Making Marks

Graduate Studies in Rock Art Research at the New Millennium

edited by
Jennifer K.K. Huang and Elisabeth V. Culley

with an introduction by Marvin W. Rowe, Ph.D.

American Rock Art Research Association Occasional Paper No. 5

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Conservation Efforts on the Engravings of the Côa Valley Archaeological Park, Portugal

Jennifer K. K. Huang

Abstract

This paper reports on the conservation work performed during a summer internship with the US/International Council on Monuments and Sites (US/ICOMOS) at the Côa Valley Archaeological Park (PAVC) in Portugal. The complex environmental and geographical settings of the rock engravings, plus a lack of related source work, have proven difficult obstacles in the progress of preservation at this site. The methodologies developed in these initial stages of the park's conservation efforts, as well as the theory involved in determining these methods are discussed, and future plans to preserve one of the world's largest collection of Paleolithic open-air rock art engravings are considered.

Each summer since 1984, the United States National Committee of the International Council on Monuments and Sites (ICOMOS) holds its International Summer Intern Program. ICOMOS is an international nongovernmental organization composed of over 100 national committees and 20 international specialized committees that form a worldwide alliance for the preservation and protection of historic buildings, districts and sites. Its International Summer Intern Program provides advanced training in historic preservation and heritage conservation to young professionals around the world. Exchanges are made of budding preservationists between the United States and roughly a dozen other countries. The interns spend three months at their respective assigned locations and are encouraged to cultivate an understanding of international preservation policies and develop a continuing dialogue between nations. Since its inception, more than 500 young professionals from over 60 countries have participated (US/ICOMOS Website 2004).

Through a generous first-time grant from the Archaeological Institute of America, a new exchange was created with the country of Portugal in 2000, with the American participant (this author) being assigned as a conservation intern with the Parque Arqueológico do Vale do Côa (Côa Valley Archaeological Park, PAVC), headquartered in Vila Nova de Foz Côa in northeastern Portugal. The park was created in 1996 to preserve and protect the ancient engravings and paintings on the rocks along the Côa River and its tributaries (Figure 1). In 1998, the park was listed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a World Heritage site (UNESCO 1999)

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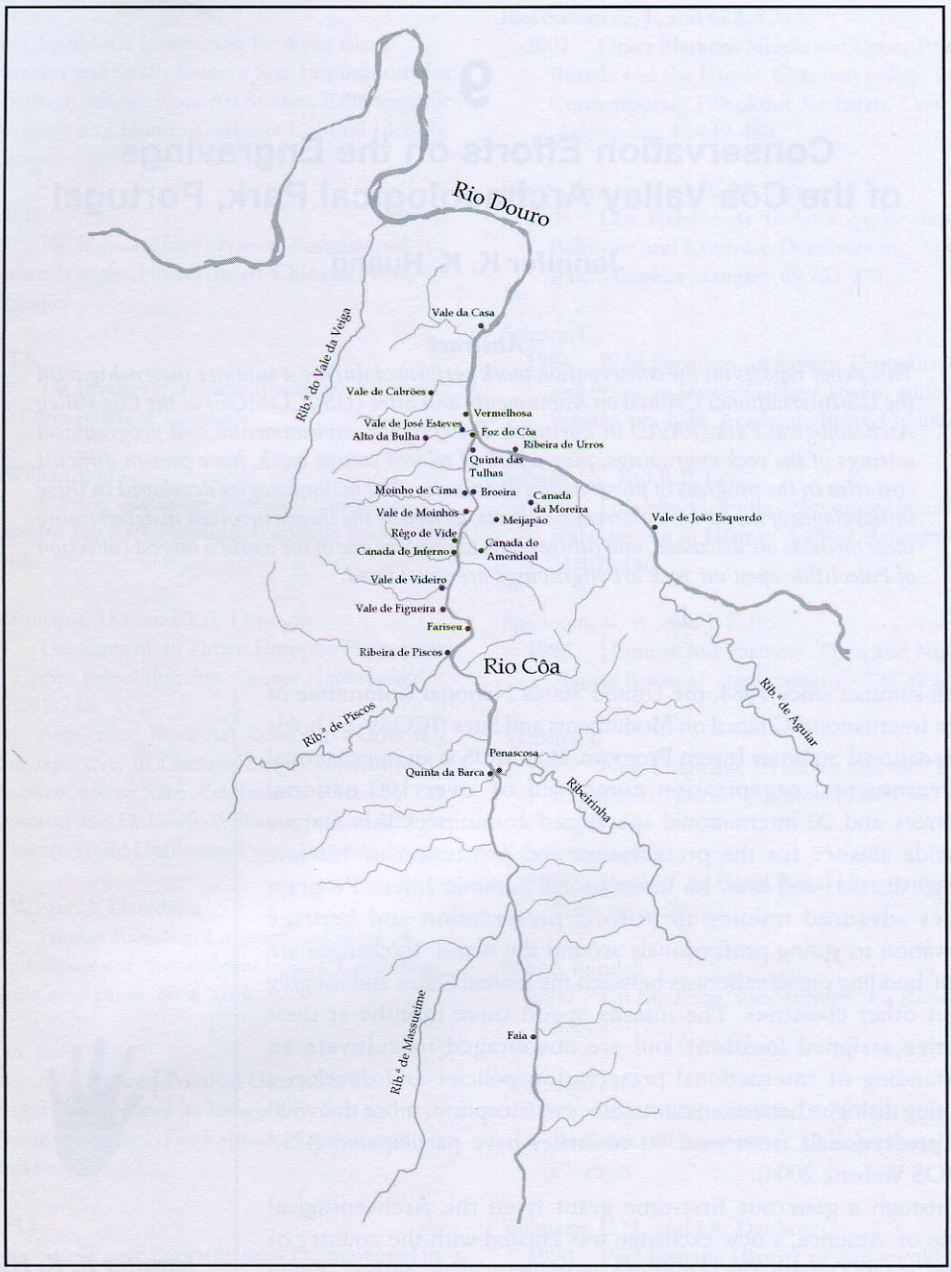

