Cueva de las Manos
An Outstanding Example of a Rock Art Site in South America

Introduction
In 1999 this archaeological site located in Argentina (Province of Santa Cruz, Patagonia area) was included in the World Heritage List as a cultural property. This nomination was an international recognition of Cueva de las Manos as representing one of the most important rock art sequences of South America belonging to the ancient hunter-gatherer groups who first inhabited Patagonia.

Patagonia, including Tierra del Fuego, is a huge territory of more than 900,000 square kilometres situated between 39° and 55° latitude south in South America. The topography is dominated by the rugged Andean mountain chain (in the west and south), and by dissected plateaux giving way to low plains (in the east). Fig. 1.

The human colonisation of the uttermost south end of the Americas has always held particular fascination for prehistorians. Viewed from a global perspective, this was the last major continental land mass to be occupied by human beings. The archaeological evidence shows that about 11,000-10,000 BP there is unequivocal evidence to support the presence of humans in Patagonia (Borrero & McEwan 1997). This southern land has always been dominated by hunting-gathering economies.

Natural setting and the ancient Patagonian hunters
The site of Cueva de las Manos is found in the upper part of the Deseado basin at the base of a stepped cliff overlooking the Río Pinturas canyon. This canyon provides a natural means of protection from the harsh climatic conditions of the region. Fig 2.

The Río Pinturas gorge is an exceptional example of a prehistoric human habitat. Archaeological sites found on both sides of the river are the evidence of pre European settlements belonging to hunters who used the different resources available along the valley and its environments since, at least, 9,300 years BP. The main resource of these groups was the guanaco (Lama guanicoe). There is a
direct relationship between birth, reproduction and death of guanacos and the possibility of development of the human existence. Stone technology reveals that these groups were long distance hunters. They practiced communal hunting of guanaco on the open steppe by encirclement and the use of bolas. Guanacos display marked territorial behaviour and use the same general area all year long. Thus human groups focusing on guanaco could easily predict their settlements where family groups were to be found. These places were selected sites where they carried on domestic activities besides depicting parietal art on rock surfaces (Gradin et al. 1976 and 1979, Gradin 1994, Aschero 2010). Fig. 3.

Cueva de las Manos Rock Art
Cueva de las Manos’ paintings are depicted on several surfaces of open air rock faces and shelters as well as inside and outside a cave. Paintings are placed at approximately 90 meters above the river level on the right margin and they cover a surface of more than 600 meters long. Besides, there are two smaller rock art shelters on the opposite side of the river. Fig. 4.

Detailed scientific research, co-ordinated by C. J. Gradin together with professional archaeologists C. A. Aschero and A. M. Aguerre, enabled them to state relationship between the paintings of the site and the groups who inhabited the region since the tenth millennium before the present. The excavations carried on at the entrance of the cave, covered an area of 31 m². As a result of the evidences that came to light, it was possible to set up some contextual associations between the cultural levels and the paintings. These associations were based on the findings within the archaeological layers, being the most outstanding: several blocks with rock art remains, remnants of mineral pigments with the same chemical components as those used for the preparation of the paint mixture and artifacts with evidences of pigments. One of the most significant examples is a block with ochre and white hand stencils in its lower part, similar
to the ones that appear at the front hand corner of the rock shelter, very close to where the excavations took place. Mineral pigments or traces of painted fragments were found detached from the wall in the archaeological layers, and results of radiocarbon analysis (C14) reaffirmed this connection.

Fig. 3. Guanacos on the steppe near the site.

Fig. 4. View of the site with the different sectors with paintings (one cave and several open-air rock shelters). By Aschero 2010.
Plate 5: Prof. Carlos Gradin, who for 30 years has been in charge of the site's archaeological research.

Plate 6: Stylistic groups A and C. Guanaco hunting scenes (A), geometric motifs, hand prints and guanacos (C).
The authenticity of the pictorial sequence has also been verified by careful research studies which considered the stylistic characteristics of the paintings, the superimpositions observed and the chemical composition of the pigments. Microscopic and chemical analysis carried out by two laboratories – one of them the Analytical Research Laboratory of the Canadian Conservation Institute (CCI), Ottawa, allowed us to confirm the authenticity of the paintings of Cueva de las Manos (Iñiguez & Gradin 1977, Wainwright et al. 2002).

As we already said, C. J. Gradin has carried out studies in Cueva de las Manos for more than 30 years and has defined a stylistic sequence of rock art of more than 8,000 years which begins 9,300 years before present. Their investigations include not only a detailed study of the rock paintings, but also excavations at the entrance of the cave. Consequently, an important archaeological sequence has come to light, showing us that rock art was a current activity carried out by hunter gatherers, who used the canyon as a means of protection and sustenance along thousands of years (Gradin & Aguerre 1994, Gradin et al. 1976 - 1979). Fig. 5.

