COALITION
CSIC Thematic Network on Cultural Heritage. Electronic Newsletter

Newsletter No. 12
July 2006

Special issue: Conservation of Rock Art. Part III

Index

♦ Rock Art conservation, education and ethics, D. Seglie .......................................................... 2
♦ Cueva de Altamira and the preservation of its Palaeolithic Art, J.A. Lasheras and C. de las Heras .......................................................... 7
♦ Rock Art research in northern Mexico, past and present, M.L. Gutiérrez Martínez .......................................................... 13
♦ Note on an article published on COALITION no. 11, January 2006, A.P. Batarda Fernandes .......................................................... 20

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ROCK ART CONSERVATION, EDUCATION, AND ETHICS

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The state of preservation of Rock Art in the world

Rock Art is the most ancient and widespread sign of human spirituality and it is diffused all over the world, from the deep North to South, from the Far East to West.

Environmental and climatic conditions in which the various Rock Art expressions are placed are extremely varied and have changed during the time.

Although the common denominator of all sites is the presence of rock surfaces (in cave, in shelters or in open air), the geomorphological and mineralogical differences give rise to different typologies.

The choice of a site by a Rock Art creator is certainly defined by many factors, including an empirical knowledge of the characteristics and qualities of a certain surface, considered suitable or not to receive the Rock Art.

Obviously, it’s now hard (if not impossible) to know if the creators of Rock Art compositions had also considered their lasting in time, foreseeing the conservation of their ephemeral condition.

The preservation of Rock Art today is, on the contrary, a universal matter, as it is now considered an irreplaceable and inalienable patrimony, a cultural heritage with an inestimable value.

The progressive discovery of sites and the multiplication of Rock Art research

Although Rock Art was known in past centuries, from the ancient chronicles or in travellers’ stories, only during the last century was it brought to the attention of the scientific community; its research has assumed world importance only in the last few decades.

The increase of surveys dedicated to Rock Art has become exponential, favoured by the intervention of mass media, the augmentation of specialised books and magazines, the diffusion of university courses, conferences and congresses centred on Prehistoric Art and Cognitive Rupetrian Archaeology.

Diffusion, the common public, exploration, discovery and mass tourism

The increasing number of public appreciation spots on TV channels and in the newspapers has created a big demand for exoticism, antiquity, mystery, the unusual and “wild” or the “uncontaminated and primordial”.

Travel agencies and tour-operators have taken advantage of the interest, inventing “tourists packages” ad hoc, leading more and more large groups of tourists to places that have Rock Art sites.

The situation is becoming increasingly more serious, especially in the emerging countries, where this tourism causes a negative impact on the environment and so constitutes a real danger for the preservation of Rock Art sites.

This public, usually with less cultural appreciation and education, does not know about and so does not respect preservation or conservation rules. The rock art surfaces are damaged in various ways (e.g. petroglyphs highlighted with stones or metals abrasion; paintings dampened with water, beer or cola, in order to take a picture as souvenir); the tourists’ guide generally does not intervene; so, the sites are destined to rapidly deteriorate or are totally destroyed.

Most areas of archaeological Rock Art sites completely lack any type of safeguards.

Classification of Rock Art sites

Referring to the actual population in certain territories, it is possible to classify Rock Art sites in three categories:

a) Sites preserving traditional use and ritual or ceremonial visitation (living tradition),

b) Sites not frequented for cult use, but preserve a historical memory (fossil tradition),

c) Sites in which it’s impossible to recover the relationship between Rock Art and population (extinguished tradition).
The study approach for a and b types can be of the ethnographical – anthropological type, for c type the prevailing scientific approach has to be archaeological.

Protection of sites
Paradoxically, we can affirm that the best-protected Rock Art site is the yet unknown one, but human tendencies are going towards a progressive augmentation of knowledge, so research activity is increasingly more developed and productive.

The first risk factor in the preservation of Rock Art is in scientific research, and it is not removable. The safeguarding of sites is directly related to the spread of knowledge about their location.

The more a site becomes well known, the more necessary it is to protect and to conserve it.

If only the insiders know the site location, there is minor risk, based on the scientific knowledge and the professional code of ethics of the researchers. Afterwards, the site will have to be presented to the scientific community and, then, to the common public. From that moment it is hoped that security measures have been devised by the institution of special parks or with the Rock Art included in general parks.

This procedure, involving local people, could even guarantee an economic income, and, then, funds for future scientific research.

Unfortunately, a great part of Rock Art is located in non-protected sites, left to the civic conscience of the visitors and to their awareness, respect and understanding of cultural heritage. Therefore, the risk of destruction and of environmental decay is very high.

Establishing the underlying connection among Rock Art, environment (natural and human) and landscape, it is clear that research and study planning cannot, as has happened more than once in the past, isolate the Rock Art phenomenon, as if it is an autonomous matter. On the contrary, it is necessary to amplify the research field to a global archaeo-anthropological perspective, trying to recover each possible fact that links them.

The systemic approach depends on teamwork for the research, study and conservation of Rock Art. All the work strategies (mono-multi-inter-and trans-disciplinary) must be evaluated and clearly expressed during the research planning. The charming and mythical figure of the lonely Rock Art researcher must be definitively left to the memory book.

Ethics and research

Introduction to Ethics
“Ethics” is a term introduced in the philosophical language by Aristotle (thinking for the first time to an ethike theoría) meaning that part of philosophy which studies human behaviour and the judgement standards of human attitudes and choices (in Greek language ethos derives from ethos, that means behaviour, custom).

It is possible to distinguish two aspects of ethics: a first one normative, a second descriptive; then, another distinction shall be made between morality and ethicality.

Generally, the philosophical reflection on ethical problems develops especially during periods of values crisis, when the usual rules are being questioned.

Currently 20th Century’s ethics studies have tried to concentrate on the consequences of the absence of an ethic subject, by suggesting different solutions. Nevertheless, in all these trends, an ethic is just a critical point of reference, no longer the doctrine of imperative and good, but the doctrine of social dialogue, with individual and group values ever developing and destroying themselves.

Some considerations on Human Condition
Where do we come from? Who we are? Where are we going? These are three essential questions for the human race. Fifteen milliards (billion years) have passed since the Big-Bang, the beginning of the universe, 5 milliards since the Solar System’s origin, 4,5 milliards since the Earth’s formation, 3 milliards and 700 million years from the primordial ocean, 3 milliards and 200 million years from the first blue alga, 500 million years since the first vertebrates, 340 million years since the first mammalian, and just 65 million years since the first primates.
Humanity is now at a turning point, probably with no return, if considering that our (animal) species is the one placing the greatest pressure on natural habitat. The technological evolution that has caused this situation has not been linear, as it has had an exponential growth trend. Man, from more than 4 million years, has remained in a constant balance with the natural resources and the environment, supported by a gathering, hunting and fishing economy. The Neolithic revolution, which began just 10,000 years ago, has brought a new economic, technological and social set-up characterized by sedentary life, farming, raising sheep, the invention of pottery and then metallurgy. The relationship between man and environment has started to change, with a more intensive use of natural habitat and consequent ecological alterations, sometimes irreversible, caused by technological discoveries and demographic explosion.