Figure 1. *Map of the Côa River region and rock art sites. Map courtesy of the PAVC, created by Luís Luís.*

with over 1,200 individual motifs on 200 engraved rocks found in 25 clusters over 17km (Fernandes 2004a). Several of the rock art sites within the park are open for public visitation from three separate visitor centers in the valley, and trained guides educate and inform the visitors about the engravings, paintings and fine line (filiform) scratchings, which span in age from historic, back through the Iron Age and into the Paleolithic.

The engravings of the Côa Valley have been the focus of much controversy and deliberation. Initially discovered in 1992 during a survey of the river valley destined to be drowned behind a government-planned dam, their existence was made public several years later and citizens and schoolchildren immediately began to rally for their preservation, citing their value as cultural heritage items, and imploring that "the engravings cannot

swim" (Bahn 1998, see banner in photo on page 281 for slogan). Advocates of the dam, and the jobs it would create, pushed for the dam's construction. Experts from around the world were called in to determine the rock art's importance.

Studies concentrated on resolving the question of the age of particular engravings. According to some prehistorians, the style of these petroglyphs suggested a Paleolithic origin (Figure 2). Experts in Paleolithic art felt certain just upon seeing the engravings that they certainly did date to the Solutrean and Magdalenian eras of the Upper Paleolithic (Clottes 1998). Comparisons between the Côa engravings and the cave paintings in other parts of Iberia and throughout France showed great similarity of both form and content (Gay 2000). Yet the placement of the engravings on rocks in the open air was less common in art of known Paleolithic age.

The rock art dating experts called in by the Portuguese government agency overseeing the dam project employed various scientific methods in attempts to directly date the petroglyphs. Carbon-14 dating and Chlorine-36 studies of fine mineral particles on the surface of some of the engravings, as well as quartz-grain alteration dating experiments, yielded dates of only several hundred to a few thousand years (Bednarik 1995; Phillips et. al 1997), much, much younger than the 12,000-30,000 year old dates of the Upper Paleolithic being claimed by supporters of the style argument. Advocates of the dam, along with the general public, began to wonder if it was worth protecting engravings of a relatively recent creation, i.e. of lesser value. However, a critical analysis undertaken by a prominent Portuguese archaeologist and an American geological expert of the dating methods used in the government-supported experiments seriously put into question the validity of the largely experimental direct-dating results (Zilhão 1995; Dorn 1997). Eventually, a change of government in the next election proved monumental as the dam project was abandoned and the archaeological park was created.

The precise age of the engravings in question had not been determined at the time of the park's opening. But recently, new evidence has been uncovered by park staff that may be the answer to the issue. In December of 1999, the water level of the Côa River was lowered and an almost entirely buried rock with numerous engravings was

Figure 2. *Example of the engravings that appear to be stylistically of the Paleolithic era.*

carefully excavated. Park archaeologist Thierry Aubry and António Martinho Baptista, director of Portugal's National Rock Art Center (Centro Nacional de Arte Rupestre, CNART), have reported their findings for this site, called Fariseu, in several publications (Aubry and Baptista 2000; Aubry et al. 2002).

According to these reports, several human occupation layers constituted the sediment and soil excavated from in front of the engraved slab. Artifacts recovered from that stratigraphy, such as chipped stone tools and hearthstones, have been positively dated by thermoluminescence to the Upper Paleolithic (Mercier et al. 2001). The rock face itself is almost entirely covered with multiple layers of engravings; the 82 superimposed motifs share the same Paleolithic style as other engravings found throughout the park (Figure 3). Further studies will certainly be done in the hopes of strengthening the argument, which is still receiving challenges from a staunch group of rock art researchers (see Abreu and Bednarik 2000; Bednarik 2003; and Watchman 2003 for examples). But as it stands, the Côa Valley seems to be the largest open-air Paleolithic rock art site in Eurasia, if not the world. It has changed the way Paleolithic rock art is viewed, taking some attention out of the caves and into the sunlight. However, the engravings' exposure to the natural elements creates certain problems for its preservation.