Stylistic Group A

The first groups of hunters who inhabited Cueva de las Manos left extraordinary hunting scenes where animals and humans interact in a very dynamic and naturalistic way. Hunting strategies stand before us: guanacos are seen either surrounded or trapped in an ambush, as well as being chased by hunters using their throwing weapons and stone spheres (bolas). Some chasing scenes have a single hunter while others represent circles of ten or more men surrounding a group of twenty guanacos. Many of these scenes are depicted on the rock using some natural characteristics of the surface such as grooves or protuberances to indicate some particular topographic features of the landscape. There is probably a dancing scene inside the cave. Fig. 6 and 7. This first moment (Stylistic Group A) has been related with a stone technology, locally known as Rio Pinturas I, which reveals they were long distance hunters. Their main resource -
guanaco—provided them with its flesh, skin, bones and tendons.

**Stylistic Group B and B1**

Some time before 7.000 BP a second cultural level -Río Pinturas II- is found in the area, and it lasts until the year 3.300 BP. It is associated to Stylistic Group B where hunting scenes are replaced by single figures of guanacos; they are in a motionless attitude and have prominent bellies. That intimate linkage between man and animal is lost. Large concentrations of superimposed hand stencils are characteristic of this moment; all sizes are represented here and several colors were used: red, purple, orange, ocher, yellow, white, black and very few in green. Gradin has made a very important study of these hands, which reveals some interesting conclusions concerning this artistic tradition that lasts over eight millennia. There are more than 2.000 hands, most of them are left hands belonging to children, youngsters and adults, either feminine or masculine, and in some occasions they include the forearm.

Plates 8, 9 and 10. The stencil technique has also been applied to the foot of the ñandú (Rhea americana). Fig. 11.

After this moment, art becomes more and more schematic - Stylistic Group B1/ Río Pinturas III- and it is supposed to have lasted for a long time. It includes both animal and human stylised figures with a much more elegant design, hand stencils, dotted lines, and one single foot stencil of a ñandú (Rhea americana). Fig. 11. In some high ceilings of several shelters there are some red circular dots, apparently achieved throwing stone spheres, wrapped with leather and soaked in paint.

**Stylistic Group C**

At the end of the sequence, some 1.300 years ago, we find Stylistic group C/ Río Pinturas IV, superimposed in many opportunities to the others. It is outstandingly schematic and monochrome: a very bright red pigment was used to paint geometric figures such as zigzags, straight and angular traces, dots and circles,

Fig. 10. Hand prints concentration. Superimposition of different periods.
as well as human and animal silhouettes. Fig. 12 and 13.

The sequence of rock art in Cueva de las Manos is based in a detailed study of the analysis of superimpositions, the differential use of tones, and the state of rock art conservation. The relationship between archaeological contexts and rock art styles has been described above.

The paintings were executed with natural mineral pigments, which were grinded and mixed up with some kind of dissolvent solution so as to obtain some sort of crayon. It is very difficult to know what kind of binding they used because there are no remains left of these emulsions (possibly water or grease). Sometimes they added gypsum to the mixture. The most common minerals used were iron oxide for the red and purple colors (hematite and maghemite); kaolin for white; natrojarosite for yellow and manganese oxide for black. This has been determined chemically by x-ray diffraction analysis (Iñiguez & Gradin 1977, Wainwright et al. 2002).

Cueva de las Manos was obviously very important for people who inhabited the area for many thousands of years. The evidence of so many superimpositions, the way they repainted some of the walls over and over again throughout the art sequence, the practice of revitalizing the panels might be seen...
as a means to maintain its significance over a long period of time. Fig. 14.

**Cueva de las Manos in the World Heritage List**

During one of the sessions of the 23 Bureau of the World Heritage Commission (Paris, July 1999) the ICOMOS representative Henry Cleere pointed out the importance of Cueva de las Manos as an outstanding group of paintings for its antiquity and permanence throughout time. He stressed the beauty and the state of conservation of the paintings, the magnificence of the assemblage of hand prints and the hunting scenes. He enhanced as well the beauty of the scenery that surrounds the site and forms part of the cultural value of the place itself (UNESCO 1999). UNESCO included Cueva de las Manos on the List as a Cultural property. The declaration pointed out the relevance of the site mainly by its cultural values but kept the possibility to enlarge this proposal in the future including the natural criteria (Podestá 2002, Podestá & Onetto 2004, Onetto 2006).

Outstanding universal values of Cueva de las Manos are fully contained both in the nuclear area and in the buffer zone which were included in the nomination dossier. The habitat surrounding the archaeological site remains intact and contains the same animal species represented in rock art about 10,000 years ago. Fig. 15.

