravings in a west-east direction along the wadi. No scenes of domesticated animals have been recorded at the moment: the depictions show the world of communities centered on the big mammals in a flat landscape where today few or none of them could live. In the past the water collected by the Laauach el Tel-li may have attracted those big mammals and as a consequence the people who engraved hundreds of slabs. Or, if we assume that the cattle are domestic, the wadi could provide adequate pasture for the herds which shared the landscape with the wild animals.

The site of Rekeiz Lemgasem is also significant. It consists of a huge concentration of painted rock-shelters in the Zemmur (more than 80, but many still await discovery). It is related to other minor sites in the Zemmur, such as Wadi Ymal (Nowak 1975, Soler *et alii* 2006b), Wadi Kenta, Asako, Rekeiz Ajahfun (Soler *et alii* 2006b), Bou Dheir (Brooks *et alii* 2003) and the Mauritanian sites of Oumag Chegag and Oumat el Lham (Monod 1951). On those sites several styles of paintings have been identified. The most ancient ones date to around 3,800 BP and the most recent near 2,000 BP. In Rekeiz Lemgasem there also are examples of magnificent megalithic and funerary monuments, at the moment unrelated to the paintings, and archaeological sites from the Lower Paleolithic, the Aterian and the Holocene. The signification of Rekeiz Lemgasem is due to the superimposition of styles, which allows us to order them in a relative chronology and to propose dates for them on the basis of the animals and weapons depicted, and the presence of Lybico-Berber texts. This corpus allows us to make interregional comparisons. Therefore, it is of major significance to record the historical changes in this area, from the pastoral societies of the Mediterranean Bronze Age (Dancers' Style) to the protohistorical Lybico-Berber era (Linear Style).

The third key-site of Lejuad is in the southern Tiris region. Lejuad is a granitic massif made of several mountain-islands which hold a rich heritage in rock art, funerary monuments and Neolithic settlements. The rock art of the area is well-known and studied (Pellicer *et alii* 1973-1974, Nowak *et alii* 1975).

Our team, however, is still making unexpected discoveries in the Cueva del Diablo, which already has some of the most spectacular engraved images of the Western Sahara (for example human-sized carvings found on the left wall of the rock-shelter, fig. 12). At night, working with a tangential light, it is possible to study many more images, invisible or only partially visible during the day. Most of the new figures clearly belong to the Dark Figures painting style from the Zemmur (fig. 13, compare with the bottom-right corner of fig. 8).

5. *Documentation:*

All the Western Saharan sites mentioned in the bibliography have been inventoried in a professional way. Many photographs taken in the seventies are under the custody of the teams who worked there. The documentation of Manuel Pellicer and his team may be in the Universidad de La Laguna (Canary Islands, Spain). Rodrigo de Balbín Behrman, professor in the Universidad de Alcalá de Henares (Madrid, Spain) has his own records. Some research should be undertaken to find the data from the forties collected by Julio Martínez Santa-Olalla and Martín Almagro Basch. Robert Vernet has the most extensive and precise information about Mauritania and his publications are the most accurate. The papers written during the thirties are only notices with some sketches and provide little information.

In some Spanish museums a few Western Saharan archaeological remains may be found. They may come from the donations of ancient Spanish soldiers but no researcher has followed the track of this material yet. About rock art, we are only aware of some engraved slabs brought from Ashli Bukerch (Cudia Bukersi) and wadi Sfa by Martín Almagro Basch to the Archaeological Museum of Catalonia in Barcelona, where they will be displayed in the near future. Early in the forties also some slabs found around Smara were moved to Cabo Juby. Several of them were left there and others could be transported to Tétouan (Morocco) (Hernández-Pacheco 1942). Other Western Saharan slabs are now in Basel (Switzerland) (Haas 1978) and many others may be lost. It would also be useful to know if any slabs are still exposed in the Spanish headquarters of Smara and El Aaiún.

In the Universitat de Girona (Catalonia, Spain) we keep many slides, movies, digital pictures, maps and GPS data related to the rock art preserved in the zone controlled by the Frente Polisario. The precision of GPS data makes a huge difference between the actual data and that from the seventies, which may sometimes be a little confusing due to different toponyms and placements.