Conservation Particulars

The climate of the Côa Valley region is Mediterranean, bringing hot summers and cold, semi-wet winters; good for the port wine produced in the region today, but relatively harsh on the engravings, although their continued existence speaks to the tenacity of the rocks. The Côa River frequently dries up during the summer, but rises intermittently during the winter months, submerging some engraved rocks repeatedly during the season. Geologically, the park has two distinct sections. In the south, granitic plateaus cut by deep ravines "feature spaced accumulations

Figure 3. *Excavated panel at Fariseu that shows engravings of similar style and content to others along the Côa River valley. Photo courtesy of the Instituto Português de Arqueologia Website, anonymous photographer.*

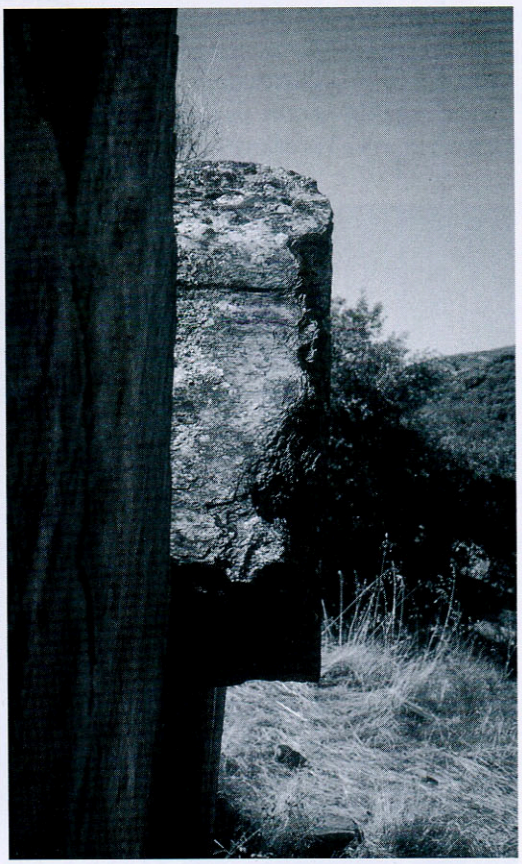

Figure 4. *The effect of the erosive characterstic of toppling can be seen here in this side view of a disarticulated block that is slipping forward, away from its original parent rock.*

of large round boulders" (Carvalho et. al 1996). But the vast majority of the park is dominated by outcrops of a resilient schist, which has become the central focus of conservation efforts to date.

Conservation experts are still attempting to adequately define the particular nature of the schist. A number of erosive characteristics have been identified (LNEC 1999), and these are of central concern to their conservation. Most apparent is a characteristic called *toppling*, evident when the rock splits apart and the resulting disarticulated block slowly slips forward and away from its parent, increasing instability (Figure 4). Also of concern to the engravings, and very similar to the disruptive nature of toppling, are *fracturing* and *dislocated elements*, which frankly are exactly as they sound. This engraved panel in the site of Ribeira de Piscos (Figure 5) is an object of some trepidation as a section at left has already broken off completely and the lower portion is currently experiencing a number of these larger erosive components (e.g. dislocated elements that are slightly toppling). It also has problems of a smaller scale, such as *alveolization*, the formation of multiple small cavities, or alveolas – seen here in Figure 6 – on a panel with finely scratched filiform animals (the heads of an ibex and a horse). In addition, many rocks in the park are being overtaken by various forms of biologic colonization such as lichen and moss.

There are, of course, universal problems in the park that also must be dealt with like graffiti, wildfire and constant visitor impact. The long existence of the Iron Age and Palaeolithic engravings in the Côa Valley alongside constant regional occupation implicitly infers that interaction and damage (knowlingly or unwittingly) have taken place over thousands of years. Historic inscriptions from the early- to mid-twentieth century (and possibly earlier) suggest that local farmers and sheephearders may have been aware of the existing engravings and enacted their own markings on the rocks before the originals were "discovered" and their importance solidified (examples in Zilhão 1997).

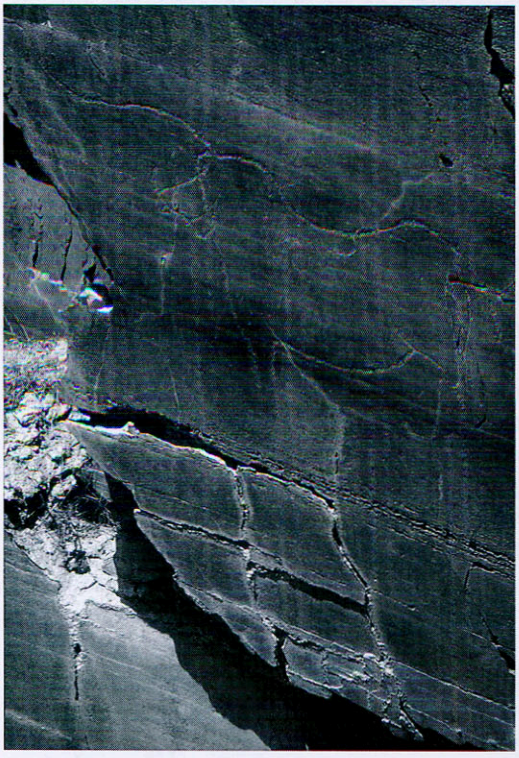

Figure 5. *This engraved panel is suffering from several disturbing erosive conditions such as fracturing, toppling and dislocated elements.*