This also applies to plants. As stated earlier, this is a particular landscape unique both at a provincial and a regional level. The same happens with rock art, which, despite the inevitable but very slow natural deterioration suffered along eight millennia, and from damage caused by human action, its state of conservation is really amazing. Moreover, evidence obtained from investigations using interdisciplinary analysis largely confirm the authenticity of the site as being a unique example of one of the first groups of hunter-gatherers who inhabited the South American region during the early Holocene (Podestá et al. 2000).

The site keeps today an important significance for local people. Cueva de las Manos festival takes place in Perito Moreno (one of the nearest villages) every summer and they
also celebrate the “Provincial Day of Rock Art”. This town is considered the Archaeological Capital of the Province of Santa Cruz due to its proximity to the cave.

Since 1995, the Instituto Nacional de Antropología y Pensamiento Latinoamericano (INAPL) started a Documentation and Preservation Program of Argentine Rock Art, trying to balance destruction of rock art sites in Argentina. Research team included D. Rolandi, C. J. Gradin, C. A. Aschero, M. M. Podestá, M. Onetto, A M. Aguerre, M. Sánchez Proaño, I. N. M. Wainwright of the Canadian Conservation Institute (CCI), and other experts in photography, topography, chemical analysis, museology, etc.

Its main goal was to set forth a number of actions tending to preserve rock art sites within our territory. These actions included documentation, photographic recording and topographic maps; analysis of natural weathering as well as a complete inventory of cultural deterioration by vandalism; image digitalization in order to handle graphic information, to process a vast quantity of data so as to create a data bank; information and education for different levels of the population; exhibitions, conferences, scientific meetings etc; permanent diffusion of the present state of research by regular reports and publications.

Researchers have undergone a professional training in conservation and management of rock art sites, including training courses and seminars. A collection of photographs of the rock art sites, including digitalized images (“Los Antiguos Cazadores en el Arte Rupestre”: “Ancient Hunters in Rock Art”) has been exhibited in various places in our country as well as in the Rock Art International Congress held out in Cochabamba, Bolivia, in April 1997.

Education of the public at large is considered very important. National and local governments should work together making an effort in spreading information so that people become aware of the importance of preserving our archaeological heritage.

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Plate 15: Relationship between paintings and present wild fauna: guanaco and lizard.
tion and preservation were taken at Cueva de las Manos: photographic and video documentation, data base on natural and cultural damage and permanent monitoring of the site. Preservation and protection works have been carried out for more than ten years at the archaeological site. This showed that the worst damage undergone at the place had been produced by human actions.

Some site management measures
The following site management measures have been implemented in order to protect the site:

- Control access to the site;
- Strict control of tourists’ movements;
- Provision of local tourist guides previously trained;
- Lodging facilities for guides;
- Timetable for guided tours;
- Visitors Center with a complete information;
- Boardwalks next to the paintings. Fig. 16.

Visitors to Cueva de las Manos have increased a great deal in the course of the last decade. The region of Patagonia as a whole has become an attraction for all sorts of tourists, either native or foreign; it is growing in importance day by day. Cueva de las Manos is included in almost every tour that visits the southern part of that territory. The month with most important amount of visitors is January (summer holidays in the southern hemisphere). In Cueva de las Manos, during the 1992-1993 season only 438 tourists visited the site, but in the 1995-1996 season the number of tourists increased to 4445 and in 2007 the number duplicated (Onetto 2006, Podestá 2002, Podestá & Onetto 2004).

The present situation is completely different from the one we faced when we started our work. Experience has shown us that we must be responsible enough and have good judgment in order to know when to change decisions. Therefore, we must be critically aware to reconsider the current situation and accept new solutions that may be different from the ones we expected but which - in short - will
be useful to safeguard this patrimony, our main objective.

In December 2008, the AECID (Agencia Española de Cooperación Internacional para el Desarrollo) awarded the INAPL with a financial assistance to the project “Conservation and Sustainable Management of Cultural Heritage. Cueva de Las Manos: 10,000 years of history in Patagonia”, directed by archaeologist María Onetto. The AECID subsidy was mainly assigned for building partly “Carlos Gradin Archaeological Museum” in Perito Moreno (town about 160 km from Cueva de las Manos), the Visitors Centre at the site and for the construction of a bridge over the Pinturas River. Fig. 17 and 18.

The main objective of the project was to raise awareness about preservation of cultural and natural heritage. We found a clear interest and a strong commitment from the community of Perito Moreno. Objectives and possibilities of this new stage of work in the area were presented in March 2009 in a press conference for general public and a workshop on archaeology, rock art and patrimony was given, stressing on the subject of caring for heritage and also on the public use of the site. On the other hand, there were several field works, during which monitoring the conservation state of rock art was held and geological evaluation related to stability of the rock for the installation of infrastructure in the tourist circuit (Zárate 2010).

Even though our work as archaeologists is basically focused on the past in orden to learn
about peoples’ lifestyle, or commitment in Cueva de las Manos not only represents a bond with those remote times but it also allows us to understand who we are today.

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