Nevertheless, science and technology haven’t had an explosive effect on nature until the 18th Century, when with the Industrial Revolution, the way of life of the human race was radically changed, by the conquest of the submarine and extraterrestrial worlds in only two centuries.

The limitation of world resources and world space now confront each other with the destructive attack of contemporary technology to all ecosystems. Pollution (smog, acid rains, etc.) caused by industrial production cycles damage animal and vegetable life, corroding and destroying ancient monuments. The storage of carbon dioxide in the atmosphere and the consequent increase of temperature cause unforeseeable modifications in all ecosystems, a slow transformation of world surfaces and climates, and a progressive melting of ice caps. Geological instability, floods, urbanization and desertification, industrial and urban waste (New York produces 40,000 tons of rubbish in one day), are just a few examples of the problems humanity is called on to solve as soon as possible. Politicians, scientists, economists, technocrats, biologists, and engineers must understand the science and consequence of these macro-problems, of the positive and negative synergies, of the entire phenomenon connected to the internationalization of their actions. They have to find possible solutions, according to the prevailing ethics and contemporary morals, to allow human survival.

**Ethics and research**

Today, it’s necessary that scientific research, as the sum of sectional researches in a intertrans- and multi-disciplinary perspective, study compatible development matter, suggesting solutions to transform the traditional ethic, still dominating the economical, political and mass media world. Scientific knowledge of the past and of natural human history, from *Australopitecus* to *sapiens sapiens*, is an indispensable factor for understanding the present situation and to support future planning. A future which is able to control the exploitation of world resources: from the phase of wealth hoarded by individuals or groups, which has characterised our century, to a balanced regularization of the demographic explosion and of the industrial production is sought.

Scientific research has to expand itself (universities, laboratories, centers of studies must receive suitable financial resources); technological divisions and production sectors have to be reorganised, to obtain positive ecological results.

This new consciousness must express a new ideal, a new social pact among men, a new “Holy Alliance” between us and the world we’re living in. We are the “arbiters” and we have to become the “warrantors” of our planet too.

This new way of researching and making “knowledge” (not only “knowledges”) is directly connected to the success of a new contemporary ethics. Man has to become his own planner: starting from *Homo sapiens sapiens* he has to change into *Homo sapiens sapiens sapiens*: from Hobbes’ idea *homo omni lupus*, from K. Lorenz “man is a chimpanzee armed with sub-machine gun in the underground”, and from E. Morin’s *sapiens demens*, to a new human dimension.

The link between man’s curiosity and creativity creates a particular feature, possessed only by our species, that is the aptitude for scientific research. The scientific researcher - who produces knowledge (while the simple technician produces patents) - has to assume ethical, social and political
responsibilities. Actual scientific research cannot forget the profits and damages that scientific and technological discoveries are provoking on our earthly Biosphere, and therefore on human beings.

Medieval alchemist, alone in his laboratory, with his furnace and alembics, searching for the “philosophical Stone” for changing metals into gold, perhaps found the way to his own spiritual elevation and not the way to material enrichment, thanks to the paradigm of the “Big Work”: the VITRIOL, that is sulphuric acid but also the acronym of Visita Interiora Terrae Rectificando Invenies Occultum Lapidem. The actual alchemists, the scientists, have to open their laboratories, pull down the turris eburnea of disciplinary division and try to find the unity of conscience; her cement is the new ethics, that must unify and synthesize the positive and global relationship between man and nature.

The antinomies Good-Evil, Freedom-Constraint, Justice-Justice, True-False, Responsible-Irresponsible illustrate the value system that is the basis of our code of ethics. From the first forms of ethics, concerning relationship among men (Clan’s Ethics), humanity has started to regulate relationships between men and society and has formulated the concept of democracy (State’s Ethics). The level we actually aim for is that one which extends attention and responsibilities to all relations and interactions between Men and Nature, between Man and Earth (Bio-Planetary Ethics).

Ancient opposition between Humanistic Culture and Technical-Scientific Culture is going to be resolved in a New Renaissance Culture; it’s a synthesis which finds again the uniqueness of man and his “good and fair” position in Nature, peering into a remote future.

World Level and Intellectual’s Role
We’re part of the world, we’re universal. Intellectuals, schools, universities are the first realities that are opening at a world level: this international forum “COALITION”, dedicated to Rock Art, proves that individual and institutions understand the importance of comparison and common planning.

The different languages we speak have to remain a wealth, the inheritance of the difference. Each of these languages must have a future in the world, to propagate the ideals that were born in the recent past: the rights of man and citizen, the state based on laws, orderly administration and respect for private life, tolerance, solidarity towards different people or persecuted people, equality and freedom of people, faith in human’s reason.

Today’s intellectuals have an important mission and function (as well as medieval clerks had): this mission is to publicly discuss fundamental problems of culture, of research and science and mostly of ethics.

Wonderful professional, technocrat, specialist pressures tend to reduce and to destroy intellectuals’ role. The specialist, who possesses only a fragment of knowledge, is unable to think of society; the ignorance of big problems causes intellectual emptiness. Our society needs open-minded people, who know general problems and the total reality: they must be specialised in non-specialization.

The “naked monkey” has to definitively go out from the obscurity of the underground railway, has to leave his sub-machine gun and find again the way towards “lost Paradise”. The exit from Prehistory and the return to the Origin must be our compass for the Third Millennium.

Humanity is currently facing a formidable challenge: that of guaranteeing all the inhabitants of the world a better quality of life while, at the same time, ensuring the quality and the future of the environment of Earth for the next generations.

This challenge involves all the countries of the world, both the industrialized nations and the developing ones: all the people, all the citizens, need to adopt a strong, new ethical and moral state of mind.

Human Culture at the beginning of the Third Millennium must be called into question, because extraordinary cultural improvement is required, comparable to that which accompanied the Prehistoric Neolithic Revolution, and the Industrial Revolution of the 18th Century.

The new imperative is “Sustainable Development”; this calls for a new partnership between environment and development, so
that our current needs can be satisfied without preventing future generations from having an improved quality of life.

In the uncertain march towards the new culture, intellectuals, scholars and scientists must play the role of pioneers and vanguards.

Rock Art comprises the most ancient signs of human spirituality, and those which are most widespread in every continent, but it is also one of the most fragile cultural resources; it must be conserved, studied and made known to the younger generations.