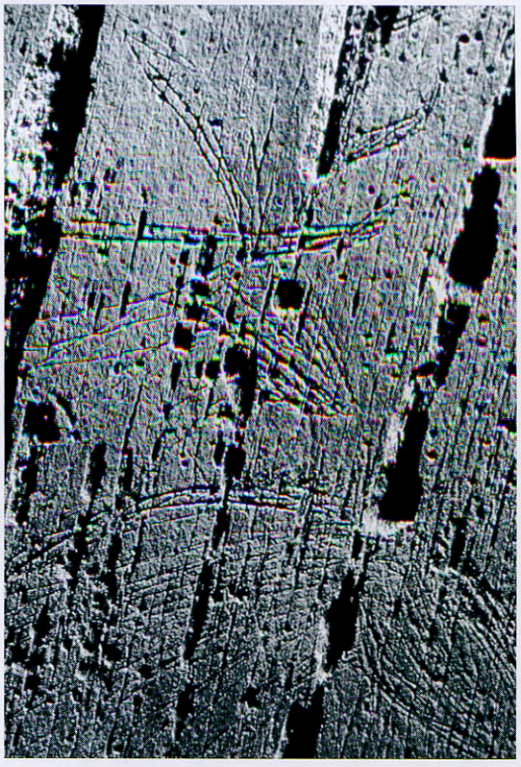

Figure 6. *Small cavities called alveolas are forming on this rock surface and will slowly damage the fine-line scratching of the ibex and horse head engravings. Photo courtesy of the PAVC.*

Figure 7. *Smoke rises from several small wild fires in the hills of the Côa Valley, potentially threatening engraved rock sites.*

Since the early 1990s when the engravings were beginning to receive wide recognition and publicity, graffiti began to appear at one easily accessible site in particular, but was confined to unengraved rock surfaces. Despite the fact that the PAVC implemented restricted visitor access to the public sites to only certain times of day, and created guard stations and a constant monitoring presence through a contracted security agency at these same sites, bouts of vandalism from unofficial visitors still continues. In the most recent case, a scratched graffiti horse form with the artist's signature (!) superimposed two pre-exisiting petroglyphs that are believed to date back to the Neolithic and Palaeolithic Periods (Fernandes 2004a:Figure 8).

In addition, each summer in northeastern Portugal small fires erupt in the grassy hills (Figure 7), many of which are set by sheepherders hoping to burn dried vegetation and revitalize the hills with new fodder for their herds. In 2000, one such fire roared through part of the public site of Ribeira de Piscos. The engravings seemed unaffected, but the impact of fire on rock art can be fatal over time. Inspection of rock art within the vicinity of a fire performed at a macro-, or visual, level can indicate problems such as spalling and ash deposits on the rock surface. Damage can also occur at the micro-level, as studied after a fire raged through a petroglyph site in the Black Hills of eastern Wyoming. Microscopic tests run on the varnish microlaminations of the rock surface revealed damage to the rock that was not visible to the naked eye, such as fractured quartz grains and the general weakening of the outer varnish to the point that even a gentle disturbance could trigger a large, devastating spall (Tratebas et. al 2004). Assessing fire damage at the micro-level can also lead conservators to more knowledgable action (or inaction, as the case may be) and preclude any further damage by treatment.

Long-term effects of public visitation to rock art sites also present a concern of preservation. For example, a study performed in South Mountain Park in Phoenix, Arizona in 1991 compared rock art conditions to those from a 1964 survey of the area. It revealed that close to 25% of the petroglyphs had been in some way damaged – vandalized, broken, shot with guns or, even worse, stolen. Easily accessible rock art sites, it was realized, were three times more likely to be damaged than were those that were more difficult to get to (Golio and Snyder 1993 in Bahn 1998). Indeed, concerns over the damages inflicted by

rock art, either voluntarily or involuntarily, have prompted large retaliatory measures. In France, the creation of a full-size, partial duplicate of the famous Lascaux cave enables an almost unlimited number of people to encounter the cave environment and view the paintings as they are *in situ*, while the real site sits undisturbed and therefore better preserved. In the Côa Valley, limitations on the number of sites open to the public (only three of 25) and also restrictions on the number of people who are allowed at each of those sites at one time (eight per group), and annually (a maximum of 30,000), help to lessen the possible impact in the overall park of the negative results of visitation. The presence of trained guides and the educational pre-tour information provided by the museum exhibit-like visitor centers also help curb potential problems. However, as demonstrated in the paragraph on vandalism above, the phenomenon of "spontaneous" visitors who willfully cause damage still occurs.

Issues of visitor impact are universal in their generality, but each public site will have its own specific problems. "Systematic and long-term observations of visitor pressure are essential to devise effective management strategies, since the visitor population and the pressure placed on the imagery is far from uniform" (Loubser 2001). In 2001, a survey focusing on the sociological profile of the visitors was performed at PAVC (Lima and Reis 2001). Building from this data, another visitor survey was created to continue this observation strategy, and was conducted in 2002 (Fernandes 2004a). One question in the second survey regarding the importance of heritage preservation found that 93% of respondents "agreed" or "strongly agreed" with this statement. Results from this survey (which closely mirrored the results of the previous year) also revealed a glaring lack of local patronization, indicating the low value that is placed on the engravings by those who reside nearest them.