The available published information is enough to have an idea of how the Western Sahara rock art looks and to compare it to the images from other zones. Despite the involvement of the Sahrawi government in the research and protection of the sites, the difficulties inherent to the situation make it difficult to have a proper administration for the archaeological heritage of the area. The National Museum of the Sahrawi People, located in the "27 de Febrero" refugees camp, near Tinduf (Algeria), is the institution which should organize archaeological research in the Western Sahara and keep track of the documentation of the people doing research and their results in the Western Sahara.

Actually the Universitat de Girona and the other teams doing fieldwork play the role of a research force and data keepers through cooperation with the Ministry of Culture of the Western Sahara. Everybody's goal, beyond the archaeological study of the sites, is to document as many sites as possible to facilitate their control and conservation.

6. Research:

Archaeological research in the Western Sahara began with the excavation of a prehistoric shell deposit in the Rio de Oro by the Catalan geologist and priest Norbert Font i Sagué early in the XXth century (Font 1902).

Rock art studies, however, did not commence until the early forties and were carried out, after pioneer work by entomologists Eugenio Morales Agacino and Joaquim Mateu Sanpere, by well-known professional archaeologists such as Julio Martínez Santa-Olalla and Martín Almagro Basch. The syntheses of the seventies are the result of research by the Canary team of Manuel Pellicer Catalan and Pilar Acosta Martínez, of the doctoral thesis of Rodrigo de Balbín Behrmann and of the studies of the team of Herbert Nowak and Sigrid and Dieter Ortner. Therefore, the seventies were the most productive decade for rock art research in the Western Sahara. Unfortunately the work was interrupted in 1975 due to the Moroccan invasion and the subsequent war. After the cease-fire of 1991 and since 1995 the University of Girona has been doing rock art and archaeological research in the Western Sahara. Lately more research teams have undertaken archaeological research in the Western Sahara, for example those from the Universidad de Granada (Andalucía, Spain), the East Anglia University (United Kingdom) and the Universidad del País Vasco (Spain). Consistently associated to such groups are Sahrawis assistants from the Ministry of Culture and the National Museum of the Sahrawi People, who help the research with their field experience and who at the same time learn modern methodologies from the European universities.

In Mauritania the research developed in the thirties and the forties was abandoned. In the nineties Robert Vernet (Vernet 1993) actualized the information available for that country. Today the oil industry finances most of the archaeological research in Mauritania. However, in the zones where they are working rock art is scarce.

7. Protection:

In the Western Sahara there exists no legal text related to the protection and the study of the archaeological heritage of the area, including rock art. However the government takes care of it and stimulates and supports research. At the moment the Ministry of Culture is trying to find a means to study and protect all their heritage by establishing joint research projects with foreign archaeological research centres.

The control and protection of the sites, these days, is a task entrusted to the Sahrawi army, which is spread over the strip controlled by the Sahrawi government. For a long time, the Ministry of Culture of the Western Sahara has been concerned about the deterioration of some sites by uncontrolled visitors and from natural causes. At present, the Universitat de Girona is developing a project with the support of the Agencia Española de Cooperación Internacional to have better inventories of the sites in a first step. The National Museum of the Sahrawi People also takes care of the sites and tries to increase popular awareness about them in order to better protect their archaeological heritage.

The Sahrawis, from the more educated to the less literate, show a high interest for their natural and historical heritage and especially for rock art. This attitude is related to their interest for the landscape and their nomadic way of life. They respect it in the same way as they respect the preislamic funerary and megalithic monuments.

The Sahrawi population also produced in the past some kind of rock art. Usually they added tribal marks or other geometric motifs to already engraved surfaces. However, due to the political evolution of the Sahrawi population, today they are reluctant to talk about those marks because it is not politically correct.

In Mauritania, archaeological research depends upon the Institut Mauritanien de Recherches Scientifiques. The Mauritanian legislation protects the archaeological heritage but is almost impossible to apply because of a lack of human resources.

8. Conservation:

No elaborate conservation measures have been undertaken in the Western Sahara. The authorities' main aim is to avoid further damage to and robbery of the rock art. The method of protection is to prevent unauthorized access to the sites and to educate the population through the National Museum of the Sahrawi People.

