

## ZIMBABWE

### Salvaging Vandalised Rock Art at Domboshava National Monument in North-eastern Zimbabwe

Domboshava cave lies 35 kilometres north-east of Harare and was proclaimed a national monument in 1936, covering only 1 acre. The physical boundary of the site was extended in 1996 to cover 300 hectares. The proclaimed area now encloses rock paintings, late Stone-Age deposits, a geological tunnel (which has acquired cultural significance through time), sacred forest, spectacular granite geological formations and a buffer zone for management purposes. An Archean green stone belt surrounds the Domboshava batholith (Lister 1987; Baddock 1991; Stocklmayer 1978). Generally a dissected and relatively undulating igneous complex (comprising series of gneiss tonalite-granodiorite plutons) characterises the Chinamora area occupying 1200 square kilometres.

Several values placed on the Domboshava rock art site were used to justify its nomination to the National Monuments list of Zimbabwe. These include the scientific, living traditional, geological, educational, social values and many others. The site has more than 146 identifiable individual rock paintings, executed in red and brown pigments. The shelter also has scatters of Stone Age deposits attributed to Stone Age communities; however, no excavations have been done to place these deposits into Zimbabwean Stone Age chronology. The living traditions revolve around a rain-making ceremony, which is performed once a year at the site. As an educational resource, the site can be used across the school curriculum in the fields of art, geography, history and geology, among other subjects. Therefore, the management of the cultural site, as well as any restoration or conservation work, should respect the values placed on the site. Otherwise it becomes a mis-management or 'mis-restoration' of values, which could lead to the desecration of the authenticity or the totality of this Domboshava national monument.

#### Vandalisation and Condition Assessment of Domboshava National Monument

Domboshava cave was vandalised on the eve of 14 May 1998. The incident was reported by law enforcement agents to National Museums and Monuments of Zimbabwe (NMMZ) on 15 May

1998. An inspection of the Domboshava site and others within the area was undertaken, in order to establish the extent, type, and nature of the vandalism. Photography was extensively used to document the graffiti.

The graffiti is one of the most severe, distressing and depressing damages known to have happened at any rock-art site in Zimbabwe, apart from Pomongwe cave which was damaged by an application of linseed oil around 1965. At Domboshava cave, a dark-brown enamel (oil-based alkyd) paint was used to obliterate paintings. The dark-brown paint covered approximately 75% of the painted surface and about 5% of the unpainted surface. This excludes the extreme left and right sides of the painted surface, as well as the upper and top most levels of the cave.

Out of the 146 identifiable individual paintings known to exist in the Domboshava cave, approximately 65–70% were obliterated with the dark-brown oil paint. About 90% of all the human figures were completely obliterated; 52% of the animals remained unvandalised on the extreme right side of the painted surface and on the upper-parts, which could not be reached. The identifiable abstract and plant figures were not vandalised at all.

#### Cleaning Trials

As a starting point, the paint used to obliterate the rock paintings at Domboshava cave was analysed by a leading Zimbabwean paint-producing company. The aim was to determine the chemical composition of the paint (especially the type of binder) used to obliterate the rock paintings, and subsequently identify chemicals that are likely to remove it without removing the rock paintings. Flake samples with traces of the offending paint were collected and sent for physio-chemical analysis by a leading paint producing laboratory. The result showed that it was modified brown enamel (alkyd resin) paint. Technically this kind of painting takes between 18–24 hours to dry after application.

An analysis to determine the nature of the rock affected by the graffiti revealed that the stone material is a garnet with strong lamination. Granted that the rock samples analysed were representa-

Domboshava rock art site: Phase I of the cleaning process



tive of the general situation, the rock surface appeared very friable and extremely sensitive to any kind of mechanical touching. However, this could be subjective, because the samples were collected from the lower levels of the cave, which probably would not be representative of the nature of the entire Domboshava granite outcrop.

The information gathered from the physio-chemical analysis of the graffiti, and the nature of the rock affected, became the basis for formulating cleaning trials. The aim was to test the effectiveness and impact of all the possible cleaning methods on the paintings and the stone itself. Several cleaning methods, ranging from mechanical to chemical, were tried over nine months. Areas affected with graffiti but without rock paintings were used for the trials, with the exception of one 'sacrificial' cleaning trial done on a section with rock paintings at the time of making a final decision. Generally the cleaning trials were confined to the lower levels of the cave.

### Mechanical cleaning methods

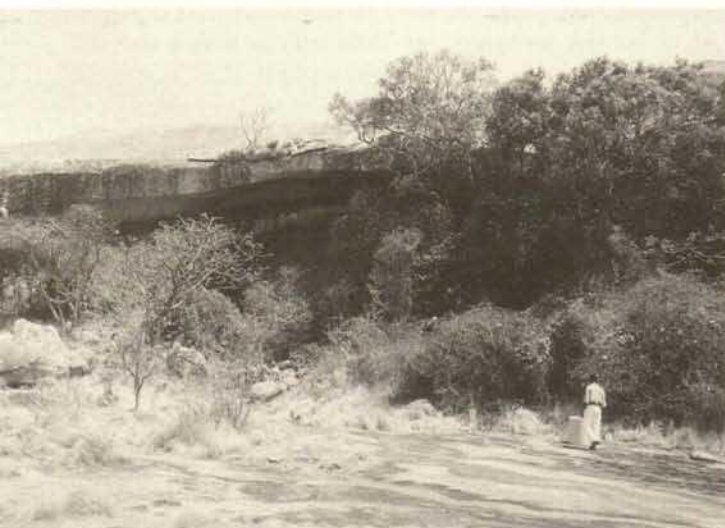
A mechanical method of removing the graffiti was initially attempted. Several instruments were tried, such as blunt and sharp plastic knives and scrapers. The results were not satisfactory, because these instruments failed to conform to the rugged surface of the rock face. The cleaning was not systematic and could not remove the graffiti. There was also a risk of scraping both the graffiti and the rock paintings if sharper implements were used.