Unique problems at a local political level regarding visitation at the Park does, indeed, plague the project of conservation. When the dam construction project was abandoned, local people saw jobs disappear, and essentially resented the fact that money slipped through their hands to save enigmatic engravings, the importance of which was intangible and ungraspable. The creation of the PAVC was mistakenly viewed by many as the financial replacement of the dam, and when the industrialist vision of immediate development and financial gain held by local authorities (and citizens) because of the park's existence did not come to fruition, negativity toward the park grew. A plan of long-term preservation and the touted significance of "place" was an elusive and unprofitable concept in the mind of the community. Therefore, much criticism has been leveled at the PAVC about the visitation scheme. Essentially, the restricted number of visitors allowed at sites each year makes locals upset because it is either an example of an elitist agency exerting too much control (thereby taking power away from the people), or the limited number of tourists allowed into the park annually is stunting the economic growth and potential development of the region (Fernandes 2004a:101).

It is an uncomfortable and frustrating position for the conservation project, but opportunities to improve the situation are being recognized and explored. The author explains (Fernandes 2004a:106) that a plan for intensive education of local young people would help to create a more heritage-conscious society that would grow and expand with them. Opening the doors of the PAVC headquarters, as well as the public rock art sites, to the community on scheduled and publicized free days (when admission is no charge) would encourage a non-hostile atmosphere and perhaps open channels of dialogue. In addition, further efforts at the education of both the community and the tourists will be implemented in the planned (but not yet completed) Côa Valley Rock Art Museum, which would also create more direct and indirect jobs for the area. These steps will take time, but the eventual rewards involved, both for the engravings and for the community, are indisputable.

Directed Conservation Ventures

The PAVC and CNART have received criticism in the past for some of the earliest actions taken to prepare the engraved rocks for public visitation, including wanton excavation to expose buried engravings, and painting identification numbers on the rocks themselves (Swartz 1997). Fortunately, these kinds of practices are no longer

performed as the park is taking steps to improve its conservation agenda.

More recent conservation efforts have included several visits by professional conservators from around the world that have resulted in a number of reports. These studies have focused on the problems of lichen (Romão, 1999) and the geological characteristics of the area (Stanley-Price et. al 1997). In February of 2000, archaeologist Dr. António Batarda Fernandes was added to the park's compliment to direct the future conservation efforts as "the coordinator of the project of conservation for the park" (personal communication, 2000). Since that time he has been instrumental in organizing and compiling a database of the engraved rock sites, and has been working with a Swedish organization called RockCare that is dedicated to furthering the understanding and practice of rock art conservation in Europe.

Still, the task of conservation in the Côa Valley is daunting. Not only are there questions about how different erosion factors effect the various kinds of rock art manufacturing techniques (pecked, incised and painted), but with 200 engraved rocks over 17km, the changing micro-environment must be taken into account. A primary consideration at the beginning of such a massive conservation project is to understand that each rock constitutes its own unique case. Some rocks are partially or completely immersed in the river water, some rocks are huge while others are small (each of these suffering technically similar problems but on much different scales), and some rocks are prone to heavy human visitation and impact. Therefore, universal documentation or treatment methodologies are not necessarily applicable. Conservation of the rock art in the Côa Valley, therefore, must be tackled on a case by case basis.

The PAVC and the coordinator of conservation adhere to a minimum-interference theory. They feel that it is more valuable to take the time to discover the correct methodology for preservation and enact it confidently rather than to rush in with inferior, poorly tested methods that could prove disastrous. With this mindset in place during the summer of 2000, a method to document and record the conservation concerns of the rocks began to be developed by Dr. Fernandes and the US/ICOMOS conservation intern (i.e. this author). On the advice of Dr. Delgado Rodrigues, the conservator who had written the detailed geological conservation manuscript for the park, our efforts were focused on creating documentation methods, and began with detailed drawings of the rocks and their problems.

The idea of performing informational drawings of engraved rocks in the park was not a new one. CNART, which is housed in the park's headquarters, has been creating extremely detailed drawings of the engravings since the park's inception. These drawings are performed largely at night when the advantages of bright side-lighting can be used to maximize the shadows of depth of pecked engravings, as well as fine-line incisings. The method preferred (and perfected) by CNART is that of tracing. Large sheets of plastic are draped over the engraved rock and markers are used by the staff members to slowly and deliberately trace each tiny peck or scratch, as well as to render the outline of the boulder. Extremely accurate and life-size depictions result from this method, which has received some criticism from rock art recorders elsewhere in the world due to its direct impact and contact with the rock surface. The point to be made here, however, is that oftentimes, in addition to the engravings, other significant details about the rock surface are recorded (Figure 8), data that could be useful in long-term monitoring and evaluation of conservation-related problems. The sheer amount of information gathered in these drawings proved inspirational in matters of preservation methodologies at the beginning of that work, but the exact procedures used were too costly, and perhaps too invasive, to be implemented by the conservation program. Therefore, a more frugal and practical approach had to be concocted.