Many important Rock Art areas are located in developing countries. The economic development and the exploitation of the environmental resources of a territory must consider its cultural heritage, and not pose a threat to conservation.

Political and economic programs for the regional development of rural and urban areas must take Rock Art and archaeological sites into consideration, since these constitute a factor in the wealth and sustainable development of the local communities as well as of the country as a whole.

The scientific, administrative and political authorities of every country and every region must commit themselves to the creation and planning of projects in sustainable development centred on “Rock Art and the Environment”.

Some points can be considered indispensable in these regional projects:

· Consultation with, and involvement of, Rock Art’s international authorities, and particularly IFRAO, the International Federation of Rock Art Organizations.

· Involvement of national and regional Rock Art organizations.

· Drafting of regional programs of research, study, scientific documentation, preservation and conservation of Rock Art.

· Programs for site development, cultural diffusion and regional economic-tourist development.

· Training programs for school and university teachers and for those in cultural or tourists posts who could be employed as guardians or guides for the sites, parks, museums and tourist resorts.

The regional projects in sustainable development should enable the local communities to launch processes of social and economical development through respect for the environment, in order to guarantee the future.

All rock art experts, scholars and development specialists are invited to take part in what represents a new opportunity for the 3rd Millennium: we want to preserve our blue skies for the human race, for our children and our children’s children.

Environment and Education

Schools today, taken in their broadest sense, should be privileged places characterized by a profound interaction between teachers and learners; sacred places where conscious and unconscious can fuse together, centres for the furthering of wisdom, through words, gestures and examples, a melting pot which creates more energy than it absorbs; prodigious places, perhaps the last places where human survival can be planned and guaranteed. Schools must be able to open up to the continuing change in society, what’s more, they should be able to significantly control the process of change. The word “environment”, as all words, is ambiguous and has multiple meanings: we should take it to mean “anthropological field or deposit” (there are practically no more real natural fields left on earth) with special physical and cultural stratification; the word means the site of the “personal history” of all men, of all those who inhabit the world, and have their individual “niche” in it; it is a database, an Eco-museum, a source of information, education, evocation, intuition; the environment is an anthology, a reader, an ABC book of behaviour; a stage on which we play out the daily tragic-comedy of life, forever suspended between macrocosm and microcosm, between costs and revenue, expansion and annihilation, reality and fantasy. Schools, with a capital “S”, are part of the landscape, of the territory, of space and time: a definite space and a definite time. The interconnecting “filaments” of the multitude of infinite elements that make up each environment can and must pass through
schools and become the subject of experiments, trials, tentative connections between differing threads, so as to find a hypothetical order which can give us the illusion that we are emerging from chaos. Through the use of the environment as a resource, schools must become open institutions, which have a formidably equipped laboratory at hand, practically free of charge: the environment. Schools must learn to use this pedagogical/didactic supermarket as a source of information which is extraordinarily useful, popular, accessible, and to accomplish an innovative task: the repossessing of anthropological culture, of individual and group identity, social identity on the part of each learner, all students, all human beings. The invitation to take part in this Copernican - pacific – revolution is being sent to teachers at all schools, researchers, students, and will offer the chance to compare methodology, experiences, programs and projects in the field of Cultural Assets, and its links to teaching and education, so as to plot and define the role of schools in forming the conscience of young people; hopefully their sense of civic duty and their solid scientific background will make up the strongest factor in the protection, conservation and appreciation of the cultural heritage that Rock Art Archaeology discovers, researches, and consigns to future generations. The environment in general, and Rock Art in particular, should be considered as something we have borrowed from our children, rather than inherited from our parents. All over the world, teachers and schools can play a fundamental role, in trying to win the wager for the progress of Man.

**CUEVA DE ALTAMIRA AND THE PRESERVATION OF ITS PALAEOLITHIC ART**

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**A Summary or Introduction**

It might be thought that Palaeolithic paintings have some special characteristic which makes them particularly long-lasting, and because of this they are almost eternal. Nothing could be further from the truth. Their elementary composition based on ochre (or other natural minerals), charcoal and water (as an agglutinant or dissolvent), makes them rather fragile and vulnerable. If they have reached our days, after an existence of 14,000 or 20,000 years, like the paintings at Altamira, it is owing to the fact that they have been immersed in favourable or virtually non-aggressive environmental conditions. The cause for these is the natural stability of cave environments and because, at Altamira, a roof collapse sealed the cave entrance about 13,000 years ago. Thus it is necessary to maintain the microclimate – certain humidity and temperature regimes – and in general, maintain the natural conditions that have existed in the cave until the present time, in order to guarantee the survival of our early art. These conditions and their stability can be changed both directly by actions inside the cave and indirectly by actions in the area outside which affect the interior (area of influence or impluvial area).

The temperature, humidity and their combined action create the greatest risks of deterioration and destruction. A rise in the inside temperature with the consequent fall in the humidity can by itself result in pigment peeling off the rock surface. The water vapour that condenses on the paintings or the rock may cause the pigments to be washed away or result in the precipitation of an opaque layer of calcite over the paintings. A rise in the temperature in a humid environment could increase the presence or activity of microorganisms; these are also favoured by artificial lighting and by the entry of visitors (who spread microbial flora and fauna). In conclusion, there are many well-known problems that arise when the fragile dynamic balance between humidity, temperature and water conditions, and those which affect fungi and bacteria, are broken. And yet this balance has been broken, changing the natural environmental conditions, in every cave open to the public, and it continues to be broken.

Cueva de Altamira: an extremely popular ancient monument

Cueva de Altamira was the first place where Palaeolithic art was identified, in 1879 (Heras 2002). The finding was greeted with certain scepticism as it raised new questions about human evolution, which at that time was still poorly understood, and about the intellectual
reason why many scientists did not accept the antiquity of the paintings was their excellent state of conservation and their freshness, which made them believe that they must have been painted quite recently.

The interest in preserving Altamira had an early beginning. Its discoverer, M. Sanz de Sautuola, who was convinced of the age, importance and attraction of the paintings, had a gate fitted in the cave entrance even before publishing his find, in order to impede any irresponsible acts to the art. Santillana del Mar Town Council established from the start that all visitors should be accompanied by a municipal guide. Nevertheless, the problems of conservation had started even before the cave was discovered.