Fears about the stealing of slabs are justified. Many sites around Smara were destroyed during the colonial period without any administrative control or reaction. Many engraved slabs were brought to the military posts, others were stolen for personal reasons. Those found today in Barcelona belong to the site of Aslein Bukerch (first Cudia Bukersi), discovered in the 1941 (Almagro 1971). To remove engraved slabs was so common that the first archaeologists working in the Western Sahara sometimes called them "mobile art" (Almagro 1946, Mateu 1947-48:301). This historical background helps to understand why the site of Sluguilla Lawash is exceptional and should be protected.

9. Management:

The Ministry of Culture is the governmental agency responsible for the protection and study of the rock art heritage in the Western Sahara. The few professional archaeologists in the Western Sahara work in the National Museum of the Sahrawi People and accompany foreign research teams.

The access to rock art sites should be controlled by the Ministry of Culture and the Sahrawi army but in such immense territories and due to the lack of resources because of the political situation, this is not always the case.

The government keeps track of all the foreigners visiting the land, which helps to avoid robbery but not occasional damage to the rock art. Visitors must pass strict controls against heritage exportation in Tinduf and Algiers but that does not mean that the recovered stolen heritage will return to the Western Sahara.

General or concrete management plans for special rock art sites do not exist because there are no human and material resources to implement them. The sites are protected due to the low impact on the landscape of the Sahrawi way of life and its productive activities and the absence of tourism due to the political situation.

Some sites, however, for example Rekeiz Lemgasem and Sluguilla Lawash, are regularly visited by hundred of foreigners every year. For the most visited sites the Universitat de Girona is going to publish guides with colour photographs, which should be distributed through the military posts. The visitors will move along a controlled itinerary, with proper archaeological information and surveillance. In the Western Sahara, at the moment, a guide is already available for Rekeiz Lemgasem, which is the most visited site (Soler *et alii* 2006a).

10. Main threats:

The main threats for the rock art at the moment are mainly due to human action. Obviously the extreme temperature oscillations between night and day -typical of desert areas- cause fissures and spalling off in the engraved slabs. The dissolution processes on the sandstone rock-shelters

also damage the rock paintings in the Zemmur. In both cases, we are not aware of any solution against those natural processes but we know that any inexpert action could lead to worse consequences. In addition, no resources are available to implement any expensive protection strategy.

What really brings danger to the rock art in the Western Sahara is human activity. Rock-shelters, for example, have served as dwelling and observation posts during the war and some paintings were then damaged. Regularly, new graffiti appear in the most visited rock-shelters. Even the MINURSO, the blue helmets of the United Nations (Misión Internacional de las Naciones Unidas para el Referendum del Sáhara Occidental), are constantly damaging rock art in Rekeiz Lemgasem, Lejuad and Sluguilla Lawash (fig. 15). This fact is scandalous and seriously damages not only the rock art but also the image of the international organization with high political and human responsibilities in the zone.

11. Conclusions for the Zone:

The Western Sahara is a country with significant rock art sites which provide a better knowledge about the prehistory of the area. The different techniques and styles documented in the zone allow the establishment of links between the Western Sahara and other zones of the Saharan Occident, specially northern Mauritania and southern Morocco. On the other hand, strong regional particularities have been detected in the rock-paintings of the Zemmur and in the southern engravings.

The political and human situation of the country does not allow the local authorities to invest resources in rock art protection and management. They however support the research groups working there year after year and they hope to cooperate with international organisms to protect their sites. In Mauritania the heritage administration has no possibility to apply the existing legislation.

From the Sahrawi government's and the Universitat de Girona's points of view, the international organizations that care for the archaeological heritage should be a little more involved in the zone. Expert advice about how to protect and manage such big sites would, for example, be greatly appreciated.

Finally, some of the sites, such as Sluguilla Lawash, the paintings in the Zemmur or Lejuad could be potential candidates for the World Heritage List. Considering these sites for nominations could encourage everybody to take more care of their sites, independently of the final political status of the territory.

joaquim.soler@gmail.com
<http://www.udg.edu/sahara>

See illustrations Annexe II p. 161

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