A simple and versatile way to undertake drawings that would require few materials, a minimum of people, and that could be used on the majority of the rocks in the widest diversity of conditions was devised. This method consisted of re-bar poles shallowly inserted into the ground at opposite ends of the rock face, with a horizontal line of string (the accuracy of which was insured with a level) and a tape measure stretched between them to serve as an X-axis. Measurements of the rock's outline were taken from the X-axis and translated into a corresponding outline drawn onto

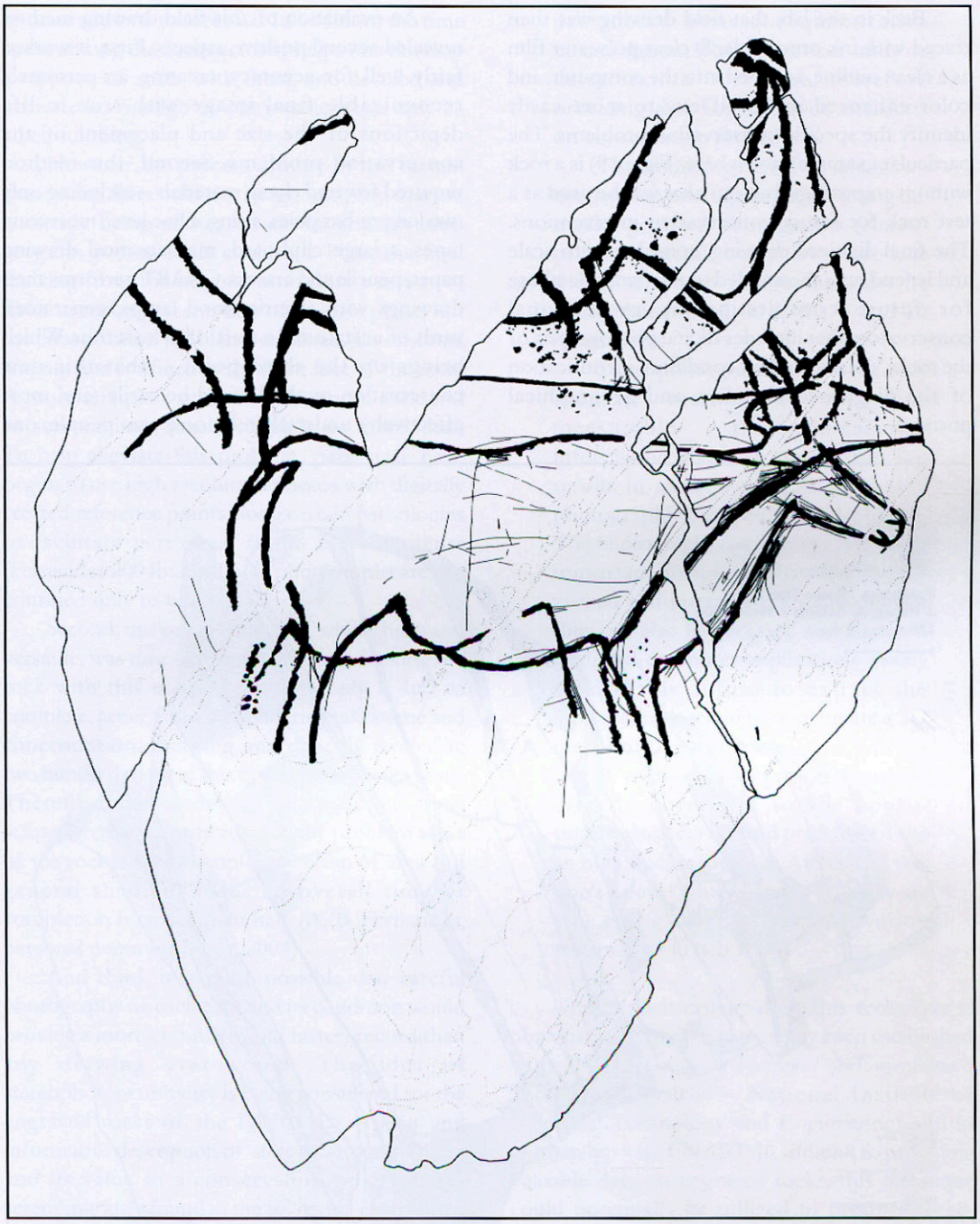

Figure 8. *An example of the highly detailed drawing rendered by CNART (Centro Nacional de Arte Rupestre, Portugal's National Rock Art Center) from a life-size tracing on plastic. From Zilhão 1997, p. 279.*

mathematical grid paper. Defining points on the rock face were then measured above and below the X-axis and were plotted onto the scale drawing. The measurements, taken with care, could be accomplished without touching the rock. Taking enough measured points along the prominent topography of the surface area eventually enabled a kind of superior connect-the-dots, thus rendering a precise representation of the rock face itself. Conservation concerns such as those outlined earlier were then added to the drawing at the locations on the rock where they occurred.

Back in the lab, that field drawing was then traced with ink onto Mylar® clear polyester film as a clean outline, scanned into the computer, and color enhanced in CorelDraw to more easily identify the specific conservation problems. The particular example shown here (Figure 9) is a rock without engravings, but one that will be used as a test rock for future conservation interventions. The final digitized drawing, complete with scale and legend, was then added to the park's database for future consultation by professional conservators that includes digital photographs of the rocks, details on their condition, identification of the diagnosed maladies, and geographical position.