Cueva de Altamira is formed in limestone karst in a stage of senility. Collapses in it must have been occurring for thousands of years, owing to the flat horizontal structure of the limestone beds. These roof falls have been recorded during the human occupations in the Palaeolithic and also in modern times, in the first part of the 20th Century. In fact, after the cave had remained hidden and undisturbed for millennia, its discovery could hardly have been more violent; quarrying the rock from above the cave with explosives must have opened the hole which allowed entry to the cave again. However, the explosions must also have fractured the rock strata in the roof of the cave, leading to the major collapses that happened in the entrance hall around 1875 and in 1925 (during the archaeological digs). The fear that a general collapse might affect the Polychrome Ceiling meant that between 1940 and 1965 large concrete supporting walls were built (imitating natural strata) to strengthen its stability. These walls created a new “chamber” where the Polychrome Ceiling was enclosed and isolated from the rest of the cave. From this moment on, there was a change in the environmental factors – temperature, humidity, ventilation, etc. – so that a short time later, the consequences for the cave and the paintings became noticeable. In 1955 some prehistorians and art conservers suggested reducing the number of visitors, but despite the controversy being opened, the tourist use of the cave continued to be promoted. In this way, the prehistoric cave became a great monument for the 20th Century, a tourist attraction of the first order. As well as being an artistic and cultural landmark, Altamira was important for its economic results and the image it gave to the promotion and development of the region.

Therefore, in the 1960s, the ceiling with the polychrome bisons was enclosed in a space of 300 cubic metres, isolated from the rest of the cave. This isolation, which was at first considered favourable, reduced even more the margin for the delicate physical, chemical and microbiological balance needed to preserve the paintings.

The idea was that visitors would satisfy their curiosity for seeing the underground world by being guided through the rest of the cave, where they might also see some engravings or paintings. For this purpose, the natural bouldery floor of the cave was transformed into a wide and comfortable path (by digging it out, filling it in, making steps...). At the end of their visit, they would then be happy with a quick view of the spectacular polychrome paintings. The cave was altered in an attempt to reduce the presence of the public in the Hall of the Paintings and thus limit their impact on such a small volume of air. The cave suffered from this decision, and a banal multi-colour lighting system was installed, disguised behind rocks.

The cave was the tourist pride of the region, and one of the most visited ancient monuments in Spain; more than 100,000 people a year after 1964, and over 175,000 visitors in 1973. The effect of this multitude could have been extremely serious. The paintings must have suffered sudden large oscillations in the humidity and temperature, producing physical, chemical and microbiological risks that would increase at the same rate as the visits, and which would have caused their destruction.

Preservation of a fragile heritage
Although different reports had, since 1955, warned about altering the microclimate inside the cave and the need to reduce the number of visits, it was not until the risk of losing the paintings became self-evident that the authorities considered ending the system of tourist exploitation of the cave. The preservation of the cave became a political dispute between the local and regional administration on the one hand and the
national government on the other, and received a great deal of public attention. In this situation, in 1978 the Spanish Government took over the ownership of the cave and in 1979 founded Altamira National Museum and Research Centre (Altamira Museum) as an efficient instrument for conservation, research and management of the cave. The cave was closed that same year. They decided against the artificial forced air conditioning that had proved so disastrous at Lascaux Cave (Montignac, France). Instead, a team led by the Professor of Physics, Eugenio Villar was given the task of studying the environmental parameters and conservation of the paintings. The natural microclimate of the cave was analysed in the absence of visitors and finally, following a mathematical model, the number of people who could visit the cave daily without affecting the interior climatic pattern was fixed. Altamira was opened again in 1982 for a small daily limit of visitors: only 8,500 a year, in groups of five accompanied by a guide, allowing them only ten minutes in the chamber with the Polychrome Ceiling (Villar 1984).

To summarise, the greatest importance was given to controlling the temperature as the key factor in the underground system (changes in temperature affect the ventilation by convection, the relative humidity, physical and chemical reactions on the rock surface, and the microbiological community). A mathematical model was created, conjoining interior and exterior climatic parameters and the alterations caused by the presence of people so that they would not lead to accumulative changes inside the Hall of the Paintings. According to this mathematical model, and with the proposed regime of entries and visits, the temperature, humidity and CO2 level would return to their “natural” values each day, during the hours while the cave was closed, and the weak natural annual oscillations would be maintained. Without assessing its application, this regime of visits proposed in 1982 continued in practice until 2002, when it was decide to close the cave of Altamira again to make a new diagnosis of the conservation conditions.

For several years, at the request of Altamira Museum, the Council for Scientific Research (CSIC) has been collaborating directly in the analysis of Altamira’s conservation. A team, led initially by Dr M. Hoyos (deceased in 1999) and at present by Dr S. Sanchez-Moral (Sanchez-Moral et al. 1999, 2002; Heras Martin et al. 2004), is carrying out a series of studies to assess the present situation, and has noticed some differences from what was believed previously. In 1999 they concluded a phase of the project in which they assessed the environmental parameters with the
existing regime of visits. This is currently being complemented with a study of the closed cave, which started in 2004. Improvements in the instruments now available (more accurate, reliable and easier to handle and use), the possibility of monitoring different parameters permanently, and some variations in concepts and criteria, has allowed them to see that the visits regime being applied produced a slight increase in the temperature and this did not return to normal each day. This is in contrast to what the previous model predicted. Equally the CO₂ level in the air displays an annual cycle with some differences from what was noted in the earlier study. However, where the present research shows greatest difference is in the importance given to the humidity (absolute and relative), to its changes and to the impact made by the entry and presence of people in a humid environment, permanently above saturation point. This increases the total volume of condensed water in the Hall of Paintings significantly. Furthermore, this condensation is produced mainly on the ceiling, precisely where the paintings are, accelerating the processes of calcite formation and corrosion. Therefore, the physical and chemical properties of the water, both in liquid and vapour form, are fundamental to control the processes of mineral solution and precipitation, and to define the dynamic balances in the cave system (Figures 1 and 2).

Together with this, the colonies of certain microorganisms are one of the greatest risks for the preservation of the paintings, because of the difficulties for their prevention, the seriousness and irreversibility of their possible negative effects, and the even greater difficulty for their correction and eradication. So far, only the bacteria that can be cultivated in the laboratory had been identified, but the application of molecular techniques at Altamira (based on the sequence of the ribosomal RNA gene 16S and 23S) has enabled numerous previously-unknown microorganisms to be detected. These include both the metabolically active and others not active at the time of sampling (more than 70% of those identified so far). The intense colonisation by bacteria produces a stratified biofilm made up of *Bacillus*, *Acidobacteria*, *Actinobacteria*, *Sphingomonas*, etc., all of which are sensitive to any alteration in the ecosystem. At Altamira, the bacteria appear to neutralise the spread of fungi, but both are the current main risk for the preservation of the prehistoric art in any cave, and this does not seem to be a matter which has been sufficiently analysed and considered in the case of the caves with prehistoric art that are open to the public.

The present closure of the cave, which commenced at the end of 2002, has the overall aim of analysing the situation without the disturbance of visits. When the study is taken into consideration together with the assessment made in 1999, it will produce a new diagnosis on the conservation of
Altamira. Among the conclusions or consequences of this diagnosis, in reference to the management of the cave, there must be a new regime for public access and visits compatible with its preservation. This could be a new mathematical model which integrates the natural variations and the disturbances caused by the visits; a system for constant assessment and correction; a definition of the thresholds of risk and alarm for each parameter, and the measures to take in each case; preventive proposals for the vegetation and soil cover above the cave, etc. Logically, also in this case, one of the aims is to make the public access to this heritage site compatible with its preservation.