### Solvent based cleaning methods

#### Lacquer thinners

A lacquer thinner, a chemical constituted by benzene and lead (or a mixture of petroleum and benzene) was tried. It is usually used as a solvent in the painting industry. The thinner was poured over the graffiti, then cleaned with a soft brush and distilled water. Instead of removing the graffiti, the lacquer thinner converted the brown enamel paint (graffiti) to a blackish paint, which started to spread over the rock surface, further obliterating the surface. The conclusion was that the lacquer thinners could not clean this kind of graffiti.

#### Domboshava Cave



Animals after removal of graffiti

#### Acetone

Acetone ( $\text{CH}_3\text{COCH}_3$  – dimethyl ketone), a colourless and inflammable solvent with a sweetish odour was applied in a manner similar to the lacquer thinner. The results failed to remove the graffiti.

#### Paint stripper

Paint stripper, mainly constituted by methylene chloride ( $\text{CH}_2\text{Cl}_2$ ), was used as the last option. It was evenly applied in its thick jelly-like form and allowed 5–10 minutes to settle on the surface with graffiti. A soft brush and distilled water were used to scrub off the thick jelly. The paint stripper successfully removed the graffiti leaving the rock patina visible but a little shiny. In other sections that were not thoroughly rinsed with distilled water, a glossy appearance could be seen. It was concluded that a thorough rinse of all the paint stripper remnants was important to avoid leaving ugly stains, which might contain damaging salts that could eventually destroy the works of art. It was therefore suggested to use Toluene ( $\text{C}_6\text{H}_5\text{CH}_3$ ) to rinse the surface. The combination of Toluene and paint stripper appeared to be effective in removing the graffiti and avoiding the shiny residues of paint stripper.

### 'High Tech' cleaning methods: laser cleaning

The Nd: Yag laser cleaning method was used on samples with traces of graffiti but without rock paintings. Although the cleaning yielded positive results, it must be mentioned that given the original rock paintings contain a wide range of brown to red pigments, colours synonymous to that of graffiti, it becomes obvious that the laser could either remove or alter the original rock paintings. Therefore it was a risk to try this method *in situ*.

Several public lectures and consultations on these trial results were made within and outside the borders of Zimbabwe. On the basis of the results of the cleaning trials and extensive consultations, a combination of the industrially produced paint stripper and Toluene were recommended to clean the graffiti.

### The Conservation Process

With patience and understanding of the principles involved in cleaning graffiti of this nature from rock paintings, the 'mouth to

*mouth resuscitation*' process commenced in September 1999. The cleaning exercise was divided into three phases, as the cave was divided into three sections. The conservation team cleaned the left side first, then moved to the central section and eventually the right section. Before moving to another section, the team had to take a four-month break to monitor any developments on the area cleaned and continue carrying out consultations with other experts. The success of the project hinged on following proper conservation processes and application of the recommended chemicals within the limits of the technique chosen. In this cleaning exercise, we sought a complete removal of all the graffiti, given that both the rock paintings and the graffiti shared the same shades of brown colour. Very soft artists' brushes, trimmed to thumb-nail size, were used to clean 10 sq cm at a given time. Protective clothing was worn to safeguard the health of the conservation team. The cleaning exercise thus spread over 1.5 years to allow continuous monitoring and modification of the method if need arose.

## Results of Cleaning

Graffiti was successfully removed using the described method. The rock paintings are now very visible. The paintings were not affected because of the silica encrustation process over several decades. Over the years of exposure, a silica crust develops on top of the rock paintings, to form a natural protective coating that is very difficult to remove. Paint stripper or Toluene does not easily remove this silica crust. As such, the paintings were expected to remain visible after the cleaning. It is important to note that the fragile rock patina survived the cleaning exercise. But one cannot rule out that it might have been partially removed, but the degree is less obtrusive compared to other areas not affected by the graffiti. The cleaning exercise also removed thin layers of dust that had accumulated over the years, thereby exposing some figures that could not be seen very clearly before.

## Conclusion

The vandalism of the Domboshava rock-art site posed and still poses a great conservation and management challenge to National Museums and Monuments of Zimbabwe. It is very difficult to remove a commercial paint applied on any cultural site. The success of this conservation project, particularly given the nature of the graffiti and chemical used, cannot be guaranteed as the after-

effects are usually noticeable only after long periods of time. This fear brings us to the medical procedure: *patient resuscitation*. A person who has 'collapsed' or fainted due to a certain health condition, can be temporarily or permanently brought back to life through mouth to mouth resuscitation or using an oxygen breathing machine. What happens after this resuscitation is beyond the means of the resuscitator, because many uncontrollable biological factors relating to a particular health condition come into play. At Domboshava National Monument, rock paintings were given a new lease of life through the cleaning exercise. But whether it is a long or short-term lease of life is difficult to tell, because of uncontrollable *in situ* factors that affect both the rock and the art. What is important is that an attempt was made to bring back the *beauty* of the rock paintings, and a continuous monitoring process has been put in place. This process relies on a comparison of photographs taken, before, during and after the cleaning exercise. As such, periodic reports will be produced.

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