An evaluation of this field drawing method revealed several positive aspects. First, it worked fairly well for accuracy, creating an extremely recognizable final image with true-to-life depictions of the size and placement of the conservation problems. Second, this method required few and cheap materials – including only two long re-bar poles, string, a line level, measuring tapes, a large clipboard, mathematical drawing paper, pencils and erasers. CNART performs their drawings with electric flood lamps, generators, yards of acetate and a staff of at least four. Which brings up the third point – that this new conservation method could be easily (and most effectively) undertaken by only two people, one

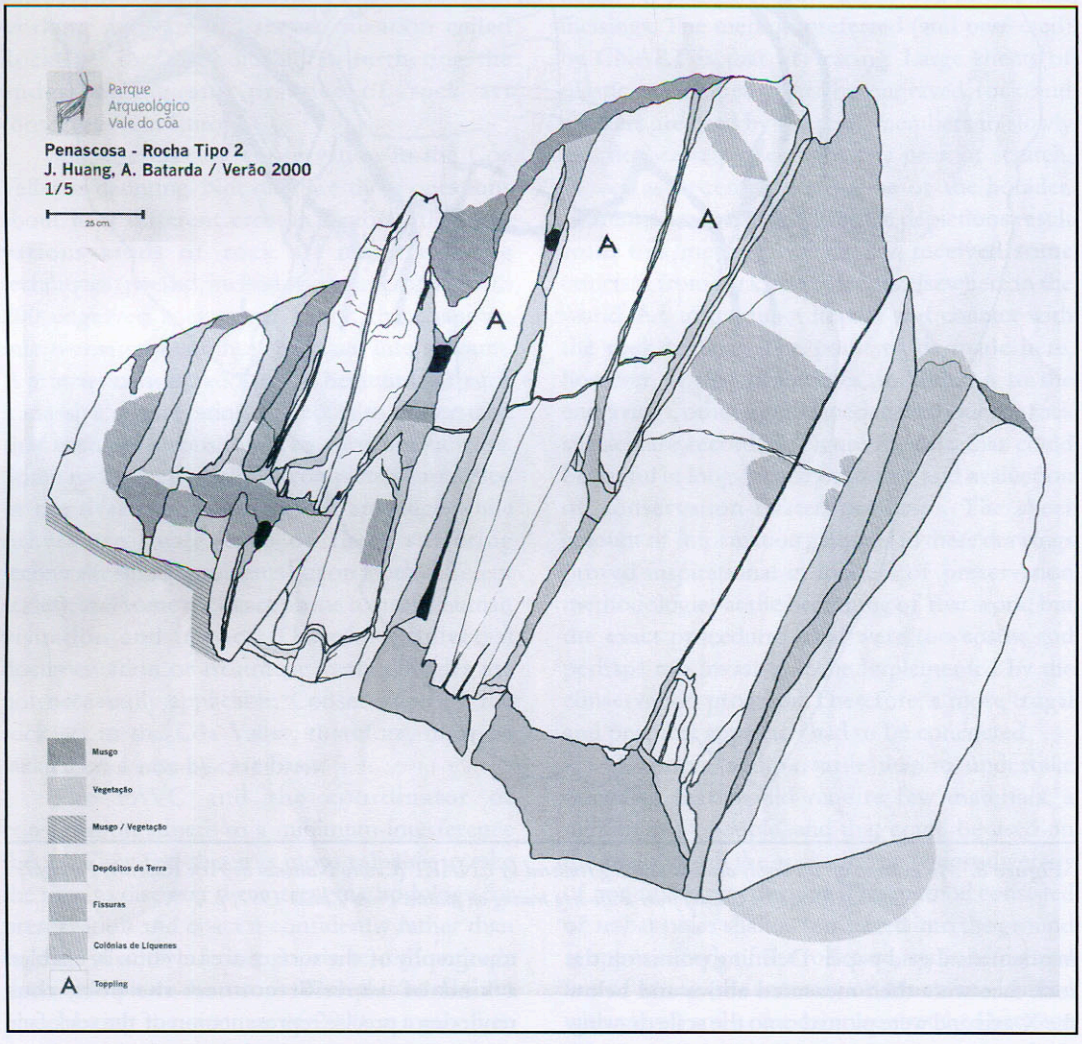

Figure 9. *Computer-generated rendering of the conservation concerns on a non-engraved test rock. Color coding of specific problems are outlined in the key at bottom left and include (from top to bottom) moss, vegetation, moss and vegetation together, soil deposits, fissures, lichen colonization and toppling.*

to draw and one to measure. In addition, the time spent among the rocks actually helps one develop a rapport, of sorts, with them, and detailed and intricate knowledge of one's subject can only be a helpful thing.

However, the process admittedly had certain drawbacks that could not be ignored, and that are currently being addressed as the conservation program continues its evolution. First, the final drawing from the original procedure was a two-dimensional representation of a single plane, but the conservation problems are three-dimensional and not just confined to the front face of the rock. A more complete record of the entire rock and its surroundings would certainly be more ideal. To help alleviate this problem, park staff have begun to use high resolution photos with digitally created reference points along certain pathologies to facilitate periodical *in situ* measurements (Fernandes 2004b:20). These photographs are not confined only to one surface.