Conservation, research, diffusion ... Altamira Museum (Lasheras and Heras 1999; Lasheras et al. 2002)
The studies carried out so far, as well as the new Museum buildings, opened by their Royal Highnesses the King and Queen of Spain in 2001, form part of the same Museological Project, started in 1993 and still in force. The permanent exhibition in the new museum includes a copy of the cave: the Newcave of Altamira. This has been conceived in an original way, as it reproduces the entrance hall – the habitat area in Palaeolithic times – and the area with the Polychrome Ceiling, recreating the appearance it had when the cave was occupied (Figures 3 and 4).

The reproduction of the paintings is a totally faithful copy of the original, even in the techniques used and the pigments employed: ochre and charcoal. A few defects that have occurred since the art was done thousands of years ago have been corrected, improving the visibility of some of the paintings and engravings, especially in the case of some figures which went unnoticed by most visitors. A view of the maximum number of figures is necessary to understand all the symbolic content accumulated over such a long time in such a small area. This replica has been based on the observations and studies collapses that occurred soon after that time and which sealed the entrance until the 19th Century. The replica reconstructs the form of the cave, using archaeological and geological information, by interpolating this information on a highly precise 3D topographical model. The Newcave is not an imitation of the original, and its viewing cannot be a substitute for this. Instead, it is a means of informing and educating about the original. Two main reconstructions/restorations made in the replica bring us nearer to understanding the Palaeolithic cave: the reconstruction of the original large cave entrance (Photo 1), and the removal of the modern walls built between the entrance and the Hall of the Paintings to support the roof (Photo 2). The replica makes it clear that everyday life was carried out in the daylight zone, and not in the darkness of the cave. It also shows the absence of physical barriers – and the importance of the shade – to separate the living space from the area for the Art, as if to separate the common area from that reserved for myths, rites, the transcendent and the sacred.
made on the original and the new photographic record that has been obtained.

This reproduction has been helped by the application of modern computerised technology, in the topography and modelling as well as in the shaping and manufacture of the final copy (an accuracy of over 40,000 exact points per square metre). This has enabled the natural architecture of the cave to be restored to exactly how it was 15,000 years ago, according to the archaeological and geological research carried out. In this way, both the natural roof falls and the modern alterations and building work suffered by the cave to make it visitable (walls, paths, steps) have been “restored and returned” to their original appearance.

Photo 3. The Polychrome Ceiling in the Newcave of Altamira.

It must be remembered that the Newcave is not intended to contribute to the preservation of the original, and that is not its use – we have already explained what affects the preservation and what needs to be done for that. It is a response to the great general interest in this masterpiece of Prehistoric art. The Newcave should be understood simply as a way to know Altamira, like a huge book that explains exactly what the cave was like during the Palaeolithic, and shows it in one amazing “three-dimensional illustration”. It is intellectually accessible and attractive to anyone, to all kinds of people with curiosity or interest. The Newcave is not an instrument of conservation, but a large book written with museological, educational, scientific, technological and aesthetic care.


During the development of the Museological Project – of which the Newcave is the best known part – practically all the conservation measures to prevent anthropic risks have been successfully achieved. The land directly above the cave has been acquired so that the area belonging to the museum has increased from 50,000 m² in 1985 to 160,000 m² in 2001. This means there is complete control over the vegetation cover above the cave, prevention of wastes being deposited in its impluvial area, eradication of three houses and a farm from nearly above the cave, deviation of traffic from the impluvial area (altering the
existing road layout and car park), removal of a water tank and electricity power lines above the cave... The museum as an instrument for the management of the cave, and the development of the Museological Project for conservation, research and diffusion of Altamira, have made it possible to affirm that the preventive measures for the preservation of Altamira are now much better than they were before 1993 (Figures 5 and 6)

Conclusion or Continuation?
We believe that we should preserve historic heritage to make use of it; that is, to know it and to see it, to enjoy it intellectually and culturally now and in the future. And a basic criteria applied to the conservation and use of Altamira is that it should be accessible to the greatest possible number of people, as long as the presence of this number of people is not in itself a factor of appreciable deterioration, and as long as this number is determined as a result of scientific studies on the conservation of the art. These are the studies currently being carried out which, when they conclude, will allow us to establish a new regime for public access, suitable for the preservation of Altamira, included in the list of World Heritage since 1985.

References
The “distant” North and its enigmatic (and misunderstood) rock art

As we have seen, for many years, this region of the country was perceived to be ordinary and archaeologically unproductive. These ideas generated an enormous delay in the discovery of the abundant and diverse pre-Hispanic peoples that developed here. Nevertheless, in addition to this indifference, a cultural element was ignored even further: the rock art. This situation is truly paradoxical because that manifestation is one of the most abundant and distinctive of the region, and it was produced by societies with sedentary and agricultural traditions as well as by mobile hunter-gatherer peoples, who in a prodigy of ecological adaptation to a rigorous and strong environment, developed interesting cultural complexes. Another reason that generated this marked indifference towards the rock art consisted in the complexity that it surely represented at those times, undertaking such ambiguous and unproductive material. Whitley and Loendorf (1994) point out two important factors favoring this tendency, not only in Mexico but in the entire American continent.

The first factor refers to the possibility that radiocarbon dating performed in the fifties might not be applicable to rock art; the second factor is related to the development of the New Archaeology that, with some exceptions, “failed to deliver the promise of fully integrating all aspects of the archaeological records into inclusive interpretations and explanations” (Whitley and Loendorf 1994). With these difficulties prevailing, it was almost impossible to integrate rock art in a general interpretative panorama. This was what discouraged the researchers of those earlier times.

Although during the second half of the twentieth century there were studies and descriptions carried out in isolated rock art sites of Northern Mexico, it was not until the eighties that a real growing interest was registered by studying it with a systematic, more consistent approach. To better understand this process it is necessary to indicate that in those years an important number of INAH research centers were established in the northern territory. This brought along an increase in the number of researchers that were gradually in charge of...
the region’s archaeology. The growing importance of the northern archaeology and the innovative advances in science and technology applicable to the study of rock art made possible that it started to be valued in its entire dimension.

Given the extension and complexity of Northern Mexico by the confluence of diverse cultural developments, it is very difficult to carry out in this space, with accuracy and high definition, an analysis of the state that nowadays keeps the research of the rock art in this region (see Murray and Valencia 1996 and Murray et al. 2003, for a detailed analysis of this process) but, in this occasion, I will focus on the case of the Peninsula of Baja California, a region that splendidly exemplifies the advance registered in the study of this cultural manifestation in Mexico.

Peninsula of Baja California

Doubtlessly, this region has been constituted in a very fertile terrain to develop diverse approximations of this recurrent expression. Located in Northwest Mexico, Baja California remained nearly unexplored until the end of the twentieth century. The historic indifference of the peninsula is paradoxical because for many years it was presented in inverse proportion compared to the importance and wealth of its archaeology, outstanding by its extraordinary rock art.

This peninsula was almost totally inhabited by interesting hunter-gatherer societies that subsisted in an extensive range of ecological circumstances and social configurations. Nowadays, it is known that these groups lived in these lands at least since the end of the Pleistocene (Clovis phase - 11,000 BP) (Gutierrez and Hyland 2002). The almost insular condition of Baja California maintained these cultures relatively isolated from continental influences, allowing the development of exceptional cultural complexes. And, precisely, one of the most outstanding characteristics of the peninsular prehistory is that these peoples promoted—in some regions—the massive production of rock art from very remote ages.

Antecedents

The first references of peninsular rock art are found in the Jesuits’ records, who at the end of the 17th century showed certain interest for the cultural remains that they observed in some caves and rock shelters, including human burials and cave paintings (Barco 1973). The modern phase of research begun at the end of 19th century with the works of Leon Diguet (1895, 1899, 1973), Jorge Engerrand (1912) and Frederik Carel ten Kate (1883). These explorers coincided in their interest to deepen the knowledge of the prehistoric peoples that inhabited the peninsula, and their numerous expeditions brought them to discover and report rock art sites.

After these pioneer reports, research was almost absent with sporadic records mainly carried out in the northern peninsula. It was not until 1960 that the rock art began to be of interest to researchers, fans, and general public, mostly due to the publicized expeditions of Earle Stanley Gardner (1962, 1967); the publications of Dr. Clement Meighan (1966, 1969), and the work of the writer and photographer Harry Crosby (1984). From this moment a numerous group of researchers of Great Murals was formed, who find in the Rock Art Papers magazine, founded by Ken Hedges in 1980, a forum for the publication of several articles, particularly of the Sierra de San Francisco (see Ritter 1991 for a revision of these and other studies developed in the peninsula).

The Peninsular Rock Art

Baja California exhibits an assembly of spectacular landscapes, many of them enhanced by rock art. This can be found mainly in the mountains emerging all along the peninsula. One of the major values of this region is its own landscape, understood as the social widespread space in which the rock art of these ancient societies functioned. In this way, the great quantity of prehistoric evidence that concentrates here, is the result of this intense movement added to the great antiquity of the occupation (Figure 2).

Until now, we know that the variation of Baja California’s rock art is presented, in very general terms, on a northwest-southeast axis. It would seem that toward the extremes of the peninsula geometric, abstract motives tend to dominate, while in the central part naturalistic motives prevail. Some of the greater efforts have been focused on identifying stylistic groups and distribution areas. Nevertheless, the great majority have been defined by the observation of few rock art sites.
art sites, and due to phenomenon’s dimension it is difficult to arrive at appropriate conclusions, with the exception of some cases, such as the one that refers to the central region.

Figure 2. Arroyo de Santa Marta. Path toward Cuesta Palmarito, one of the most representative Great Murals’ sites. The cave can be observed on the margin of the canyon.

Figure 3. Cuesta Palmarito, Sierra de San Francisco. We can observe the great height at which the figures were painted, and their large size.

The Central Mountain Ranges
These mountains were the scenery of an extraordinary prehistoric event: the Great Mural phenomenon. This term was coined by Harry Crosby in the seventies taking into consideration an outstanding characteristic of some of this imagery: its great size (Crosby 1984). In fact, it is considered one of the largest scale cave painting traditions in the world. Many of the sites exhibit hundreds, and even thousands of figures, some of which were painted in extremely high parts of the rock shelters, which accentuates even more the monumentality of the style (Figure 3). This is mainly naturalistic and it is dominated by human and animal figures designed in red, black, white and yellow. The most exceptional characteristics of this tradition are: 1) the frequent monumental scale of the figures, which suggests a substantial investment of work, 2) the restricted distribution of the Great Mural in the peninsula, and 3) a strong separation of other painted and engraved traditions. Its exceptional nature has generated that this is the one of the best investigated rock art areas of Baja California.

Several regional projects have been performed in this cultural area. In 1980, the National Institute of Anthropology and History began a Great Mural Research project that focused on the Sierra de San Francisco and vast adjacent sectors (García 1986; Gutiérrez 1991; Gutiérrez and García 1990; Gutiérrez and Hyland 2002). In 1989, a team from the University of Barcelona spent three seasons researching Great Mural sites in the Sierras of San Francisco and Guadalupe. These researchers also reported the first direct dates of Great Mural paintings (Castillo et al. 1994; Fullola et al. 1991, 1992). Additionally, between 1991 and 1993, Laura Esquivel developed the Sierra de Guadalupe project, whose primary objective was “to prepare a catalog of the archaeological sites in this region...” (Esquivel 1995) During the last three decades of the 20th century, E.W. Ritter developed diverse regional projects in central Baja California, in the area adjacent to Bahía Concepción (Ritter 1979; Ritter et al. 1979, 1982), in the northern part of the Central Desert (Ritter et al. 1978, 1984) and in the areas surrounding Bahía de Los Angeles (Ritter 1994a, 1995; Ritter et al. 1994). These studies constituted significant advances in knowledge regarding archaeology and rock art in this particular area. Nevertheless, it was evident that the process had barely begun, especially if we consider that the Sierra de San Francisco is only one of the four sierras where the Great Murals tradition is manifest. Therefore, in 2000, a new project was initiated, this time to be developed in the Sierra de Guadalupe, the immense mountain range that extends to the southeast of the Sierra de San Francisco. This project has
recorded 700 rock art sites (cave paintings, engravings and geoglyphs) and a large accumulation of data that, as it is analyzed, will contribute to better understanding the role of rock art played in the heart of these societies. (Gutierrez 2000, 2003)

**Style, Regional Variations and Social Identity**

One of the fundamental objectives of this project is to research on how variations in the Great Mural might be related to social identity. This requires an analysis of the dialect groups. According to the distribution of peninsular rock art styles proposed by Ritter (1991), their defining boundaries coincide roughly with the linguistic borders recorded at the moment of contact, mainly toward the south of the 30° parallel. The Great Mural’s distribution area also coincides with the area in which the Cochimi Ignacieño dialect was spoken during the first half of the 18th century. Ritter (1994) had noted that the Great Mural’s border with the Northern Abstract style is situated approximately at the San Borja Mission latitude and has suggested that: “the boundary between the Great Mural and Northern Abstract rock art zones reflects a cultural/dialectal division between protoCochimi/Comondú peoples…” (Figures 4 and 5)

Toward the South, something similar occurs around Bahía Concepción on the boundaries between the Great Mural and Sierra de la Giganta styles and the borders between Ignacieño, a northern Cochimi dialect, and the Cadegomeño and Didiu, the most southern Cochimi dialects. If we want to successfully evaluate this likely correlation between style and cultural group, and support the social processes inferred in such a correlation, we need independent archaeological evidences. In the case of the Sierra de San Francisco, the archaeological evidence used to prove the correlation between the Great Mural distribution and the Ignacieño dialect group was the obsidian distribution of the Valle del Azufre source (Gutierrez and Hyland 2002).