Second, this original method, while cheap and versatile, was time-consuming. While drawing the rock with this method requires only a duo to complete, accuracy in the rendering takes time and concentration. Drawing and digitally rendering two hundred rocks in this fashion would take years. Therefore, the rendering technique has been refined so that identification of the problem areas of the rock is now a simple definition of area and general shading, reducing overall time of completion by more than half (A. B. Fernandes, personal communication 2004).

And third, it is quite possible that careful photography of each rock and its condition would provide a more complete (and faster) record than any drawing ever could. The idea of stereophotogrammetry is being considered for the engraved rocks of the PAVC. An explicit and informative description of stereophotogrammetry and its value to a conservation program was serendipitously found in the following abstract for an architectural lecture:

> Stereophotogrammetry is a proven and precise recording technology that addresses the intricacies and inaccessibility of many heritage structures, and is an accepted and efficient method for the measurement and monitoring of historic and prehistoric structures and sites. It provides a basis for quantitative measurements of alteration and/or deterioration over time, therefore providing data for informed decisions on conservation procedures.
>
> The technology involves taking two overlapping photographs and placing the resulting paired photographs (stereo-pair) in a suitable computer to produce a digital stereo image that can be manipulated in all three (X, Y and Z) dimensions.
>
> Stereophotogrammetry is the only accurate method of recording measurable three-dimensional information about an object that also results in an archival, high resolution photographic base record of the object. The photographs not only contain vitally important image information (easily viewed and interpreted by anyone) but they can also be accessed and analyzed in digital computer applications at any time in the future to extract the information needed to re-generate a 3D model of the object.
>
> A conservation project's success directly correlates to the appropriateness, accuracy, and precision of the as-built documentation. After all, if you don't know "what you've got," how are you going to specify conservation treatments? (Trieb 2004)

The implicit potential of this technique is obvious, and protocol has already been established with INETI (*Instituto Nacional de Engenharia e Tecnologia Industrial* – National Institute of Industrial Technology and Engineering) and in partnership with CNART. In addition to providing valuable data on engraved rocks, this technique could potentially be utilized to produce three-dimensional polymer replicas of the rocks, although Fernandes (2004b:21) cautions "The hypothetical production of replicas, however, must be understood as the last resort to assure the physical endurance, even if under the form of facsimiles, of any of the rock art panels."

These new techniques beg an important question of resources and manpower. Currently, the conservation program coordinator is the sole

park staff person focusing on conservation, and other duties that he must fulfill do not allow him to spend all of his time doing conservation work. Contracted help has been considered, but with the large amount of work to be done, this would be extremely expensive. Hiring consultants to either photograph or draw all of the engraved rocks would be ideal, especially if they had their own equipment, but there is still the problem of allowing and providing access to all of the isolated and precarious sites. A solution seems complex, and resources a constant uphill battle, but the work continues nonetheless.

Update and Conclusion

Since the summer of 2000, Dr. Fernandes has been completing the computer renderings of further mathematical drawings and relocating more engraved rock sites in the valley, adding their information to the conservation database. He has received further help from four more US/ICOMOS interns each summer since the exchange program was implemented. A collaboration with University College London Institute of Archaeology has also been developed to enable graduate students from that school to work in the Côa for month-long periods. Already, ten students since 2002 have participated and aided in preparing the drawings, among other things (A. B. Fernandes, personal communication, 2004).

In addition, the park's involvement with the Swedish RockCare organization is also moving forward. RockCare received a generous sum of money from the European Union to continue its work of progressing conservation methods on rock engravings. The Côa Valley is among four other European rock art areas (including those in Sweden, Finland and Italy) that will be centers for conservation activities such as documentation and public education, and will certainly benefit from the combined efforts and study. To date, the RockCare Project has carried out 3D laser scanning of several engraved rocks in the PAVC, and a lichen study was performed by a Finnish expert focused on the engravings in the Côa Valley (see Vänskä 2001 for a detailed report).

Plans for the creation of a park museum are underway thanks to the recently elected Portuguese government, with a possible opening date of 2007. The potential impact of the museum on the conservation and cultural heritage preservation agenda is promising. Sites that are not open to the public can be presented to visitors through photographic and informational (perhaps virtual) museum exhibits. In this way, more of the engravings can be enjoyed and experienced without added physical invasion of the valley. Along with these "tours" of non-accessible sites, further education on rock art and its value can be provided, community relations can be improved and the general quality and merit of the park can be enhanced.

The Park's own internal conservation project will also begin research and testing of conservation materials and strategies on certain non-engraved rocks in the park. Once applied, the effects of these materials will be monitored over time, possibly for decades, before being used on the most serious cases of erosion and degradation on engraved rocks. It is possible that temporary solutions will be enacted on those rocks in most dire need of action, such as building shelter structures or even creating water diversion routes.

In conclusion, the conservation in the Côa Valley is obviously a long-term project that will evolve and grow in both knowledge and information as work continues. But the fact that the effort is taking place is encouraging in itself. It was heartening to see such dedication in that large organization to correcting the mistakes of the past, to acknowledging the value of learning through trial and error and to becoming involved with professional conservation societies. Slowly but surely, the engravings of the Côa Valley will be effectively preserved for the future, and for the world.

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