The distribution of this obsidian is “relatively” well defined by the northern border of the Great Mural and the previously described language and dialect changes. Nevertheless, until now, for the southern boundary of this tradition, there was scarce data to identify with certainty the relationship between the distribution of this volcanic glass and the dialect changes that existed at Ulege and Comondu latitudes where, as mentioned above, two additional variations of Cochimi were spoken.

Figure 4. Montevideo, Sierra de San Borja. This site is located in the boundaries of the Great Mural and the Northern Abstract styles. The site’s panel is dominated by abstract figures, with only one anthropomorphous image of the Great Mural’s type.

Figure 5. Campo Monte, Sierra de San Borja. One of the northern Great Mural sites.

To prove this premise requires knowing whether the obsidian located in the Sierra de Guadalupe comes from the Valle del Azufre or if there were other alternate supply sources. Additionally, we must analyze in detail the variation on rock art located at the boundaries where Cochimi Ignacieño, Cadegomeño and Didiu were spoken in order to detect if there are changes and transition areas between different stylistic groups (Figures 6 and 7). This analysis is in process.

**Chronology**

Of course, one of the key questions in the context of the studies of this region concerns the age of the Great Murals. Precise absolute radiocarbon dating of these paintings is crucial in searching the how and why of the phenomenon and in understanding their
relationships with other diachronic factors such as prehistoric demographic and climatic changes. Until 2000, the question, “How old are the murals?” could not be answered with certainty because there were only six absolute dates, a very small number for a phenomenon that spans thousands of square kilometers (Fullola et al. 1994; Gutiérrez and Hyland 2002).

Figure 6. La Pinguica. This site is located in the boundaries of the Great Mural and the Sierra de la Giganta styles. The style observed here is radically different; however, few kilometers to the northwest, we registered Great Mural sites.

Therefore, between 2001 and 2002 paint samples for dating were collected from Great Mural sites in the four sierras where they are manifest; currently 60 dates have been obtained, among which the Cueva San Borjitas stands out because it dates to 7500 years BP (Watchman et al. 2003). Results are surprising because they surpass the expectations for placing the starting point of this tradition in a very remote epoch. At the moment, all the dates obtained are being analyzed. Nevertheless, the implications resulting from this chronology will not only modify interpretations and discrepancies with respect to the first dates obtained (Gutiérrez and Hyland 2002; Magar and Dávila 2004; Murray et al. 2003), but will also provide valuable information regarding the production process, the function of the rock art sites, the use of the images and the meaning behind their production and veneration for the ancient societies that generated them (Watchman et al. in preparation).

Protection of Rock Art Heritage

Extraordinary preservation of the archaeological sites and rock art in the central region is to a great extent to this region’s severe isolation until the beginning of the seventies, when the transpeninsular highway was completed. Besides the lacking of roads, its rustic terrain and extreme climate were elements that significantly contributed to preservation not only of archaeological and historical resources, but also the environment and sierra culture. However, once the above mentioned highway was completed, the dynamics of movement toward the sierras changed dramatically. The situation was considerably aggravated when the State Government began to open local roads to connect the highland communities with the highway.

As a result of the Sierra de San Francisco’s rock art being inscribed on the World Heritage List of UNESCO in 1993, the number of visitors increased notably and the National Institute of Anthropology and History, The Getty Conservation Institute, the Amigos de Sudcalifornia Association and the government of the State of Baja California Sur began work to design the Sierra de San Francisco Management Plan, which has been in operation since 1994 and is currently still in place (Gutiérrez et al. 1996) (Figure 8). In 2005, the process began to design the Sierra de Guadalupe Management Plan, which will protect numerable archaeological sites of all types, including 700 that contain rock art.

In terms of heritage administration, the Sierra de Guadalupe poses very serious problems and disadvantages with respect to the Sierra de San Francisco. It spans approximately 6,400 square kilometres, whichdifficultsurveillanceandmonitoring;numerousroads cross through it in all directions, making it very difficult to control access; many of these roads penetrate the very heart of the sierra, where density and conservation of rock art is
amazing and the beauty of the landscape is extraordinary; and finally, there is not any type of protection for natural resources, unlike the Sierra de San Francisco, which is totally within the Vizcaino Biosphere Reserve that provides additional protection.

![Image](71x399) was utilized where this ancestral rock art was done and damaging the environment. The landscape consequently changing landscape and severely that new roads continue to be opened, exposed rock art area. The primary problem is We are faced with all this in an extremely

diminish the visitor’s impact. This is the second most visited site at the Sierra de San Francisco.

Figure 8. Cuesta Palmarito. A walkway was built in 2005 to diminish the visitor’s impact. This is the second most visited site at the Sierra de San Francisco.

We are faced with all this in an extremely exposed rock art area. The primary problem is that new roads continue to be opened, consequently changing landscape and severely damaging the environment. The landscape where this ancestral rock art was done and was utilized, which was observed and lived by the indigenous people, who integrated it with their myths and beliefs and which remained unchanged for more than 8000 years, is now seriously threatened. Some landscapes that until two years ago were pristinely preserved, are currently changed by these roads and contaminated with garbage and waste. What had been preserved for thousands of years by the region’s prehistoric inhabitants, is being rapidly destroyed by the advance of poorly understood “modernity”.

Sadly, I must admit that this dynamic is difficult to stop. In 1980, the National Institute of Anthropology and History began a sensitivity campaign for the Sierra communities, and insisted that a means to improve their precarious conditions of life could be established on the conservation of the rock art and its natural setting. Unfortunately, the efforts during all these years have been demolished in just a few months. There are currently very powerful political and commercial interests, completely uninvolved in the conservation of this extraordinary legacy. These interests are determining the region’s future without analyzing the vulnerability of its natural and cultural resources. Therefore, based on generating false expectations, they have been able to influence negatively the peoples of the Sierra de San Francisco, who in the past were our most important allies with respect to protecting rock art.

Despite this black panorama, beginning in October 2006, the Sierra de Guadalupe will have a Management Plan that will allow us to ensure—at least—the protection of its abundant rock art. Additionally, this year efforts will be made to consolidate the Sierra de San Francisco Management Plan, which as I mentioned previously, has been seriously destabilized in recent years.

Although in forthcoming years we will face challenges that are more and more difficult to overcome, we will continue to insist on protection of this majestic heritage. The next step consists of initiating the process for the Sierra de Guadalupe rock art to be registered on the UNESCO World Heritage list. This will make possible to have a greater impact on the “development plans” of municipal, state and federal governments, and, if necessary, to rely on the international community support to ensure preservation of this cultural heritage.

References
COALITION
No. 12, July 2006

NOTE ON AN ARTICLE PUBLISHED IN COALITION No. 11, JANUARY 2006.

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The previous issue of COALITION featured an article by Robert G. Bednarik entitled “A global perspective of rock art protection” on which he chastens Portuguese archaeology in general and rock art researchers and managers in particular with some serious accusations. The paragraph in question is the following:

“The most severe confrontations IFRAO has had with state heritage agencies were those in Portugal, first in the Côa valley (Bednarik 1995), later in the Guadiana valley (Arcà et al. 2001; Bednarik 2004), where these agencies were exposed as intellectually corrupt and incompetent. This has led to major remedial action in that country.” Robert G. Bednarik, “A global perspective of rock art protection”, COALITION. No.11 January 2006. p. 3.

Bednarik is an Australian autodidact researcher that has devoted his efforts to the vast field of rock art, as one can see in the Australian Rock Art Research Association, Inc. webpage (http://mc2.vicnet.net.au/home/aura/web/index.html). Nearly all the numerous articles in this site, covering a wide range of issues related to rock art research (from

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“Lichenometry” to “Taphonomic logic for dummies” or from “The earliest evidence of palaeoart” to “Metamorphology - the scientific version of archaeology”), are written by Bednarik the president of the Association. When in 1994, the Côa Valley rock art was discovered, EDP – the power company that was building a dam near the mouth of the Côa River that would submerge a great number of engraved outcrops – invited him (together with the Canadian Watchman and the Americans Phillips and Dorn – later, Dorn admitted that his conclusions were wrong and that the engravings were in fact of Pleistocene age [Dorn 2000]) to try and date the Côa rock art. Bednarik developed a technique called Microerosion to date rock art that he had been testing in Australia and Siberia. Bednarik’s results pointed to a very modern chronology of the engravings as opposed to the reports of all European rock art experts that categorically integrated most of the imagery in the larger corpus of Western European Upper Palaeolithic rock art. His conclusions of a very recent chronology for the Côa rock art were challenged and the shortcomings of the Microerosion technique demonstrated (see, for instance, Pope 2000 or Zilhão 1995b). All major rock art experts recognized that the proposed Upper Palaeolithic chronology was correct. For instance, Bahn, Balbín, Lorblanchet, Ripoll, Sacchi and Villaverde signed a report (Bahn et al. 1997) attesting to the importance and age of the engravings that was instrumental in the inscription by UNESCO of the Prehistoric Rock Art Sites in the Côa Valley in the World Heritage List (UNESCO 1999). From this moment on, Bednarik engaged in a bitter and obsessive crusade for the re-establishment of the ‘truth’ and denigration of Portuguese archaeology and of the PAVC and CNART (the National Center for Rock Art). Most notably, his preferential target was João Zilhão, the first Director of the Instituto Português de Arqueologia (IPA) of which the former institutions are dependent.

Bednarik is entitled to his views and opinions insofar as they don’t enter the realm of the gratuitous insult or calumny susceptible even, as one might note, of legal action. If we examine Bednarik’s paragraph we immediately notice one of the preferred tactics to establish as ‘hard fact’ a set of calumnies based on hearsay and invented or fabricated evidences; that of tangling crossed references. For instance, in his own article that Bednarik quotes (Bednarik 2004a) as the base for calling Portuguese state agencies incompetent and intellectual corrupt, nothing leads to that conclusion and the author doesn’t give any hint on that direction. Readers that haven’t examined that paper in reading the last issue of COALITION might have ended up with the idea that it is an established ‘fact’, since it “led to major remedial action in that country”. Nothing can be further from the truth; in fact this illustrates the use of the cross referencing tactic. Whenever Bednarik or one of his associates wants to state as an ‘established truth’ that state agencies in Portugal are intellectually corrupt and incompetent they just have to quote his COALITION article! If one has the trouble of reading all that has been produced by Bednarik or by his associates, most of the times under the shielding ‘umbrella’ of IFRAO (International Federation of Rock Art Associations), on the Côa matter, he will find that his works are all filled with this cross referencing technique that frequently, for the less trained eye, has the merit of turning controversial and not all proved ‘facts’ in the most crystalline of truths.

The paragraph in question also displays another of the usual ambiguities that the Australian author resorts to when trying to present his case the most ‘truthful’ way possible. In that paragraph Bednarik calls incompetent and intellectual corrupt to state heritage agencies in Portugal. To know precisely who those agencies are, one must read his quoted article (Bednarik 2004)!... COALITION readers when examining that article (Bednarik 2004) and also Zilhão’s reply (2004a, b) will immediately understand the personal nature, on Bednarik’s part, of the quarrel between the two, namely in the institution of a crusade in the name of science against the Côa and João Zilhão, whom he accuses of a series of misdeeds in the Côa and Alqueva affairs. But it is precisely that article Bednarik quotes in order to classify Portuguese state agencies – where the PAVC is integrated –, and that he in the COALITION article never names, as incompetent and intellectually corrupt!

We conclude this note by expressing the hope that the following list of references can be useful for COALITION readers. Most of the fundamental papers, which we strongly recommend readers to examine in order to
fully understand this whole affair, are available online. References quoted in the text will also appear in the list. We also supply a throughout yet incomplete list of references pertaining to scientific papers by Portuguese and foreign scholars and researchers, displaying the research done in the Côa on land management, conservation of the corpus of rock art, chronology and documentation of the rock art and identification of land settling patterns in the Upper Palaeolithic and other periods. References of Bednarik’s and Watchman’s works on which these authors defy the widely accepted chronology for the Côa Valley rock art are also supplied. All links were working when this note was sent to the COALITION editor. We also recommend a visit to the Park’s website at http://www.ipa.min-cultura.pt/coa/.

We will try to save the bother to Bednarik and suggest a retort to this note. Something along the lines of: “the huge majority of the papers in this list and all that has been said here is nothing more than state or stale propaganda”, as Bednarik (2003b) himself or as one of his associates (Abreu 2003) call it.

Nevertheless, COALITION readers have now indication on where to access comprehensive information regarding this whole matter, so that they might decide for themselves on questions of incompetence, intellectual corruption and also state, or corporative propaganda.

Fundamental readings:

References on the chronology and interpretation of the rock art:
References on management and conservation issues:


