1 SELECTED READINGS FROM ICCROM-ATHAR

ICCROM

Conservation of Cultural Heritage in the Arab Region

Issues in the Conservation and Management of Heritage Sites

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ICCROM

ICCROM – International Centre for the Study of the Preservation and Restoration of Cultural Property
Via di San Michele 13
I-00153 Rome RM, Italy
http://www.iccrom.org

Supervision and follow-up:
Zaki Aslan
Director, ICCROM-ATHAR Regional Conservation Centre (ICCROM-ATHAR)
www.athar-centre.org

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Preface

The ATHAR Programme (Conservation of Cultural Heritage in the Arab Region) was established by ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) in 2004. Its aim was to consolidate the organisation's activities in the Arab region and to respond to the region's need to preserve its rich heritage. During its pilot phase (2004-2007), the programme focused on identifying the region's priority needs in close cooperation with partner organisations, and international and regional agencies working in the field of the preservation of cultural heritage. In 2003, a planning phase intensified contacts with heritage institutions working in and for the region through field visits and the reviewing of existing reports such as the first periodic report for the Arab region published in the same year by the UNESCO World Heritage Centre. A number of actions were identified to address various issues, ranging from the application of conservation and preservation principles promoted by ICCROM and disseminated internationally through its education and training programmes, to the exploration of public attitudes, and the promotion of the knowledge of conservation technical and management methods.

To this end, supported by the Italian Government, an orientation meeting was held in Damascus in May 2004, engaging officials and professionals from the three countries which benefited from the programme's pilot phase – Jordan, Lebanon and Syria. This meeting identified three core priority areas of capacity building requirements to be addressed. These included building the capacity of site managers who work at national heritage institutions in the fields of site management and conservation, developing existing cultural heritage university programmes and curricula, as well as enhancing public awareness through schools and museum programmes.

While the Italian Government generously enabled the programme to consolidate its first phase through the Italian Development Cooperation and financially contributed to it in the second phase, ICCROM, led by the programme's success, sought to diversify its support and to widen the scope of its activities by establishing new partnerships with institutions working in the region. This was materialized through a close collaboration with the Arab League Educational, Cultural and Scientific Organisation (ALECSO) initiated in 2005 wherein ICCROM's expertise in the fields of conservation, preservation and restoration of cultural heritage was combined with ALECSO's experience in the fields of planning, policy making and its communication network with the ministries responsible for culture and antiquities in the Arab region. This cooperation, coupled with ALECSO's financial support to a series of jointly organised training courses and capacity building activities, enabled the ATHAR Programme to extend its activities to all Arab countries. The first such jointly organised ICCROM and ALECSO activity, a training course held in Umm Qais (Jordan) and Bosra (Syria) on the "Management and Documentation of Archaeological Sites", was inaugurated in Amman (November 2006), and notably marked by the royal patronage of Her Majesty Queen Rania Al-Abdullah of Jordan. This was followed by annual training courses jointly coordinated, planned and organized by ICCROM's ATHAR Programme and ALECSO's Department of Culture. Collaboration between both organisations has continued since then, enabling various training activities to benefit participants from all Arab countries.

Extending the programme's activities to the whole Arab region ushered in a new phase. A Memorandum of Understanding between ICCROM and His Highness Sheikh Dr. Sultan Bin Muhammad Al Qasimi, member of Supreme Council of the United Arab Emirates, ruler of Sharjah, UAE was signed in 2008. Thanks to His Highness' generous financial support, this phase was marked by further extension of the programme's activities aimed at safeguarding the Arab region's rich cultural heritage. True to its main motto, "investing in people", the programme targeted professionals in charge of the protection of cultural heritage sites in the Arab region, thus achieving its goal of enhancing institutional operations in the field of cultural heritage in the region. This contribution garnered appreciation from the regions' cultural sector decision makers at the highest level and translated into the decision of the 17th Conference of Ministers of Cultural Affairs in Arab States organised by ALECSO in Doha, Qatar (November 2010) which called upon member states "to provide financial and moral support to ICCROM's ATHAR programme to enable it to persist in implementing its formation and training activities in the field of conservation and preservation of cultural heritage in all Arab states in cooperation with ALECSO."

This official recognition of ATHAR's work and the generous, vital and continued support of His Highness Sheikh Dr. Sultan Al Qasimi was a turning point for the programme. A decision by ICCROM's 27th General Assembly (Rome, November 2011) followed to establish a centre for research, education and training in the Arab region. An agreement was signed between ICCROM and the Government of Sharjah represented by His Highness Sheikh Dr. Sultan Al Qasimi to establish the Regional Centre for the Conservation of Cultural Heritage in the Arab Region in the city of Sharjah, whose mission is to support the efforts of institutions working in the field of heritage in the Arab states through research, teaching and training and to raise public awareness to safeguard and preserve the region's rich heritage. The Centre commenced its work in early 2012 thanks to His Highness' generous financial support and to the facilities provided to implement its activities. Its work was further supported by His Highness' decision to build its headquarters at University City in Sharjah. The headquarters were inaugurated in December 2014.

The recognition gained by the ATHAR programme, as well as the generous support of the Government of Sharjah in particular, were outcomes of its success and its achievements which include the following:

- 261 participants (mid-career professionals) were trained;
- 19 Arab countries (member states) participated in its activities;
- 10 intensive four to eight-week training courses were held;
- 5 thematic workshops were conducted;
- 6 special and field projects were led by its graduates;
- 5 publications in Arabic were produced, including a school teachers' guide and a glossary of conservation terms;
- 7 national, regional and sub-regional activities addressing World Heritage in the Arab states were held;
- 4 national UNESCO training courses (for Iraqi professionals and Jerusalem-based experts).

ATHAR's positive impact is illustrated not only by the engagement of its graduates in the various ATHAR field projects, but also in their ensuing involvement in training and other regional activities in various Arab countries (for example, several former ATHAR participants have contributed substantially to the second cycle of the World Heritage periodic reporting in the Arab States, which was conducted in partnership with ICCROM's ATHAR Programme experts), as well as in their university teaching and participation in international forums.

Deeming it necessary to spread knowledge of our field of expertise to an audience beyond our course participants, the ICCROM-ATHAR Regional Conservation Centre is taking further steps to implement its policy of communicating with the greatest number of both students and professionals in all fields related to the conservation and restoration of cultural heritage, through traditional and electronic publishing. What makes our publication policy most pertinent is the fact that our published books and manuals will form an educational basis for the Higher Diploma/Master degree in Cultural Heritage Conservation and Management, a new joint ATHAR Centre-University of Sharjah teaching programme announced by His Majesty Dr. Sultan Al Qasimi at the closing session of ATHAR's fourth Regional Training Course which was held in Sharjah in December 2012. It is due to launch in the academic year 2015/16.

Thus, this book of "Selected Readings from ATHAR" is aimed to serve this purpose. It is a result of invaluable contributions from instructors who took part in the ATHAR core regional courses and who were invited to submit scientific material relevant to the topics they covered during these ATHAR courses. It is thanks to ALECSO and to the Government of Sharjah who have financially supported the ATHAR Programme and this publication in particular.

The subjects included in this first series of "Selected Readings from ATHAR" range from theoretical approaches to the conservation of cultural heritage sites to the implementation of techniques and management approaches for the safeguard of immovable heritage for future generations. It is our aim to disseminate this knowledge for the effective benefit of practitioners and educators working in this specialist field in the Arab Region.

Zaki Aslan, 2016
Director ICCROM-ATHAR Centre

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Chapter I

SETTING THE SCENE: THEORETICAL AND PHILOSOPHICAL APPROACHES TO HERITAGE CONSERVATION AND MANAGEMENT

Introduction to Heritage Site Management: Rationale in Planning and Decision-making for the Conservation and Presentation of Archaeological Sites

Zaki Aslan

Abstract

This background paper reviews the development of theoretical and philosophical approaches in the field of archaeological conservation in situ. It thereafter emphasizes the consideration of various implications embedded in contemporary conservation definitions and objectives to develop sustainable approaches to protect archaeological heritage places. It discusses the interdisciplinary nature of conservation research procedures and, consequently, the rationale of planning processes and approaches used for physical interventions at archaeological sites. The basis of these approaches is that, alongside the physical conservation requirements to protect archaeological material remains in situ, a comprehensive understanding of value-based management procedures, consideration of socio-cultural dimensions of heritage, and regard to administrative practical considerations are all necessary in sustaining cultural heritage places.

Literature review of modern conservation theories and an understanding of the rationale of contemporary management approaches in the fields of protection and presentation of archaeological heritage form the basis of a planning approach in the cultural heritage field.

1. Archaeological Conservation in-situ: Rationale and Implications

Approaches to the protection of archaeological heritage sites and objects have evolved with the advent of modernity. Prior to the eighteenth century, conservation work consisted of traditional repair and methods driven by the appreciation of antiquities and objects of past periods. Main conservation concepts have emerged in the modern conservation movement in the European context, particularly in the eighteenth century, although their roots can be identified in the Italian Renaissance and even earlier (Jokilehto 1999: 1-20). These concepts have had an accumulative impact on the development of contemporary conservation approaches. The development of these theoretical approaches and concepts has contributed to the understanding of the broader contemporary notions of sustainability and environmental protection in the field of cultural heritage.

1.1. Philosophical approaches to new physical interventions at archaeological sites: A historical account

With the rediscovery of antiquities and poetic expressions and inspirations associated with the cult of ruins from the fourteenth to the seventeenth centuries, numerous examples of archaeological objects were conserved and represented. The objective of restoration efforts, which particularly started to take place in the fifteenth century, was to achieve aesthetic reintegration on the basis of a probable idea of the original form. The Age of Enlightenment was significant to the history of the theory of heritage conservation because it introduced cultural paradigms, and formulated foundations for conservation concepts of the eighteenth century. Baumgarten, Vico, Herder, and Winckelmann founded and developed respectively the disciplines of aesthetics, history, and modern archaeology (Baumgarten 1750-8; Herder, 1803; Winckelmann, 1764; Vico, 1725). This period also witnessed the emergence of concepts of the patina of age and the picturesque of ancient ruins. In the seventeenth and eighteenth centuries, the archaeological discoveries and restorations of cities like Herculaneum, Pompeii, and Stabiae in Italy, added to the growing scientific knowledge of scholars. Additionally, interest in the concept of ideal beauty was a principal criterion for Winckelmann in evaluating works of art (Winckelmann 1972). In fact, in the seventeenth century, restoration of casually discovered objects in newly-known sites was not differentiated from normal artistic creation. Restoration meant simply to remake the broken and missing parts due to age or accidents (Jokilehto 1999: 47- 65). Distinction between the original

and additions was later claimed as a rule in restoration works by Winckelmann, Rafael Mengs and Cavaceppi, who insisted that restoration should be carried out without falsifying the artistic concept of the original, and added work should not mislead the careful observer (Winckelmann 1972; Cavaceppi 1768). Winckelmann's approaches to the treatment of ancient monuments included achieving both concepts of distinguishability between old structures and new additions, and noble simplicity. These concepts soon had tangible consequences in restoration works in Rome towards the end of the eighteenth century.

The end of the eighteenth century was a period when modern conservation principles found their first expressions in the modern conservation movement. An important incentive for the movement in this period was the industrial revolution. Particular emphasis was then laid on heritage sites from the past, with a focus on classical monuments. With inputs from Winckelmann and a period of romanticism, ancient Greek monuments were considered signs of democracy, and, a few decades later, the concept of anastylosis of ancient archaeological monuments became a symbolic act for the history of the Greek nation. Anastylosis is the reassembling of existing original parts of a monument (Starosta 1999: 84), or the re-erection of a dismembered historical structure, or one part of it, in which every recovered element takes up its original position and structural role (Mertens 1984). In addition, classical monuments in Rome, such as the Arch of Titus and the Colosseum, became classic references for the restoration of ancient monuments (Starosta 1993; Sanpaolesi 1972: 160; Mertens 1984). Newly-built parts of the Arch of Titus were of travertine without carved details, thus distinguishing new parts from the original marble. At the mid-nineteenth century restorations of the Colosseum, new parts were built in brick in order to distinguish them from the original structure. Various conservation approaches to physical interventions at archaeological structures were used, adopted, and developed, formulating emerging different schools of thought and contributing to contemporary philosophies in the cultural heritage field (Erder 1986).

Stylistic restoration

Towards the end of the first half of the nineteenth century, the romantic appreciation of ruins and classical archaeology was empowered through the development of new science and technology. Eclecticism dominated the field of architecture during that period, and, therefore, the treatment of ruined buildings was supported by historicism. In 1854, Viollet-le-Duc published his book Dictionnaire raisonné de l'architecture founding by that the theory of stylistic restoration. Viollet-le-Duc's objective was to restore national monuments in the most appropriate style. He asserted that restoration as a concept is modern, and to restore an edifice means neither to maintain it, nor to repair it or to rebuild it; it means to re-establish it in a finalised state, which may in fact never have actually existed at any given time (Viollet-le-Duc 1869 and 1990: 195). Viollet-le-Duc restored the ancient walls of Carcassonne in France in 1855, which were not only repaired but also largely rebuilt (Jokilehto 1999: 147-49).

Conservation or 'romantic' conservation

In the mid-nineteenth century, criticism was directed at the practice of stylistic restoration. John Ruskin (1819-1900), while initially leading a movement based on criticism, established the modern approach to the care of historic structures and ruins, and, thus, formulated the principal references for maintenance and conservative repair. In his book The Seven Lamps of Architecture, he asserted that "the greatest glory of a building is [...] in its Age, and in that deep sense of voicefulness [...] which we feel in walls that have long been washed by the passing waves of humanity" (Ruskin 1880 and 1925: no.10). Ruskin thus called for a new respect of the old so that replications, restorations, and removal of the patina of age were opposed. In 1877, the pioneers of the conservation movement, led by William Morris, opposed the indiscriminate re-facing of old stone work and conjectural restorations. This romantic approach has formed the base for present general conservation policies in England to preserve ancient ruins as found.

Ruskin in his approach saw the past in the context of continuity with the present and the future. The past, he argues, is there to inspire the present, and, therefore, what is left of it should be respected; the past should not, however, be replicated. Ruskin argues that any new work of the present should be thought of in such a way that future generations will thank us for it. He states that new work should take into account the unfolding continuity and development of human production through time. Emphasizing creative work of each period, he remarks: "like all human works, our productions will gradually acquire voicefulness" (Ruskin: ibid). Thus, although in his theory he called for a romantic respect of the old, Ruskin was conscious of the necessity to establish continuity with the past by new work representative and well thought of in the present.

Philological and historical conservation (Restauro filologico, restauro storico)

Camillo Boito became the most prominent theoretician of the Italian conservation movement at the end of the nineteenth century. In 1883, at a congress of engineers and architects

in Rome, Boito presented guidelines for the restoration of ancient monuments. His guidelines were largely influenced by historicism, and established the criteria for new interventions and additions to historic structures. His principles became the basis for the first Italian charter (Ceschi 1957: 108) and the main reference for philological restoration. Considering ancient monuments as documents that reflected the history of the past in all their parts, he advised marking all new additions either by using different materials, or simplified architectural forms. He recommended that new additions be made clearly in contemporary style, but in such a way as not to contrast too much with the original. Boito compared the two approaches of Viollet-le-Duc and Ruskin; he considered stylistic restoration risky, falsifying the original architect's intentions, and was critical of Ruskin's approach, which he misinterpreted to mean that one should not touch the historic building, and rather than conserving it should let it fall in ruin. To Boito, a historic structure can be compared with a fragment of a manuscript, and it would be wrong for a philologist to fill the lacunae in a way that the additions cannot be distinguished from the original. His ideas formed the basis for the concept of anastylosis introduced in the Venice Charter of 1964; the concept was viewed to be the only method accepted in the re-erection of ruins (ICOMOS 1964; Starosta 1999; Sanpaolesi 1972: 160).

Luca Beltrami, a student of Boito, recognized the importance of documents or records as a basic requirement for any restoration work. For this reason, his approach was called historical restoration. He argued that in ancient classical architecture, restoration was possible if there were sufficient fragments available to define the lines of the whole, while avoiding too detailed restoration in decorative stone work.

Values, kunstwollen, and the cult of monuments

Aloïs Riegl's classic essay "The Modern Cult of Monuments: Its character and origin" was a cornerstone in introducing the notion of value and concepts of modern conservation. He explained that several values influence how people perceive ancient monuments and works of art. For him, art is of interest to us only from a historical point of view, and the monument of art is an art-historical monument; its value, therefore, is not artistic but rather a historical one. However, one of the key issues in Riegl's thinking was kunstwollen (artistic volition), namely the extent to which the monument meets contemporary requirements of artistic values. Therefore, artistic value for Riegl is not commemorative, but a value that needs to be considered along with a monument's historical past. Additionally, the artist's creative mind should be considered in relation to a period's functional, practical, or technical considerations (Riegl 1996: 71). Riegl stressed that historical value is concerned with preserving the most genuine document possible for future restoration and art-historical research. Ruskin's "voicefulness" was introduced by Riegl as age value, which is acquired by the monument through the passage of time. The age value reveals itself in the monument's outmoded appearance. He argued that age value works against the preservation of a monument, and processes of decay affect the substance of remains. For that purpose, he stated that a distinct trace of the original form, of the original production, must remain; he asserted that "a pile of stones represents no more than a dead, formless fragment of the immensity of nature's force, without a trace of living growth". By emphasizing the cult of historical value, he believed that a structure should be preserved so that the course of natural development is restrained by bringing the decay processes to a halt.

> If one observes, for instance, a segment of a previously well-preserved fresco on the exterior wall of a church being washed away by rain in such a way that the fresco itself threatens to perish before our eyes, then even an adherent of age value could certainly not oppose the installation of a protective awning, although this undoubtedly represents an intervention by the hand of modern man in the independent course of natural forces.
> …
> [...] we therefore see age value demanding the preservation of a monument through human intervention, something that typically only historical value rather than age value would strongly propose.
> […] To the proponents of age value a gentle intervention by the hand of man seems the lesser of two evils when compared with the violence of nature [...] age value seeks merely to slow down disintegration, whereas historical value opts for a complete halt to the processes of decay altogether.
> Aloïs Riegl 1903 (Stanley-Price et al. (eds.) 1996: 77).

Scientific conservation (restauro scientifico)

Through his teachings at the Faculty of Architecture in Rome, Gustavo Giovannoni consolidated the Italian conservation principles (Giovannoni 1932). He emphasized the critical, scientific approach, and thus provided the basics of the restauro scientifico. His concepts extended to include historical urban areas. He distinguished himself from previous theorists in his approach to conservation as a cultural issue of evaluation, and respect of the building's historical periods without reconstructing them to their ideal form (Giovannoni 1954; Jokilehto 1999: 219). He emphasized maintenance, repair, and consolidation even if that necessitates the use of modern technology. His ideas contributed to the formulation of the

Athens Charter (ICOMOS 1931; Iamandi 1998). However, he agreed with Boito that restorations should not be visible when modern methods and techniques are introduced to the historical material.

Critical theory

Italian post-war developments to restore damaged historic buildings led to the emergence of a later conservation theory. Benedetto Croce emphasized the aesthetic quality of the whole of an object over the details and created a method of aesthetic appreciation (Croce 1938 and 1990). He has been considered the theorist who contributed to the basics of critical conservation theory. Argan, Pane, Bonelli and Brandi were among the main figures who were influential in the formulation of the principles of the critical process of modern conservation theory (Argan 1985; Pane 1971; Bonelli 1959; Brandi 1963, 1974, 1995). In restauro critico, the emphasis was put on the specificity of each historical structure, and the impossibility of using pre-ordered rules or principles. Restoration had to be undertaken on a case-by-case basis, and on the critical sensitivity and technical skills of the conservator based on knowledge of the history of architecture and art at the time of creation and development over the years. In particular, Brandi emphasized that understanding the creative process and its passage through time guides interventions to re-establish the unity of the work of art and image which the object has lost through the effect of time. He, therefore, argues that restoration is not an ancillary technical activity, but a moment of critical appreciation of the work of art (istanza); it is an aspect of philological and aesthetic research towards the understanding of art (Brandi 2005). He asserted: "restoration must aim to re-establish the potential unity of the work of art, as long as this is possible without producing an artistic or historical forgery and without erasing every trace of the passage of time left on the work of art" (Brandi 1996). Commenting on physical interventions, Brandi explained that only the material form of the work of art should be restored, the physical medium to which the transmission of the image is entrusted does not accompany it; on the contrary, it is coextensive with it (Brandi 1963). Accordingly, in Brandi's Teoria del restauro aesthetic requirements guiding future interventions tend to prevail.

Nevertheless, there are difficulties in a full application of Brandi's theory to archaeology (Melucco-Vaccaro 1996: 201-11). For him a ruin constitutes fragments that have lost all traces of their original functional and aesthetic qualities. A ruin, therefore, cannot be restored because it is impossible to recover its unity; however, it is possible to ensure its maintenance, its status quo. He adds that restoration of ruins must start where the work of art ends. He did not accept anastylosis carried out by assembling fragments at classical ruins (Jokilehto 1999: 235). Therefore, Brandi did not allow enough latitude for the conservation of ruins. Nevertheless, he differentiated between additions and reconstruction, allowing distinguishable reversible additions to re-establish the unity of a work of art. His theory was criticized as being a theory placing main attention on the conservation of image, and as being a theory of painting conservation. In addition, the focus of the theory on aesthetic values has created difficulties in applications on works with little artistic significance (Jokilehto 1999: 238).

While recognising Brandi's critical appreciation based on research into the understanding of a work of art, Giovanni Carbonara finds Brandi's theory limiting when it restricts the creativity of the architect-restorer. For Carbonara, it is possible to recover the unity and create the lost image only by means of a fully recognisable architecture of the time. Additions, therefore, are justified by the goal of recovering and conserving the value that an ancient building represents. He states that "the new context has to derive from placing the object in a new artistic work so the object becomes part of the structure into which it is inserted, by maintaining an independent legibility and by joining with other new elements" (Carbonara 1976: 240). On the dilemma of choosing between intervention and preservation, and deciding upon aesthetic or historical approaches in restoration Carbonara writes:

> The basic dilemma - intervention or preservation, aesthetic or historical approaches - is, nonetheless, always present and cannot be solved by denying one of the issues; by acting as unconstrained innovators or as stubborn conservators. The dilemma can and should be dealt with each time by critical actions and choices that [...] are [...] not […] unfounded or arbitrary.
> Carbonara 1976: 239.

The emergence of contemporary issues and trends in conservation approaches

Contemporary issues and trends have been developed in the course of extending the focus of conservation theories to thematic and regional topics. Critical theory influenced the development of a series of charters. Issues that were not adequately addressed in the Venice Charter of 1964 resulted in the emergence of later charters of specific cultural heritage themes and others focusing on regional and local issues of many countries (ICOMOS 1964; Stovel 1990: 3). Indeed, the development of theoretical contemporary approaches forms a filtration of ideas addressed in former conservation theories of the nineteenth and twentieth centuries. Critical

theory, in particular, had an impact on the development of planning and evaluation approaches such as those included in the Burra Charter (ICOMOS Australia 1988; Truscott and Young 2000).

In the field of archaeological heritage, the inadequacies which notably resulted in difficulties of applying Brandi's theory in archaeology have been articulated in more recent writings. An example of such efforts is an essay written by M. Berducou in her Introduction to Archaeological Conservation (1990). Although the field of archaeology developed profound theoretical approaches, a need to bring closer together the theoretical field of archaeological conservation and archaeological theory has been a main concern in recent years. Although theoretical methodologies addressing planning of interventions at archaeological sites have recently become important topics, their roots can be traced to reactions to modern critical theory. Issues related to social involvement, new concerns to bring technical conservation science close to heritage management processes, and specifics of archaeological heritage conservation can be found in writings of theoreticians like Philippot, Urbani, and Berducou. Moreover, these writings coincided with a similar re-examination of theoretical developments in the field of archaeology and cultural heritage in general.

Philippot emphasized that the status conferred upon the historical work varies according to the system and cultural context in which it is inscribed. He noted that the information gathered about an object and its relevant values of different perceptions are necessary in understanding its meaning. For Philippot, the role of the conservator is to suggest a certain reading of the cultural object to the viewer, based on this understanding and without introducing a fake (Philippot 1996). Despite that, Philippot, like his predecessor theorists, insisted on the concepts of respect for the object's unity and developmental history. He emphasized the understanding and respect of the object's context, whereby the object should not be museumized or segregated from its present cultural and social contexts. Thus, Philippot promotes both in situ conservation and careful study of cultural contexts of an historic place:

> Restoration will not be able truly to develop except to the extent that the range of its cultural function is understood and sustained by society.
> Philippot 1989: 228.

Urbani, on the other hand, argued for the importance of science in the cultural heritage context. He further expressed his concern about the disinterest in the problems of technical conservation shown by many art historians, who have concentrated their efforts on the historical and aesthetic aspects of an historic work of art (Urbani 1989). He warned that historical and aesthetic characteristics of objects depend on their physical condition, and that increasing decay results in the loss of identity of an historic place. In describing the urgency of taking certain technical measures that cannot be justified only from an ethical point of view, he described the situation of the statue of Marcus Aurelius, stating:

> Chemical alterations of metal and the lacunae]of the statue of Marcus Aurelius[are so numerous that conservation of the statue in the present state of knowledge is only possible in a protected environment [...]
>
> […] the kind of relationship we have with a monument of the past]referring here to the Colosseum[based on historical awareness and aesthetic appreciation prevents us from planning and completing an efficient]physical[conservation of the same […]
>
> […] we must then choose between two different patterns of change: change that is in the nature of things, and which sooner or later will have to end with the disappearance of what we would have liked to preserve; or a change that is the product of efficient conservation, that is capable of repeating the creative experience of the past, not in terms of artistic creation, which is definitely precluded, but in terms of scientific imagination and technological innovation.
> Urbani 1989: 445-9.

Berducou believes that in archaeology an excavated object or structure is important less as a work of art than as a document. Accordingly, an excavated material is a document that does not communicate aesthetic values alone, but has potential for providing historical information (Berducou 1990). Thus, the documentary nature in archaeology should be understood, interpreted, and displayed after careful analysis of the artefact's immediate, general, and particular contexts. Berducou's theory illustrates the distance that seems to separate the field of archaeology from Brandi's unclear views about ruined architecture and his focus on aesthetic qualities of objects.

Although rooted in theories of the late nineteenth and twentieth centuries, the field of conservation of archaeological sites in the 1990s, like other fields of cultural heritage, was put in the context of a theory that encompasses cautious approaches in the decision-making processes. Methodological approaches, stemming from the nature of the specific case in the field, and planning and management processes appeared in the late eighties and nineties (Hughes and Rowley 1986; Kerr 1996) to re-examine the "why", "what", and "for whom"

of heritage conservation activities while filtering and putting former theories into perspective. However, until today, theories and philosophical approaches have referred to and re-examined certain conservation objectives. These objectives form the base for discussions about what can be considered a suitable physical intervention at the outset of any conservation activity, and have focused on the necessity of studying the cultural context, the importance of science in a larger perspective, and the communication of cultural meaning to the public.

1.2. Contemporary approaches in the management of cultural heritage

1.2.1. Conservation objectives: contemporary viewpoints

> Conservation […] embraces all acts that prolong the life of our cultural and natural heritage, the object being to present to those who use and look at historic buildings with wonder the artistic and human messages that such buildings possess.
>
> Feilden 1982: 3.

The objectives of contemporary, systematic management approaches are associated with modern goals of conservation practice. Modern philosophy and objectives of archaeological conservation have emerged from modern approaches accepted in most cultural forums today. These are illustrated by Sir Bernard Feilden who asserts that the object of conservation is to prolong the life of cultural property and to clarify the historical and artistic messages held therein (Feilden 1982: 1-15). There are significant implications in this definition of objectives set in the broader sense of conservation activity. Despite the fact that Feilden's definition focuses on technical measures to prolong the life of a heritage property, its primary concern is with messages that are reflective of the meaning and values of cultural archaeological properties (Carver 1996: 45-56; Lipe 1984: 1-11; Kalman 1980). Consequently, the success of a conservation intervention can be judged by the level at which physical actions enhance the meaning of a site, and not primarily by the ingenuity of a technical solution. By referring to Feilden's definition, Stovel states that conservation is more an art than a science, and technical measures are a means of prolonging the life of a site with important messages reflecting its values (Stovel 1994: 20).

In a report on research work in the field of heritage conservation, the Getty Conservation Institute illustrated that technical conservation work, which focuses on material conservation and physical intervention, has been disconnected from the broader field and from the principles of conservation defined in contemporary theory. This is partly due to the relative isolation of spheres of professionals or social groups in the (broadly defined) work of conservation (Fig. 1). Particularly, physical intervention has very little interplay with the other spheres related to interest among professionals and the public to define the meaning and values of a heritage site, and to other planning and management contexts that are necessary for long-term protection (Avrami et al. 2000: 3- 10).

Other recent writings illustrate Feilden's philosophy in the context of conservation of archaeological heritage. Berducou, in her Introduction to Archaeological Conservation, affirms that conservation, in its broader sense, pursues a triple objective by providing durability, integrity, and a certain accessibility to information about the meaning of archaeological heritage objects. Accessibility is meant to be for the society of scholars and the public at large. By this definition, Berducou argues for bringing the technical assistance of conservation to the global goal of communicating a useful heritage and values to be studied, displayed, or documented for or by the society, thereby, offering a certain accessibility. This accessibility is not necessarily physical to the original object; it can be in the form of access to documents and recorded information that are made available to heritage professionals and the public.

Stanley-Price, on the other hand, refers to objectives of management of archaeological sites in the form of three types of conservation policy concerned with physical conservation, presentation, and scientific archaeological research (Stanley-Price 2006: 10-11). If the first two items in this definition are similar to Feilden's perspective, the third essentially implies the continuous scientific re-interpretation of heritage places uncovered and known. Continuous re-interpretation can be pursued by using archaeological methods such as excavation. In fact, research is an essential process in the archaeological heritage context since it continually reveals a better understanding and provides scientific insight to help, as much as possible, understand the past of a site. This insight is also necessary for planning, managing, and monitoring the future of a site (Avrami 2000; Ucko 2000).

To illustrate the "why" and "what" and objectives of any conservation work, Warren made reference to the rationale of heritage conservation as an activity inherent in human behaviour, which may be rationalised into precepts (1996).

Thus, Warren explains in more depth the notions of values and meanings of cultural heritage. The precepts he referred to guide individuals to conserve, and guide the principles they construct to govern this activity. However, with the logical approach constructed by conservationists in set conservation principles and ethics, there are issues of aesthetics, practicalities and matters related to present social acceptance in the decision-making process. From a conservation perspective, it is, therefore, vital to follow a logical integrated framework in a value and perception-based management process to arrive at policies of protection for each case, while incorporating considerations of ethics and aesthetics that are particular to values of a heritage place.

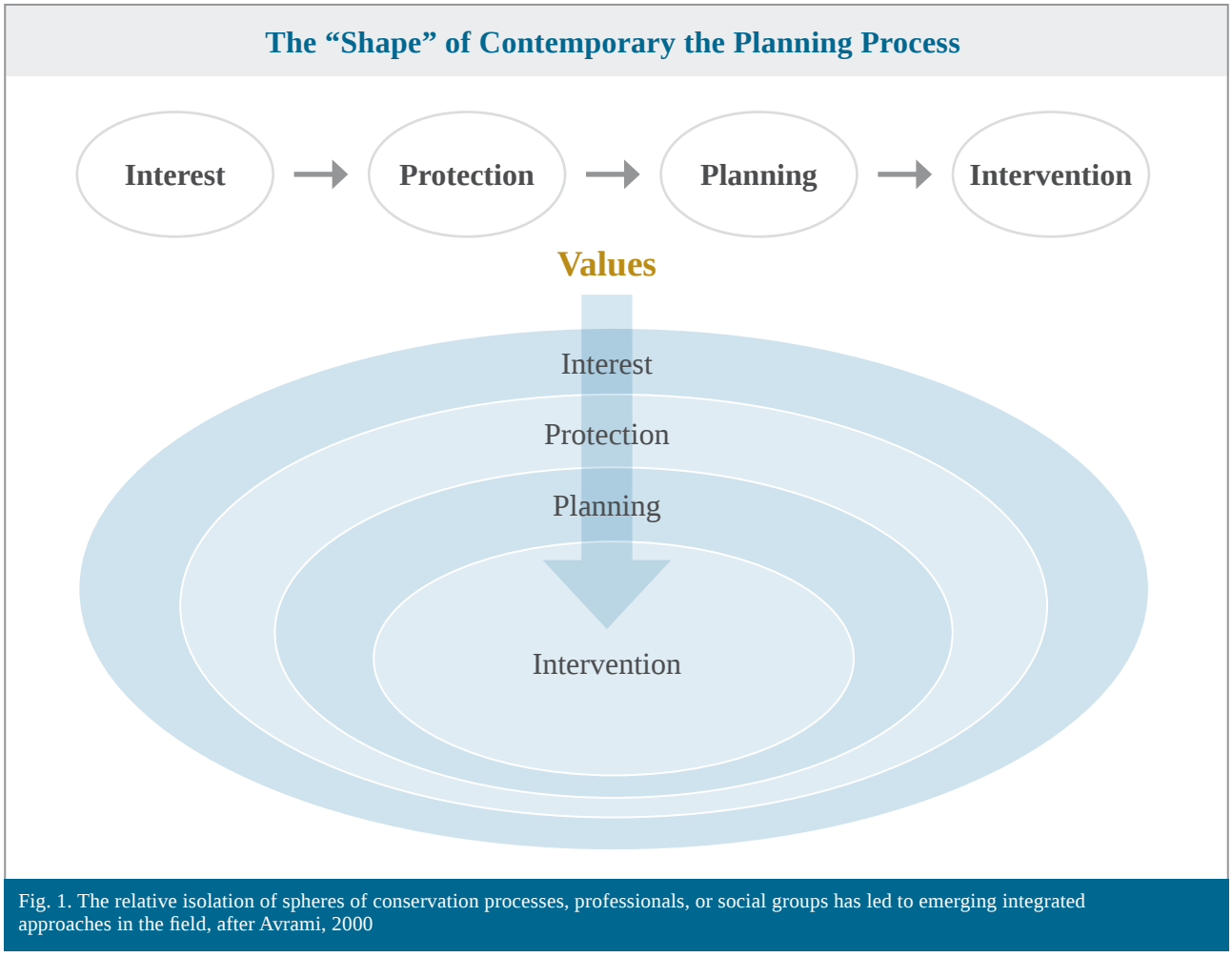

Fig. 1. The relative isolation of spheres of conservation processes, professionals, or social groups has led to emerging integrated approaches in the field, after Avrami, 2000

1.2.2. Sustainability in the context of cultural heritage

> No theory of conservation or attempt at conservation can be effective unless it takes into consideration the sustainable uses to which an object is put and the quality of its environment.
> Melucco Vaccaro 1996: 204.

In recent years the notion of sustainability has become an increasingly used term in discussions related to the management of heritage places and associated conservation objectives. The notion is rooted in environmental sustainable development approaches promoted by various publications and conferences in the eighties and nineties (United Nations 1987, 1995; Habitat 1996). It gained importance in the cultural context at the 1998 UNESCO's World Conference on Cultural Policies for Development in Stockholm, where the concept of sustainable development focused on culture and conservation of its creative works, in order to enhance and promote cultural diversity (Laenen 1998; Malliet 1998: 10-13).

In analysing the application of the notion of sustainability to cultural heritage, Stovel and Malliet addressed it as a notion of multiple objectives and varied processes of conservation activities (Stovel 1999; Malliet 1998). They illustrated that sustainability from a cultural heritage perspective can be understood to be concerned with long-term, preventive, and risk-sensitive solutions to maintain desirable conditions over the lifetime of the heritage object, thereby, extending

its life. It is further relevant to value-sensitive actions, which aim to enhance the meaning of heritage in daily life. In addition, the concept of sustainability is concerned with local focus, grass-roots, and involvement of the public in valuing and deciding upon the future of their heritage (Teutonico and Matero (eds.) 2003; Fairclough 1999). Finally, sustainability is associated with the processes and methods to achieve conservation objectives. Sustainability in the heritage conservation context is, therefore, concerned with integrated, comprehensive, and dynamic processes. Thus, these processes are related to balancing conservation and use, to the health of relationship among the elements of the heritage place, and to maintaining ongoing changing meanings, and continuous re-interpretation of heritage sites. These reiterative processes are central to the management approach, which aims to achieve the aforementioned conservation objectives (Fig. 2).

Moreover, Throsby also illustrated that consideration of sustainability approaches in the context of conservation of archaeological sites is crucial since "sustainability" as a term implies achieving similar objectives that form the basis in the field of environmental protection. As in the environmental context, sustainability implies considering intergenerational equity, tangible and intangible resources, and protection of the diversity of heritage assets. It abides by precautionary principle, and recognizes interdependence with the social context (Throsby 1999).

Sustainability from an archeological heritage perspective...

... is concerned with	**... resulting in a conservation approach that is...**
Extending the life of the site	Preventive, risk sensitive (governed by a precautionary principle/caution)
Maintaining desirable conditions over the life time of the site	Long-term
Balancing the relationship among & constituens of both the fabric & the setting of a site possible activities	Comprehensive, holistic
Maintaining ongoing process which contribute to the meaning, and "tangible & intangible" characters of the site	Focused on traditions, historic continuity & dynamics
Involving local communities & social groups. (Interdependence with the social context).	Based on Local focus, grass roots, diversity, ("intra & intergenerational equities)
Balancing conservation with the public use of the site & with tourist development	Integrated
Enhancing the meaning of the site in daily life	Value-based

Fig. 2. The notion of Sustainability in a cultural heritage context, ICCROM Newsletter

1.3. Implications of contemporary perspectives in the conservation of archaeological sites

Overall, the necessity of applying a management or a contemporary conservation approach is associated with the success of adopted conservation policies and chosen levels of interventions. This success can be measured if conservation objectives, implicit in the definitions of contemporary conservation theory, are clear at the outset of the planning process. In an in situ archaeological conservation context, defined conservation objectives have a number of implications emerging from accepting modern views associated with the "why" of the conservation and management processes. These implications of contemporary perspectives form the basis of discussions for the planning and design of physical interventions at archaeological sites:

Conservation of archaeological sites is value based, and the appropriateness of an intervention strategy is relative to the particular cultural meaning of a site, from which values and messages are derived. However, understanding the meaning of a site is not a simple process in the context of site interpretation. In fact, each archaeological site may have varied versions of meanings; and their understanding is often not only dependent on the methods used in the investigative

approach, but also on ways and extent of public involvement. Heritage interpretation issues and socio-cultural dimensions of heritage have increasingly been areas of current research in the field of heritage conservation, particularly in what is associated with the objective of conserving the meaning, values, or messages of an historic place (See sections 1.3.1 and 1.3.2.).

Conservation of archaeological sites is case specific. Each site requires adaptation to the specific requirements to prolong its life and to analyse its cultural meaning with the best available techniques. Modern conservation principles and charters, which link value perceptions with policies for the future of a site, are not in themselves absolute, but must be applied in an established context relevant to the site values and meanings, and to the physical and administrative conditions of a heritage place. Modern conservation principles and ethics have been contextualised with value-based management procedures and models in a systematic established approach to site planning (See sections 1.3.3 and 1.3.4.).

In order to achieve conservation objectives, conservation of archaeological sites uses scientific and planning methods to increase the objectivity of decisions to the greatest extent possible; however, conservation remains to some extent a socio-cultural field. It recognizes the importance of using archaeological and conservation sciences as investigative and treatment processes in the service of art and history. Therefore, the success of a conservation policy for an archaeological site is largely dependent on the quality and depth of the archaeological investigative approach brought to the definition of site values and meanings, and technical conservation needs. A conservation intervention strategy is one with the goal of meeting functional needs with minimum adverse impact (or the greatest positive impact) on the values and cultural meaning defined. Strategic planning has become essential for evaluating options of physical interventions at heritage places (See section 1.3.4).

Accordingly, issues related to heritage interpretation and socio-cultural aspects of heritage have been contextualised with the technical and scientific spheres of cultural heritage conservation. Implications of contemporary perspectives in the field of archaeological conservation have, therefore, directed principles by which new interventions are conducted at heritage sites, and thus processes of management and evaluation of conservation strategies. The following is an overview of those contemporary aspects and concerns which have recently been directing decision-making processes and methodologies for future planning of archaeological sites.

1.3.1. Interpretation of archaeological sites: questions of authenticity

Communicating messages and values of a heritage site implied in the nature of contemporary conservation objectives necessitates careful analysis of processes utilized in site interpretation. Adopting a policy of intervention for an archaeological site is dependent not only on technical conservation needs, but also on the quality and depth of the archaeological investigative approach brought to the definition of site values and meanings. In addition, understanding a site and its values are crucial to steps of subsequent decisions related to cautious choices of new architectural methods of presentation and levels of intervention.

The vital need to address archaeological interpretation in the course of the conservation process is illustrated by Paul Philippot's definition of the conservator's role. Philippot asserts that a conservator is in charge to suggest creatively a certain reading of the cultural object to the viewer. This reading is based on thorough understanding of the heritage site, and is aimed toward avoiding an introduction of a fake (Philippot 1989: 228). This view is also relevant in the context of the role of a conservation team or architect, who takes architectural design decisions for what is judged to be appropriate or a best available approach to the enhancement of the understanding of a site by means of a new intervention.

Nevertheless, there are dilemmas associated with the processes of understanding and interpreting archaeological sites. These dilemmas have increasingly been main issues of discussions in the fields of both archaeology and heritage conservation. Indeed, the notions of objectivity and authenticity in the processes of heritage interpretation, and, thereafter, in the presentation of archaeological sites to the public generated various theoretical and critical approaches to the central problem of knowing the past.

1.3.1.1. Knowing the past in archaeology

Various writers question whether it is truly possible to access the past. In addition, the problems, the validity, and even the rationale of interpreting the past have often been disputed issues in the cultural heritage field (Hewison 1989; Wright 1985; Lowenthal 1985; Molyneaux 1994; Potter 1992). Lowenthal, for example, places insurmountable obstacles challenging the possibility of knowing the past; he argues that the past is a foreign country that is impossible to know with accuracy (1985). Because archaeologists may be susceptible to processes of selective attention and perceptions affected by their personal experiences, there is a consensus among professionals in the field that historical knowledge, especially of ruined and abandoned sites, is subjective and

biased despite the well-authenticated and scientific processes involved. It is, indeed, now accepted to believe that it is impossible to know the past (Bagnall 1996: 240-1).

The current concept of ethics of authenticity refers to the behaviour pattern of the society as a whole (Taylor 1991). Lowenthal sees the cult of authenticity, which has pervaded modern life, as a self-delusion with ever-changing and conflicting criteria. He is convinced that although authenticity is considered an absolute value, it is largely a relative one (1992: 184-90). Authenticity has developed since the eighteenth century, and is an offspring of Romanticism (Trilling 1972). Ruskin's "voicefulness", like authenticity, may prove elusive in its application to the field of archaeological heritage. Talley comments:

> Like the music produced on period instruments for so-called authentic performances, the past's 'voicefulness' will always sound, to varying degrees, somewhat false, somewhat shrill.
> Stanley-Price, Vaccaro, and Talley (eds.) 1996: 9.

It is now agreed that no matter how objective archaeologists are in their attempts to apply historical methodology, their perception of the past remains, to a large degree, coloured by present time (Stanley-Price et al. 1996: 10, 174, 196). Indeed, it is also now recognised that in creating heritage centres and archaeological parks, representation of the past reflects contemporary understanding and concerns (Sorensen 1989: 61). This situation has cautioned current practice where representations of heritage sites, which have been superficially studied, become falsified or oversimplified historic entities.

1.3.1.2. Concerns in creating heritage: falsification or oversimplification

Despite acknowledging impossibilities involved in knowing the past in the heritage interpretation field, concerns about representing an untruthful or unauthentic past form the basis of discussions at forums of heritage interpretation (Uzzel 1989; McManus 1996; Jameson 1997; Eco 1985 and 1973). Concerns about presenting a past that is divorced from a scientific or negotiated archaeological interpretation, to reach most possible objective findings, have been a result of the development of a heritage industry driven by commercialisation activities and commodification of the past. On the one hand, interpretation and representation of sites have been considered useful means to improve the public image of archaeology and ways to instigate commitment to preservation and funding (Fowler 1989); they have also been considered as an educational experience for visitors (English Heritage 1994: 20). On the other hand, interpretation has been seen as an income-generating activity exploiting heritage sites (Smith 1989: 23-28). Uzzel refers to marketing-led interpretation by saying that interpretation has been hijacked by the tourism and leisure industry (1989: 3). Similar to efforts in balancing conservation with tourism in the conservation and cultural tourism fields (ICOMOS 1993), a balance between interpretation led by marketing and promotion, and interpretation driven by education has been a main issue in the field of heritage interpretation (Sansom 1996: 134).

In an interpretation context, recreation sites led by tourism have been considered attractions for visitors to experience the past. Stevens argues that heritage has been exploited by tourism and marketing professionals, and has become an exercise of trivia (1989). Processes of banalisation of the society and environment have been caused by a false discourse in the preservation of heritage and an industry of consumption (Choay 1991: 158-80; Rojek and Urry 1997). Heritage organisations claim that they bring history back to life (Cohen 1988: 376). By having these claims, interpretation has been extended from physical representation to include historic re-enactments and performances at sites. These activities have been put into question (Ucko 2000). In addition, this type of presentation has been practised without adequate research and evaluation processes, which would demonstrate its effectiveness in achieving expected understanding and interaction with visitors at these sites (Sansom 1996: 118-9). Furthermore, Ucko questions whether the goals of such representations are well defined in the presentation planning process (1996). Potter observes that satisfaction of visitors entertained by these presentations does not imply that there is any kind of intellectual interaction with the public to enhance the understanding of a site (1997: 35-44). There has also been criticism about site re-creation stemming from the fact that these interventions or activities concentrate on one period of the site's history while neglecting others. Conversely, critical views were concerned about the fact that these sites become fossils of their own reconstruction period by showing various site features as coexisting, when in fact they were chronologically separate. Concerns have also focused on resulting sanitised experiences, an air of unreality, or a simplified static version of the past at these sites (Pearce 1990: 179-80; West 1988: 56-7). In fact, these representations have been accused of providing information about artefacts as products of the past per se, while information about past social and cultural conditions and contexts is barely conveyed (West 1988: 57; Wallace 1987: 9-19).

Lowenthal considers heritage as an activity of presenting heritage sites and objects; he is critical of all attempts at presenting heritage to the public. By referring to the heritage industry, he not only considers that created heritage is divorced from historical reality, but also warns that heritage, in the sense he uses, apes scholarship and is not academically defensible because historians become incapable of reducing bias since heritage sanctions it (1998). His recent writings have been criticized for the lack of examination of archaeological scholarship that underpins heritage stewardship (Clark 1998).

In a conservation context, site reconstruction is an area that has implications (Molina Montes 1982). Schmidt argues that in situ reconstruction of sites is unethical since it introduces a fakery. He refers to reconstruction as an activity, which involves using new materials similar to the old, and is based on interpretation of the evidence of below-ground archaeology at a discovered location (1997). He argues that an excavated site should be left untouched, and museums are the right place to satisfy the needs for historical and cultural interpretation and reconstruction for visitors (1999: 66-7). Schmidt, therefore, refers to what Pearce defines as "simulated environments", in which reconstruction activity should be placed away from the excavation site (1990: 178).

The term site reconstruction is used in both fields of heritage interpretation and conservation. Uzzel distinguishes between the two approaches in the field of interpretation, reflecting two schools of thought. The first is the re-creation of the past that raises certain questions in relation to authenticity and objectivity because it attempts to create an authentic atmosphere of the past to attract visitors (Gable and Handler 1996: 557-68). It attempts to bring the past to life, where a typical period is represented and history can be interpreted by costumed demonstration. The second is reconstruction where there is no need to maintain an attempted authentic atmosphere, or offer visitors a slice of the past of different periods and introduce comparisons with today. Reconstruction can aid objectively by highlighting doubts about the past rather than pretending to dubious certainties. It creates a channel between the past and present, and allows people to be more critical and analytical by provoking, questioning, and using mentally stimulating material. It requires constant change and reappraisal to reflect the continually changing assessment of the past (Uzzel 1994: 296-7). This latter definition may be confused with other definitions in the interpretation field such as the outdoor museum, which is an off-site reconstruction relocated away from the original location of an archaeological site (Anderson 1985: 5). The definition can also be confused with the simulated site, which is a nomenclature for a recreation site according to Uzzel's definition (Pearce 1990: 178). In the conservation field, reconstruction, often used to refer to re-creation, is to be avoided at archaeological sites when it implies the use of similar materials to the original structure that are indistinguishable, irreversible, and may be based on conjecture (Baranski 1993). Hence, only anastylosis or distinguished additions sympathetic to the setting can be accepted (ICOMOS 1964: articles 15, 9; Starosta 1999; Sanpaolesi 1972: 160).

In general, heritage concerns are the results of promoting heritage as a commodity, which led to the creation of falsified heritage, or to what Fowler refers to as "antiquing" (1989) and what Ucko refers to as a "free-floating heritage" (2000). Therefore, the success of a choice of a presentation approach by which new interventions can contribute to the understanding and intelligibility at a site depends on contextualising the decision-making processes in an overall planning framework aimed at effective presentation of a site. Effective presentation avoids falsifying the past, does not create bogus heritage, and achieves effective educational experience for the visitor. As will be discussed below, current approaches and paradigm shifts in the fields of archaeology and cultural heritage to achieve these goals vary, but are essentially related to careful heritage planning based on the quality of investigative approaches.

1.3.1.3. Retrospectives, viewpoints and approaches addressing dilemmas of site presentation

The current discourse on authenticity of archaeological sites as records from the past, and the critical views toward commercialisation or falsification of heritage places have induced approaches, means and priorities in the processes of planning for the presentation of excavated or ruined material remains. Although these approaches still largely remain on the critical and theoretical levels, they will stand the test of time for their practical effectiveness at sites. Nevertheless, theoretical approaches form contemporary methods in the fields of archaeology, heritage conservation, and site presentation. Despite their differences, these approaches correspond to various issues that are similar in nature; indeed, they are mostly concerned with dealing with the notion of objectivity in the decision-making process, and how best options can be adopted after thorough research processes.

The theoretical debate about the subjective views of archaeologists on their excavated material and questioning the truth in interpretation raised issues such as the consideration of multiple versions of the past.

Hodder and Shanks illustrate a shift in the direction of archaeological activity in the last decade and a desire among archaeologists to come to terms with objectivity in interpretation of archaeological evidence. They critically recognize how past researchers imposed their own value systems on the evidence they presented (1995). Post-processual archaeology generated a fundamental critical view toward positivity, characteristic of new archaeology, which turned the emphasis on relativity that is devoid of rational and objective approaches to the past. This latter approach, which characterised processual archaeology in the 1970s and 1980s objectified the past and separated it from the present (Trigger 1995).

This contemporary perspective in the fields of conservation and archaeology has had various implications. First, it has placed further emphasis on acknowledging the limitations involved in interpreting the past, thus necessitating critical evaluation of the issues involved in interpretation in order to reach the best possible presentation results. Second, it centred on addressing the nature and concepts of presenting an archaeological site as a particular and distinct type of heritage form. Third, it has focused on the important responsible role archaeologists have to play at the various stages of the conservation process. Finally, it generated an unprecedented focus on the crucial role of the cultural dimension of heritage and prioritised the involvement of the public at all stages of the conservation process (section 1.3.2). The following sections introduce these implications.

1.3.1.3.1. Limitations of knowing the past: possibilities for site presentation

Despite acknowledging the limitations involved in knowing the past (Eco 1990b), current discourse has not always considered them when archaeological sites are presented to the public. Stone and Planel (1999) argue that it is impossible to know what the past was like with certainty; however, they state that it is possible to reconstruct images of what archaeologists think the past may have been like. They further explain that these images can be obtained by using fragmentary remains at hand, and argue that these images are influenced to a degree by present cultural perceptions and norms. Those representing the past to others are responsible to ensure that they represent the most likely truth and reality of the past, and that representations are not used as manipulations for contemporary causes. Contrary to this perspective, while every heritage display is subjective, one should be honest about the constraints involved rather than trying to convey a bogus self-righteous objectivity (Stratton 1995: 167). These limitations, however, developed a more focused approach on the depth of investigative processes and admitted the possibilities of having various versions of the past in the participatory processes of site interpretation and presentation (See also section 1.3.2). It thus became necessary to agree that authenticity of interpretation is not a primitive given, but is negotiable; it is not an absolute, but a relative and dynamic entity (McBryde 1997: 96 - 7; ICOMOS 1994a; article 12).

Acknowledgement of the complexities concerned with authenticity should, therefore, not only remain in the archaeological academic domain, but also should be explained to the public in order to increase their awareness of the issues involved. In order to achieve a better public understanding of the unity of archaeological processes from site discovery to site display, this information can be communicated by means of in situ information, exhibitions, and participation in the excavation and interpretation processes (Stanley-Price 1987: 289).

One of the interpretative considerations, which are driven by methods of effective communication with the viewer, is to relate the interpreted past to the living present. The coincidence of the past with the present, forces the audience to ask critical questions. The lack of this link expressed in chosen presentation methods may not make the past relevant to the public. Laenen argues that it is most important to illustrate this continuity and to point out the strands of cultural continuity. The lack of this demonstration was the cause of failure of interpretative provision in the museum field, where the subjects have been dealt with in isolation from real life (Laenen 1989: 88-96). Hence, static objects of the past should be listened to, and the contemporary role of presenters (such as the artists' or conservators' role in designing new interventions) is to find ways to speak with them (Morin 1999: 192). Indeed, limitations in knowing the past, and presenting slices of the history of a site may not be as effective for public learning; therefore, sensitive presentation of a site is bound to contemporary presentation means, which can link the past to the present.

1.3.1.3.2. Understanding the nature of archaeological sites: establishing guiding principles for site presentation

In the conservation doctrinal field, the notion of authenticity has been discussed in relation to various cultural and thematic heritage contexts; these contexts are crucial to understanding the particularities of each archaeological heritage place or object. In the particular field of conservation of archaeological sites, following the Nara conference and the emergence of the Nara Document on Authenticity (Larsen 1995), the declaration of San Antonio states that:

> Only through study and research of the physical evidence can these sites and their objects once again manifest their values and re-establish their links to our present cultural identity. However, the interpretation of these sites can authentically reflect only fluctuating interests and values, and in itself, interpretation is not inherently authentic, only honest and objective […] for these reasons the intactness of the physical evidence in its entirety demands the most thorough documentation, protection and conservation so that the objectivity of interpretation may respond to new information derived from that fabric.
>
> ICOMOS National Committees of the Americas, San Antonio, 1996.

With respect to archaeological sites, discussions of authenticity have been related to materials as sources of evidence and historical qualities (Jokilehto 1985). Therefore, the intactness of material remains as continuous sources of information is a fundamental criterion in the preservation process, since artistic characteristics are embedded in the historically-based investigative research and interpretation (Riegl 1982, 1996; Berducou 1990). This perspective has conditioned the debate about the objectivity of interpretation and the methods that accompany it. Nevertheless, certain archaeological sites, such as sites of continuing living traditions, sacred, and aboriginal or indigenous sites, have a fundamental cultural dimension that is gaining importance and is brought to a broader context (Jokilehto 1994; Layton 1989a; Stanley-Price 1996; ICOMOS 1996b). This dimension takes into account aspects of cultural diversity. Such a cultural dimension has become necessary in assessing the values directing policies for the conservation of archaeological heritage.

Nonetheless, this does not imply that sites which have their functional and living traditions disrupted do not gain the interest of or are not to be valued by local inhabitants and societies. In fact, knowledge of qualities of these static sites that are uncovered by archaeologists may raise interest among people who may have a stake in them. The social values and meanings of these sites are not less important than the messages ascribed to them by archaeologists or experts.

Consequently, when speaking about authenticity of archaeological sites, one refers not only to historical and art-historical dimensions, but also to cultural and socio-cultural scope. Quality of interpretation and derived values are necessary in the decision-making processes aiming at presenting these sites in the course of the conservation process. Discussing interpretation objectivity of an excavated site, and cultural dimensions in interpreting archaeological sites is, therefore, necessary for understanding the particular qualities, and, as a result, the values leading to their presentation and physical conservation.

The spirit of a site or its genius loci as a source of defining sources of authenticity of a site has gained importance in recent discussions about the nature of historic places (Norberg-Schulz 1980; Morin 1999: 193). Criteria defining the authenticity of a site were based on the authenticity of materials, craftsmanship, design and setting; however, the Nara Document on Authenticity added two other sources from which authenticity may be better understood; namely, authenticity in spirit and function (Feilden and Jokilehto 1993: 17; ICOMOS 1994a). In the North American context these criteria form elements of the commemorative integrity of a site (Parks Canada 1997). Authenticity in spirit at an archaeological site or a ruin is derived from a present state, not from a site's past reality. The character of a place, its natural setting and time, and its inherent meaning collectively determine this spirit, which also has to be understood in relation to present requirements. Such a dynamic concept of spirit of place is the sole foundation for creative adaptation to an existing setting. Morin argues that presentation of the past involves the refinement of images of authenticity to communicate the complex realities of ancient sites. His conclusions are based on the fact that the mere intention of preserving authenticity spoils its naiveté (von Schiller 1966). In interpreting an excavated or ruined site, archaeological activity aims at establishing a scientific image of a site and reducing its reality to tangible facts based on material evidence. The incompleteness, abstraction, and partiality of the site characteristic of this image or semblance leaves the presenter to create an image of a site's true spirit of authenticity and to translate qualities into a form people can freely perceive and understand (Ibid 1966; Fitch, Ch. 14). Indeed, understanding the past represents the point of intersection between material evidence and the spirit of an historic place (Bergson 1908).

Moreover, however honest one would be in relation to the work of art, its enjoyment is bound to be personal and partial. Umberto Eco has noted that art has two aspects; the first is the creative process of the artist, and the other refers to its enjoyment by a plurality of people representing different cultural and social backgrounds, and the different requirements that may occur each time. Eco states that the presenter should take into consideration the various conditions of fruition, and must produce an open dialogue between the work of art and the person involved. Therefore, he calls art opera aperta (an open work of art) (1958).

The dialogue that a presenter freely produced between a site and the public has been a basic principle in Tielden's heritage interpretation. Tielden sets the concepts of revelation and provocation as chief aims of site presentation; he, additionally, demonstrates that interpretation is not instruction, but is based on information (1977: 32 - 9).

1.3.1.3.3. Professionalism: the responsible role of archaeologists in site presentation

The objectivity of archaeological interpretation has raised questions about the responsible role of the archaeologist in the discipline itself and towards the public (Hodder et al. 1995). Ucko in questioning the present practice of human performances and re-enactments at sites, calls for further enhanced engagement of archaeologists so as not to present a "free-floating" past, which is usually driven by commercial endeavour and results in a past that is not situated in time and place (2000). In fact, the practice of commercialising heritage sites has been highly criticised in literature. For example, Lane and Tilley saw the effect of tourism as a series of creative local choices offering a commercial "image of a mysterious, exotic, and remote society", legitimising new interventions and representations that they consider, anyway, distinguishable from the old (Lane 1988: 66- 69; Tilley 1997: 67- 89). This view has been offered without qualification or relevance to the qualities of the past. Cohen (1988), on the other hand, warns that recreational tourists in their minds may authenticate a cultural product, and may accept certain new interventions and products as being authentic. Thus, presentation of a cultural site with its variety of kinds of evidence falls within the role of archaeologists as educators about the past; however, archaeologists, who should be in charge to guide presentation decisions, must also be able to listen to other voices in the interpretation process.

The role of the archaeologist is also vital in post-intervention stages to achieve an understanding related to the public perception of a site and to the effectiveness of the interpretation medium in communicating archaeological messages (Miles 1994: 369-75). The archaeologists' role is also extended to include approaches and techniques in foreign countries they work in, where considerations of local requirements, resources, and messages may differ, but can be enhanced by cross-cultural encounters and sensitivity to local situations (Byrne 1991: 269-79; Davis 1989: 96-100; Upitis 1989: 153-61).

Moreover, application of contemporary theoretical viewpoints stand the test of time in the real world of site presentation. Indeed, despite these current views, Lowenthal describes the evolution and change of application of the notion of authenticity over time and believes that the process of change will continue. He, in other words, argues that contemporary agreement on, and perceptions of methods to decide what is best to do at present might be questioned by future generations (1999: 5 - 8). Nevertheless, the dynamic nature of authenticity demands periodic re-evaluation, re-interpretation, and continuous monitoring of the effectiveness of a presentation provision. These latter aspects form the basis of site management processes and of the core extended role of archaeologists.

1.3.2. Socio-cultural meanings, values, and significance of archaeological sites

> The object-oriented interpretation that for decades dominated conservation theory and practice is now yielding to other interpretations, such as the continuity of […] cultural values. This does not necessarily mean that conservation of objects should be abandoned: the objects will remain important carriers of information on cultural values as well as being important sources of information themselves.
>
> Laenen 1998: 1.

Central to the implications discussed above on the objectivity and authenticity of interpretation of archaeological sites, and the responsibility of the archaeologist in the various stages of the archaeological activity from discovery to presentation and conservation of a site, is the interface with the public. This interface constitutes not only the contributory role the public plays as receivers of archaeological findings, but also as participants in the interpretation, conservation, and presentation processes. Admitting the plurality, multivocality, and participation of the public in the archaeological inquiry has unprecedentedly been emphasised in the last decade (Leone, 95; Potter 1997; Bender 1998). Stressing the dialogue between archaeologists and the public has been a result of challenges in addressing the social, political, and ideological contexts of archaeology. In particular, conceiving the past as a construction of the present has instigated concerns about the socio-political context influencing archaeological interpretation and about objectifying the past. In addition, the political dimension resulting in manipulating the values of sites for political, nationalistic, and colonialist interests has raised concerns about the objectivity and western hegemony in using and abusing the archaeological evidence (Trigger 1984; Layton 1989b; Arnold 1995; Diaz 1996; Byrne 1991; Ucko 1995). Incorporation of cultural concerns into the processes of interpretation and conservation of the past has been viewed as a way by which avoidance of the distortion of meaning and of neglect of other possible versions of meanings can be achieved.

Public involvement can promote multiple ways of telling and experiencing the past (Bender 1998; Duncan and Ley 1993). Indigenous populations can be part of the process of understanding their past (Preucel and Hodder 1996), and would allow archaeology as a profession to have a self-reflection with the local audience (Potter 1997). Authenticity of sites has been seen as a social dialogue rather than a scientific activity in many cases, where the public and audience can be partners in the process of understanding the past and promoting its preservation (Shanks and Hodder 1995; Davis 1997). While public evaluation has been a focus of study in the last decade (Merriman 1991; Fowler 1992; Walsh 1992; McManus 1996; Jameson 1997; Bender 1998), issues related to participation rather than satisfaction of the public in the interpretation process have gained ground.

The recent discourse on the universality of heritage overlooking cultural diversity even within the same culture has raised the issue of who owns the past. The world heritage ethic has generated an argument of dispossession of indigenous cultural heritage and accusations of neo-colonialism (Simmonds 1997; Langford 1983; Condori 1989). Questioning the universality of principles resulted first in the emergence of the Nara Document on Authenticity in 1996, where emphasis in the discussions was related to the cultural dimension of heritage (Larsen 1994 and 1995; McBryde 1997) and, resulted in the view of world cultural landscapes (Cleere 1995: 63-68) not merely as past entities, but as continuous spaces constructed through time and perceived by present societies and local communities (Bender 1998).

Decisions for the future and conservation conditions of archaeological sites have been culturally associated. For example, the sacredness of an archaeological place may make it incompatible with uses that might include visitations (Stovel et al. 2005). Walsh examined the past as part of a living experience, arguing that postmodern representations contribute to the destruction of a sense of place; he suggests ways to enable societies and communities to decide upon their heritage (1992). While management and conservation processes aim to achieve better future conditions of a site (Fowler 1992), preservation may alter the meaning of certain sites (Lowenthal 1992). Therefore, what has become clear is that decisions and management of the future conditions of a site can be taken only if the site is culturally contextualised (West Burnham 1994). In addition, conservation and management criteria cannot be universally applied.

This cultural perspective incorporated in the conservation process is not entirely new, but has gained more impetus that resulted from postmodern views of the "other" as developed by Edward Said. Said illustrated the Western ways of interpretation of Oriental and Eastern cultures (1978). In fact, rather than adopting an approach to conserve the materials and fabrics of a heritage place, eastern conservation philosophies generally focus on spiritual aspects of heritage, and on the form and spirit of a site (Wei and Aass 1989: 3-8). For example, Islamic cultures, and aboriginal societies of New Zealand and Australia are more concerned with traditional continuity where materials constituting heritage places can be habitually modified (Arkoun 1994: 45 - 49; Allen 1998: 144 - 151; Bowdler 1988: 517 - 23).

Cultural heritage has also been seen as a means to impose power, and a way of manipulation where tradition has been invented to serve purposes of nationalism and political consolidation in the hands of state bodies who disregarded the interest of local communities and cultures (Hobsbawm and Ranger 1985). In the fields of archaeology and cultural heritage it has resulted from self-reflexive initiatives within the disciplines themselves (Hodder (ed.) 2000; Potter 1997; Matero et al. 1998).

However, acknowledging the need for public participation and cultural dimension in the field of archaeology has practical difficulties in its application. Preucel and Hodder argued that the language of communication between the archaeologists and the public may create difficulties in developing this dialogue (1996). Some lessons have to be learnt here when the public ability to understand maps was overestimated in the fashionable public participation programmes of the 1970s in urban planning processes, because a common language between the public and the planners was lacking (Stringer 1982). In addition, the resulted multiple versions of meanings may create difficulties in the decision-making process (Australia ICOMOS 1993, 1995), which necessitate development of standards and guidelines for solving problems of contestation. Domicelj and Marshall introduced examples of diverse and conflicting values to be identified and protected within a management plan for a single cultural place that bears several meanings. They outlined steps and effective ways to handle conflicting values, and presented a code of ethics of co-existence for the conservation of cultural places (1994: 28 - 33).

1.3.3. Interventions at archaeological sites: Principles and levels

1.3.3.1. Principles

The development of conservation philosophies, approaches, and perspectives contributed to the formulation of conservation

principles and guidelines throughout the modern conservation movement of the twentieth century. Being general in nature, conservation guidelines address very broad issues, linking philosophical background to practical application. These principles can be found in charters and conventions forming established dicta to parcel up conservation problems and help decide upon intervention levels. Conservation guidelines and principles essentially reflect conservation philosophical approaches, largely of periods of critical conservation and contemporary thought.

In view of the late modern and contemporary philosophical conservation background discussed above, most conservation principles share one common factor. This factor is related to the truthfulness and honesty used in interventions, which, as discussed, are fundamental in achieving basic conservation objectives. Inversely, these principles censure misleading alterations to the historic fabric, where fakery and deliberate destruction are basic errors in conservation.

In fact, general conservation principles have usually addressed basic issues in the fields of heritage interpretation and presentation as discussed earlier (Appendix 1). These issues are relevant to heritage values, quality of archaeological investigations, and use of scientific methods to increase the objectivity in decision-making processes. Hence, typical broad conservation principles found in charters primarily include:

- careful recording and thorough research before intervention;
- maximum retention of the original material;
- minimal intervention, alteration, and damage to the historic fabric;
- distinguishability of new additional material;
- reversibility or re-treatability of interventions;
- sympathy of new interventions to the original and sympathy in use;
- respect for the quality, context, and setting of an historic place;
- longevity in the finished work.

Moreover, the philosophy of conservation approaches developed during the conservation movement of the twentieth century, largely aimed at balancing issues of ethics and aesthetics (Warren 1996). Ethically, a conservation work can be judged as truthful or deceitful; aesthetically, it can be satisfying or unsatisfactory. Ethics involve responsible behaviour and a sense of responsibility in holding past creations in trust for future generations. However, there are difficulties in the temptation to pursue aesthetic objectives at the expense of ethics (Warren 1994). Therefore, in modern conservation guidelines it has only been possible to have an ethical principle ameliorated by aesthetic considerations and to have aesthetically driven conclusions taking an ethical overtone. Thus, ethics have increasingly been underlined in contemporary value-driven, truthful, and honest conservation decisions.

Nevertheless, the first-established modern conservation principles of the twentieth century are different from the social precepts a sensitive contemporary conservator interprets in his work. For the conservator, conservation is a matter of judgement, not only ethically and aesthetically, but practically in what is achievable and socially right for the present generation. More importantly, since conservation is case-specific, contemporary conservation thinking acknowledges the fact that existing guiding principles should be dealt with only as general guidelines. Indeed, these principles are not themselves absolute; decision-making processes have to encompass contemporary socio-cultural interests and protection of messages and values utilising a systematic methodology.

Therefore, it can be said that principles of contemporary views of heritage conservation have formed the foundation of more recent charters and conservation guidelines. In addition, since implications of a culturally based approach are related to changing values of time and viewpoints, newly emerging conservation charters help describe the mechanisms by which value judgements are reached or compared (Australia ICOMOS 1988; ICOMOS 1990; ICOMOS New Zealand 1993).

Above all, these contemporary principles are based on the fact that the act of conservation is one of compromise and cultural agreement. In addition, a conservation decision becomes unacceptable when it is carried to excess or biased, and when it involves historical falsification (Warren 1996: 42). In this context, however, the conserving generation may make creative statements that are collectively seen as appropriate, by reaching decisions that are methodologically negotiated and introducing new interventions linking the past with the expressions of the present (Al-Jabiri 1991: 40 - 41). However, emerging general conservation principles set various limitations to such levels of interventions decided upon collectively.

1.3.3.2. Levels of Interventions

Levels of intervention in a conservation strategy at an archaeological site include preservation, restoration, reconstruction, and adaptive use (Australia ICOMOS 1988).

The conservation process may include a combination of more than one level[1]. Based on contemporary conservation philosophy, limitations at each of these intervention levels in emerging conservation charters essentially include:

- At the level of preservation, interventions are limited to the protection, maintenance and, where necessary, the stabilisation of the existing archaeological fabric, without introducing a new addition to the form of the fabric itself. Preservation can also be limited to keeping the fabric intact in a fixed position by maintaining it regularly. Reburial is a main form associated with preserving an archaeological site. Additionally, new construction may be carried out in association with preservation, without direct intervention on the historic fabric itself (Fig. 3) when it is aimed at physical protection, when it maintains an appropriate visual setting, and when it does not reduce or obscure the cultural significance and meaning of a site. Conversely, preservation of a site may also lead to a decision where interventions are totally excluded and a non-intervention policy may be adopted (ICOMOS New Zealand 1993: article 14). Therefore, strategies of reburial, structurally or materially independent new construction as described above, and non-intervention are associated with site preservation.

- At the level of acceptable restoration, interventions are concerned with removing accretions, or reassembling existing components aimed at the recovery of an earlier form and integrity of a site. Anastylosis can be a form of restoration where a sufficient evidence of an earlier state of an archaeological site is known (Starosta 1999; Sanpaolesi 1972:160; Dimacopoulos 1985)[2]. Appropriate restoration stops where conjecture begins.

- Acceptable reconstruction is distinguished by introducing new additions into the fabric itself to complete a depleted entity, but should not constitute the majority of the fabric. It constitutes a reproduction of fabric the form of which is known from physical or documentary evidence.

  It should not be confused with conjectural reconstruction, which is outside the ethics of conserving an archaeological site, for reasons associated with presentation principles discussed earlier. Introducing new structures of original forms to the old is the main type of acceptable reconstruction. Conservation charters state that reconstruction and new additions should be distinguishable (Australia ICOMOS 1988: articles 8 and 19; ICOMOS Canada: 57).

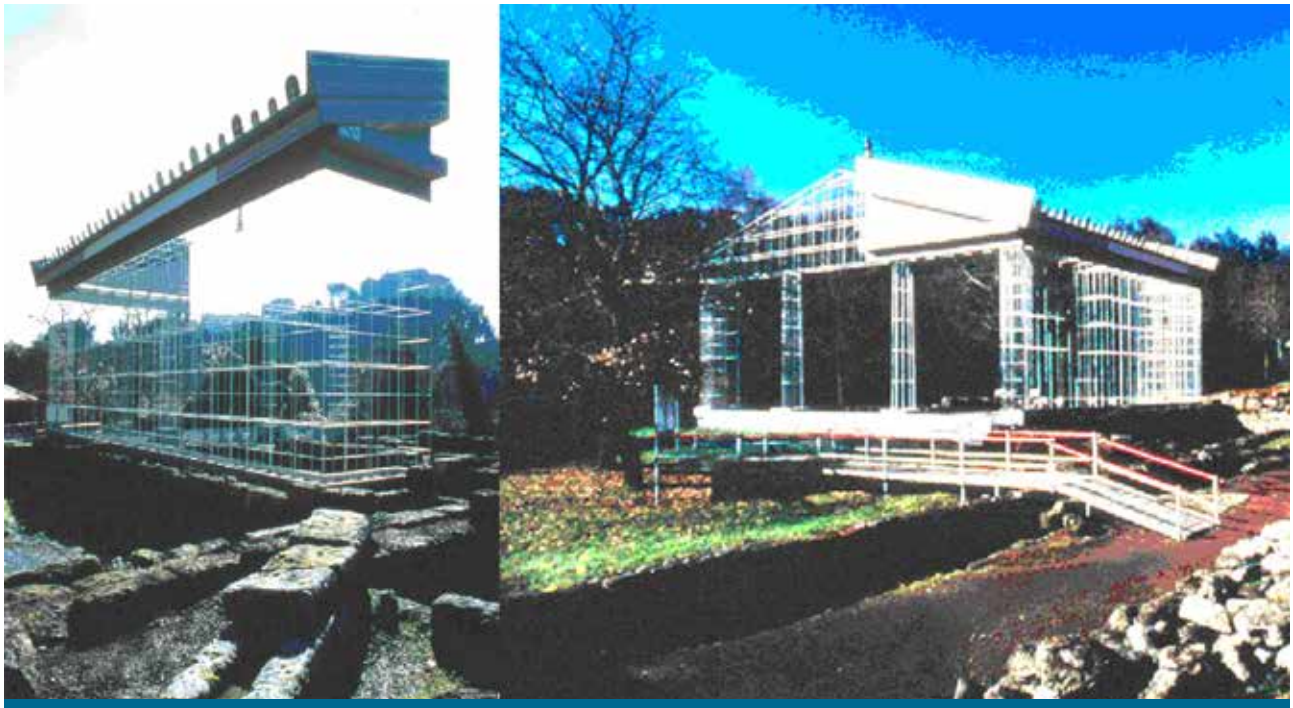

Fig. 3. The design of new elements in historic context: A structure built at the Temple of Apollo, Italy

1 Definitions of these intervention levels may vary between one conservation charter and another. However, there are various regional attempts to utilize similar terminology in principles that are derived from the original Venice Charter (Petzet, 1992; ICOMOS, 1990b).

2 Anastylosis is permitted in the Venice Charter. It is the reassembling of existing original parts of a monument (Starosta 1999: 84), or the re-erection of a dismembered historical structure or one part of it, in which every recovered element takes up its original position and structural role (Mertens 1984).

- Adaptation should be limited to what is essential to a use of a place where contemporary functional standards are introduced. It is determined in a conservation policy based on cultural significance and the physical condition of a place (see 1.2.4.2). The use of an archaeological site by visitors constitutes a main form of adaptation to new visitation or concepts of reversibility, minimal intervention, and distinguishability; they also should be sympathetic to the setting.

1.3.3.3. Protection versus enhancement: old and new architecture relationship

> [...] The genius loci constantly demands new interpretations in order to survive. It cannot be 'frozen' but has to be understood in relation to the needs of the present. Such a dynamic concept of the term 'place' represents the sole basis for a creative adaptation to an existing setting.
> Norberg-Schulz 1980.

At intervention levels, conservation is confronted with a spectrum of options ranging from preserving and protecting the historic fabric to enhancing and developing a site by inserting new additions. For archaeological remains, preferences in policy making have often concentrated on maintaining and consolidating the historic fabric. However, at the other end of the spectrum, as so dramatically shown by the work of Carlo Scarpa at Castelvecchio, Verona, by inserting a modern addition that enhances the new adaptive educational use of the building, new opportunities appeared that helped explain the intention of the building layout (Murphy 1990). Between these extremes, the spectrum of options is also broad. As discussed earlier, new additions in a historic context often require justification, guidance, and negotiations.

Through additions and alterations, buildings and environments grow, change and mature (Brand 1994). Today, with the weight of the past, both heritage professionals and the public are often uncomfortable about developing sites anew. Yet, with a sensitive understanding of the needs and values of the past, new insertions in the spirit of the time could be a way of improving physical conditions, utilisation, and accessibility, and bringing the past into interaction with the present.

In the field of architecture, the issue of building in a historic context has often been addressed (National Trust for Historic Preservation 1980; Bayerische Architekturnkammer 1978; Warren et al. 1998). The role of the architect has focused not only on retaining past creative works, but also on adding to our understanding of the past and opening up opportunities for the future. To this latter end, the pertinent criteria for designing new architecture in historic settings have been based on concepts of beauty that may be a result of requirements of a good design. These criteria have included: (1) honesty of the new construction: (1.a) truthfulness of expression of the function of the building and its spatial unity, (1.b) integrity and intelligibility of a new design in relation to its function, thus, responding to needs like energy efficiency, and in relation to articulating details of construction and materials; (2) simplicity of the design introducing unity, balance, and order; and, finally, (3) harmony in the relationship with the wider historic environment (Cantacuzino 1998). Namely, the preservation of order, scale, texture, and harmony rather than a return to original styles or unmistakably modern designs to make the building legible have been advocated (National Trust for Historic Preservation 1980: 186). Ultimately what makes a good new architecture is enlightened architectural patronage that is based on the fact that design is a research process founded on quality scientific investigations carried out at an historic place (Steemer 1996). All these viewpoints have formed the basis for contemporary approaches: principles of enhancement, maintenance of appropriate visual settings (Australia ICOMOS 1988: articles 8 and 19; ICOMOS Canada: 57), and processes for contemporary management approaches to the historic environment that do not adversely affect the cultural significance of the place.

In this context, opinions and philosophies argue from different perspectives for continuity (Laenen 1989: 88-96; see also section 1.3.1.3.1), and believe that good environments are results of attentive designers in direct dialogue with stakeholders. Based on hermeneutics, as a value judgement theory, Ganiatsas refers to possible approaches for new additions categorised into neutral intervention, creative imitations, and harmonic contrast (Ganiatsas 1993: 14-20). However, tensions rise first when local communities see their sites threatened by aggressive modernism and, second, when tension stemming from demands of progress and visions of the future is relentless.

Significantly, both sides of the debate are valid, but the crux of the argument is how to avoid producing chaotic effects on an archaeological setting. Ultimately, it is in the hands of a good designer to provide appropriate and ethical solutions to the welfare of both the historic environment and the society (Fig. 4).

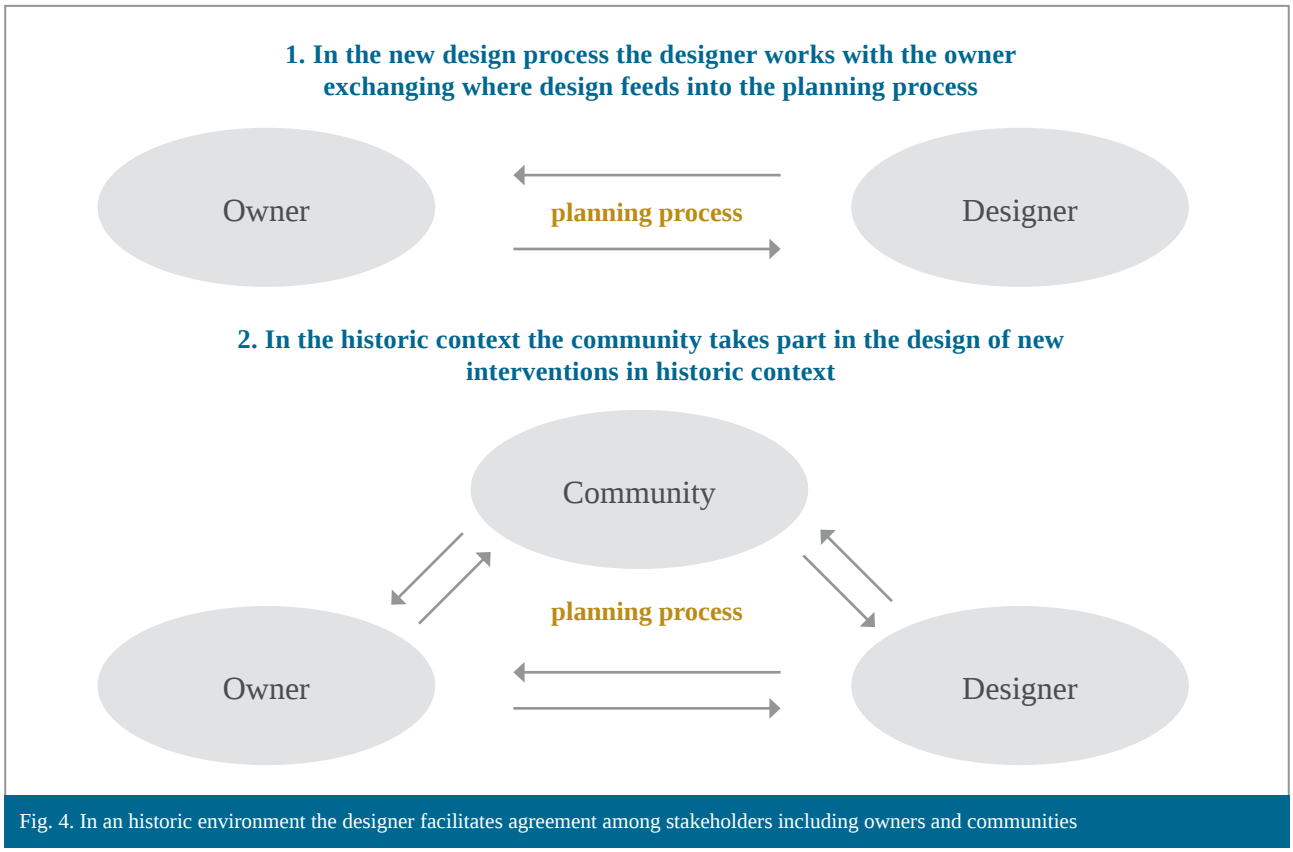

Fig. 4. In an historic environment the designer facilitates agreement among stakeholders including owners and communities

Thus, in various disciplines (archaeology, architecture, conservation), decision-making based on this type of perceptive judgement has become fundamental. This judgement is based on understanding the needs of the community and an analysis of requirements for the welfare of the historic environment. Decision-making could therefore be driven through evaluation processes of collective contemporary requirements, forming a rationale for management processes in the field of heritage conservation.

1.3.4. Conclusion: the use of management and evaluation processes, and planning models

Based on contemporary conservation views and implications, and the rationale discussed in this paper, emerging heritage planning models have emphasized the assessment of the above-mentioned elements in the conservation process. Similar to contemporary conservation charters, these emerging heritage conservation and management models consider the assessment of significance, values, and meanings of a site as central elements to the decisions made about levels of protection. While the significance of management approaches lies in their comprehensiveness, a failure of heritage management planning rises when an element concerned with a key discipline, an area of expertise, or an involvement of some stakeholders are excluded as basic issues in the planning process (Sullivan 1997; Sease 2001).Therefore, planning and management processes devised for the conservation of archaeological heritage have been increasingly used, developed, and emphasized in the late 1990s onwards (Cleere 1989 and 1990; Cunliff 1994; Sullivan 1997; Council of Europe 1992). Planning procedures were best incorporated in a theoretical framework in the illustrated Burra Charter (Australia ICOMOS 1999; Truscot and Young 2000; Marquis-Kyle and Walker 1992). These planning procedures for heritage places, including archaeological sites, have become systematically developed in the heritage field. The first charter addressing this specific area of planning for archaeological heritage sites was the Charter for Archaeological Heritage Management (ICOMOS 1990a).

1.3.4.1. Applying conservation rationale in systematic planning models

Thus, emerging conservation planning or management models (Fig. 5) are based on the logic and implications discussed in this paper. Conservation whether value or culturally-based, is case-specific, and is a design research process. After an archaeological site is identified as an historical document or evidence, the management process in these models begins with the identification of stakeholders and interest groups at a site (Sullivan 1997; Burra Charter 1988; Cunliff 1994).

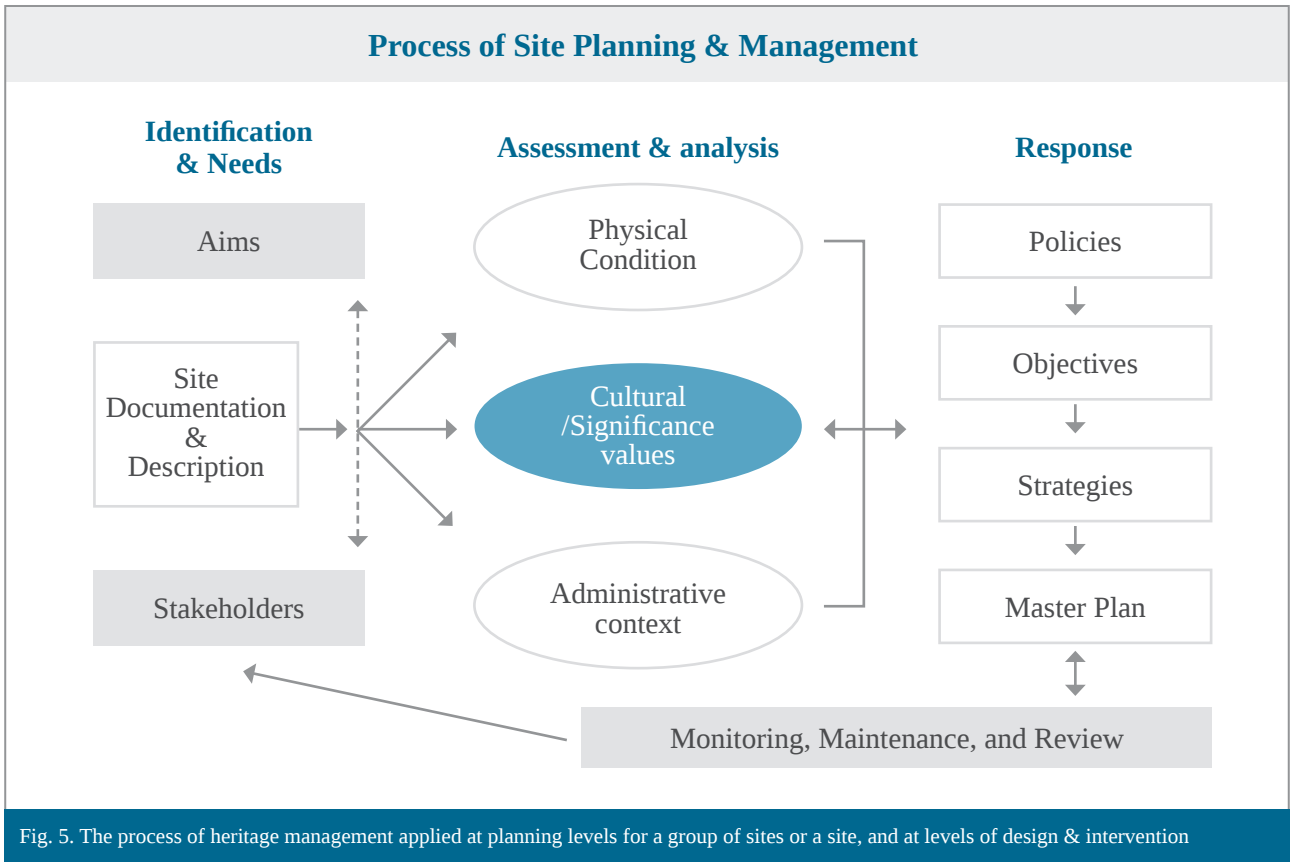

Fig. 5. The process of heritage management applied at planning levels for a group of sites or a site, and at levels of design & intervention

Cultural significance and profound knowledge of the site, physical condition assessments and evaluation of administrative contexts are necessary steps to decide on the "why" and "how" a site is managed and, therefore, protected in a long-term vision. In light of this assessment, management strategies concerning conservation, presentation to visitors, and maintaining future research can be defined. According to contemporary conservation philosophy embedded within this process, these strategies have to be agreed upon by the various stakeholders for whom the site has certain values and meanings. Moreover, since management is an iterative dynamic process, these strategies have to be monitored and re-assessed (ICOMOS 1990a; Sullivan 1997; Truscott and Young 2000).

1.3.4.2. Conservation and management plans:

The concept of a conservation plan essentially refers to the main conservation objectives, and, particularly, to the cultural meaning and values of a cultural site. Conservation plans consider the cultural significance of a place fundamental for its care (Kerr 1996; Sullivan 1997; Burman 1997). The Burra Charter envisages that the planning process involves three stages: understanding the significance of the place, developing a policy and priorities, and managing the place according to the policy (Truscott and Young 2000). The conservation plan is concerned with the first two of these phases, while management plans incorporate the three stages. The aim of these plans is to avoid future problems and to devise sustainable solutions necessary for the future of a heritage site. This paper has provided a rationale of, and philosophical base relevant to, these plans, which can guide decisions, criteria, and implementation of new interventions and additions in historic contexts. Nevertheless, applying conservation objectives in planning for the future of archaeological sites has been very rare in practice. Indeed, despite being apparent to heritage professionals, notions of cultural values, significance or meaning, material durability and long life of a site, presentation of these values or accessibility to cultural messages have been treated in an isolated manner. Still, it is clear that the rationale for using such a planning methodology in conservation illustrates the complexity of the issues involved. The study of this rationale has further illustrated that following this conservation planning process is crucial in protecting archaeological heritage places for future generations; and, above all, it is also fundamental to the achievement of informed conservation objectives in the planning of new interventions at archaeological sites (ICOMOS 1990a; Feilden and Jokilehto 1993; Sullivan 1997; Avrami 2000; de la Torre (ed.) 2002). Moreover, the understanding of this rationale, discussed through research and investigations presented in this paper, forms fundamental theoretical and philosophical reference to the design of physical interventions at archaeological sites.

References

Al- Jabiri, M. 1991. *Heritage and Modernisation***.** Beirut: Centre of Arab Studies (Arabic).

Allen, N. 1998. "Maori Vision and Imperialist Gaze",in: Barringer, T. and Flynn, T. (eds.). In: *Colonialism and the Object***,** London: Routledge, 144-151.

Anderson, J. 1985. *The Living History Sourcebook***.** Nashville: American Association for State and Local History.

Argan, G. C. 1985. *Penserio critico di Guilio Carlo Argan, Studi in onore di Guilio Carlo Argan*, III. Rome: ICR.

Arkoun, M. 1994. "The Meaning of Cultural Conservation in the Muslim World", in: *Scientific Journal*, Paris: ICOMOS, 20, 45- 49.

Arnold, 1995. "Archaeology in Nazi Germany", in: P. Kohl, and C. Fawcett, (eds.) *Nationalism, Politics and the Practice Archaeology*, Cambridge: Cambridge University Press, 70-81.

Australia ICOMOS, 1988. *The Australia ICOMOS Charter for the Conservation of Places of Significance* (The Burra Charter*)*, in: *Preserving our Heritage: Catalogue of Charters and other Guides*, Quebec: Service de communication, articles 8 and19, 33- 37.

Australia ICOMOS, 1993. *Whose Cultural Values?* In: *Historic Environment*, Sydney: Australia ICOMOS, 11, 2 and 3.

Australia ICOMOS, 1995. *Managing Shared Heritage*, in: *Historic Environment*, Sydney: Australia ICOMOS, 11, 2 and 3.

Australia ICOMOS, 1999. *The Australia ICOMOS Charter for the conservation of places of cultural significance* (The Burra Charter).

Avrami, E. 2000. "A methodological Approach for Conservation Planning", in: *Corinth Workshop on Archaeological Site Management Planning*, Corinth, Greece (May 19- 22, 2000). Los Angeles: The Getty Conservation Institute.

Avrami, E. *et al.*, 2000. *Values and Heritage Conservation*, Los Angeles: The Getty Conservation Institute, 3-10.

Bagnall, G. 1996. "Consuming the past", in: S. Edgell (ed.) *Consumption Matters: The production and experience of consumption*, Oxford: Blackwell, 227-247.

Baranski, M. 1993. "Conserve or Restore? The dilemma of the preservation of ancient monuments", in: Thiel (ed.) *Conservation of Stone and Other Materials* (proceedings of the international RILEM/UNESCO Congress) Paris, June 29- July 1,1993. London: E and FN Spon, 839- 844.

Baumgarten, A., 1750-8. *Aesthetica*, (2 vols.) Frankfurt-an-der-Oder

Bayerische Architekturnkammer, 1978, *New Building in Old Settings*. Munich: Die Neue Sammlung.

Bender, B. 1998. *Stonehenge: Making Space*. Oxford: Berg.

Berducou, M. (ed.) 1990. ''Introdution a la coservation archeologique'', in: *La conservation en archéologie: Methodes et pratique de la conservation-restauration des vestiges archéologique*, Paris: Masson.

Bergson, H. 1908. *Matière et mémoire, avant- propos* (7th ed.). Paris: PU de France.

Bonelli, R. 1959. "Principi e metodi nel restauro dei monumenti", in: *Architecttura e Restauro.* Venice: Bonsignori.

Bowdler, S. 1988. "Repainting Australian Rock Art", *i*n: *Antiquity*, 62: 517-523.

Brand, S. 1994. *How Buildings Learn***.** New York, London: Viking.

Brandi, C. 1963. *Teoria del restauro.* Rome: Edizioni di Storia e litteratura.

Brandi, C. 1974. *Teoria generale della critica*. Turin: Einaudi.

Brandi, C. 1995. *Il restauro, teoria e pratica 1939- 1986***.** Michele Cordaro (ed.). Rome: Riuniti.

Brandi, C. 2005. *Theory of Restoration*. Giuseppe Basile (ed.), C. Rockwell (trans.). Instituto Centrale per il Restauro. Florence: Nardini Editore.

Burman, P. 1997. "Conservation Plans for Historic Places: an interdisciplinary approach". A note given at a two-day conference on: Conservation Plans at Oxford, St. John's College (Unpublished).

Byrne, D. 1991. "Western Hegemony in Archaeological Heritage Management, in: *History and Anthropology* 5: 269-279.

Cantacuzino, S. 1998. “Assessing Quality: The pertinent criteria for designing buildings in historic settings”, in: Warren, J. *et al*. (eds.) *Context: New Buildings in Historic Settings*. Oxford: Architectural Press.

Carbonara, G. 1976. “The Integration of the Image: Problems in the Restoration of Monuments”, in: N. Stanley-Price, *et al.* (eds.) *Historical and Philosophical Issues in the Conservation of Cultural Heritage*, Los Angeles: The Getty Conservation Institute, 236-240.

Carver, M. 1996. “On archaeological value”, in: *Antiquity* 70: 45-56.

Cavaceppi, B. 1768. *Raccolta di antiche statue, busti, bassirilievi ed altre sculture restaurate da Bartolomeo Cavaceppi, scultore romano.* I-III, Rome.

Ceschi, C. 1957. *Teoria e storia del restauro*: 108. Rome: Bulzoni.

Choay, F. 1991. *L’allégorie du patrimoine*, Paris : Ed. du Soleil, 158-80.

Clark, K., 1998. “Conservation Plans for Historic Places’’, in: *Conservation Bulletin:*14. London: English Heritage.

Cleere, H. 1995. “Cultural Landscapes as World Heritage”, in *Conservation and Management of Archaeological Sites*, 1: 63-68.

Cleere, H. (ed.) 1989. *Archaeological Heritage in the Modern World (One World Archaeology 9)* London: Unwin Hyman.

Cleere, H. (ed.) 1990. *Approaches to the Archaeological Heritage: New directions in archaeology*. Cambridge: University Press.

Cohen, E. 1988. “Authenticity and Commoditization in Tourism”, in: *Annals of Tourism Research* 15: 371-86.

Condori, M. 1989. “History and Prehistory in Bolivia: What about the Indians?”, in: Layton, R. (ed.) *Conflict in the Archaeology of Living Traditions*, 46- 59. London: Unwin Hyman.

Council of Europe.1992. *European Convention on the Protection of the Archaeological Heritage.*

Croce, B. 1938. *La storia come pensiero e come azione***.** Milan: Adelphi.

Croce, B. 1990. *Estetica come scienza dell’espressione e linguistica generale, teoria e storia.* Milan: Adelphi.

Cunliff, S. 1994. “Documentation as a Management Tool: Planning for conservation”, in: Mousseau *et al*. (eds.) *Archaeological Remains In situ* (Proceedings of the second ICAHM International conference), Montreal, 11-15 October 1994.

Davis, H. 1989. “Is the Archaeological Site Important to Science or to the Public?”, in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol.1): *The Natural and Built Environment*, 96-100. London: Belhaven Press.

Davis, K. 1997. “Sites Without Sights: Interpreting closed excavations”. In: J. Jameson (ed.). *Presenting Archaeology to the Public: Digging for truths*, London: Altamira Press, 84- 98.

De la Torre, M. (ed.). 2002. *Assessing Values of Cultural Heritage***:** Research Report. Los Angeles: Getty Conservation Institute.

Diaz-Andreu, Mand Champion, T C (eds). 1996. *Nationalism and Archaeology in Europe***,** London, Westview Press.

Dimacopoulos, J. 1985. “Anastylosis and Anasteloseis*”* In*: ICOMOS information.*

Domicelj, J. and Marshall, D. 1994. “Diversity, Place and the Ethics of Conservation”, in: *Scientific Journal* (Articles of Members), Paris: ICOMOS, 28-33.

Duncan, J. and Ley, D. 1993. “Introduction: Representing the Place of Culture”, in: Duncan J., and Ley D. (eds.) *Place, Culture, and Representation***.** New York: Routledge.

Eco, U. 1958. Il problema dell’opera aperta (Venezia, 12-18 Settembre 1958), *Proceedings of the XIIth International Congress of Philosophy.*

Eco, U. 1985. *La Guerre du faux.* Paris: Grasset.

Eco, U. 1990b. Fakes and Forgeries (1986), in: Eco, *The Limits of Interpretation***,**. Bloomington: Indiana University Press, chapter 12.

Eco, U. 1973. *Travels in Hyperreality, San Diego: Harcourt Brac*e and Company, Chapter 1.

English Heritage 1994. “Marketing the Past: From bare stones to Tosca’s leap. *Conservation Bulletin*, 23: 20.

ERDER, C. 1986. “*Our Architectural Heritage: Form consciousness to conservation.* Paris: UNESCO.

Fairclough, G. 1999. The ‘S’ Word- or Sustaining Conservation, in: Clark, K (ed.) *Conservation Plans in Action*. Proceedings of a conference held at St John’s College, Oxford: 127- 132. London: English Heritage.

Fielden, B. 1982. *Conservation of Historic Buildings*, 1-15. London: Buttertworth Scientific, 1982.

Fielden, B. and Jokilehto, J. 1993. *Management Guidelines for World Heritage Sites:* 17. Rome: ICCROM.

Fitch, J.M. 1982. *Historic Preservation: Curatorial Management of the Built World,* Ch. 14, New York: McGraw Hill.

Fowler, P. 1989. Heritage: A Post-Modernist Perspective, in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol.1): 57-63. London: Belhaven Press.

Fowler, P. 1992 *The Past in Contemporary Society: Then, now*. London: Routledge.

Gable E. and Handler, R. 1996. "After Authenticity at an American Heritage Site, in: *American Antiquity* 98 (3): 568-578.

Ganiatsas, V. 1993. "Heritage Management through Contemporary Design: A philosophical approach", in: *Archaeological Heritage Management* (International Scientific Symposium, Sri Lanka, July- August, 1993): 14-20.

Giovannoni, G. 1932. "Italian norms for the restoration of monuments". (Norme per il restauro dei Monuments by the Consiglio Superiore per le Antichita e le Belle Arti, in: *Bollettino d'Arte*, January 1932 (English translation).

Giovannoni, G.1954. *Il restauro dei monumenti.* Rome.

Habitat, 1996. "Potential of Science and Technology for Urban Development and Sustainability", in: *United Nations Conference on Human Settlements* - HABITAT II, Istanbul, Turkey, 3-14 June.

Herder, J. G., 1803. *Outlines of a Philosophy of the History of Man*, 2 vols. 2nd Edition: London: tr. T. O. Churchil.

Hewison, J. 1989. "Heritage: An Introduction", in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol.1): 15- 23. London: Belhaven Press.

Hobsbawm, E. and Ranger T. (eds.).1985. *The Invention of Tradition*. Cambridge: Cambridge University press.

Hodder, I. (ed.). 2000. *Towards Reflexive Method in Archaeology: The example at Çatalhöyük* (McDonald Institute Monographs). Ankara: British Institute of Archaeology (MERCO).

Hodder, I. *et al*. 1995. *Interpreting Archaeology: Finding meaning in the past*. London: Routledge.

Hughes, M. and Rowley, L. (eds.). 1986. *The Management and Preservation of Field Monuments*. Oxford: University Department of External Studies.

Iamandi, C. 1998. "*Charter of Athens*: Coincidence, controversy and convergence, in: *Conservation and Management of Archaeological Sites* 2, 1: 17-28.

ICOMOS 1990a. "*ICOMOS Charter for the Protection and Management of the Archaeological Heritage*", in: *Preserving Our Heritage: Catalogue of Charters and Other Guides*, 1990. Quebec: ICOMOS Canada.

ICOMOS 1990b. "*ICOMOS Charter for the Protection and Management of the Archaeological Heritage"*, in: *Preserving Our Heritage: Catalogue of Charters and Other Guides*, 1990. Quebec: ICOMOS Canada.

ICOMOS 1994a. *Nara Document on Authenticity*: article 12.

ICOMOS 1996a. *Declaration of San Antonio*, 1996.

ICOMOS 1996b. *Declaration of Sofia*, 11th General Assembly of ICOMOS.

ICOMOS Canada. 1990. *Preserving Our Heritage: Catalogue of Charters and other Guides:* 57. Quebec: Service de communication.

ICOMOS New Zealand. 1993. article 14, *Charter for the Conservation of Places of Cultural Heritage Value.* ICOMOS: New Zealand ICOMOS.

ICOMOS, 1931. *Athens Charter.* The First International Congress of Architects and Technicians of Historic Monuments, Athens, 1931. In: *Preserving Our Heritage: Catalogue of Charters and Other Guides*: 7 - 10, 1990 Quebec: ICOMOS Canada.

ICOMOS, 1964. *The International Charter for the Conservation and Restoration of Monuments and Sites.* 2nd International Congress of Architects and Technicians of Historic Monuments, Venice, 1964. In: *Preserving Our Heritage: Catalogue of Charters and Other Guides.* : 11- 16, 1990. Quebec: ICOMOS Canada.

ICOMOS, 1993. *Cultural Tourism. The Site Manager Handbook*. Sri Lanka.

Jameson, J.H. 1997. "Introduction", in: Jameson, J. (ed.) *Presenting Archaeology to the Public: Digging for truth*s. Walnut Creek: Altamira Press.

Jokilehto, J. 1985. “Authenticity in Restoration: Principles and practices, in: *Bulletin of the Association for Preservation Technology,* 17, 3 and 4: 5-11.

Jokilehto, J. 1994. “Questions about Authenticity”, in: *Scientific Journal* (Articles of Members): 69- 74. Paris: ICOMOS.

Jukilehto, J. 1999. *History of Architectural Conservation*. Oxford: Buttertworth- Heinemann : 1- 20, 47-65,147- 149, 219, 235, 238.

Kalman, H. 1980. *Evaluation of Historic Buildings.* Ottawa: Ministry of Environment.

Kerr. J. 1996. *The Conservation Plans: A Guide to the preparation of Conservation plans for places of European cultural significance* (fourth edition). National Trust of Australia.

Laenen, M. 1998. “Editorial”, in*: ICCROM Newsletter*, no. 24: 1. Rome: ICCROM.

Laenen, M. 1989. “Looking for the Future through the Past”, in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol.1): The Natural and Built Environment: 88-96; see also section 1.3.1.3.1. London: Belhaven Press.

Lane, P. 1988. “Tourism and Social Change among the Dogon”, in**:** *African Arts*, 21: 66- 69.

Langford, R. 1983. “Our Heritage: Your Playground”, in: *Australian Archaeology,* 16: 1-6.

Larsen K.F and Marstein N. (eds.) 1994. Conference on Authenticity in Relation to the World Heritage Convention. (Preparatory Workshop Proceedings, Bergen, Norway) Oslo: Forlag for the Riksantikvaren.

Larsen, K. E. (ed.). 1995. Nara Conference on Authenticity (Proceedings of a conference at Nara, Japan), 1 - 6 November, 1994, UNESCO World Heritage Center, Agency for Cultural Affairs (Japan), ICCROM, ICOMOS, Tokyo Agency for Cultural Affairs.

Layton, R. (ed.). 1989a. *Who Needs the Past? Indigenous Values and Archaeology* (One World Archaeology 5) London: Unwin Hyman.

Layton, R. (ed.). 1989b *Conflict in the Archaeology of Living Traditions* (One World Archaeology 8) London: Unwin Hyman.

Leone, M. *et al.* 1995. “Can an African-American Historical Archaeology be an Alternative Voice?”, in: Hodder *et al.* (eds.) *Interpreting Archaeology: Finding meaning in the past*: 110 - 124. London: Routledge.

Lipe, W. D. 1984. “Value and Meaning in Cultural Resources”, in: Cleere, H. F. (ed.) *Approaches to the Archaeological Heritage: New directions in archaeology*. Cambridge : Cambridge University Press: 1-11.

Lowenthal, D. 1998. *The Heritage Crusade and the Spoils of History***.** Cambridge: Cambridge University Press.

Lowenthal, D. 1985. *The Past Is a Foreign Country***.** Cambridge: Cambridge University Press.

Lowenthal, D. 1992. “Authenticity? The dogma of self-delusion”, in: Jones, M. (ed.) *Why Fakes Matter: Essays in Problems of Authenticity* (1992): 184-192. London: British museum Press.

Lowenthal, D. 1999. “Authenticity: Rock of Faith or Quicksand Quagmire”, in*: The Getty Conservation Institute Newsletter*, vol.4, no. 1: 5-8. L.A.: GCI.

Malliet, J. 1998. “Cultural Heritage and Sustainable Development: How are they connected?”, in: *ICCROM Newsletter* no. 24: 10-13. ICCROM: Rome.

Marquis-Kyle, P. and Walker, M. 1992. *The Illustrated Burra Charter*. Sydney: Australia ICOMOS.

Matero, F. *et al*. 1998. “Archaeological Site Conservation and Management: An appraisal of recent trends”, *i*n: *Conservation and Management of Archaeological Sites*, 2: 129-142.

McBryde, I. 1997. “The Ambiguities of Authenticity: Rock of faith or shifting sands?”, in: *Conservation and Management of Archaeological Sites, 2* : 93-100.

McManus, P. (ed.). 1996. *Archaeological Displays and the Public*, London: Institute of Archaeology, University College London.

Melucco Vaccaro, A. 1996. “The Emergence of Modern Conservation Theory*”*, in: *Historical and Philosophical Issues in the Conservation of Cultural Heritage***.** Stanley- Price, N. *et al.* (eds.): 201- 211. L.A.: GCI.

Merriman, N. 1991. *Beyond the Glass Case: The past, the heritage and the public in Britain*. Leicester: University Press.

Mertens, D. 1984. “Planning and Executing Anastylosis of Stone Buildings”, in: Stanley-Price, N. (ed.) *Consevation on Archaeological Excavations.* Rome: ICCROM.

Miles, R. 1994. “The Evaluation of Interpretive Provision”, in: Harrison, R. (ed.) *Manual of Heritage Management*, 369- 75. Oxford : Buttertworth –Heinemann.

Molina Montes, A. 1982. “Archaeological Buildings: Restoration or misrepresentation”, in: Boone, E. (ed.) *Falsifications and Misreconstructions of Pre-Columbian Art.* Dumbarton Oaks, 14- 15 October, 1978.

Molyneaux, B. 1994. “The Repersented Past”, in: Stone, P. and Molyneaux, B. (eds.) *The Presented Past.* London : Routledge .

Morin, R. 1999. “Creative Preservation: The development of an artistic approach to the preservation and presentation of the past”, in: *Conservation and Management of Archaeological Sites, vol. 3, no. 4:* 203- 224. London: James and James.

Murphy, R. 1990. *Carlo Scarpa and Castelveccio*. Buttertworth Architecture.

National Trust for Historic Preservation. 1980. *Old and New Architecture Design Relationship*, 186 Washington D.C.: The Preservation Press.

Norberg- Schulz C. 1980. *Genius Loci: Towards a Phenomenology of Architecture***.** New York: Rizzoli.

Pane, R. 1971. Teoria della conservazione e del restauro dei monumenti. In: ICOMOS *Records of the II International Congress of Restoration*, Venice 25-31 May 1964: 14-19.

Parks Canada. 1997. *Guidelines for the Preparation of Commemorative Integrity Statements.*

Pearce, S. 1990. *Archeological Curatorship*: 178-180, London: Leicester University Press.

Petzet. 1992. “Principles of Monument Conservation”, (*ICOMOS Journals of the German National Committee X*). Munich: Karl Lipp Verlag.

Philippot, P. 1989. “Restoration from the Perspective of the Humanities”, in: Périer-D’Ieteren (ed.) *Pénétrer l’art, Restaurer l’oeuvre: Une vision humaniste: Hommage en forme de florilège.* C.. Kortrijk: Groeninghe. (Reprinted in Stanley- Price, N. *et al*. (eds**.)** *Historical and Philosophical Issues in the Conservation of Cultural Heritage*, 1989: 228. L.A.: The Getty Conservation Institute.

Philippot, P. 1996**. “**Historic Preservation: Philosophy, criteria, guidelines”, in: S.A. Timmons (ed.) *Preservation and Conservation: Principles and practice.* Washington, D.C.: The Preservation Press.

Potter P. and Leone M. 1992. “Establishing the Roots of Historical Consciousness in Modern Annaplis , Maryland”, in: Karp, I. *Et al*. (eds.) *Museums and Communities*, 476-505. Washington D.C.: Smithsonian Institute Press.

Potter P. B. 1997. “The Archaeological Site as an Interpretive Environment”, in: Jameson J.H. (ed.) *Presenting Archaeology to the Public: Digging for truths*: 35-44. London: Sage.

Preucel, R. and Hodder, I. 1996. “Constructing identity”, in: Peurcel, R. and Hodder, I. (eds.) *Contemporary Archaeology in Theory*: 601- 614. Oxford: Blackwell.

Riegl, A. 1982. “The Modern Cult of Monuments: Its character and its origin”, in: *Oppositions*, Volume XXV. New York: Rizzoli (An English translation of the German original).

Riegl, A. 1996. “The Modern Cult of Monuments: Its essence and its development”, in: Stanley-Price, N. *et al.* (eds.) *Historical and Philosophical Issues in the Conservation of Cultural Heritage:* 71, 77. L.A.: The Getty Conservation Institute.

Rojek, C. and Urry, J. 1997. *Touring Cultures: Transformation of travel and theory*. London: Routledge.

Ruskin, J. 1925. “The Lamp of Memory”, in: *The Seven Lamps of Architecture* (Reprint of 1880 edition). London: Allen and Unwin, no.10.

Said, E. 1978. *Orientalism*. New York: Pantheon.

Sanpaolesi, P. 1972. “Conservation and Restoration: Operational techniques”, in: *Preserving and restoring monuments and historic buildings:* 160. Paris: UNESCO.

Sansom, E. 1996. “Peopling the Past”, in: McManus, P. (ed.) *Archaeological Displays and the Public: Museology and interpretation.:* 118-139. London: Institute of Archaeology.

Schmidt, H. 1999. “The Impossibility of Resurrecting the Past: Reconstructions on archaeological excavation sites”, in: *Conservation and Management of Archaeological Sites*, vol.3, No. 1 and 2: 61- 68. London: James and James.

Schmidt, H. 1997. “Reconstruction of Ancient Buildings”, in: De la Torre, M. (ed.) *The Conservation of Archaeological Sites in the Mediterranean Region* (An international conference organised by the Getty Conservation Institute and the J. Paul Getty Museum) 6-12 May 1995: 41-50. Los Angeles: The Getty Conservation Institute.

Sease, C. 2001. “Planning for Conservation of *in situ* Mosaics, Before, During and After an Excavation”, in: *Vth Conference of the International Committee for the Conservation of Mosaics: Mosaics make a site*, Nicosia (Cyprus), 1996.

Shanks M. and Hodder, I. 1995. “Interpretative Archaeologies: Some themes and questions”, in: Hodder, I. *et al. Interpreting Archaeology: Finding meaning in the past*: 30- 33. London: Routledge.

Simmonds, J. 1997. “UNESCO World Heritage Convention”, in: *Art, Antiquity and Law*, 2, 3: 251- 282.

Smith, S. 1989. “Funding Our Heritage”, in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol. 2): The Visitor: 23-28. London: Belhaven Press.

Sorensen C. 1989. “Theme parks and Time Machines”, in: Vergo P. (ed.*) The New Museology*: 60-73. London: Reaktion Books.

Stanley- Price, N., 1987. “Conservation and Information in the Display of Prehistoric Sites”, in: Gathercole, P. and Lowenthal, D. (eds.) *The Politics of the Past*, London: Unwin Hyman.

Stanley-Price, N. 1996. “New Ethical Statements on Site Preservation for North American Archaeologists”, in *Conservation and Management of Archaeological Sites*, 1: 191-93. London: James and James.

Stanley-Price *et al.* 1996. *Historical and Philosophical Issues in the Conservation of Cultural Heritage*: 10, 174, 196. L.A.: GCI.

Stanley-Price. 2006. “Preface”, in: *Management and Preservation of Archaeological Sites*: 10-11**.** Ahunbey, Z. and Izmirligil, U. (eds). *4th Bilateral Meeting of ICOMOS Turkey and ICOMOS Greece*, 9 April- 2 May, 2002, Side, Antalya. Istanbul: ICOMOS Turkey.

Starosta, U. 1993. “Reparataur und Wiederaufbau antike Bauwerke”, in: *Forschung und lehre 25*. Karlsruhe: Intitut fuer Tragkonstuctionen.

Starosta, U. 1999. “Structural Concepts of Anastylosis”, in: *Conservation and Management of Archaeological Sites*, vol.3, No. 1 and *2:* 83- 90. London: James and James.

Steemer, K. 1996. “Design as a Research and its Relationship to Scientific Investigation”, in: *Perspectives on Architectural Education, A Closer Look at Europe*, Conference at the University of Cambridge (Unpublished).

Stevens, T. 1989. “The Visitor: Who Cares? Interpretation and Consumer Relations”, in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol.2): The Visitor: 103- 107. London: Belhaven Press.

Stone B.G and Planel P. G. (eds.). 1999. “*The constructed Past: Experimental archaeology, education, and the public.* London: Routledge.

Stovel, H. 1994. “Conservation Techniques: Buildings”, in: *Scientific Journal*: 20. Paris: ICOMOS.

Stovel, H. 1999. “Sustainability and Management of the Built Heritage: Defining the problem”, in*: ICCROM Newsletter* no. 25*:* 4-6. Rome: ICCROM.

Stovel, H., Stanley-Price, N. and Killik, R. (eds.). 2005. *Conservation of Living Religious Heritage.* Rome: ICCROM.

Stratton, M. 1995. “Open-air and Industrial Museums: Windows onto a lost world or graveyards for unloved buildings?”, in: Hunter, M. (ed.) *Preserving the Past; The Rise of heritage in modern Britain*: 156-76. London: Alan Sutton.

Stringer, P. 1982. “Towards a Participatory Psychology”, in: Stringer, P. (ed.) *Confronting Social Issues*, vol.2. London: Academic Press.

Sullivan, S., 1997. “A planning Model for the Management of Archaeological Sites*”*, in: *The Conservation of Archaeological Sites in the Mediterranean Region***.** L.A.: The Getty Conservation Institute.

Taylor, C. 1991. *The Ethics of Authenticity*. Cambridge: Harvard University Press.

Teutonico, J.M. and Matero, F. (eds.). 2003. *Managing Change: Sustainable Approaches to the Conservation of the Built Environment***.** L.A.: G.C.I.

Throsby. 1999. “Cultural Capital and Sustainability Concepts in the Economics of Cultural Heritage”, A paper prepared for the Economics of Cultural Heritage Project. L.A. Getty Conservation Institute.

Tilden F. 1977. *Interpreting Our Heritage* (3rd edition): 32-39. Chapel Hill: University of North Carolina Press.

Tilley, C. 1997. “Performing Culture in the Global Village”, in: *Critique of Anthropology* 17: 67-89.

Trigger, B. 1984. “Alternative Archaeologies: Nationalist, colonialist, imperialist”, in: Peurcel, R. and Hodder, I. (eds.) *Contemporary Archaeology in Theory* (1996): 615- 631. Oxford: Blackwell.

Trigger, B. 1995. “Romanticism, Nationalism, and Archaeology”, in: Kohl, P. and Fawcett, C. (eds.) *Nationalism, Politics and the Practice of Archaeology*: 263- 279. Cambridge: University Press.

Trilling, L. 1972. *Sincerity and Authenticity.* Oxford: Oxford University press.

Truscott, M. and Young, D. 2000. “Revisiting the Burra Charter: Australia ICOMOS updates its guidelines for conservation practice”, *in: Conservation and Management of Archaeological Sites.* Vol. 4: 101- 116.

Ucko , P. 1996. “Foreword”, in: *McManus. P. M (ed.), Archaeological Displays and the Public: Museology and interpretation*: ix-xi. London: Institute of Archaeology.

Ucko, P. 1995. “Introduction”, in: Ucko, P. (ed.). *Theory in Archaeology. A World Perspective:* 1- 27. London: Routledge.

Ucko, P. 2000. “Enlivening a ‘dead’ past”, in: *Conservation and Management of Archaeological Sites*, 4, 2: 76-92. London: James and James.

United Nations. 1987. *Our Common Future*. (A report of the World Commission on Environment and Development) Oxford: Oxford University Press.

United Nations. 1995. *Our Creative Diversity*, Report of the World Commission on Culture and Development, France.

Upitis, A. 1989. “Interpreting Cross-cultural Sites”, in: Uzzel, D. (ed.) *Heritage Interpretation* (Vol.1): The Natural and Built Environment: 153-61. London: Belhaven Press.

Urbani, 1989. “The Science and Art of Conservation of Cultural Property”, in: Stanley- Price, N. *et al.* (eds.) *Historical and Philosophical Issues in the Conservation of Cultural Heritage*: 445- 9. L.A.: GCI.

Uzzel, D., (ed.). 1989. *Heritage interpretation*: 3, Vol. 1 and 2. London: Belhaven Press.

Uzzell , D. 1994. “Heritage interpretation in Britain: Four decades after Tilden”, in: Harrison, R. (ed.) *Manual of Heritage Management***:** 293-302. Oxford: Buttertworth–Heinemann.

Vico, G. 1725. “Principi di scienza nuova d’intorno alla comune natura delle nazioni”, in: P. Cristofolini (ed.). *Opere filisofiche di Vico, G.* 1971. Sansoni.

Viollet-le-Duc, E. 1990. “Restoration’’, in: *The Foundations of Architecture: Selections from the Dictionnaire Raisonné*: 195, trans. Kenneth D. Whitehead. New York: George Brazille.

Viollet-le-Duc, E. 1869. *Dictionnaire raisonné de l’architecture***.** Paris: F. de Nobele.

Von Schiller, F. 1966. *Naive and Sentimental Poetry,* New York: F. Ungar.

Wallace, M. 1987. “Industrial Museums and the History of De-industrialisation”, in: *The Public Historian*, 9 (1): 9-19.

Walsh, K. 1992. *The Representation of the Past: Museums and heritage in the post-modern world.* London: Routledge.

Warren, J. 1994. “Ethics and Aesthetics in Conservation”, in: *Scientific Journal* (Articles of Members). Paris: ICOMOS.

Warren, J. 1996. “Principles and Problems: Ethics and Aesthetics”, in: *Concerning Buildings***.** *Stephen Marks (ed.):* 34- 54. Oxford: Architectural Press.

Warren, J. 1998. “The Historic Context: Principles and Philosophies”, in*: Context: New Buildings in Historic Settings*. Oxford: Architectural Press.

Wei, C. and Aass, A. 1989. “Heritage Conservation: East and West”, in: *ICOMOS Information***,** July/ September 3, 1989: 3- 8.

West Burnham, J. 1994. “Management in Educational Organisations”, in: Bush, T. and West-Burham (eds.). *The Principles of Educational Management:* 9 - 32. Harlow, Essex: Longman.

West, B. 1988. “The Making of the English Working Past: A critical view of the Ironbridge Gorge Museum”, in: Lumley, R. (ed.) *The Museum Time –Machine: Putting cultures on display:* 36 - 62. London: Routledge.

Winckelmann, J. 1764. *Die Geschichte der Kunst des Altertums.*

Winckelmann, J. 1972. *Writings on Art***.** Irwin David (Ed.). London: Phaidon.

Wright, P. 1985. *On Living in an Old Country: The National Past in Contemporary Britain.* London: Verso.

Considerations on Authenticity and Integrity

Jukka Jokilehto

Abstract

The scope of this paper is to examine the relationship of universality and relativity in truth and in value judgements within differing cultural contexts. Reference is made to traditional and modern philosophies, as well as to international conservation doctrine. It is observed that while information sources may vary from one culture to another and over time, the notion of truth appears to have universal relativity. This is important for the notion of authenticity, as authenticity is fundamentally understood as being true to oneself. The paper further explores the verification of authenticity and the definition of integrity in different types of cultural heritage sites, exemplified in selected properties nominated for inclusion to the World Heritage List.

1. Universality vs. Diversity

The World Heritage List is based on the notion of outstanding universal value (OUV). In defining cultural heritage, The World Heritage Convention notes that "monuments" and "groups of buildings" should have outstanding universal value from the point of view of history, art, or science, while the "sites" must also be considered from an ethnological or anthropological perspective. The Operational Guidelines for the Implementation of the World Heritage Convention (2005) indicate that:

> Outstanding universal value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity (art. 49).

Furthermore, there are ten criteria defining outstanding universal value in the Operational Guidelines (art. 77). The first six refer to cultural heritage that can represent:

i. a masterpiece;
ii. an important interchange of values;
iii. an exceptional testimony to a civilization;
iv. a type of construction or site;
v. traditional land use; and/or
vi. association with traditions or beliefs.

The remaining criteria pertain to natural heritage.

The above definition of outstanding universal value may require some further clarification especially with regard to what is or what should be intended by the notions: "exceptional", "national boundaries", and "common importance for all humanity". These notions should obviously not be taken literally considering that national boundaries can enclose extremely variable territories, that they are subject to political changes over time, and that they rarely coincide with the boundaries of culturally coherent regions. Furthermore, the exceptionality of a property does not mean that it should, for this reason alone, have outstanding universal value. Even the notion of "common importance to humanity" may require fundamental thinking and an understanding of what universally shared values are seen to be. In fact, a clearer definition is provided in the report of the World Heritage Global Strategy Natural and Cultural Expert Meeting in Amsterdam (1998):

> The requirement of outstanding universal value characterising cultural and natural heritage should be interpreted as an outstanding response to issues of universal nature common to or addressed by all human cultures. In relation to natural heritage, such issues are seen in bio-geographical diversity; in relation to culture in human creativity and resulting cultural diversity (see Droste, et al. 1998: 221).

So, it is more the issues or themes that are of universal nature and common to all humanity, while the heritage itself is defined as a response characterised by its creative diversity. This is clearly also indicated in the UNESCO Universal Declaration on Cultural Diversity (2001) where heritage is again seen as a result of the human creative process:

> Culture takes diverse forms across time and space. This diversity is embodied in the uniqueness and plurality of the identities of the groups and societies making up humankind (art. 1).

Creation draws on the roots of cultural tradition, but flourishes

in contact with other cultures. For this reason, heritage in all its forms must be preserved, enhanced and handed on to future generations as a record of human experience and aspirations, so as to foster creativity in all its diversity and to inspire genuine dialogue among cultures (art. 7).

ICOMOS' report on the representation of the "World Heritage List: Filling the Gaps - An Action Plan for the Future", commonly referred to as "The Gap Report" and presented to the World Heritage Committee in 2004, is built on a recognition of cultural diversity. It attempts to identify issues of universal nature as related to anthropological, historical, aesthetic and scientific views. Two critical issues should be considered for the identification of a particular property's OUV:

- whether the adequacy (or extent) of the relevant "cultural region" or "area of human knowledge" fully justify representation on the World Heritage List;
- whether the "intrinsic quality" and cultural-historical genuineness of the nominated property meet the expected level of excellence.

The fundamental conditions for the qualification of cultural sites to the World Heritage List include the requirement to demonstrate authenticity and integrity. The List is also subject to heritage diversity, and the trend in the past several years has been towards larger areas of nominated properties, particularly cultural landscapes or historic towns. This more holistic approach in the definition of sites further emphasizes the importance of identifying their integrity.

2. Philosophical Issues

Over the centuries, philosophers have debated concepts such as continuity and change, and the notion of truth – all of which are relevant starting points to exploring the notion of authenticity. A well-known thought experiment is that of the ship of Theseus, as told by Plutarch (Vita Thesei, 22-23). Theseus' ship was kept by the Athenians as a memorial for a long time. Due to the gradual replacement of rotten planks, the ship retained its original form but its material was entirely renewed. The issue was then raised: was it still the ship of Theseus? In modern times, this thought experiment has been approached as two alternative problems. Either one could think/say that the gradual renovation over time still provided a spatio-temporal continuity for the ship, thus retaining a certain identity. Or, one could imagine that the materials that were removed were reassembled elsewhere into another ship. What would then be the significance of this other ship? Applying this to historic structures, one could also pose an additional question about the difference between the gradual renovation of an ancient monument (which is often the case with old buildings), and the reconstruction of a building or part of a building at a particular moment in time (e.g. the Dresden Frauenkirche).

In ancient Greece, the concept of mimesis played a central role in Plato's and Aristotle's perceptions of poetry, drama, painting, sculpture and music. Even architecture and town planning were related to the same concept. Mimesis can be translated as imitation as well as representation. Plato proposed the concept of forms or ideas which were eternal, changeless and incorporeal. The purpose of the artist was to imitate or in fact represent these forms in our reality. Vitruvius, on the other hand, speaks of architecture representing forms that could be found in nature. Through the philosophy of Plotinus, who lived in the third century AD, these concepts were taken up by Renaissance artists, such as Raphael. In the seventeenth century, Bellori interpreted the artistic "idea" leading the way towards the "ideal". He wrote: "originata dalla natura supera l'origine e fassi originale dell'arte" – the idea which is "born from nature, overcomes its origin and becomes the model of art" (Bellori, 1976: 14; see also Panofsky, 1968: 105). Mimesis, though often interpreted as imitation, did not mean merely the act of copying but rather a learning process imitating the ancients. It was a form of representation or re-representation of themes and ideas, a response that could ensure continuity as well as elaborating and creating new forms.

In an article published in 2005, Dr. Seung-Jim Chung from Korea has claimed that the Venice Charter is too strongly based on European cultural values, and "thus not sufficiently universal to be unequivocally deployed in societies outside Europe and European based cultures". He argues that European values mainly emphasize visual beauty, while East Asian societies determine their values in relation to spiritual and naturalistic sensibilities (2005: 68-9). It may well be that Europeans have often lavished much attention on aesthetics, but this has by no means been their monopoly. Japanese aesthetics have, for example, been the subject of much research (e.g. Marra, 1999), and Japanese and Chinese art philosophies have long had an important influence in the world, including on European art. Bruno Deschênes, a Western scholar studying Japanese aesthetics, concluded:

> My understanding is that for the Japanese, a good artist is one who knows how to structure the flow of

> time, which is expressed through his or her artistic and aesthetic grasp of ma [space, time], using jo-ha-kyû [the division and development of a play, or a musical piece, each segment progressively and dynamically flowing into each other]. The role of art lovers is to perceive, grasp and make sense of these aesthetic principles embedded in artistic expression ("Aesthetics in Japanese Arts", Internet).

Owing to today's global information flow, evaluating cultural heritage in relation to its own spiritual and environmental values has become a widely disseminated policy, sustained by international doctrine, and relevant to the Eastern as well as the Western worlds. At the same time, each culture has its own ways of obtaining information and of representing its own values. This forms part of cultural diversity as defined by UNESCO: "Culture takes diverse forms across time and space. This diversity is embodied in the uniqueness and plurality of the identities of the groups and societies making up humankind" (UNESCO, 2001, art. 1). This does not mean that there is no common ground; quite the contrary. Yet, it is necessary to accept that different cultures may have different ways of expressing themselves about issues such as truth and authenticity.

In his doctoral dissertation, Dr. Mehdi Hodjat from Iran analysed the approach to heritage and history proposed in the Qur'an and in Islamic societies. He points out that while "history" is generally translated as *Tarikh*, it in fact refers not only to an epoch but also to fixed habits (Hodjat, 1995: 25). This word however is not used in the Qur'an, which instead conveys the meaning of history with the words: *Qasas*, *Hadith* and *Nabaa*. *Qasas* means to follow up, to be in search of reality and to find it. Hadith refers to making a new statement, being creative and innovative. *Nabaa* means a piece of news that is free of lies, is sequential and has the Divine as its reference (ibid., 26). These different meanings associated with the idea of history refer to concepts that are generally related to the idea of authenticity in cultural heritage – it is truth free of deviation, as well as something new and creative. Hodjat concludes:

> To use words which give different meanings to history, proves that the interpretation of history by the Qur'an is not only to state past events for the sake of increasing our historical information. The Holy Qur'an describes an idea, which has hidden meanings, as well as an immediately apparent reality. In this way, the revealed history in the Qur'an is a truth free from deviation *(Nabaa)*, not only in stating events but in their hidden substance; forming a new statement *(Hadith)* which does not look at subjects because they are new, but its interest is how to face and apply them; and is to be researched and perceived *(Qasas)*, which leads mankind from a physical reality to a spiritual one (idem., 26).

Most histories of philosophy start with ancient Greece and end up with European contemporary thought. What happened outside this region has been generally ignored, apart from some references to the ancient Orient. Yet, when we speak of so-called Western philosophy, we might more correctly refer to it as our contemporary philosophy, given that many of its ideas are now shared across the world. There is an increasing number of publications where the specificities of various regions are discussed. African contemporary philosophy is an interesting example. In the course of developing their own thinking, African philosophers have been faced with the problem of defining their cultural identity without foregoing the rationality and truth that characterise modern philosophy in general.

African thinking merits being dealt with like any other philosophical view (Teffo, L.J. et al. in Coetzee, 2002:164). It is also noted that Africa is a vast continent with many traditions that are still part of the local contemporary cultures. It has been observed that African thought differs from the general European approach in its emphasis on the strong relationship with community and the environment. Typical European dualisms, such as those between the natural and the supernatural, or between matter and mind/ spirit/soul, do not appear in African metaphysics. The essence of African metaphysics, then, is the search for meaning and ultimate reality in the complex relationships between the human person and his/ her total environment" (idem: 165). For example, in a study of the concept of truth in the Akan language (a language group in Western Africa, including Ashanti), Kwasi Wiredu (in Coetzee, 2002:39ff) emphasized the strong involvement of the community in defining what is truthful. Similar questions are emerging in relation to the concepts of rationality and memory. These need to be analysed taking the modern world's multicultural reality into account. Gleaning answers to issues of truth, rationality and memory will help clarify policies in the context of the World Heritage Convention, based as it is around the concept of universal value and the recognition of cultural diversity as the essence of humanity's heritage.

Referencing modern philosophy briefly, we recall that Martin Heidegger (1993: 143ff) speaks about two fundamental components in a work of art: the earth (matter) and the world of significances (ideas). He gives the example of a Greek temple enclosing the figure of

a god, and states: "By means of the temple, the god is present in the temple. This presence of the god is in itself the extension and delimitation of the precinct as a holy precinct" (p. 167). The physical presence of the temple and the god's image in themselves do not yet assign significance to the site, but it is the god's presence, the spiritual or the intangible dimension, when evoked, that gives the real meaning. The physical aspect of the temple, Heidegger calls the earth: "In the things that arise, earth occurs essentially as the sheltering agent." The stone material represents the "earth" aspect of the work, but it is not the "world". However, the temple sets up a "world" that gives its meaning to the work.

Heidegger further shows that truth happens in the temple's standing where it is in its environment. Standing there, the temple shines in its beauty. Beauty is one way in which truth essentially occurs as 'unconcealment' (p. 181). And furthermore, "the more essentially the work opens itself, the more luminous becomes the uniqueness of the fact that it is rather than is not. The more essentially this thrust comes into the open region, the more strange and solitary the work becomes" (pp. 190-1). In other words, we could say that the more a work represents a creative and innovative contribution, the more truthful and the more authentic it is. The preservation of the work happens through knowing its truth, and it can occur at different degrees of scope, constancy and lucidity (p. 193). Even when the work has lost its original functioning, it can still offer a reminder of it, which contributes to establishing its meaning in the present. Conservation of a work therefore is a process requiring understanding and appreciation of the world of significances, not one limiting itself to the material.

Heidegger's ideas can be examined in light of Cesare Brandi's Theory of Restoration (2005). Brandi speaks of the work of art as a whole, or as "oneness". To him, a work of art is the result of a creative process, where the artist creates the physical reality of the work on the basis of the form given by the pure reality in the artist's mind. The art aspect of the work remains intangible but is there to be experienced in the work's physical reality. Once created, such a work has an independent existence. However, its appreciation – and therefore its conservation – depend on the recognition of its art significance every time the work is contemplated.

The restoration of a work must always be based on such recognition, taking note of its historic and aesthetic instances (almost understood as legal cases put forth on the work's behalf). Brandi defines the restoration of a work of art as follows: "Restoration consists of the methodological moment in which the work of art is recognised, in its physical being, and in its dual aesthetic and historical nature, in view of its transmission to the future" (2005: 48). For Brandi, as well as for Heidegger, and for Alois Riegl for that matter, the art aspect of a work of art is in the present, i.e. in the mind of the person recognising it. This art aspect of the work of art is fundamentally intangible, and it can be experienced through critical observation and understanding of the spatial-material reality that it puts forth.

3. International Framework

All of humanity's heritage has an intangible dimension, whether a work of art, a historic building, a historic town, or a cultural landscape. Japan is thought to be the first country to have introduced legal protection for intangible cultural heritage, in 1950. Such protection is applicable to "art and skill employed in drama, music and applied arts, and other intangible cultural products, which possess a high historical and/or artistic value in and for this country." The same law defines the concept of "folk-cultural properties" consisting of "manners and customs related to food, clothing and housing, to occupations, religious faiths, festivals, etc., to folk-entertainments and clothes, implements, houses and other objects used therefore, which are indispensable for the understanding of changes in our people's modes of life" *(Japan's Law for the Protection of Cultural Properties, 1998, Chapter 1).*

Fig. 1. Japan. Traditional belief systems still pervade daily life in several South-East Asian countries. Such is the case on Taketomi Island near Yokohama. In accordance with animistic tradition, cult places called utaki, are set up in home courtyards and in the woods. Regular ceremonies are held at utaki where offerings are made, generally by the household's elderly women.

In 1998, UNESCO adopted the Proclamation of Masterpieces of the Oral and Intangible Heritage of Humanity, which established a list of such heritage. In reference to the Japanese law, we note that the UNESCO list can include both intangible and folk cultural properties. Inscription is based on the notion of outstanding value "from a historical, artistic, ethnological, sociological, anthropological, linguistic or literary point of view" (1998, Regulations, Criteria). Properties can qualify for inscription if they:

i. possess outstanding value as a masterpiece of the human creative genius,
ii. are rooted in the cultural tradition or cultural history of the community concerned,
iii. play a role as a means of affirming the cultural identity of the community concerned,
iv. are distinguished by excellence in the application of skills and technical qualities displayed,
v. constitute a unique testimony of a living cultural tradition, and
vi. are threatened with disappearance due to insufficient means for safeguarding or to processes of rapid change" (1998, Regulations, Criteria).

The relationship between tangible and intangible heritage has recently become the subject of much debate the thrust of which is the relationship of the two UNESCO conventions, the 1972 World Heritage Convention which speaks about monuments, groups of buildings and sites, and the 2003 Convention for the Safeguarding of Intangible Cultural Heritage. The latter convention emphasizes intangible processes and functions, though it also includes their physical manifestations within the very notion of intangible cultural heritage:

> The "intangible cultural heritage" means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity (art. 2).

Bearing in mind the way the concept of cultural heritage has evolved in recent decades, it is obvious that there are issues that overlap within these two conventions. While the World Heritage List would focus on a living historic town, such as Marrakech, it would certainly recognize that life goes on in the town and that this life and the associated social functions are essential elements in the definition of the place's universal value. The lists of intangible heritage would instead focus on the activities and processes that have traditionally been taking place and continue to do so in a specified cultural space of the town, Marrakech's principal marketplace. Even so, many of the practices recognized in the 1998 list are not necessarily associated with a particular space but can take place anywhere.

In 1994, in the context of the World Heritage Convention, Japan hosted an expert meeting in Nara on the issue of authenticity. Understanding truthfulness of information sources as a fundamental prerequisite for the definition of authenticity, the Nara Document on Authenticity (1994) makes special reference to cultural diversity as an irreplaceable source of spiritual and intellectual richness and to the need to judge cultural heritage within the cultural contexts to which it belongs:

> Conservation of cultural heritage in all its forms and historical periods is rooted in the values attributed to the heritage. Our ability to understand these values depends, in part, on the degree to which information sources about these values may be understood as credible or truthful. Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning, is a requisite basis for assessing all aspects of authenticity (par. 9).

Fig. 2. Bosra. The historic city of Bosra, Syria, has retained important evidence of its centennial history. The ancient Roman remains have been partly excavated, while people continue living in houses built within the ancient monuments. This combination of ancient monuments with present-day life gives the historic town a particular and rare quality. Bosra has been on the World Heritage List since 1980.

Fig. 3. Cairo. In 1979, the historic medieval town of Cairo became one of the first properties to be inscribed on the World Heritage List. Nevertheless, it has remained in the shadow of the older monuments, pyramids and ancient temples. More recently, efforts have been made to revive and conserve the old city, including the restoration of the medieval walls and rehabilitation of adjacent residential quarters, a project carried out by the Aga Khan Trust.

In 2004, another UNESCO expert meeting in Nara addressed the integration of approaches to safeguarding tangible and intangible cultural heritage. The declaration resulting from this second meeting recognised the 1994 Nara document's importance in placing an emphasis on the specific cultural context of a heritage resource when interpreting its authenticity. Nevertheless, the declaration also stated that the term "authenticity" could not be applied in the same way when assessing intangible cultural heritage even though the tangible and intangible heritages were often interdependent. During the debate, some people defending intangible heritage openly refused to consider the idea of authenticity as it had been defined in the 1994 Nara Document, i.e. as the essential qualifying factor concerning values. They justified their position on the basis that intangible heritage was constantly being recreated and could therefore not be seen in the light of historical authenticity (which they understood as static). It is evident that there should be some difference between assessing the authenticity of a physical structure and assessing that of a traditional practice. However, this does not mean that the notion of authenticity should itself be changed.

In order to better understand that, one may look at the etymology of "tradition". It is derived from the Latin (traditio; tradere, trado) meaning: giving up, giving over, delivery, surrender, handing down such as in religious doctrine. The Oxford English Dictionary offers the following definition: "The action of transmitting or 'handing down', or fact of being handed down, from one to another, or from generation to generation; transmission of statements, beliefs, rules, customs, or the like, esp. by word of mouth or by practice without writing." Another word which shares the tradere root is "to betray" which referred to giving up important documents into the hands of an enemy by treachery or disloyalty. While not claiming that living tradition is intrinsically connected to betrayal, one can still be aware that to be alive also means to change. Each generation must regenerate the values inherited from the past, and re-interpret them reflecting the notion of cultural diversity. Sometimes such re-interpretation takes place within new situations, therefore calling for change.

The notion of culture itself derives from the concept of cultivation, i.e. the raising of plants and animals, the training of the human mind and body. It is also associated with the concept of cult, i.e. worship. 'Culture' has been given many different definitions. Cultural inheritance therefore would concern all these different aspects of

culture, traditionally handed down from generation to generation. Culture in itself involves both continuity and change; and due to the intrinsic human nature expressed in creativity, traditional handing down of know-how and skills would often involve some change while at the same time building up and keeping its cultural identity. In extreme cases, such change could lead to the falsification or even extinction of cultural traditions. It may thus not be entirely by chance that tradition and betrayal share the same etymological origin. The question is whether a tradition has retained the essence established through continuity in time, and what rate and extent of change are possible without loss of values. Such concepts must be taken into account when discussing the issue of authenticity and truthfulness in relation to the intangible aspects of heritage.

4. Authenticity

Since 1994, much has been written about authenticity. This notion has also become fashionable as a qualifying aspect for all types of commercial and tourist products, no longer necessarily reflecting genuine traditions. This may in fact be one of the reasons for the misgivings expressed in relation to the notion of authenticity during the 2003 UNESCO Convention on Intangible Heritage. Another reason may be the definition given for authenticity in the earlier version of the World Heritage Operational Guidelines. Before the 2005 revision, the test of authenticity was subject to four parameters: design, material, workmanship and setting. In fact, it was seen basically in reference to the tangible material of the heritage. As a result of the 1994 expert meetings on authenticity, first in Bergen then in Nara, the revised Operational Guidelines have given a new definition to the conditions of authenticity: "Depending on the type of cultural heritage, and its cultural context, properties may be understood to meet the conditions of authenticity if their cultural value (as recognized in the nomination criteria proposed) are truthfully and credibly expressed through a variety of attributes …" There follows a list of said attributes which, in addition to the previous parameters, now also includes: traditions, techniques, language and other forms of intangible heritage, as well as spirit and feeling or other factors (par. 82), showing a much broader recognition of the different aspects of culture and heritage.

Thinking back to the philosophical considerations outlined earlier in this paper, we may recall that, etymologically, the concept of being authentic refers to being truthful, both in terms of standing alone as an autonomous human creation and of being the true evidence of something. The concept of truth, of course, is one of the principal issues discussed in philosophy. We find it in the various sacred texts, such as the Bible and the Qur'an; it is discussed in the ancient Asian philosophies, such as Taoism and Buddhism; it was an essential criterion for the ancient Achaemenid kings drawing policies for the Persian Empire; it is present in African thought; and it is still fundamental to modern philosophical thought. Over the past three centuries, Western thought has proposed that the truth represented by human creation, i.e. cultural heritage, should be verified in the cultural context where it has been generated. The verification of historical and cultural truth in its specific cultural context had already been discussed, for example, by Ibn Khaldun in the fourteenth century and by G.B. Vico and J.G. Herder in the eighteenth century. The theory of mimesis can be seen to imply not a simple copy, but the representation and creative interpretation of a particular idea or theme. In the late nineteenth century, Friedrich Nietzsche saw that the only way for humans to generate truth and values was through a creative process, guided by the "will to power". This idea would not only be related to works of art, but to all human activity where one takes one's full responsibility in setting forth a creative contribution. Riegl coined the concept of Kunstwollen to designate the relationship of human creative activity to the relevant cultural context. Kunstwollen also referred to the regeneration of representational forms that contributed to what could then become a "style".

The first of the World Heritage criteria for the definition of outstanding universal value (OUV) refers to a "masterpiece of human creative genius." To exemplify such human creativity, we may now examine a number of properties from the World Heritage List, all of which illustrate the history of architecture in the Middle East. The Achaemenid kings chose to base the design of representative buildings in their royal ensembles on sacred symbols, such as the square form already present in ancient Egypt. An outstanding case is the Royal Terrace of Persepolis, its palaces built in the sixth and fifth centuries BC. A thousand years later, the Sassanians designed Takht-e Soleyman in northern Iran as the principal Zoroastrian sanctuary ensemble implementing similar elements. Its design reflects a conscious re-representation (mimesis) of some of the forms used by the Achaemenids, such as the fire temple with its perfectly square plan. Other elements include the iwan with its vast round arch, and the rectangular court built around the artesian lake. With the emergence of Islam, these forms became constituent

elements in the design of mosque ensembles. Particular attention was then given to the ingenious design of the dome, and the connection of the square plan of the room with the circular dome. An example of this is the Mausoleum of Oljaytu, built in 1302–12 in the city of Soltaniyeh, the capital of the Ilkhanid dynasty. Its particular structural feature was the innovative design of the double dome that later became characteristic of Islamic architecture. The next phase of development included Timurid architecture, an important masterpiece of which is the Mausoleum of Khoja Ahmed Yasawi, built at the end of the fourteenth century in the city of Turkestan in Kazakhstan. This multipurpose ensemble was erected by Persian masters and became a prototype for design in the capital city of Samarkand. Yet another example in the same region is the Meidan ensemble in the Safavid capital of Isfahan. Created in the seventeenth century, it is a highlight of the development of this type of architecture with a wealth of refined details and colours sustaining its spiritual, spatial, and environmental qualities. When considering these properties, the emphasis in the test of authenticity should be on the creative aspect, but verification of the relevant historical and cultural context is also required. Authenticity was defined by Paul Philippot (art historian and former Director of ICCROM) as follows: "the authenticity of a work of art is in the internal unity of the mental process and of the material realization of the work". The notion of "Authenticity by creation" emerges as the creative and innovative quality in each of these examples.

The fourth OUV criterion refers to "a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history." This is the most frequently used criterion, and it can have different functions. It can represent a type of construction that has become a prototype, or a construction that is recognized as the most representative example of a particular typology. The above-mentioned examples can thus be referred to this criterion, which can also be used for "groups of buildings", such as historic towns, and sites such as designed gardens and cultural landscapes. However, here, the emphasis in the definition of authenticity is especially on the excellence of design, and the further development and perfection of a particular typology. When dealing with a vernacular site, authenticity needs to be verified not only in the constructions but also in the continuity of tradition, spirit and feeling, i.e. the place's more intangible qualities.

The third OUV criterion refers to "testimony to a cultural tradition or to a civilization", and criterion five to "a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment." Both these criteria denote material evidence of the history of a place. The test of authenticity should thus be made in reference to this evidence and what it signifies, i.e. verification of the truthfulness of the sources of information. For example, Bamiyan Valley, where the two large Buddha figures were destroyed by the Taliban regime, was a crossroads of civilizations for many centuries. This site extends over several kilometres along the valley with hundreds of caves and other evidence of its rich history. Even though the spectacular Buddha statues were destroyed, the valley can still be considered to have retained its archaeological significance as a place of outstanding and exceptional testimony to cultural activities taking place for centuries as a result of intercultural communication. But to what extent is it possible or even desirable to put the fallen fragments of the Buddha statues back in place? And, is it desirable to build another Buddha, a modern one in a suitable place in this valley? Allowing the re-carving of a new figure going two to three meters deeper into the same niche, where we still have the authentic testimony of the original statue, is obviously not an option. Questions such as these always require a critical examination of all the factors in order to reach a balanced judgement both in terms of the authenticity and integrity of the place.

In Mostar, the sixteenth century Old Bridge was destroyed as a political act. The locality's very name, where "most" means bridge, attests to the structure's significance. The bridge has now been rebuilt on the original site with UNESCO's support. The original parts that remained in situ were kept, but the arch of the bridge was entirely rebuilt anew.

The historic town centre also suffered substantial destruction and has now been rebuilt. The World Heritage Committee inscribed the site on the basis of criterion six, emphasizing its significance as: "a symbol of reconciliation, international cooperation and of the coexistence of diverse cultural, ethnic and religious communities." Considering that much of the original bridge and buildings were destroyed, the site certainly has lost part of its authenticity. However, it still retains its significance as an archaeological testimony to its history, associated with a strong symbolic value. Therefore, the most appropriate criteria would be six for the symbolic value, and three for the value as exceptional testimony to the interaction of different cultures in a frontier place. Both these criteria do meet the test of authenticity.

Writing about the relationship of the tangible and intangible aspects of cultural heritage, Prof. Nobuo Ito has stated:

> Intangible culture is the mother of all cultures. As etymology shows, culture is the human product moulded and matured in an inspired or cultivated brain. In this sense, all kinds of culture are, in the earliest stage, intangible, and, therefore, extremely private in nature. So, many intangible cultures are apt to disappear or change to another one.

Man, it is said, is a speaking animal. The importance of language lies in its being a communication tool, but also in its power to assign meanings to places and things. In African traditions, by giving a name to an object, man has the power to endow it with a particular force or quality; man can also take away that quality by un-naming it and thus removing the meaning. In traditional Finnish beliefs, knowing the name of a thing implies knowing its origin and therefore means having power over it. Many cultures have given anthropomorphic names to natural features –the nose of a peninsula, the arms of a river – in an effort to control them. God's word is understood to have created the world and everything in it. Human creativity is less powerful, but the recognition of human creative diversity by UNESCO implies that we see it as a shared characteristic in all cultures and in all times. Such creativity cannot simply be a result of meeting practical purposes. There is a human creative spirit that inspires one to be innovative in re-interpreting and re-representing universal themes while responding to specific needs. In his book on Real Presences (1991), George Steiner analyzes language and its significance to human society. Language is of course fundamental to preserving our knowledge and traditions, making them available to successive generations:

> Language creates: by virtue of nomination, as in Adam's naming of all forms and presences; by virtue of adjectival qualification, without which there can be no conceptualization of good or evil; it creates by means of predication, of chosen remembrance (all "history" is lodged in the grammar of the past tense). Above all else, language is the generator and messenger of and out of tomorrow. [. . .] I believe that this capability to say and unsay all, to construct and deconstruct space and time, to beget and speak counter-factuals [. . .] makes man of man (ibid: 56).

Steiner further notes that the traditional relationship that had always existed between the word and the world has been broken by the emergence of modernity, which "constitutes one of the very few genuine revolutions of spirit in Western history and which defines modernity itself" (ibid: 93). This statement is in line with what Nietzsche intended by the "death of God" and the risk of elimination of the higher values. For Steiner, the presence of Logos, i.e. the Word, also means the presence of God, the Sacred. "All mimesis, thematic variation, quotation, ascription of intended sense, derives from a postulate of creative presence" (ibid: 101). In ancient times, language was seen to represent the intangible or invisible, a gift from the gods. Writing made language visible, and it thus became a vehicle, a ritual act allowing access to the intangible (Herrenschmidt 1996). Achaemenid king, Darius The Great, reworked Mesopotamian cuneiform writing so as to realize his aim of using the Old Persian language on monuments and in public declarations. As such sacred texts were intended to be read out in public, Darius's cuneiform differed from earlier cuneiform writings in that it was based on alphabetical signs and diphthongs thus eliminating the possibility of reading mistakes. The Bisotun monument is the earliest important example of such a practice in ancient Persia. Its text was of great political significance, and was copied to various parts of the empire. It was inscribed on the World Heritage List in 2006.

Canadian philosopher Charles Taylor has probed the problems faced, in the modern world, and particularly in present-day multicultural societies, in relation to cultural identity and the risk of losing the capacity to generate shared values. These problems are related to: "a) over-emphasis of individualism, b) the disenchantment of the world due to instrumentalisation and excessive priority given to the most economical application of means to a given end, and c) the restriction of choices by the institutions and structures of the industrial-technological society" (1991: 1-12). In his thesis, Taylor refers to the ethics of authenticity, derived from Descartes and late eighteenth century thought and based especially on Romanticism's emphasis on individuality. "Being true to myself means being true to my own originality, and that is something only I can articulate and discover. In articulating it, I am also defining myself" (ibid: p. 29). Taylor further claims that the general feature of human life is fundamentally dialogic in character. Therefore, language in a broad sense is vital to society. In modern society, individuals feel the need for recognition because of fear of losing their identity. Authenticity's worst enemy is its association with social conformity (ibid: p. 63). So, while modernity involves creation and originality on the one hand, it requires on the other hand openness to horizons of significance and a self-definition through dialogue (ibid: p. 66).

Values and significances can only be built up in communication and dialogue with the others in society, thus forming a community's cultural identity. This was the case in traditional society and can be considered an important part

of heritage, particularly traditional settlements and many types of cultural landscapes. We can speak here of traditional social-cultural authenticity, which, when it exists, justifies the continuation of traditional forms of life and traditional treatment of built structures. Social-cultural authenticity is particularly relevant in cases where the traditional form of a society has survived intact to our days. For example, in the historic town of Harar Jugol in Ethiopia, the social organization of this Muslim community has been traditionally based on neighbourhood associations and a strong, practical and spiritual relationship with the surrounding land, forming a socio-environmental whole. Modern societies have rather tended towards fragmentation and a decrease in dialogue. A loss of common horizons for shared values – which ought to go beyond the over-emphasis of one's personal individuality and stress common responsibilities – has ensued. And, now, we must recognize again that the regeneration of values and meanings requires dialogue.

5. Integrity

Another key issue in the identification and definition of a heritage resource is its integrity. The World Heritage Operational Guidelines (2005) require that a property nominated to the World Heritage List meet the conditions of integrity:

> Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. Examining the conditions of integrity, therefore requires assessing the extent to which the property: a) includes all elements necessary to express its outstanding universal value; b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance; c) suffers from adverse effects of development and/or neglect (par. 88).

Integrity must be correlated to the qualities that are valued in a particular property. We can take the example of Bam in Iran, inscribed on the World Heritage List in 2004 after having been seriously damaged by an earthquake at the end of December 2003. This emergency nomination was first focused on the ancient citadel, perhaps the most visible and best known feature of the site. Subsequently, following contact with the authorities, it was decided to extend the boundaries of the nominated area to include the ancient irrigation system, the underground qanats which were in themselves important archaeological evidence of a traditional technique, as well as a vital element in the development and survival of this settlement at the crossroads of trading routes in the desert environment of central Iran. Sections of the qanats have been in use for more than two millennia and are fundamental to the oasis' existence. They need constant maintenance and consequently are also subject to gradual change. However, some segments have been preserved as archaeological testimony to the earliest phases. The qanats' proper functioning has required and continues to require a system of strict social coordination for regular maintenance and care. The significance and protection of the area should thus be defined on the basis of vital social functions and processes, including those related to management of water resources, farming and agricultural production, trading and production of goods, residential and defense functions.

Since the nineteenth century, the Bam citadel had only been used for military purposes and was mostly in ruins, though partly restored over the past three decades. While the earthquake caused much damage, especially to the restored parts, it also revealed some historical phases of construction that had been hidden, thus heightening the site's archaeological interest. One of the issues which arose as a result of the earthquake relates to the extent of restoration and reconstruction acceptable bearing in mind the dual aim of presentation of the site, and preservation of historical authenticity and archaeological interest. Much of the modern town of Bam was destroyed in the earthquake too. Over 26,000 lives were lost. The modern town is not part of the nominated World Heritage core zone, but is included in the buffer zone. It is now subject to new planning and reconstruction. Bam's example shows how the functional integrity of a place can allow for a better understanding and clearer definition of its outstanding universal value.

Fig. 4. Bam. The ancient citadel of Bam, Iran, developed particularly in the early Islamic period. Since the earthquake of 2003, it has been subject to an international conservation project. The citadel has been recognized as part of a vast cultural landscape, where life is shaped by a traditional water management system. The site was inscribed on the World Heritage List in 2004.

Another interesting case is James Island in the Gambia River where the nominated area consisted of colonial forts and trading places built to protect the entrance to the river, and to facilitate traffic on this first trading route into the hinterland of Africa. While the nomination only concerned the extant monuments as relics of the past, the justification of the inscription needed to be based on a broader definition of the site. In fact, this site's significance is fundamentally associated with the Gambia River as a cultural route which has led to the construction of all the various built structures in order to facilitate commerce. This probably started with the Phoenicians and Romans, continuing with the Arabs, and finally the European colonists. Today, as well as forming the framework of its contemporary economy, the river has become the referent for the country's modern political self-definition.

Similarly, the definition of integrity was fundamental for the World Heritage nomination of Assisi, the birthplace of Saint Francis in central Italy. The original nomination consisted only of the Basilica of San Francesco and the walled medieval city. Subsequently, the nomination was revised, adding several monuments which, though outside the town, were critical to Saint Francis's spiritual maturity and for the foundation of the Franciscan order. Nature as God's creation was of particular significance for Saint Francis. Throughout his life, he spent much time in nature, a fact beautifully illustrated in Giotto's fresco celebrating his preaching to birds. Assisi had been important since pre-Roman times. In the centre, there are remains of a significant Umbrian temple, later used by the Romans. Cult processes on the site generated the establishment of a communication network. Later on, as a result of the Franciscan movement, Assisi became a place of pilgrimage, and this new function, in turn, generated communication routes to the entire territory. The farming system remained practically intact until the 1960s, though policy changes have since made it vulnerable. Due to far-sighted urban planning in the 1950s, the municipal area, however, has retained its overall traditional integrity to this day.

Taking an overall view of these examples, we can see that, in each case, the significance of the World Heritage nomination was enhanced by an in-depth examination of the site's social-functional integrity in light of its values. In Bam's case, the site was initially proposed as a monument but was then redefined as a cultural landscape. As a result, its values were consolidated and extended. The core zone was defined so as to cover a large part of the most important qanat area, while the rest of the oasis, including the new town, was enclosed in the buffer zone. In the Gambia case, the river, as a major trade route, was the driving force; and the forts and trading places formed documentary evidence for past functions and processes. The property was considered to be of outstanding universal value owing to the way it provided exceptional testimony to crucial periods in the evolution of world trading and slave traffic. The boundaries of the nominated area were limited to the structural elements, but the buffer zone covered a long strip of land along the river, thus symbolically reinforcing the significance of the site as a cultural landscape. In the Assisi case, the question was again about a cultural landscape with several different parameters. It is significant for having preserved traces of the communication network and the buildings as testimony to the social, spiritual and economic functions that defined its system of land use. Most importantly, its landscape represents the spiritual association of the life of Saint Francis and the relationship of the Franciscan movement with nature.

The social-functional integrity of a place refers to the identification of the functions and processes on which its development over time has been based – such as those associated with interaction in society, spiritual responses, utilization of natural resources and movements of peoples. The spatial identification of the elements that document such functions and processes helps to define the structural integrity of the place, referring to what has survived from its evolution over time. These elements are a testimony to the creative response and continuity in building the structures, and give sense to the area's spatial-environmental whole. Visual integrity, instead, helps to define the aesthetic aspects represented by the area. It is on such dimensions of integrity that one can base the development of a system of management capable of guaranteeing that the associated values are not undermined.

Fig. 5. Kashan. The historic city of Kashan, Iran, has retained much of its historic integrity, particularly that of its building fabric, and its wind-tower-based traditional ventilation system. In recent years, housing complexes have been rehabilitated as hotels. However, many of its fragile mud brick buildings risk decay and even collapse if not properly used and regularly maintained.

In many cases, it is not enough to focus on the limited World Heritage area, but rather it is necessary to take into account a vaster territorial context. This was the case, for example, in the Valley of Noto, in Sicily, where eight historic urban areas were integrated into a territorial management master plan. The purpose was to lay emphasis on the economic and functional aspects of the regional economy and relevant land use. This could not be suitably managed if only limited to the nominated World Heritage sites.

6. Relativity of Values and Identity

Cardinal Joseph Ratzinger, who would later become Pope Benedict XVI, published a series of speeches dealing with values in contemporary Europe (Ratzinger 2005). At the time, Cardinal Ratzinger had the task of defending Catholic doctrine. In many ways, his speeches are related to doctrinal problems. He discusses the issue of individual freedom versus societally-shared, and the fashionable question of relativism in our present-day multicultural society. He summarizes the evolution that has characterized European qualities and values, particularly those founded on Christianity, the dominant religion in Europe. Three issues emerge as the most essential. The first is the need to recognize human dignity and human rights as absolute values that must be respected. Here, he objects to cloning and genetic manipulation. The second issue deals with marriage and family. He considers the family, formed of the legal union of man and woman, as the core nucleus of society, which needs to be defended. Finally, he is concerned about respect for what is perceived as sacred and holy. He maintains that freedom of opinion should not be interpreted so as to destroy other people's faith. Conversely, respecting other people's beliefs should not lead to total relativism and annihilation of one's own values.

Benedict XVI is an intellectual with deep cultural awareness, and is concerned about the trend towards absolute relativism. This trend – the annihilation of higher values and the abolition of human dignity – was already feared by Nietzsche one century earlier. Historically, this tendency can be related to the ethnocentrism that emerged with European colonialism, i.e. interpreting the values of other cultures in terms of one's own. Cultural relativism emerged, as a counteraction, from the German Enlightenment and the development of anthropology in the twentieth century. Simplifying this view, all beliefs would be equally valid; truth itself would be relative to the situation, the context and the individual concerned. Nietzsche was concerned about the tendency by cultural relativists to refuse that the values associated with Western culture could have universal meaning. In fact, cultural relativism has at times been confused with moral relativism. Taken to extremes, it would mean that there are no universal moral standards and no values. Instead, while recognizing that each culture will have its own dignity and value structure, we can posit that there are issues that can be used as a yardstick against which the specific qualities and characteristics of a given culture are ponderable.

The identity, on which the values and the individual personality of a particular culture are based, cannot be defined in isolation. Rather, identity is generally founded on the cross-fertilization of different cultures and values. Western culture has, for example, formed its characteristics as a result of interactions between different cultures –those existing in Europe itself, but also in the Middle East and North Africa. European identity is thus the result of the pondering and regeneration of these values over time. Even science has not been without cultural linkages. In his Structure of Scientific Revolutions, Thomas Kuhn has argued that science is not simply a logical outcome of rationality, nor is it something objective outside value judgements. Rather, the question of understanding natural phenomena is necessarily subject to human understanding, experienced in the light of new paradigms resulting from intellectual revolutions. Science therefore is not just rational, but is also based on cultural parameters. This is relevant to World Heritage, and particularly so to the identification of outstanding universal values and the absoluteness implied therein.

Taking the discussion back to cultural relativism, we may agree with the idea that each culture has its own identity and characteristics. Of course, the meanings of related entities, such as cultural heritage, need to be verified in relation to relevant cultural contexts. Still, this does not mean that all values must be equal. The pivotal undertaking is identifying universally valid issues in relation to which the specific qualities can be measured. It is in this light that we should read the ICOMOS Gap Report, where the thematic framework is presented as an attempt to identify issues of universal validity for the evaluation of nominations. Once we recognize the creative diversity of the human mind, our aim becomes to identify authentic examples of such creative and spiritual responses. From a cultural diversity perspective, different cultures can be said to have generated comparable responses.

It is therefore necessary to raise the issue of representativity, making sure that the significant responses to particular themes in different cultures are adequately represented on the List. It is not enough to select the most representative. We must agree about the minimum quality criteria required for World Heritage properties, as well as ensure integrity of the nominated areas. Critical judgement – based on research and documentary evidence – is required to decide about the quality, integrity and values of the cultural responses represented.

References

Ferret, Stéphane. 1996. *Le Bateau de Thésée. Le problème de l'identité à travers le temps*. Paris: Les Éditions de Minuit.

Heidegger, Martin. 1993. "The Origin of the Work of Art", in: M. Heidegger, *Basic Writings*, edited by D. Farrel Krell, London: Routledge: 143-212.

Herrenschmidt, Clarisse. 1996. ''L'écriture entre mondes visible et invisible en Iran, en Israël et en Grèce'', in Jean Bottéro *et al*. *L'Orient ancient et nous; l'écriture, la raison, les dieux*, Bibliothèque Albin Michel Idées, Paris, 93-188.

Hodjat, Mehdi. 1995. *Cultural Heritage in Iran: policies for an Islamic Country*, DPhil dissertation, University of York, published by the Municipality of Tehran.

Ibn Khaldun. 1997. *Discours sur l'histoire universelle ; Al-Muqaddima*. 'Thesaurus' Sindbad.

ICOMOS. 2005. The World Heritage List, "Filling the Gaps – an Action Plan for the Future", An analysis by ICOMOS. Paris: ICOMOS.

Ito, Nobuo. 2003. "Intangible Cultural Heritage Involved in Tangible Cultural Heritage", (Paper at 1994 ICOMOS General Assembly, http://www.international.icomos.org/victoriafalls2003/papers/)

Jokilehto, Jukka. 1999. *A History of Architectural Conservation*. Oxford: Buttertworth-Heinemann.

Kuhn, Thomas S. 1970. *The Structure of Scientific Revolutions*. Chicago: The University of Chicago Press.

Marra, Michele. 2002. *Modern Japanese Aesthetics*. Honolulu: University of Hawaii Press.

Olin, Margaret. 1992. *Forms of Representation in Alois Riegl's Theory of Art*. University Park, PA: The Pennsylvania State University Press.

Panofsky, E. 1968. *Idea: A Concept in Art Theory*, Icon Editions, Harper and Row Publishers.

Ratzinger, Joseph Kardinal. 2005. *Werte in Zeiten des Umbruchs, die Herausforderungen der Zukunft bestehen*, Freiburg, Basel, Wien: Herder Spektrum.

Seung-Jim Chung, PhD. 2005, "East-Asian Values in Historic Conservation", in: *Journal of Architectural Conservation*, vol. 11, n. 1, March 2005: 55-70.

Steiner, George. 1989. *Real Presences*. Chicago: University of Chicago Press.

Teffo, L.J. 2002. "Metaphysical Thinking in Africa", in: Coetzee, P. H., *The African Philosophy Reader.* London: Routledge, 134-204.

Taylor, Charles. 1991. *The Ethics of Authenticity*, Cambridge-London: Harvard University Press.

UNESCO. 2005. *Operational Guidelines for the Implementation of the World Heritage Convention*, Paris: World Heritage Committee and World Heritage Centre.

UNESCO. 1998. "Regulations relating to the Proclamation by UNESCO of Masterpieces of the Oral and Intangible Heritage of Humanity", 155 EX/Decision 3.5.5 approved by the Executive Board, November 1998.

The Socio-Cultural Aspects of Conservation: Notes on the Effects of Modernization in the Arab Region

Hossam Mahdy

1. A duality of Attitudes

The Arab region has a rich cultural heritage. Numerous archaeological sites in the region are of international significance. In all Arab countries, local and national authorities endeavour to safeguard this great wealth. Decision makers, professionals and academics are making every effort to contribute to the conservation of their cultural heritage.

However, a participatory approach remains quite difficult to achieve. It is not unusual to observe indifference, carelessness or even hostility by local communities towards archaeological sites. If the man in the street does care about his cultural heritage, why then does he not share in the efforts to conserve it? On the other hand, if he does not care, for whom are we conserving cultural heritage?

Like with many other aspects of Arab civil societies, there is an obvious duality intrinsic to the social, economic and cultural frame of reference. Intellectuals, professionals and decision makers make up a formal sector, whereas ordinary people constitute an informal sector. The difference in attitudes between the two sectors is quite alarming. This is not a simple lack of awareness issue. It goes right to the heart of value systems, social and cultural.

2. The Process of Modernisation

Conservation of cultural heritage in pre-modern traditional Arab communities was carried out mainly by the civil society. Even when sultans, emirs or other officials initiated an intervention within a historic building, it was always a personal or communal effort. Almost all maintenance and repair works to significant buildings were executed through the *waqf* system, which was applied through non-governmental organisations under the supervision of the *qadi*. As far as we are able to understand pre-modern views today, there was no marked difference between the formal and informal sectors' attitudes to cultural heritage.

The modernisation of the Arab world brought about profound changes in attitudes. One such major change was the duality in society, culture and economy. Another change was the development of passive, if not hostile, attitudes towards cultural heritage by the masses. It is therefore essential to understand the process of modernisation in order to understand the duality of attitudes that we see today.

Modernisation was forced upon the Arab region. The majority of Arab countries were colonised by modern Europeans. It had been modernisation and the changes it had brought to Europe, such as industrialisation, that urged Europeans to go out and colonise other nations. Then, the European colonisers imposed modernisation on the nations that they colonised. Modernisation was used to justify or legitimise colonisation. Europeans in fact claimed that they had only come to the region to introduce modernisation (Said 1978).

It is quite understandable then that colonisation should cause a split in attitudes to occur within the Arab region. The informal sector consisted of those masses that resisted the colonisers in every possible way. The resulting development of a parallel informal economy and socio-cultural trends was a patriotic resistance mechanism.

Independence and the ensuing establishment of modern nation states in the region were supposed to eliminate this duality of attitudes. However, though colonisation was no longer extant, and the officials and decision makers were now Arab nationals, the split in economy, society and culture did not disappear. Officials continued to vie for modernisation. Sometimes the wording was different – renaissance, enlightenment, development, awakening – but the essence was the same.

3. Colonial Regimes and Cultural Heritage

Architecture is a well-known political tool. Umayyads, Fatimids, Mamluks, Ottomans and others built grand monuments to enhance their political agendas. Cultural heritage was used for the same purpose though in a more limited manner. Many Muslim rulers brought remains of the Prophet, and restored historic buildings of religious and political importance such as the *Kaaba*, the Prophet's mosque in Medina, the al-Aqsa mosque in Jerusalem, and the al-Azhar mosque in Cairo.

European colonisers used cultural heritage for political purposes in a much more sophisticated, academic and professional way. The following actions were undertaken with a political agenda in mind:

- the discovery of cultural heritage through archaeological excavation; the search for sites, manuscripts and artefacts;
- the documentation of cultural heritage with an unprecedented precision and attention to detail;
- the study, analysis and comparison of cultural heritage. For example, deciphering the language of the ancient Egyptian civilisation led to many papyri, mural paintings and carvings on architecture and artefacts being understood;
- the restoration of many cultural heritage buildings and artefacts;
- the interpretation and presentation of cultural heritage were carried out by publications, museums and archaeological elements in-situ;
- cultural heritage was sometimes reconstructed from old sources or even invented – drawn from mythology and the imagination. Paintings were made of historical events, people or places. Buildings were constructed according to an idealised style.

In European museums today, artefacts from the Arab region bear witness to a systematic and consistent appropriation of the region's cultural heritage by European colonisers during the nineteenth century and the first half of the twentieth century. Throughout the Arab world, historic building restorations and buildings designed in the neo-Arab style stand as an expression of the colonial regimes' power and their control over the region and its cultural heritage. Intangible heritage was also used for political purposes. The supremacy of the French language and culture in many communities – Arabic and Berber – of the Maghreb is the legacy of heavy-handed French colonisation.

European colonial regimes understood the strong relevance of cultural heritage to local and national identities all too well (Anan 1999). Their control over the nations and communities they colonised was always much more profound if they managed to reinterpret or reconstruct the identity of the people and place. The use of modern technologies such as the printing press, and the "modern" concept of mass media made such practices more effective than ever before.

4. Post-colonisation and Cultural Heritage in the Arab Region

The departure of the European colonisers left a vacuum. Intellectuals, professionals and decision makers who took over the running of institutions in their own newly independent countries continued implementing the practices of the colonial regimes they had rebelled against. They had no time to develop their own modern philosophies, theories, strategies, policies and practices. And, reverting to pre-colonial traditional or pre-modern concepts and ideals was out of the question. The resulting national mechanisms appeared quite up to date and modern. But in reality there was a total loss of direction and a lack of understanding as to why, and for whom things were done. This was the case for every aspect of civil life, including the management of cultural heritage.

Legislations, administrative bodies and academic institutions were translated into Arabic and operated by nationals ill-prepared for their new responsibilities. Once in office, they carried out business as usual. However, while technocrats and bureaucrats working in the field of cultural heritage lacked the vision, politicians were fully aware of the power of cultural heritage as a tool for reconstructing national identities and collective memory. They reconstructed and in some cases invented ancient monuments (Al-Khalil 1992).

Globalisation and the post-Cold War alienated the Arabic layman. Multinational firms were, and are, sweeping away local, small traditional businesses. Satellite TV channels and internet sites are spreading Western culture at the expense of almost every other culture. No wonder then that the man in the street clung to his informal socio-cultural

Formal conservation of a *sabil*

Informal conservation of a *sabil*

framework born of patriotic resistance after independence, and long into the era of globalisation. His indifference towards his cultural heritage remained as he saw heritage as a part of a propaganda machine that served political oppressive regimes, both foreign and national.

Participatory projects are thus often perceived by local communities to be cosmetic operations managed by the formal sector. While it is formally accepted that local communities' negative attitudes are caused by a lack of awareness, the reality is much more complex. With the exception of a few monuments of religious significance, cultural heritage resources were and are associated with the formal sector, its values and its culture.

5. The Way Forward

The existence of an informal sector is a fact that should not be ignored. The identification of stakeholders should include said informal sector. The significance statement for cultural heritage sites should be elaborated by all stakeholders, formal and informal. And, urban conservation must be practised as the sustainable development of areas that are of cultural significance. For bridging the formal and informal duality is in everyone's interest, and will serve to guarantee the sustainability of cultural heritage conservation (Larkham 1996).

References

Al-Khalil, S. 1992. *The Monument: Art, Vulgarity and Responsibility in Iraq.* London: Al Saqi.

Anan, L. 1999. "How did Napoleon employ art to propagate for his campaign on Egypt?", *Weghat Nazar* 07/99: 40-4. Cairo: Shorouk.

Larkham, P. J. 1996. *Conservation and the City.* London: Routledge.

Said, E. W. 1978. *Orientalism.* New York: Pantheon.

Chapter II

DOCUMENTATION AND CONDITION ASSESSMENT OF HERITAGE SITES

Improving the Capacity of Conservation Professionals: Integrating Heritage Information Activities into the Conservation Process

Ana Almagro Vidal and Mario Santana Quintero

Abstract

This paper describes a training approach designed to improve the capacity of conservation professionals in the Arab World, specifically with the aim of imparting an understanding of the manner in which heritage information activities are integrated within the conservation process of archaeological sites. Heritage information plays an essential role in the adequate preparation, implementation and monitoring of conservation strategies. In conservation, good decisions are dependent on the information available. In this sense, a systematic approach allowing for the timely and pertinent collection, storage, management and presentation of this information is crucial. Currently, the Arab region in general lacks the guidelines and procedures essential to heritage information best practice. The approach described here seeks to set a framework for training activities which tackle this issue.

This work is based on Robin Letellier's (1944–2007) role-play approach to Recording, Documentation and Information Management (RecorDIM) in the conservation of cultural heritage. These lines are dedicated to his memory, and are a tribute to a heritage specialist who devoted his life to the training of conservation professionals around the world.

1. Introduction

1.1. Background

The *Periodic Report and Regional Programme: Arab States 2000–2003* prepared by UNESCO's World Heritage Centre has pointed to the existence of a growing number of critical issues related to implementing the World Heritage Convention and to managing World Heritage Sites. Amongst the most pressing issues uncovered are:

- the lack of an appropriate long-term management strategy for the protection and conservation of sites (including periodic condition monitoring i.e. maintenance, periodic value assessments, prevention, and presentation to visitors);
- lack of capacities in conservation techniques and monitoring activities.

These issues are engendered by the poor or non-existent definition of territorial boundaries and buffer zones, which prevents control of the sites' deterioration factors (from urban expansion and road systems to agriculture). Furthermore, "hardly any site has coherent and ongoing documentation and monitoring systems."[1]

Fig. 1. Recording elevations during the 2006 ATHAR course in Umm Qais, Jordan. *Photo by Dima Chahin.*

1 The above quote is an extract of paragraph 1.4. "Management and Conservation of the World Heritage Sites" of Document WHC-03/27.COM/INF. 20A*: Regional Programme for the Arab States*.The document goes on to state that information management "includes the collection and processing of documents and information enabling better implementation of the Convention and the effective management of the properties inscribed on the World Heritage List [. . .] The nomination dossiers prior to 1997 rarely contain up-to-date topographical maps, geographic coordinates, photos, recent bibliographies, etc., provided by the Conservation Services and the sites. With rare exceptions, the sites have not produced appropriate maps or measurements defining the boundaries and buffer zones. This lack of information is very detrimental to the conservation of heritage properties, because it prevents the establishment of a coherent system of legal protection, monitoring and maintenance."

The ATHAR programme seeks to tackle these critical issues by developing information management training in the Arab states in order to create adequate capacity for documentation of sites, and to promote management and information exchange capacities in the region. The approach presented here is based on Robin Letellier's teaching experience and hands-on experience garnered through the following ATHAR courses:

- 2006 – Documentation and Management of Heritage Sites in the Arab Region (Umm Qais, Jordan and Bosra, Syria);
- 2005–2006 – Conservation of Archaeological Sites (Tripoli and Byblos, Lebanon), documentation module;
- 2005 – Heritage Site Management (Bosra and Damascus, Syria), documentation lectures.

1.2. Heritage information basics: learning through role-play

This paper's approach is to focus on understanding the role of information in making decisions about the conservation of archaeological sites and how this can be applied during hands-on training exercises. Information does play an essential role in decision-making for conservation. So, an adequate strategy for capturing, storing and managing data that not only fulfills technical requirements, but is also adapted to institutional and staff potentials will always prove to be a most effective tool. The course prepared for ATHAR centres around a role-playing exercise where participants are challenged to produce an "integrated project dossier" of an area of the site. The instructors provide participants with information about recording techniques, all the while playing the role of the client and conveying his expectations about the assessment's result. This approach ensures that course participants focus on producing records in a pre-established format and within a set timeframe.

The resulting project dossiers are a collection of assessments covering a wide range of issues – from the state of conservation to the interventions carried out on the building. The assessments' level of detail is tailored to the course providers' requirements. The results of these assessments then serve as the basis upon which the client (instructor) makes decisions about the site's conservation.

2. Training Approach

2.1. Course content

The course is designed as a dynamic sequence of lectures (30%), a role-play exercise (60%) and a final presentation of the integrated project dossiers prepared by the participants. The lectures cover the following topics:

- the international principles for recording, documentation and the use of information systems for heritage resource conservation;
- an overview of the applications of information used in making decisions about the conservation of sites;
- understanding the different levels of recording;
- an overview of recording and documentation techniques (emphasizing their constraints and benefits in relation to the conservation of archaeological sites);
- specialised training in recording techniques, including direct and indirect techniques (photographic and non-photographic):

  i. hand survey and sketching;
  ii. RDEM total station;
  iii. photogrammetric systems (digital photography and plotting systems);
  iv. GPS (mapping grade);
  v. panoramic photography.

These topics are tackled throughout the course and developed in detail through specific lectures, field exercises and the work carried out at the recording facilities.

3. Levels of Recording

The participants are introduced to the notion of levels (or approaches) of recording[2], which calls for an appropriate assessment of the resources available for the documentation process (time, budget, survey team and equipment) in order

2 The concept of "levels of recording" was developed by R. Letellier and formed part of his RecorDIM course notes.

to address the specific needs identified in a conservation project. Depending on the extent, accuracy, and quantity of information requested, three levels of recording are considered:

- reconnaissance recording;
- preliminary recording; and
- detailed recording.

Each of these recording levels may be partial (i.e. tailored to specified needs), or complete.

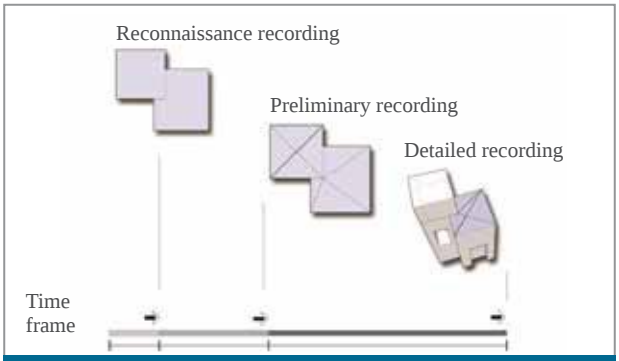

Table 1. Levels of recording

3.1. The reconnaissance record

Usually, the reconnaissance record is an overview photographic survey that allows conservationists to visualise, in its entirety, a site and its related buildings and features in sufficient detail to understand the site's overall general characteristics, It should permit the rapid identification of significant features and problem areas. The quantity of photographs taken will vary depending on the size of the site and related structures and features, and the client's requirements. For a building, a reconnaissance record would normally include elevations together with significant details. More complex sites such as cultural landscapes or archaeological excavations will require general views from all compass points and at various elevations (i.e. heights of land), supplemented, as needs dictate, by representative details.

3.2. The preliminary record

Preliminary recording will complement the reconnaissance record by providing more complete information pertaining to the most significant elements of a site. The purpose of this record is to produce an overview of the resource's major features.

Additionally, the preliminary record might include data necessary for preliminary analysis, and define areas for further investigation and future detailed recording. Data accuracy is approximately ± 10cm for plans, elevations, and cross sections, and ± 2cm for structural details.

3.3. The detailed record

Detailed recording may take place prior to, during, or after a conservation activity so as to record a site's physical configuration, condition and significant features. Detailed recording occurs when a highly significant resource becomes the subject of directed research and analysis, or intervention planning and conceptual design. To ensure cost-effective detailed recording, the level of completeness should be tailored to the conservation team's immediate needs. Detailed recording may be phased over a number of years depending on planning requirements and budget. The accuracy of a detailed record can vary between approximately ± 5mm (for details) and ± 25mm (for building plans).

Fig. 2. Participants using different recording tools. *Photo by Mario Santana Quintero.*

3.4. Recording techniques

Prior to any conservation decision or intervention work, extensive analysis of the object, building and/or site must be carried out as a preliminary step to gather as much information as possible. To identify the most relevant information, the most appropriate recording process must take into account the time, human and technical resources available, as well as the study's final purpose (documentation, decision-making, conservation works or monitoring).

In the conservation field, the work essentially deals with the safeguarding of the essential values contained in every historical or archaeological object. So, it is important to take into consideration not only the material object itself, but also the conservation and restoration of other immaterial meanings related to it. These are more difficult to ascertain because they can only be known through the very careful study and analysis of material elements, and because they often disappear when those elements are modified or destroyed. These values relate to historical, environmental and cultural aspects, that is to say, everything the building or archaeological site may have represented to the society that produced and used it, and, ultimately, what it represents to our society which is responsible for the conservation, the increase and the transmission of all these values' significance to future generations. These values should remind conservation specialists to be very cautious before undertaking any action and assuming the responsibility of dealing with proper heritage values. There is a commitment to preserving, promoting and transmitting these values, and this must be kept in mind during the recording process.
To document means to understand the situation of a building or site precisely before any action. Used alongside literary, historical and artistic descriptions, and in conjunction with photographic or video images, documentation based on measured drawings is fundamental. Indeed, it links the image of the building – and all the information contained in the image such as colour, texture, weathering, etc. – to its dimensional data, providing information about spatial values and the scale of the object, building or site.

There is a wide variety of methods and techniques available depending on the survey's aims and context. The measured survey has two clear, well defined phases. The first one deals with data acquisition, and is carried out on the site using various techniques. The second deals with processing, and comprises the representation, analysis and dissemination of the information collected in the field through drawings, maps or any other kind of graphic information. This second phase is further developed later on in the laboratory (or office). Adequately balancing these two parts of the process will have a direct impact on the measured material prepared. And, the balance achieved is usually related to the equipment, time and budget available for every single recording process.

3.5. Hand survey and sketching

Drawing is a key tool in heritage documentation. It trains practitioners to record what they observe. This skill is often neglected in training courses, but plays an essential role in the approach described in this paper. Drawing fosters the development of a broad range of analytical skills – from the analysis, selection and transmission of information using a single platform (the drawing itself), to the skill that lies in ensuring a complete understanding of the object is formed before it is drawn. During the course, participants work with a surveyor, who will be responsible for this aspect. The training focuses on three essential rules for the preparation of adequate drawings:

- producing good sketches;
- taking measurements always referred to an origin;
- reducing every single space that has to be measured to triangles, the unique geometric figure that keeps its shape.

The ATHAR course participants were asked to draw preliminary sketches for the purpose of recording hand measurements taken with tapes and hand-held laser meters. These also served as auxiliary documents to identify control points taken with the total station for further survey work. Additionally, photographs were taken of details to enrich the information contained within the preliminary sketches. Once back in the office, these helped in drawing the final measured maps using CAD, Photoshop and other applications.

3.6. Reflectorless Electronic Distance Measurement (REDM) Total Station

A total station, also known as a REDM (reflectorless electronic distance measurement device), is capable of recording measurements by projecting an infrared laser beam onto a reflective prism rod (reflector) or directly onto a

Fig. 3. Sketching and taking hand measurements. *Photo by Robin Letellier*

surface. By calculating the time taken for the beam to return, the machine can determine a point's three-dimensional coordinates using the geodetic information recorded, which includes the horizontal and vertical angles, horizontal and absolute distance to the measurement, and the difference in height between the station and the targeted point.

This type of equipment is widely used in the study of cultural heritage. The total station is one of the most flexible devices, allowing users to select and measure directly on site. The device can be connected to a tablet or portable computer equipped with software to allow direct plotting of the measurements on a Computer-Aided Drafting (CAD) application. During the ATHAR course, the Theolt[3] application was used. Theolt was developed by English Heritage to allow researchers measuring a building to directly visualise measurements on their computer. When combined with scale-rectification software (ASRix, Trextify, Photoplan, Homograph, etc.), this technique provides very effective mapping tools for relativelyregular surfaces.

3.7. Photogrammetric systems

Photogrammetry can be defined as the technique that allows the measurement of objects, buildings, sites or earth surfaces using perspective images obtained through photographic methods. It is a very accurate technique, as it is based on the fact that the photographic image is a perspective generated from a centrally-projected system and which, therefore, follows geometric and mathematical principles.[4] When defining a specific point's position in space, a single image is insufficient. But, if two perspectives or two photographs are taken from two different points, enough information to assess the spatial position of every single point visible in both images becomes available. It is then sufficient to determine the intersection of the two projective bundles, as we do when a measurement is taken with a total station from two different positions. The stereo-photogrammetry method uses pairs of photographs obtained at approximately parallel axes so that it is possible to view them stereoscopically. Indeed, if we obtain two images of the same object taken at a certain distance one from the other in relation to the distance between the eyes, and we look at them through a stereoscope, the brain merges them into a single image, increasing the perception of relief, and leading to the content of the image being perceived in 3D. The development of digital cameras has opened new avenues for digital photogrammetry.

3 http://www.theolt.com (last accessed 29/05/2007)

4 In fact, a photographic image together with its centre of projection, situated in the space with the same orientation it was taken, permits the definition of a bundle of directions in the space corresponding with every single spot that is represented in it.

Digital cameras produce images unalterable permanence through time – chromatically and dimensionally. Therefore, for photogrammetric purposes, it is enough to make one calibration_in order to have the position of the projective centre and the parameters for distortion correction. Digital photographs, however, have the downside of being low-resolution compared to traditional silver salt photographs whose grain is slightly smaller than the pixels of most CCDs (charge coupled devices) whose grain is slightly smaller than most digital pixels. Nonetheless, this field is continuously developing and more affordable, higher resolution cameras are becoming available, bearing in mind that the resolution needed will depend on the result aimed for.

3.7.1. Data acquisition in photogrammetric techniques

In order to plot a single photograph or two photographs, we must have, together with the photographs themselves, data about their orientation, that is, we must know the position from which each photograph was taken in relation to the reference system. These values can be obtained either directly – by measuring them when the photographs are taken – or indirectly, through the measurement of control points with a total station. The indirect method is the most commonly used, and provides the most accurate results. Orientation data can be computed by the software if we know at least four clearly visible points for a single image – if using a rectified photography system – or four clearly visible points for each pair of photographs – if using stereo-photogrammetric systems. If we use single images, these points' coordinates can be measured by hand (we will consider that all the points are on the same plane) and we will obtain fairly accurate results. There is however no doubt that the best option is to measure them with a total station, by radiation or by visual intersections.[5] Control points should be chosen so that the area to be plotted is inside a perimeter whose vertices are those points. Control points can be signalled and measured before taking the photographs, or can be mere points of the object to be measured while or after photographs are taken. In both cases, special care should be taken to ensure that points can be easily identified on the photographs.

Fig. 4. Using the total station with a tablet PC. *Photo by Robin Letellier.*

Fig. 5. Using the image rectifier. *Photo by Ana Almagro Vidal.*

3.7.2. Use of single images: scale-rectified photography

Different processes can be used to compute the position of the points we want to measure from photographs. They can be organised into two main types: processes based on the use of single images (rectified photography) and processes that use multiple images (stereo-photogrammetry and orthophotography). During the ATHAR courses, both techniques were introduced but participants were only trained to use the first one.

Among the different image-based recording techniques, rectified photography is the one based on the use of single photographs. The object to be recorded must be flat or mostly flat. In architecture, we can apply this technique to flat façades where emerging elements, such as cornices and balconies, are few. From single photographs, we can obtain rectified photographs at scale (also called photo-plans), but also drawings, which require the further step of drafting onto the rectified image.

To rectify photographs, it is sufficient to have a digital image of a flat element (even if the image is oblique) and to know the flat coordinates (x, y) of at least four points. These coordinates can be obtained through topographic processes or simple direct measurements made with hand tape,

5 This will depend on the kind of instrument we have at our disposal. An infrared theodolite will need a prism to give the real measurement, otherwise we will only get angles and we will have to take the same measurement from two different positions in order to calculate the intersection of bundles. If we use an REDM total station, we will automatically get the angles and the distance, and that will facilitate the field work and the post-processing enormously.

Fig. 6. An example of a condition mapping plan *prepared by the participants.*

triangulating the quadrangle defined by those four points. From that data, a rectified image is obtained. An image to scale that allows measurements to be taken and contains all the information of the photograph as well.

Thus obtained, the rectified image can be printed with a raster printer or used as a base to produce vector drawings with CAD software or similar. This is an advantageous system for surveying street façades at not too large a scale, so that the scale distortion of projecting elements not situated on the scaled plane is not significant. Flat elements are common in architecture (façades and floors) and rectified images are a quick and simple way to document them. Once the rectified image is within the CAD programme, we can draw boundaries, identify construction phases or materials, produce condition mapping, and so on. The various scale rectification applications mentioned above would provide good results. During the ATHAR training courses, ASRix was chosen because of its ease of use. It requires little training and opens up great possibilities in the field of heritage documentation.[6]

3.8. Global Positioning System: mapping devices

Global Positioning System (GPS) devices are widely used for mapping large terrain in applications ranging from civil engineering to environmental studies. In ATHAR's case, the use of GPS mapping tools[7] was taught using devices equipped with ArcPad, a Geographic Information System application that generates maps in real time by mapping points and vectors (polygons). The precision of these devices can range from 2 to 7 metres. On the course, they were used to define the site's location and boundaries.

6 ASRix was developed by Steve Nickerson http://nickerson.icomos.org/asrix/index.html (last accessed: 02/06/2007)

7 "Mapping-grade GPS: Map accuracy and absolute accuracy down to 1m can be achieved, in real-time or if post-processed. Suitable for mapping up to 1:2500 scale but not suitable for site survey". English Heritage, Where on Earth are We? The Global Positioning System (GPS) in archaeological field survey. English Heritage, Swindon, 2003, p. 9.

3.9. Panoramic photography

This type of photography is aimed at creating "images with exceptionally wide fields of view" (Wikipedia, 2007)[8] by merging a wide strip of overlapping photographs creating a 180° or 360° view of an environment. This technique is widely used in environmental studies. At ATHAR, it was used for illustrating the areas of study. Though the product of this technique is non-metric information, it allows a direct understanding of landscapes. The software used is Real Viz Stitcher, an off-the-shelf application that allows the correction of a sequence of overlapping images taken with digital cameras.

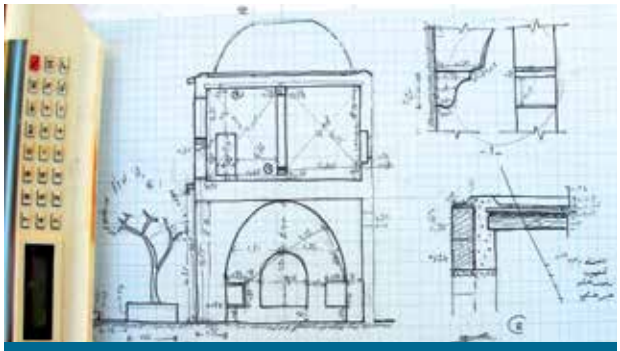

Fig. 7. An example of a field note prepared by the participants. *Photo by Mario Santana Quintero.*

3.10. Role-play exercise: producing a preliminary record

Participants are divided into groups in a way that ensures a good mix of disciplines. In fact, interdisciplinary representation should be a course profile requirement when selecting candidates. The role-playing exercise is carried out around the idea of preparing a preliminary assessment of the site that can be used to understand the significance, integrity, strengths, threats and opportunities offered by it, as well as the works required to improve its conservation. The exercise defines a set of roles (client, heritage recorders, and information specialists) and sets specifications for the preparation of the preliminary report.

4. Roles

4.1. The Client

Depending on the situation, the client could be a representative of the government and/or of the private sector, responsible for the prioritisation and allocation of funds for conservation activities in the country. The participants are hired to produce a preliminary record report that will provide an initial description of the architecture, the heritage character and value, and the condition of the sites (Letellier 2007)[9].

The preliminary record report should allow the client to understand:

- the main elements of the heritage place (i.e. plan, section and elevations being studied);
- some wall openings and architectural details (if existent);

and to understand precisely:

- the masonry surface condition of the walls (i.e. cracks, deterioration, vegetation growth, weathering, etc.);
- specific problems and decayed areas;
- morphological evolution (if any);

so that the client can:

- appreciate the problems' scope;
- discuss possible conservation options with conservation professionals;
- invite conservation specialists, at a later date, to evaluate the costs for repair.

In other words, the preliminary recording reports produced by the participants are meant to provide the client with an "understanding tool" and a "management decision-making tool" that will help him appreciate the scope and levels of problems, prior to setting forth/making a case for the need for other more sophisticated assessments (sounding, stability studies, masonry inspection, etc.).

8 http://en.wikipedia.org/wiki/Panoramic_photography (last accessed: 29/05/2007).

9 Letellier, R. Role Play Exercise, unpublished approach for Heritage Recording, Ottawa 2007. ATT:

4.2. The Heritage Recording Team

Depending on the course's context, the heritage recording team should be composed of a multidisciplinary group, including architects, engineers, archaeologists, historians, computer specialists, and surveyors. The composition of the recording teams will, hence, depend on the participants' backgrounds, training and experience. Team composition will be a determinative factor. As such, a skill matrix should be prepared to reflect the participants' backgrounds. This will allow effective evaluation of team composition.

The heritage recording team should be capable of:

- reviewing the site and structure assigned, and understanding the client's needs;
- defining the scope and level of recording required to meet the client's specific needs; and
- producing a preliminary record as defined in the guidelines and examples provided during the course (such as examples of best practice by other organisations).

4.3. The Specialist

Additionally, the role-playing exercise can be enhanced by introducing a specialist – in this case making use of the instructors' skills. The heritage recording team can hire one of these specialists to carry out specific surveys and/or assessment tasks for them. This exemplifies the process of delegating work to subcontractors and its impact on a project.

5. Preliminary Record Report Specifications

The Integrated Project Dossier coalesces information about the site. It should provide a preliminary overview of the following:

- Project Identification Sheet (site's location, scope, administrative issues);
- statement of significance;
- integrity overview, considering significance assessment;
- condition assessment (onsite inspection and identification of weathering forms and processes);
- risk assessment (threats and hazards);
- identification of potentials and recommendations;
- other relevant issues as per discussion with the client.

6. Scope of Work: Report Contents

Subject to the course timeframe, participants and availability of equipment, the report should contain the following representations:

- a site plan of the immediate area (only to be used as "photo key plan" i.e. showing the structure in its context, with some site features);
- a small area plan of the designated area;
- an architectural detail (doorway, bas relief, etc. if available and if time permits);
- a cross section;
- a wall elevation using rectified photography (as described hereafter under "main challenges").

The level of detail of the representations should be defined according to the course and assessment needs. Ideally, a building can be split into a number of sub-areas, and each group can work on one of these sub-areas.

The team will be expected to organise the report in an "information container". This can be designed using the web or other techniques that allow hyperlinks. Usually the container will include:

a) field notes;
b) CAD drawings (of the field notes);
c) a written report (a minimum of three pages);
d) a photo report divided into 3 parts containing:
   - architectural photographs,
   - record photographs, and
   - condition photographs.
e) scale-rectified digital mosaics of elevation(s):
   - with CAD overlay condition assessment of the elevation(s),
   - with a minimum of five condition photographs per elevation.

Fig. 8. An example of a condition mapping plan *prepared by the participants during the 2006 ATHAR course in Umm Qais, Jordan.*

6.1. Results

At the end of their course, participants achieved an understanding of the role of information in conservation practice – both global and detailed. Their understanding related especially to the preparation of preliminary assessments for management plans.

Feedback from participants and instructors has shown:

- increasing awareness of the need for recording and documentation in the protection and management of archaeological sites;
- an understanding of levels of recording and their link to answering management needs;
- an understanding of the different types of tools available for recording, including their benefits and constraints;
- an increasing awareness of planning for documentation, such as understanding site constraints and the potentials offered by the range of tools available;
- instructors were, in a relatively short time, capable of demonstrating the potential and range of recording, and of providing participants with a hands-on experience;
- instructors had become aware of the participant group's outstanding skills, and were therefore empowered to continue training experts in the region;
- participants had formed a clear understanding of the full potential of the sites they recorded, since the role-play approach offered an effective framework for learning by doing.

6.2. Closing remarks

The role-play approach presented in this paper forms a didactic, dynamic package that allows participants to learn directly through experiencing the role information plays in the conservation of archaeological sites. In addition, the course structure provides a framework within which participants' strengths and weaknesses can be evaluated, thus providing ICCROM with a clearer picture of the gaps that need to be addressed by future training.

6.3. Future work

The role-play exercise should in future cover more advanced levels of recording, providing participants with the opportunity to carry out more detailed recording of sites and experience their benefits and constraints first hand. Future training should also cover preventive maintenance approaches where data is gathered to produce the site's baseline information, and to subsequently carry out continuous recordings monitoring the intervention's effectiveness.

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References

Almagro, A. 1999. "Photogrammetry for everybody", XVII CIPA International Symposium on Architectural Photogrammetry, Recife/ Olinda, Brazil.

Almagro, A. 2002. "Simple Methods of Photogrammetry: Easy and Fast", XVIII CIPA International Symposium on Architectural Photogrammetry, Potsdam. Berlin, 32-8.

Bold, John A. 2006. *Guidance on Heritage Assessment*. Council of Europe, Strasbourg, France.

CIPA, "Proceedings of the International Symposiums", http://cipa.icomos.org (last visited 02/05/07).

Clark, K. 2001. *Informed Conservation: Understanding historic buildings and their landscape for conservation.* English Heritage.

English Heritage: "Developing Data Standards"

http://www.english-heritage.org.uk/server/show/nav.8331 (last visited 02/02/07).

English Heritage. 2003. *Where on Earth are We? The Global Positioning System (GPS) in archaeological field survey*. Swindon: English Heritage, 9.

ICOMOS charters

http://www.international.icomos.org/centre_documentation/charters_eng.htm (last visited 02/02/07).

Letellier, R. 2006. Unpublished training handout*:* Integrating RecorDIM activities to the Conservation Management Process. Ottawa.

Nickerson, S., ASRix V2.0 Digital Image Rectifier, http://nickerson.icomos.org/asrix/index.html (last visited 02/06/07).

Santana Quintero, M. 2003. *The Use of Three-dimensional Documentation and Dissemination*. Leuven.

Schuller, M. 2002. "Building Archaeology", ICOMOS (*Monuments and Sites*: VII). Munich.

Techniques in Studying Built Heritage, R. Lemaire International Centre for Conservation (KU Leuven), 2003.

UNESCO World Heritage Centre. 2003. '*World Heritage Series n°11 - Periodic Report and Regional Programme: Arab States 2000-2003*'. Paris: UNESCO.

Wikipedia 'Panoramic Photography', 2007.

http://en.wikipedia.org/wiki/Panoramic_photography (last visited 29/05/07).

Documentation of Archaeological Sites and Monuments: Ancient theatres in Jerash

Naif Haddad and Talal Akasheh

Abstract

Modern technology has changed matters in documentation significantly and promises to continue to bring change. This paper attempts to present:

1- How we should understand documentation of archaeological sites, historic buildings and monuments according to their particularities, categories, types, components of documentation, taking into account the internationally agreed standards for the documentation of the cultural heritage.

2- The potential of the application of 3D Laser Scanner and PhotoModeler in documentation of the immovable cultural heritage.

As a case study, the ancient theatres of Jerash (the Southern and the Northern) will be presented. The purpose of using different methods of documentation is to compare the advantages, disadvantages, and accuracy of the traditional method – Total Station – to the 3D scanner method, and PhotoModeler method.

1. Introduction

As cultural heritage is a unique expression of human achievement, and since this cultural heritage is continuously at risk, documentation is one of the principal ways available to give meaning, understanding, definition and recognition of the values of the cultural heritage. As such, it constitutes an important basis of orientation for subsequent restoration and maintenance measures. Furthermore, all interventions acquire the character of evidence themselves and therefore, have to be documented. Article 16 of the Venice Charter emphasizes that in all works of preservation or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs.

Every stage of the work, including technical and formal features identified during the course of the work, should be included. This record should be placed in the archives of a public institution and made available to research workers. It is recommended that the report be published. Thus documenting the cultural heritage not only describes the context in which the materials were found, and their relationship in space and time to geological deposits and large architectural features, but also as monitoring of the remains of past human activities.

The documentation process, which may be undertaken as an aid to various CRM activities, such as protection, identification, monitoring, interpretation, registration of stolen cultural objects, can benefit tremendously from various modern techniques that are available to us nowadays.

2. Categories and Components of Documentation

Regardless of the location of the activity, its type or philosophy of art and historical conservation, the documentation should address three questions: what it is, where it is, and when? There are three categories and components of documentation:

Written documentation: this should comprise an architectural description, the state of conservation, an interpretation of the results of all tests and analyses, a summary of the results of all investigations, and a report on the interventions executed.

Non-photographic (graphic documentation) Techniques: these are based on conventional surveying in order to produce plans, elevations, and architectural details.

Photographic documentation: photography, rectified photography, computer-rectified photography, photogrammetry, and 3D laser scanner. The photographic documentation should provide information on the important condition of a monument, i.e. before, during, and after restoration.

3. International Core Data Index

There are three internationally agreed standards for the documentation of cultural heritage:

a) The Core Data Index to Historic Buildings and Monuments of Architectural Heritage (1992);
b) The Core Data Standard for Archaeological Sites and Monuments (1995); and
c) The Object ID (1997) which was developed to provide an international standard for the information needed to identify cultural objects, in response to the threat posed by the illicit trade in the movable heritage.

Evaluation of the documentation process can be carried out by comparison with such standards. Other considerations could be related to the particularity of the monument, the cost, the ability to benefit from modern digital techniques and the success in acting as a historical record of human activities.

4. Ancient Theatres of Jerash

Few ancient towns are as well preserved and as complete as Jerash, a city complex that was once, a thriving commercial zone and part of the Decapolis. Built in the second century BC, the city was conquered in 63 BC by the Roman general, Pompey. The grand theatres and spacious public squares, plazas and baths, the Roman Cardo running 700 meters north from the Oval Plaza and flanked by sky-piercing columns on both sides, make this site truly, an archaeological park.

5. The Southern Theatre in Jerash

The Southern Theatre (Exterior Diameter 70.5 m) is today one of the most impressive of Jerash's public buildings. It was begun at the end of the first century AD (during the reign of Domitian) and completed in the early second century. On its completion, it became one of the most splendid civic monuments in the developing city and certainly the finest of its type in the whole province. The *cavea* of the auditorium was divided into two sections, with a wide terrace *(diazoma)* describing the full half circle between them. The lower half was built into the side of the hill, while the top half was built above it. Although the auditorium has survived remarkably well, the top rows of seats are missing, and one cannot be sure of the exact original number. (Fig. 1)

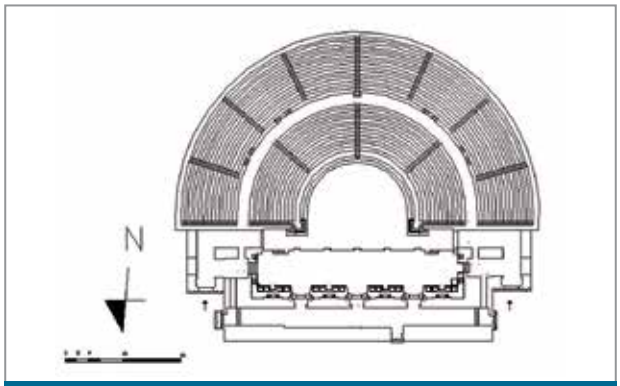

Fig. 1. Plan of the Southern Theatre

The front of the stage was divided into four sections with pedestals between them. Each section was decorated with a central pediment niche flanked by arched niches. These elaborate architectural compositions are a common feature of Roman theatres. The front of the stage is decorated with a pediment and arched niches. The wall rising behind the stage, the scaenae frons is pierced by three doors used by the performers to enter and exit the stage from the sides. The *scaenae frons* would have had a second storey repeating most of the decorative and architectural elements of the lower level. Much of the outer (north) wall of the theatre is a modern reconstruction. However, the so-called `restoration`, actually rebuilding, of the rear wall behind the *scaenae frons* is regrettable, as it has obliterated the original appearance of the wall endangering by that, the authenticity of the whole structure. Fortunately though, the greater part of the theatre is completely genuine (Browning 1982).

6. The Northern Theatre

The complex is composed of the North Theatre (Exterior Diameter 43, 47 m, orchestra Diameter 14,33 m) itself and a 'plaza' in front of it. A great deal smaller than the Southern Theatre, its orientation is determined by the northern *decumanus* upon which it opens and from which it is approached. The *cavea* shows the usual arrangement of four cunei in the lower half, and eight in the upper half. At the top of the upper section of the *cavea* there was scarcely room for a passageway and colonnade (Fig. 2).
The construction of the theatre was started, and probably

completed, in AD 64/65. In comparison with the Southern Theatre, it is a small theatre which was probably used for poetry readings, meetings or more modest performances than the large dramatic events that would have taken place in the city's larger Southern Theatre. The theatre may also have been the city council's meeting hall. It was modified several times and seems to have been enlarged in the first quarter of the third century. It is known that it has finally went out of use by the fifth to sixth centuries. On some of the seats of the lower *cavea* are inscribed in Greek the names of the voting tribes *(phylai)* that were represented in the *bouleutirium*, or city council, all of them named after Olympian gods except one tribe named after the Roman Emperor Hadrian. The theatre's expansion in the first quarter of the third century AD included the addition of eight rows of seats, doubling its capacity to around 1600 people.

The three best-preserved external *vomitoria*, at the western end of the upper auditorium, show their original construction of three independent, semi-circular arches rising towards the exterior with evidence of large wooden doors that could

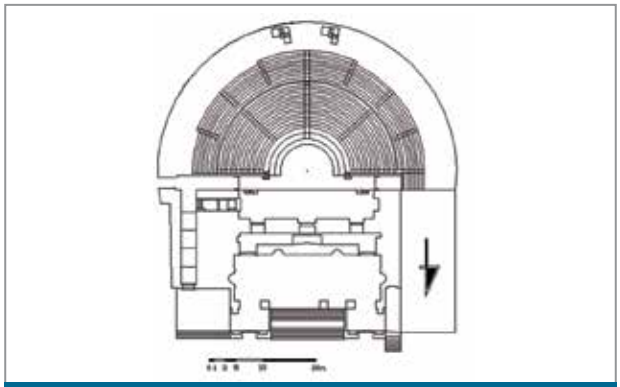

Fig. 2. Plan of the Northern Theatre

have been opened or closed to control access to the theatre. The original *scaena* wall, facing the audience from behind the stage, was dismantled and replaced by a more complex one composed of two parallel walls. The elaborate *scaenae frons* was probably two storeys high, and was adorned with coloured marble, free-standing Corinthian columns and broken entablatures, behind which were semi-circular niches decorated with mosaics.

7. Methods of Documentation for the Jerash Theatres

The purpose of using different methods of documentation for the Southern and Northern Jerash theatres was to make a comparison between the advantages, disadvantages and accuracy of the traditional recording method, 3D scanner survey, and PhotoModeler. Accuracy is the correctness of the measurement, regardless of its precision. Precision refers to the fineness of measured distinctions. Results of the case studies are presented and compared. The aim is to recommend to (mostly non-geodetic) users the method best suited for each kind of application, or if a combination of 3D scanning and PhotoModeler is advisable. Criteria such as quality of results, amount of cost and time, required equipment and occurring problems are to be considered. To investigate the advantages, disadvantages and accuracy of these methods, we carried out some case studies for the two theatres. Different typical objects were chosen and characteristically parts of them were recorded by tape, total station, PhotoModeler and 3D scanning. In this research project, we installed a number of different test targets that allowed an investigation in the quality of points recorded by laser scanners and the geometric models derived from the point clouds.

• By using Total Station and AutoCAD Software

Conceptually, total stations are different from most measuring systems used by archaeologists because they are effective over a great range of scales and have an accuracy that is unusual in our experience. Limits on drawing precision that were once inherent in the use of scaled drawings have been removed thanks to CAD systems. For example, the instrument might be measuring the position of a point 1 km away from the total station and be accurate at least to the centimeter. This is equivalent to the use of a tape to measure the distance to an object a meter away with .01 mm accuracy. The total station can be used to measure archaeological structures during an excavation. The precision with which a CAD system can maintain coordinates depends on the internal data structure chosen, but all standard CAD systems maintain coordinates at levels of precision beyond the operator's capacity to measure. A surveyor collecting data using pre-electronic techniques could have used a tape to take the measurements, together with cross-sections for elevation information and quantity estimates. Or, the survey could have been completed using such polar techniques as transit or theodolite/EDM surveys. Electronic data collection with total station instruments permits the quick acquisition of a large amount of field data, together with the efficient and error-free transfer of the data to a computer. Once in the computer, the field data can be edited and analysed for completeness of coverage and accuracy. For the documentation of Jerash's Southern and Northern theatres, more than 900 points were taken using the total station (Sokkia). A measured survey using tapes was conducted to record some of the dimensions of the theatres (the scene and some architectural details). The goal of these measurements

was to collect more field dimensional measurements and other detail measurements for documentation of the theatres. Full documentation of the Southern Theatre of Jerash 2D and 3D was finalised with 2D documentation and reconstruction for the Northern Theatre of Jerash.

• By using PhotoModeler

While photogrammetry and metric surveying techniques can be suitable for archaeological sites and buildings, they present certain disadvantages for smaller and more complex objects. PhotoModeler is a Windows software programme that helps to extract measurements and 3D models from photographs (Fig. 3). By using cameras as an input device, PhotoModeler is capable of extracting accurate measurements and details. It is based on using several photos (Fig. 4) from different angles with known focal length, using control points (Fig. 5). PhotoModeler can create 3D models and export the measured data as a dxf file. PhotoModeler is one of the methods we used in documenting, measuring, and modelling the scene of the Southern Theatre in Jerash. Several selected photos taken from slightly different positions were shot using a digital camera. For calibration, some 3D points of the scene were obtained. For this purpose a modern integrated total station model Sokkia to collect more than 50 points to record the 3D points. These points were carefully chosen to be very well distributed on the scene in order to use them as GCPs (Ground Control Points) (Fig. 5). With these data, we produced a 3D model, ortho-rectified images (Photogrammetry) and measurements (x, y, z) or lengths for the stage of the Southern Theatre of Jerash. For more accuracy we produced a detailed model for the scene features - the left Gate - (Fig. 3) and then combined these detailed models together to produce the scene of the theatre.

Advantages	Disadvantages
Contains information about surface detail (e.g. weathering patterns). Photographs are easier to interpret and recognize than drawings.	Highly-skilled photographers are essential. The enlargement of images should be done accurately. Photographic format (analogue).

Fig. 3. 3D model for the left gate of the scene of Jerash Southern Theatre

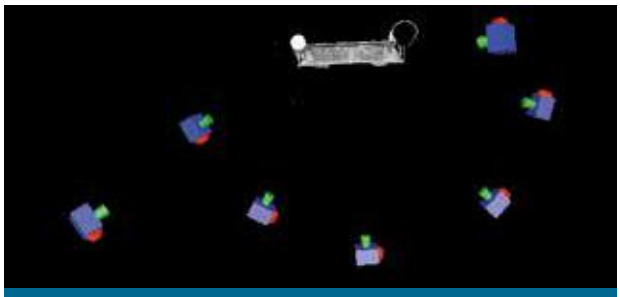

Fig. 4. Camera stations to produce a 3D Model for the left Gate of the stage of Jerash Southern Theatre

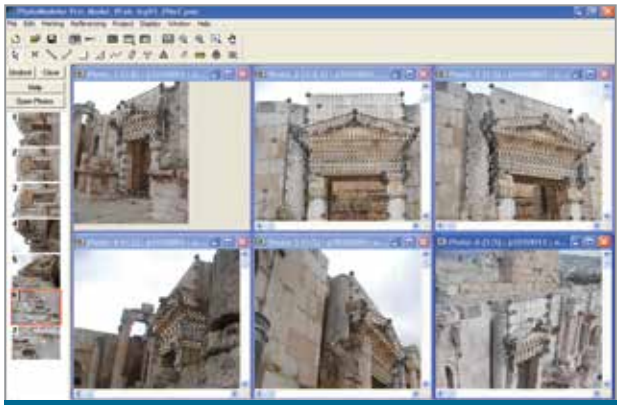

Fig. 5. Several photos from different angles with known focal length, using control points for the Scene of the Southern Theatre

• By using 3D scanner.

Laser scanning technology with its automated data capture capabilities is bringing new perspectives and can satisfy most requirements of this type of applications. 3D laser scanning represents today the most advanced technology available for measuring and documenting objects. Our scanner can measure on average about 1000 points per second.

Terrestrial laser scanning technology is based on active range sensors measuring directly the distance between the sensor and points over the surveyed object. Objects that can be documented by 3D scanning, range from the sizes of coins or potsherds to whole cultural landscapes. Traditional heritage recording methods like close range photogrammetry are not suitable for all kinds of objects. Particularly when the objects have very irregular surfaces and not a clearly defined structure, scanning will probably yield better results than photogrammetry. In contrast to photogrammetry 3D scanners directly produce a huge number of 3D points. The resulting point cloud can be used to extract CAD elements or - by using point triangulation - to create a 3D surface model. Additionally, images can be mapped onto the model to get a virtual copy of the real object. While both photogrammetric and laser scanning techniques can deliver a similar type of products, the end users are accustomed to have other supplementary data such as line drawings, Digital Terrain Model (DTM) etc. A main advantage as compared to close range photogrammetry is the availability of near real time 3D coordinates for irregular surfaces. The striking capability of collecting hundreds or even thousands of points per second is praised by producers and operators. On the other hand, questions concerning the quality and accuracy of the recorded points receive little attention. Specifications stated by the producers are not comparable.

The main difference between scanning and photogrammetry is obvious. While photogrammetric surveying is an indirect data acquisition method (images are needed before measurements can be extracted), scanning produces 3D points directly. As geodetic surveying instruments, scanners cannot be used when the object or the observation platform is moving. In these cases, photogrammetric images, which can be acquired with very short exposure times, are the only means of metric documentation. Although surveyors tend to see accuracy as a predominant consideration when comparing measuring equipment, for the practical use there are numerous other characteristics which may be decisive under certain project pre-conditions. Four stages for doing the work: scanning in the field, registration, segmentation, modelling.

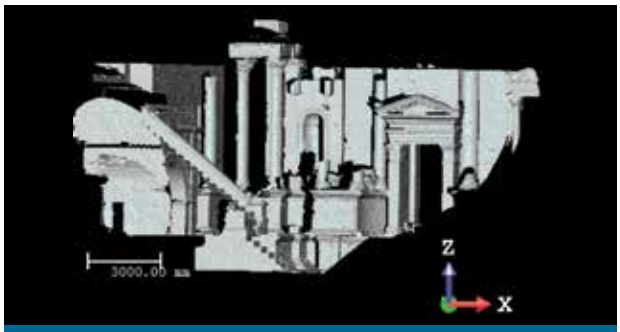

Fig. 6. Mesh part of the Scene and the *cavea* of the Southern Theatre

Fig. 7. Cloud Points of the Scene of the Southern Theatre

To build up a precise 3D model of the Southern Theatre and the Northern Theatre, we used the 3D laser scanner model "GS100 MENSI". The results which we have obtained were very precise and the first implementation of the new technology seems to be very useful and promising. The main advantage of scanning is the fast and direct collection of large numbers of surface object points. The measurement process needs no attendance except for the set-up required when establishing a new viewpoint.

The huge number of records formed a nice cloud of points, which very precisely matches the true 3D shape of the object of interest (in our case the *cavea* and the scene of the two theatres). In the office there are two types of sophisticated software, which deal with the collected cloud of points. One software can import the clouds and produce a nice three model of the object. The other software can take the 3D model and rectify the model in order to obtain the measurements of the object. The final result can be exported to CAD software such as Auto Cad or Micro Station. A couple million 3D points were captured from different points of view. In addition to the 3D points, a set of 2D images were also taken.

In the Southern Theatre, three stations were set up to capture points of the theatre from different angles of view as shown in (Figs. 6, 7, 9). In the Northern Theatre we used three stations to cover the theatre itself and two stations to capture the surrounding area. All these stations and the cloud of points are shown in Figures 8 and 10.

Advantages	Disadvantages
Very precise measurements.	Very expensive.
A solution in situations where 3D measurement by other means may be difficult.	Practical limits on the object size and height.
Quick in data capture.	May have difficulties on some material surfaces.
On-site scanning is possible.	Editing the data to produce meaningful results may be difficult.

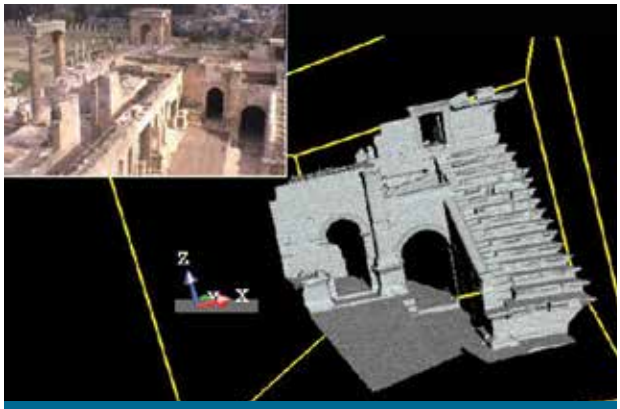

Fig. 8. Mesh view of the Northern Theatre

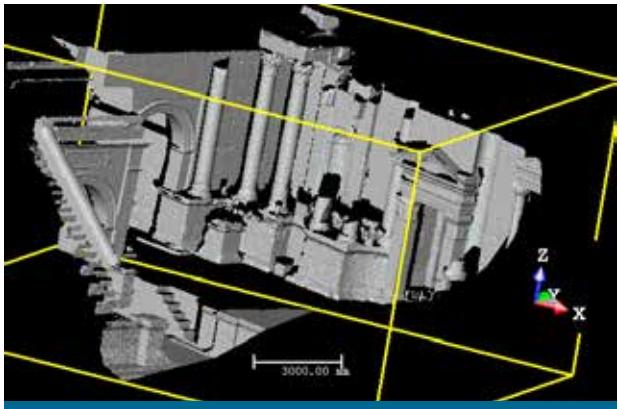

Fig. 9. Mesh part of the northern gate of the Southern Theatre

8. Laser Scanner Data Acquisition

The laser scanner MENSI GS100 was used in this project and scanning was performed from various positions so that full coverage of the surface could be achieved with sufficient overlapping (Fig. 10). This specific scanner has a recommended 2-100 meter range. The system's horizontal and vertical field of view is 60 degrees. Reflective targets distributed over the site allowed the easy registration of the scans during data processing. Although the laser scanning software provides direct and immediate access to the scan data by visually inspecting the point cloud in situ to identify possible problem areas in the data sets, it was proven that some parts of the site were excluded and larger overlap was required for the complete merging of all scans.

The office work included the use of two software packages:

1) 3Dipsos: A sophisticated software used to reconstruct 3D models from large sets of point cloud data captured by a 3D laser scanner. This is an intermediate data processing application between scanning and the use of environments reconstructed in other applications. The software has the ability to export the final models and solids to Auto Cad using the solid SAD converter.

2) Real Works Survey: Provides the user with a set of tools for processing 3D point clouds and 2D images in order to obtain the necessary information. Generally, this processing can be divided into two modes: the registration mode and the office survey mode. During the registration mode we registered several scans simultaneously by using data captured during target scanning. Several test fields using white spheres as targets were installed to obtain information about the accuracy of distances in scanning direction and across. We also used the Geo-referencing tool to position the scanned data into a known coordinate system. During the office survey mode, we segmented the point clouds into logical parts. We also extracted measurements or different types of 2D drawings from the point clouds. These extracted results were exported into CAD systems.

Regarding the degree of accuracy, it should be taken into consideration that total stations have built-in limitations on precision that affect ultimate accuracy; a fact which tends to be overlooked. Accuracy refers to the degree of agreement of a value with the "true" value. Whereas the problem was once measuring as precisely as possible or as precisely as a scaled drawing could display, the problem is now to measure and record as precisely as required for a particular project. A comparative evaluation of the techniques in

the data capture and modelling of the northern gate of the Southern Theatre is shown and measurement results of the tape measurement, PhotoModeler, 3D Laser Scanner - GS 100 MENSI measurements are presented in Table 1.

	Tape Measurement (CM)	Photo Modeler Measurement (CM)	3D Laser Scanner MENSI-GS 100
A	253	248.8	254.153
B	50	50.2	49.1
C	187	187.4	186.445
D	314.45	311.9	319.096
E	315	310.2	314.948
F	186.7	186.7	188.310
G	49.5	50.2	48.80
H	71	71	68.4690
I	253	249	251.149

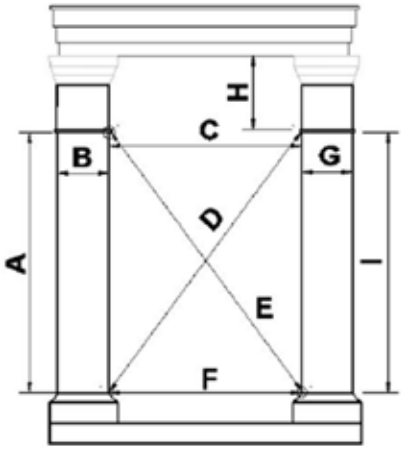

Table 1

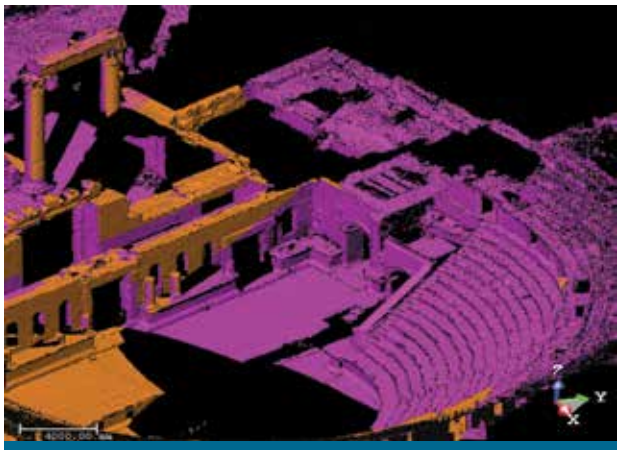

Fig. 10. Northern Theatre; overlapping areas and gaps

Fig. 11. Cloud Points of the *Cavea* of the Southern Theatre

9. Concluding Remarks

The documentation of the Jerash theatres was implemented by a combination of photogrammetry and 3D laser scanning. Generally speaking:

- Hand survey is labour intensive especially in the field.
- Computer rectified photography is the simplest method of producing drawings. Metric cameras are no longer needed and can be substituted by simple digital cameras.
- The advantage of using photogrammetry is its speed and accuracy, especially over large and complex structures.
- Cost will inevitably be one of the deciding factors in choosing between different recording methods, but should not be used to decide the level of survey.

The effort needed to get accurate and detailed DEM models by means of photogrammetric procedures only, is considerably high. There are limits on precision based upon a different group of contributing factors, lens distortion, precision of lens focal length measurements, size of photos used.

PhotoModeler is an elegant measurement method used in documentation of cultural heritage applications. The shortfalls of this method, mainly associated with limited geometry of areas in the shadow of the object, are more prominent when the object is a large complex form. However, its use does not involve large costs or sophisticated equipment, as only a calibrated digital camera is needed. The recent emergence of terrestrial laser scanning has shown that it has the potential to be of major value to the cultural

heritage recording professionals. While data collection in this project using the PhotoModeler and Laser scanning methods indicated a small gain in time over laser scanning, the main advantage is the fully automated data capturing process using terrestrial laser scanning. Generally, laser scanning requires viewing the surveyed object from several viewpoints to resolve shadows and occlusions.

To achieve the best accuracy in PhotoModeler:

1. Ensure that a well-calibrated camera is used for the project;
2. Use photos with good resolution;
3. Ensure that the angle between the camera stations is as close to 90 degrees as possible:
4. Ensure that all points appear on three or more photographs;
5. Ensure that all point and line markings on the images are precise, and do not guess at a point location if it cannot be seen, is not distinct, is fuzzy or is hidden by some other object.

Nevertheless, the precision supplied by total stations or photogrammetry software and recorded in CAD models must not exceed the limits on accuracy of the total system and must be appropriate for the job at hand. As already stated, every project has its own peculiarity. Those needs should be carefully determined, explicitly stated, and properly met by the survey methods and procedures. Laser scanning provides dense 3D information that can be implemented for the DEM and also for the determination of the ground coordinates of pre-signalised control points. The large sets of data obtained are an impediment to virtual computer visualisation. Often it is very difficult to deal with the data without large RAM memory of the order of two GB.

Acknowledgements:

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Bibliography:

Boehler, W., G. Heinz, and A. Marbs, 2001. "The Potential of Non-Contact Close Range Laser Scanners for Culture Heritage recording", CIPA Working Group VI).

Boehler, W., M. Bordas Vicent and A. Marbs, 2003. "Investigating Laser Scanner Accuracy", The XIXth CIPA Symposium at Antalya, Turkey.

Browning, Iain. 1982. *Jerash and the Decapolis*, London: Chatto and Windus. (Ds154.9 G47 B76 1982).

Coles, John. 1995. "The Site Record and Publication", in: *Conservation on Archaeological Excavations*, N.P. Stanley-Price (ed.), Rome: ICCROM, 59-69.

Eiteljorg, Harrison, 2002. "How Should We Measure an Ancient Structure?", *Nexus Network Journal*, Vol. 4, No.4 Autumn, http://www.nexusjournal.com/Eiteljorg.html

Kraeling, Carl H., 1938. *Gerasa City of the Decapolis*, Yale University: The American Schools of Oriental Research.

Patias, Petros, (ed.), 1999. "Photogrammetric Measurement, Object Modeling and Documentation in Architecture and Industry", *ISPRS*, Vol. XXXII, Thessaloniki.

Thornes, Robin and John Bold, (ed.) 1998. *Documenting the Cultural Heritage*, Getty Information Institute.

An extensive collection of links to laser scanner producers and reports about applications in cultural heritage was checked by the authors at:
http://scanning.fh-mainz.de
www.international.icomos.org/recording.fre.htm

Integrating Documentation in the Process of Site Management: Condition Mapping, Weathering Forms and Processes

May Shaer

1. Introduction

Documentation is an integral part of the site management process that includes condition recording, the latter being a very important tool for monitoring the state of heritage sites and monuments and for planning their conservation. In order to be able to conduct condition mapping properly, it is necessary to be acquainted with the conventions and guidelines used for mapping the physical condition of monuments and sites, in addition to an overview of weathering forms and processes.

Mapping the physical condition of a heritage property helps provide an understanding of the degree of weathering and deterioration at a particular site and hence its state of conservation. It also helps in reaching the proper diagnosis regarding the causes of deterioration – a diagnosis necessary for planning the most appropriate conservation interventions.

The importance of documentation in conservation is acknowledged in article 16 of the Venice Charter (ICOMOS, 1964), which states that: "In all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs."

Moreover, *Principles for the Recording of Monuments, Groups of Buildings and Sites* (ICOMOS, 1996) states that recording "is the capture of information which describes the physical configuration, condition and use of monuments, groups of buildings and sites, at points in time, and it is an essential part of the conservation process"; hence it focuses on the notion of documenting the condition of monuments. It furthermore mentions that recording "should be undertaken to an appropriate level of detail in order to […] provide information for the process of identification, understanding, interpretation and presentation of the heritage [. . .]," and that the current condition assessment of a heritage site must form part of the information to be included in a set of records.

2. Mapping Methodology

The correct methodology for mapping a monument's condition includes observing the monument closely, then determining its state of conservation, identifying the different forms of decay, and, mapping said forms in order to describe and register the type, degree and distribution of visually apparent damage (Fitzner, Heinrichs & Kownatzki 1996: 41) (Fig. 1). Once these actions are completed, it becomes possible to identify the causes of decay through scientific analysis and testing, after which one can begin planning conservation works.

Mapping the condition can be done to varying levels of detail, depending on the purpose of the assessment as well as the time and resources available. Mapping reflects the level of assessment: rapid versus detailed. Condition assessment can be undertaken for the purpose of monitoring or to form an idea of a site's state of conservation. Such an assessment can be a rapid one and is essential for site management. On the other hand, and in order to establish a plan for conservation, a thorough and complete recording of the current state of the heritage property is necessary. Before conducting the necessary on-site investigation and recording of the current state of conservation, it is important to understand first, the context in which the heritage property exists and the types of deterioration factors.

Fig. 1. Mesh part of the northern gate of the Southern Theatre.

Causes of deterioration include water, salts (especially soluble ones), climatic elements and anthropogenic factors, such as, for example, incorrect interventions. All of these factors can cause chemical, physical or biological processes (Borrelli 1999; Torraca 1988).

Chemical weathering can occur as a result of the interaction of rocks and minerals with environmental changes such as temperature, pressure and moisture; physical weathering is characterised by changes that do not alter the composition or structure (Borrelli 1999; Torraca 1988).

In order to be able to conduct and record a condition assessment in the field, it is necessary to understand the processes of weathering and deterioration, the different forms of decay, and the techniques necessary for recording.

It is important to establish a glossary for the mapping of damage prior to beginning the actual activity of conducting the recording. This glossary should include the name of the damage, a description of its appearance and sometimes its causes, a figure to illustrate it and a legend for mapping. There are currently no established international standards, although several glossaries exist and have been used quite effectively (Grimmer 1984; Fitzner & Heinrichs 1994, 2004; Fitzner, Heinrichs. & Kownatzki 1996; NORMAL 1/88). The ICOMOS Working Group on Stone has published a common glossary (Vergés-Belmin et al. 2008). Damage forms can be classified into groups according to their main common characteristics. Fitzner, Heinrichs and Kownatzki (1996) classify damage forms into the following groups: loss of stone material, discolouration/deposit, detachment, and fissures/deformation. Additional damage forms can include structural deterioration and the deterioration of plaster and mortar.

Digital mapping can be conducted by means of recording damage as an overlay to rectified photographs, i.e. photographs that contain metric information and are free of distortion. To begin with, photographs are essential to understanding the current condition of the heritage site. Additionally, and upon conducting the field investigation, digitised mapping can be done as ‘layers’ of information mapped over rectified photographs. Alternatively, and if a detailed survey of the heritage already exists, the layers of information can be added over the CAD survey (Fig. 2).

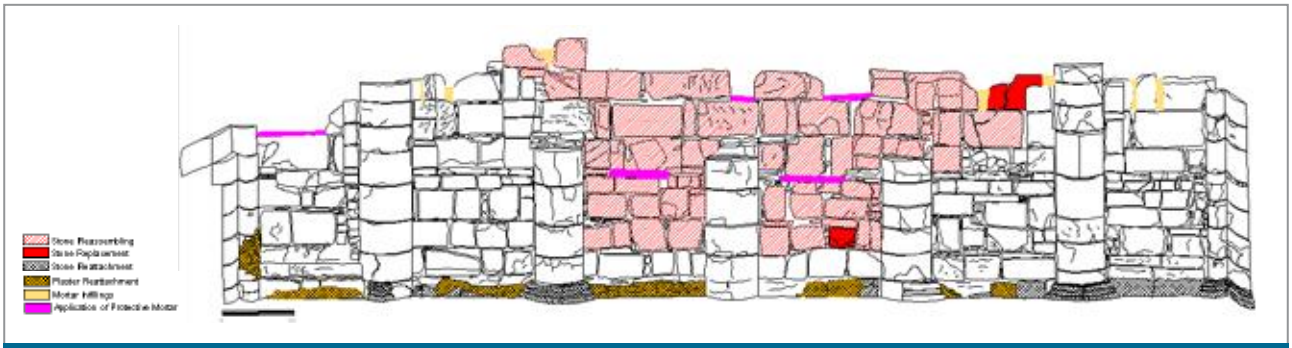


Fig. 2.

3. Conclusion

Mapping the condition of a heritage site is not only a tool for recording and capturing its current state of conservation, but also a method that helps assess its condition and diagnose the causes of its deterioration. It is an indispensable tool for the conservation and management of sites and monuments.

References

Aslan, Z. & Shaer, M., 2000. “Condition Assessment and Execution Plan for the Restoration of Tomb 825”, in M. Kühlenthal & H. Fischer (eds.), *Petra: the Restoration of the Rockcut Tomb Facades.* Munich: Arbeitshefte des Bayerischen Landesamtes für Denkmalpflege, Band 105, 209-16.

Borrelli, E. 1999. “Salts”, in: *ARC Laboratory Handbook.* Rome: ICCROM.

Fitzner, B. & Heinrichs, K., 1994. “Damage Diagnosis at Monuments Carved from Bedrocks in Petra Jordan”, in V. Fassina, H. Ott & F. Zezza (eds.), *The Conservation of Monuments in the Mediterranean Basin. Proceedings of the 3rd International Symposium*, Venice 22-25 June, 1994. Venice: Soprintendenza ai Beni Artistici e Storici di Venezia, 663-71.

Fitzner, B. & Heinrichs, K., 2004. *Photo Atlas of Weathering Forms on Stone Monuments.* http://www.stone.rwth-aachen.de.

Fitzner, B., Heinrichs, K. & Kownatzki, R., 1996. “Weathering Forms – Classification and Mapping, in: R. Snethlage (ed.), *Natursteinkonservierung in der Denkmalpflege*. Munich: Arbeitshefte des Bayerisches Landesamt für Denkmalpflege, Band 80, 41-88.

Grimmer A. E. 1984. *A Glossary of Historic Masonry Deterioration Problems and Preservation Treatments*. Washington DC: National Parks Service.

ICOMOS. 1964. *The Venice Charter* (The International Charter for the Conservation and Restoration of Monuments and Sites).

ICOMOS. 1996. *Principles for the Recording of Monuments, Groups of Buildings and Sites.*

NORMAL-1/88 *Alterazione Macroscopiche dei Materiali Lapidei: Lessico;* Raccomandazioni Normal. Rome: CNR – ICR.

Torraca, G. 1988. *Porous Building Materials.* Rome: ICCROM.

Vergés-Belmin, V. et al. 2004. An Internet-Accessible Multilingual Illustrated Glossary on Stone Deterioration. *Proceedings of the 10th International Congress on Deterioration and Conservation of Stone*, 27 June-2 July 2004, Stockholm, Vol. II: 699-706. ICOMOS Sweden.

Science in the Service of Conservation

Ziad Al-Saad

1. Introduction

The conservation and preservation of our cultural heritage is a crucial concern. Its physical embodiments are deteriorating faster than they can be conserved, restored or indeed studied. Assets are being lost or put at risk through natural processes of decay (sometimes accelerated by poor environmental control) combined with human factors. The latter include the direct effects of enhanced public access (without commensurate conservation measures), conservation/ preservation procedures whose long-term effects were and are not understood, as well as simple negligence, looting and war.

2. The Key to Effective Conservation

The key to devising and implementing effective conservation measures is to understand cultural materials in terms of their nature and composition, manufacturing technology, and deterioration behaviour. Such critical information is best obtained through a wide range of scientific methods of analysis.

3. Scientific Methods of Analysis

Scientific and technological research is essential to determining the nature and properties of the materials found in artefacts, to identifying the causes of deterioration, and to proposing ways by which it can be controlled.

The analytical methods used in this field of research are those used at the cutting edge of modern science. Techniques developed for advanced physics, chemistry and biology have a commonality of application to both ancient and modern materials, since problems encountered in both advanced technology and cultural heritage are similar. However, there is one essential difference between the analysis of ancient and modern materials. An ancient artefact or object of art cannot be replaced, and the consumption or damaging of even a small part of it for analytical purposes must be undertaken only where vital data cannot be otherwise obtained.

4. Selection of Appropriate Techniques

Depending on the information required, one might use a combination of:

- Truly non-invasive techniques (i.e. those which do not require a sample to be removed from the object, and which leave the object in essentially the same state before and after analysis); and
- Micro-destructive techniques (i.e. those which consume or damage a few picoliters of material and which may require the removal of a sample).

The distinction between these types of analysis and techniques is of particular importance in the conservation field. Nevertheless, it should be noted that research scientists generally use the term ‘non-destructive’ to designate any of the above-mentioned methods of analysis. In all cases, however, one should aim at the maximisation of information and the minimisation of the consumed volume.

5. Analysis and Characterisation of Artefacts

The basic aim of artefact analysis is to identify the materials from which it was made, and to measure accurately the relative quantities of its constituent minerals or chemicals. When this information is interpreted, it may be possible to define the sources of the raw materials, to suggest a place of manufacture, and to deduce techniques involved in the manufacturing process. Analysis is not restricted to objects. Structures such as buildings offer many possibilities for the analysis of stone, bricks and mortar. There are many ways in which scientific investigation can help us understand and conserve objects. This may be in the form of simple questions such as: What is it made of? How was it made? Is it genuine? How does it work? And, who made it?

6. Scientific Techniques

To help us answer these questions, a range of scientific techniques can be used for the examination and analysis of archaeological objects. The most effective and common techniques in conservation are outlined below:

6.1 Raking and transmitted light

Light shone at an angle across the surface of an object is called raking light, and the shadows it casts reveal any surface irregularities. When light is shone through an object from the back, it is called transmitted light. This method is used to reveal flaws in gems and watermarks in paper.

6.2 Infrared light (IR)

Infrared light is not visible to the naked eye but if a painted object is illuminated with IR, the paint layers appear more transparent than with normal (incandescent) light. This enables underdrawings, signatures, or inscriptions to be revealed. This new information can be recorded by photographing it with IR sensitive film.

The use of IR in the technical analysis of artworks:
Infrared light can reveal the under-drawing that lies below the paint surface. This is due to the transparency of certain paint layers. Only radiation from the near infrared region of the spectrum is used, which has only a slightly longer wavelength than visible light. Paintings can be examined with infrared photography, using film sensitive up to 900 nanometres. Of a more immediate nature is IRR (Infrared reflectography) which works in the near-infrared range of 750 - 2000 nanometres (0.75-2 microns).

6.3 Ultraviolet light (UV)

UV light is also invisible to the naked eye, but it can be useful since UV directed at certain substances, such as resins, will cause them to glow (fluoresce). This can reveal repairs, tears in canvasses under darkened varnishes, and overpainting (as old and new areas fluoresce differently). Even areas of paintings or manuscripts where pigments have faded or have been lost can be enhanced. UV can also be used in the examination of wood, ceramics and other materials, but as it can be damaging, it is only used for very short periods of time.

Fig. 6.3. Ultraviolet Light (UV)

7. Microscopy

The microscope is the conservator's primary investigative tool, enabling observation of an artefact's details. The microscope reveals dirt, damage (whether recent or ancient), cracks, as well as evidence of use and of original technology such as incised decoration and gilding.

Also revealed on metal artefacts is the presence of mineralised organic remains of flesh, hair or textile. Higher magnifications are used to reveal more information, such as the identification of the weave of a textile and the differences between types of pigments and media, fibres, wood and other materials.

Fig. 7. Microscope, image courtesy of Kamyar

8. X-radiography

Conservators use X-radiography (X-rays) on artefacts ranging from coins and paintings to mummies. The X-rays penetrate materials at different rates. It is the density, rather than the thickness of the object that determines the strength of the X-ray used and the quality of the image produced. Just as in medical use, X-rays reveal the structure beneath an object's surface and this can provide the conservator with useful information on the following:

- **metal structures:** indicating the technology used in manufacture; different metals used in construction; details of decoration hidden by corrosion;
- **mummies:** revealing breaks and cracks which indicate fragile areas; the presence of amulets; different burial practices; bone structure indicating gender, age, or illnesses;
- **ceramics:** structure and technology used in manufacture; contents, such as cremation remains in funerary urns; and
- **paintings:** structure; preparatory drawing; underpainting; presence of lead pigments; and previous repairs.

9. Beta Radiography

This technique is mostly used for recording the watermarks in paper, especially where the mark is obscured by printing or drawings. The paper is sandwiched between two sheets of plastic that have been impregnated with a radioactive form of carbon and a sheet of film that is sensitive to the radiation given off. It is left in darkness for several hours. Radiation passes from the carbon-impregnated plastic, through the paper, to the sensitive film. More radiation can pass through the area of the watermark because the paper is thinner at that point, and so an image of the mark is made on the film.

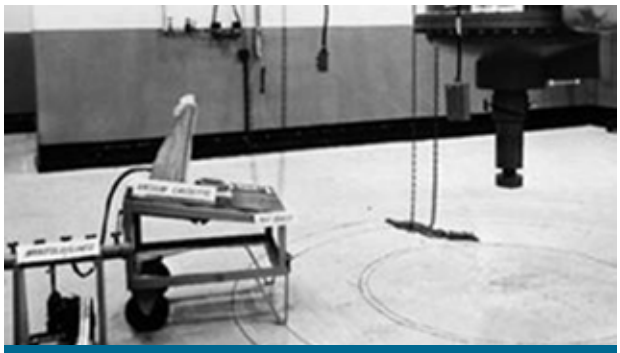


Fig. 9. Beta Radiography

10. Techniques Used for the Analysis of Archaeological Materials

10.1 Proton Induced X-ray Emissions (PIXE)

When a focused beam of protons (positively charged particles) is aimed at an object, the atoms near the surface emit X-rays. These X-rays are detected and displayed on a graph as a series of peaks. Each peak represents particular chemical bond energies, enabling a conservation scientist to identify the chemical structure of the sample.

10.2 Fourier Transform Infrared Spectroscopy (FT-IR)

FT-IR is a method of analysing the composition of organic materials based on the fact that every chemical bond has a characteristic energy level. In FT-IR, an infrared laser beam is focused on a small sample from the object, which then absorbs energy. The energy that has not been absorbed is detected and displayed on a graph (spectrum) as a series of peaks. Each peak represents particular chemical bond energies, enabling a conservation scientist to identify the chemical structure of the sample.

10.3 X-ray Fluorescence (XRF)

XRF is also based on characteristic energy levels. Here, it is the energy produced when an X-ray beam directed at the object causes the electrons (negatively charged particles) in an atom to jump to a higher energy level. As the electrons return to their original state, they release energy characteristic of that element. This is detected and is used to determine the elements present.

XRF is mainly used for the identification of metallic elements, such as the quantities of silver, copper and lead in a coin, and for the compositional analysis of ceramics and glass.

10.4 Scanning Electron Microscopy (SEM)

Optical microscopes use lenses to focus light in order to produce a clear magnified image. Similarly, SEMs use electromagnets to focus a beam of electrons that is directed at a sample. The focused electrons are detected and displayed on a screen. SEM is useful to conservation as it provides a greater depth of focus and higher magnification than the optical microscope. In addition, analytical equipment can be attached for the identification of chemical elements.

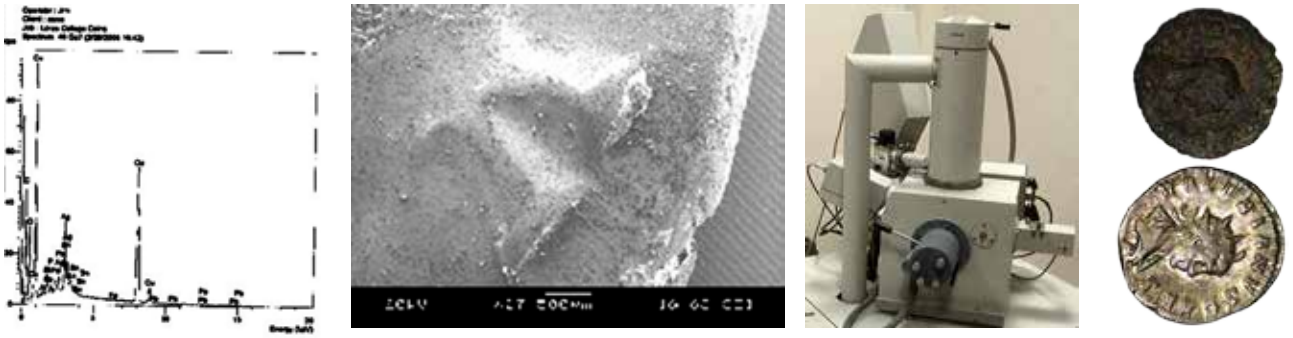


Fig 10.4 SEM Technology, SEM machine photograph courtesy of Kamyar

11. Preservation and Prevention

11.1 Detection of previous improper conservation treatments

Conservation treatments are no longer carried out as a matter of course, but only in those cases where the conservator considers intervention to be necessary for the stability of an item. The need can often be a consequence of earlier treatments that have not withstood the test of time and have broken down, damaging the object.

11.2 Laser Cleaning

Cleaning with laser radiation is a conservation technique increasingly used for removing dirt from the surfaces of many objects made of organic as well as inorganic materials (such as marble, terracotta, painted wood, ivory, paper or leather). Laser (an acronym for Light Amplification by Stimulated Emission of Radiation) is energy in the form of extremely intense light emitted in a highly collimated beam. This means that the beam is highly focused; it does not lose light out to the sides as is typical of other light sources. Such energy breaks the bond between surface dirt and object, and consequently removes the dirt. However, this technique works better on some materials than others and is heavily influenced by the wavelength, pulse length and energy density used. Lasers are also used for other purposes such as 3D scanning.

Fig. 11.1. Conservation Treatment

Fig. 11.2. Laser Cleaning

11.3 Authenticity

How are curators and collectors to tell the difference between an authentic and a forged object? It is for the specialists in the art world, conservators, historians or scientists, to determine the answer to this question. In the laboratory, the scientist has a number of tools to draw upon. These include scanning electron microscopy, ultraviolet light, infrared, and various types of X-rays.

If visual examination of a piece fails to reveal whether it is authentic or forged, investigators may attempt to authenticate the object using some, or all, of the forensic methods discussed hereafter:

X-ray fluorescence can reveal if metals or pigments are too pure to be genuine, or newer than their supposed age. It may also reveal the artist's (or forger's) fingerprints.

Ultraviolet fluorescence and **infrared** analysis are used to detect repairs or earlier painting present on canvasses. **Atomic Absorption Spectrophotometry** (AAS) and **Inductively Coupled Plasma Mass Spectrometry** (ICP-MS) are used to detect anomalies in paintings and materials. If an element is present that the investigators know was not used historically in objects of this type, then the object is not authentic. **Dendrochronology** is used to date a wooden object by counting the number of tree rings present in the object. This is of limited use, though, as the wood needs to have about 100 rings for accurate dating. **Stable isotope analysis** can be used to determine where the marble of a sculpture was quarried. **Thermoluminescence** (TL) is used to date pottery. TL is the light produced by heat; older pottery produces more TL when heated than a newer piece.

Chapter III

CONSERVATION OF THE ARCHAEOLOGICAL FABRIC: METHODS AND TECHNIQUES

The Conservation of Archaeological Sites: A Practitioner's Notes

Gionata Rizzi

Abstract

The present article deals with the conservation of archaeological sites from an architectural point of view. It starts with an introduction on the nature of ruins, goes on to describe specific aspects that characterise the work involved in their preservation and discusses technical challenges, theoretical contradictions and aesthetic problems of working on fragmentary remains.
It argues that identifying the character of a site – assigning its most relevant values, its strengths and its weaknesses – is of fundamental importance to developing an appropriate conservation and presentation strategy. Although the process that leads to the recognition of these values and making crucial choices can hardly be framed in standard procedures, yet it needs to be given due attention.

The types of intervention that can be used in the conservation of archaeological sites ought to be properly understood and mastered by professionals involved in the field. Masonry repair, structural re-integration, stitching, capping, partial reconstruction, grouting, treatment of lacunae in wall faces are mentioned as possible tools to conserve surviving architectural fragments.
Furthermore, anastylosis and roofing are two types of intervention that deserve special attention for the importance they have in archaeological conservation. Anastylosis is discussed in both theoretical and practical frameworks and the issue of shelters is dealt with regard to its dual requirements: to provide fragile remains with effective protection and to be as invisible as possible.

1. Introduction

The conservation of fragmentary monuments in archaeological sites can be considered as the last conservation battle, the last line of defense against deterioration phenomena: ruins are the only bulwark against the victory of entropy over the traces of the past.

The excavation stage, which in many cases represents the "birth certificate" of a site, already, constitutes a first violation of the integrity of structures. Indeed, the stratigraphic reading imposes the sacrifice of newly-discovered strata for the sake of observing those lying underneath them. The archaeological narrative follows an inverted process, as the excavator proceeds deeper: it is like reading a book from the end, yet without being able to turn the pages unless one tears them out.

What about conservation? One might be tempted to imagine that, since the purpose is to preserve as far as possible the authenticity of the original materials, the problems involved are essentially of a technical nature. Indeed, one might think that, given that the purpose is neither to restore the functionality of the building nor to assign to it a new one, the architectural choices would be very limited.

In fact, this is not the case. Various problems emerge when one considers the treatment of a ruin. In the first place, there is a major technical problem: a ruin is a structure that has lost major elements of its architectural shape and, therefore, no longer functions as a building. In other words, one is dealing with a structure that has lost its natural defense system (roofing, windows, and coating), for example, and which has become more exposed than it has ever been before to the destructive power of time. Yet, our purpose is to protect it from further degradation. However, in order to protect a building in such a state of degradation, one has either to restore its natural defense system, or equip it with a newly devised one that had not originally existed. Hence, our first dilemma: to what extent is it legitimate to alter the original in order for us to preserve it?

Then there is another enigma: we seek to preserve archaeological sites as documents of the past; yet archaeological remains, due to their partly decayed state, are also very evocative items, as powerful spatial-temporal icons. It is the pleasure – a very romantic notion rooted in our culture – of witnessing the devastating impact of time, that undoes what man creates. It is the most extraordinary *memento mori* one can face. Here is the second dilemma: although we may wish to preserve the ruin, yet we do not

want to erase the signs of the ravages of time; although we want to prevent it from pursuing its course on the path of decay, yet we must not lose sight of its state, which is suspended between architecture and nature.

Then we may ask ourselves, should ruins be restored? The answer remains uncertain, of course, not in the sense that they ought to be brought back to their original state. Besides, the very notion of conservation involves substantial changes; so much so that, in order to preserve sites as they were in the past, many of these have been on various occasions, retouched, altered and modified. In actual fact, and in many cases, archaeological sites are, somehow, "invented" sites.

Many interventions have been carried out, rightly or wrongly, for conservation purposes; a typical example is the buttress built by Giuseppe Valadier in the Colosseum in Rome. Furthermore, some works were conducted for the sake of so-called "improvement": old pictures of the Parthenon, the Bosra Theatre, Herculaneum, Babylon for example, reveal the results "achieved" by such works.

These "rehabilitation" projects served sometimes to convey political messages, such as *la via dei Fori Imperiali* in Rome or the reconstruction of the surrounding walls of Babylon (Fig. 1); this provides an eloquent example of the underlying symbolic value of archaeological remains. In other cases, the intervention was rather motivated by a didactic desire to determine the architectural part. This is the case of Herculaneum, which, during the period of Amedeo Maiuri, was largely rebuilt in accordance with a truly museographic approach.

Fig. 1. Babylon wall

2. Identification of the Features of An Archaeological Site

In the course of my work on archaeological remains, it has always seemed to me that the most delicate moment, perhaps the most crucial one, in the phase of site analysis, is when one tries to identify the basic character of the overall structure under consideration.

It is the moment when – if I may be permitted to use a word which is a bit fanciful and yet very evocative – one has to spot the *genius loci* of the site. Indeed, I have often felt that I have yet to get to the meaning of a site if, after having explored it thoroughly, I do not have the impression of having grasped the specificity of its nature. If, despite all the collected details on the archaeological history and consistency of the monument, I am still incapable of answering such questions as: what is special about this site? What is it about?

Yet, why should it be so difficult to identify the character of a site? As a matter of fact, unlike the disorderly condition of structures, stone degradation mechanisms and climatic factors, we are dealing with non-measurable entities. More than that, we are dealing with entities that often elude any sort of definition, such as the aesthetics of the architectural fragment stripped of its functionality, the relationship with the natural environment, the feeling of the passing of time, the evocative power of the past, or the archaeological evidence.

One has to acknowledge that this type of research cannot be subjected to any fixed criteria, parameters, or standard procedures. That is so because to identify what a site has to offer is a cultural activity per se.

This is not all. The search is difficult because it does not suffice to note what impresses us during a visit, what we consider as most striking, or what remains stuck in our memory after we have gone. It is also important to identify the potential of a site, that is, the elements that might constitute its value but are nonetheless hidden, the area on which our enhancement efforts ought to be focused.

One may wonder: but can't we consider that to search for some hidden value, to identify the elements that need to be enhanced, or in short, to imagine those basic components that will likely underpin the interpretation of a site, is already tantamount to developing the conservation project?

For my part, I find it difficult, to draw a demarcation line between analysis and project. In fact, the search for basic features is set astride between the two. It is

better to admit it, for the search cannot be conducted in a "neutral" or objective manner. Actually, identifying the specific character of a site and determining what it is really about will have major consequences on the choices of the project, on the site enhancement criteria, as well as on its conservation methods.

Yet what do I mean, basically, by the "character of a site"? If I were to rely on standard notions and practices in the professional field of heritagre, I would be tempted to recall the "statements of significance" which are hence an essential component of any application file for the inscription of a site on any list. Another approach that can help us shed some light on this matter is based on what the Anglophones call *"SWOT"* analysis (strengths, weaknesses, opportunities, threats). The idea is to determine the basic features of a site by observing its strong and weak points, the opportunities and the threats to which it is exposed. Besides, all too often, these statements, immersed in bureaucratic formalism, do not reach out to the core of the problem. Indeed, very often, they seem to have been drafted for a single and same monument (always a sprinkling of historical value, a bit of cultural value, a bit of symbolic value…) and thus are unable to grasp the specificity of the site.

Then what should we be aiming for? Where must we direct our attention to at this stage of the work?
It is important to see what our site has to say, what aspects must at all costs be brought into prominence and those that may be sacrificed; our purpose is to identify what will make its gem in the future. In order to do so, we must at first gain knowledge about the historical and archaeological data. There is also need to take into account, for instance, the reasons why *this site* was built at this very location. We need to focus our attention on ancient road lines and on the original access routes. In addition, we must observe the physical nature of the place (geology, rivers, the rise and fall of the landscape, natural incline and so forth) as well as the cultural scenery that developed across the surrounding area. We must integrate into the analysis the reasons that led to the abandonment of the site, the manner in which the site has become a ruin (discovered through excavations after years of neglect or subjected to gradual transformations through successive alterations, by changes of vocation, yet still present in urban life?). The restoration history must be retraced, in so far as it often provides the site with a second life. The aesthetic aspects need to be addressed and, what may constitute an even more slippery ground, the symbolic elements have to be weighed.

The list is far from exhaustive and is only meant to be an invitation to observe.
Yet is it enough to observe?
It should not be enough, although it is a good start. Yet, in order to start seeing something, one has to observe well, and in order to observe well one has to observe very carefully.

Can we learn? Yes, we can. How? It is only by allowing oneself enough time to observe thoroughly and slowly.
This is perhaps the only advice I feel I am entitled to offer. I agree this is not much; however, considering the number of projects and management plans designed by specialists confined in their offices, I believe it is essential to recall the importance of observing a site.

3. Structural Problems

The consolidation of archaeological remains raises a particular problem: should the structural intervention be camouflaged or not? Should it be visible or not? The traditional practice of replacing damaged stones, of re-integrating the lost portions of masonry, of dismantling and reconstructing unstable structures, necessarily involves a loss of original materials, which is hardly recommendable from an archaeological perspective.

In fact, if what we seek is to preserve the image of a ruin as such, with its decaying and unstable aspect, the intervention has to be invisible and, therefore, in most cases, requires the use of modern techniques. Besides, this choice involves the utilisation of materials that are often incompatible, a strong deviation from the original static behavior and a loss of "structural authenticity".

It has been shown by experience, for instance, that the use of cement grout, metallic gudgeons, or epoxy resin requires great care and a thorough knowledge of the behaviour of such materials in the course of time. An unintentional failure in using such products, may cause major damages or introduce potential causes of deterioration, which can explode at any time, like a time bomb.

What can be done? It is not easy to provide ready-made recipes. Yet, as a general rule, which like any other rule has of course its exceptions, one has to seek solutions that do not alter the monument's static behaviour, but will nonetheless restore its functionality. This is not to be done by replacing the existing structure, but by helping it accomplish its task.

Bearing this in mind, it is essential to acquire a thorough understanding of the constructional nature of the monuments/remains concerned: first of all the nature of their materials, then their structural.

Raw earth is an easily detectable material, which has been used everywhere for construction both across the Mediterranean basin and in the Levant. No matter the variety of ways in which it has been used (cobs, rammed clay, raw bricks), clay has been until very recently the most widely used construction material. Due to its fragility, it is especially hard to preserve once the edifice has turned into a state of ruin and has become roofless.

Baked earth (tiles or bricks) very commonly used as well, served for the construction of large-sized buildings, notably during the Roman era. In archaeological sites, where it is often soaked with water, it can suffer from crystallisation of soluble salts and sometimes from frost.

Stone, a basic material of ancient architecture, was either used in small pieces as rubble infill, or served for the construction of bulky elements such as pillars, capitals or architraves. However, it is impossible to generalise as to its ageing process once it has turned into a state of ruin, for its degradation depends to a very large extent, on its geological nature.

Lime and mortars have been used ever since ancient times for works of masonry, whether in the form of bricks, stone blocks, or rubble. Although this material is very efficient from a structural point of view, lime mortar poses serious conservation problems when it is exposed, as is the case, for instance, in a partly collapsed rubble infill wall. The preparation of good quality mortar is often a key element in the consolidation work.

As for structural forms, we should first mention the pillar. Despite its simplicity, it raises interesting questions that relate to stabilisation or reassembling projects. It is interesting to observe that, according to recent studies, in the event of the occurrence of an earthquake, a monolithic column would be less stable than a column composed of drums, the swaying of which will partly absorb the energy generated by the quake.

The architrave is the simplest element that allows the linking of a horizontal space. When an edifice is in ruin some may get cracked in the middle. It is not a vain effort to stress how these can be turned into “platbands” yet without putting their stability at risk.

Arches are magnificent structural forms. Their caving in is in most cases due to the movement of supports. The geometry of an arch – and consequently, the form of its line of pressure which varies in accordance with its thickness – provides us with many clues as to the stability of the structure. Similarly, vaults and domes must be carefully observed to detect the presence of dangerous cracks among others which are, so to speak, physiological.

Nonetheless, it is not enough to gain knowledge about the forms and materials of traditional architecture: we still need to consider that ancient buildings are hyper-static structures for which there are several possible configurations of stability; in other words, we can hardly locate the lines of strength running across the mass of walls, and therefore, detect the spots where the masonry is more strained. As far as the assessment of stability is concerned, a mathematical analysis (creation of a computerised replica) is certainly quite useful. Yet, one has to acknowledge, particularly in the case of a ruin where the structural nucleus may be partially jeopardised, that it is no easy task to select definite resistance estimates for modeled elements. It is therefore clear that, under these conditions, our calculations may prove to be very hazardous.

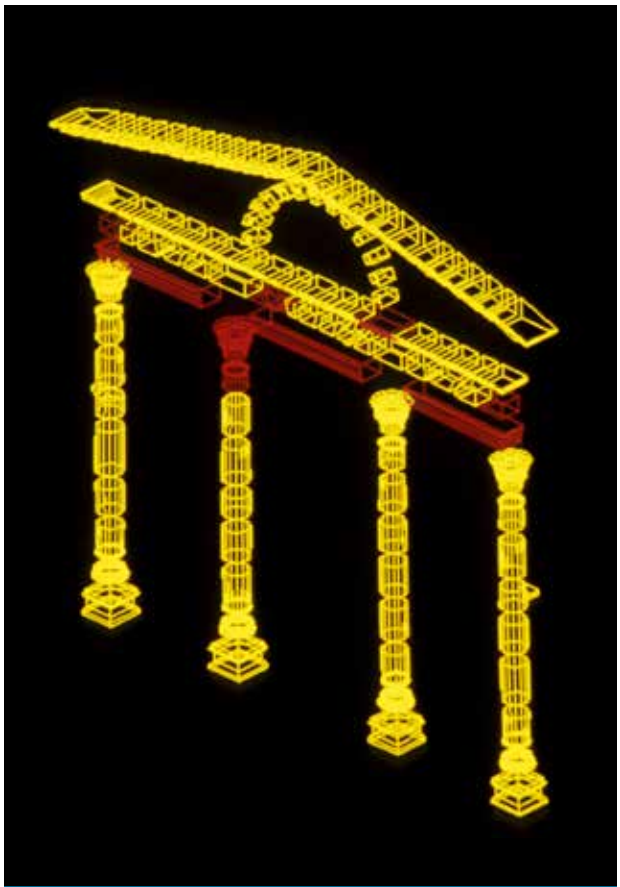


Fig. 2. Preliminary third model

As for the interventions that can be useful for ensuring the stability of archeological vestiges, I shall restrict myself to mentioning those which are most commonly known (for it would take a whole book if I were to describe them in detail).

To cite but a few: grouting, which enables one to restore the structural continuity of wall-faces; hydraulic lime grout, which is necessary for reducing vacuums inside a construction and filling deep cracks; treatment of lacunae in wall faces in order to consolidate/protect those parts which are more exposed to deterioration; re-integration of structural components that are essential for the overall stability of the monument; and the design of new elements to be used as supports (abutments, cables, top beams, etc.) in case where stability is compromised.

4. Anastylosis

Anastylosis – a term borrowed from Greek indicating the action of setting a pillar upright – is an intervention that allows the reintegration of fallen original elements into their exact original position. It should be noted in the first place that this type of intervention may, to some extent, be successfully carried out in the case of monuments built out of large blocks of hewn stones, the remains of which are similar to those three-dimensional puzzles that offer possible solutions enabling the utilisation of all the pieces of the puzzle. However, when the construction is made out of rubble-stone, bricks or rubble infill, such an intervention cannot be successfully performed.

The archaeologists' debate on anastylosis (and often on archaeological restoration as such) has become focused on the philological accurateness of the proposed or implemented reconstruction. Given the fact that any anastylosis project is based on a precise knowledge of ancient architecture, discussions amongst the various schools may sometimes degenerate into a strong debate: is the number of blocks sufficient to determine with certainty the original shape? Has this particular item been placed in its correct position? Are we entitled to restore elements the exact height which is unknown to us? Have the typological analysis and stylistic comparisons with similar buildings of the same period or the same area yielded reliable data?

In fact, the problems related to anastylosis projects go beyond the methodological rigour of the proposed restoration. Before starting the reintegration work, one has to wonder, for instance, how to deal with the pieces that are missing (there are always a few blocks missing) and yet are necessary for carrying out the restoration work appropriately. Are we to restore the identical form by using different materials in order to distinguish clearly the elements that are not original, or rather shall we emphasize the unity of the monument by indicating in a very discreet manner the newly added portions?

More still: how are we to deal with the structural aspects? Is it desirable to perform an anastylosis in cases where the components of a monument have lost a significant portion of their original shape, so much so that, in order for them to regain their former aspect, a modern structure of supports, whether visible or hidden, has to be fixed? Or should we limit ourselves to partial reconstruction when the original components are still capable of assuming their structural task, thus paying due respect to the constructional authenticity of the edifice?

Finally, it appears to me that, even if all the theoretical conditions for the implementation of an anastylosis project are met, one has to face a fundamental issue: What for? Is it worth it?

Of course, I do not mean to talk about the economic factor (although, very often, it happens that a large portion of the budget is allocated to reconstruction purposes, while a lot can be done in terms of site preservation and conservation) but of a prior issue that deserves to be carefully considered: why do we perform anastylosis in the first place?

Fig. 3. Anastylosis: Library of Celsus Ephesus, Turkey

In most cases, the purpose is to make a monument more legible, more understandable; sometimes, to bring into prominence an edifice otherwise invisible. Such an intervention is rewarding for the archaeologist and the architect; it is usually appreciated greatly by tourists and, in many countries, highly sought after by the various departments in charge of antiquities and tourism. Of course, it is not devoid of scientific interest either (one can understand a lot of things by trying to reassemble the fragments of a building).

There are a few aspects that need to be carefully taken into consideration. First of all, the context: a very thorough reconstruction of a site on which nothing has remained intact may give an awkward impression of artifice. Moreover, if one pushes the reconstruction works too far, one may very well lapse into conveying the effect of a "scenario for a costume film". And if, by chance, the elements that one is seeking to reassemble have remained on the site for centuries and have had only their exposed side deteriorated, they will look bizarre once they are restored to their original place. Finally, when one decides to undertake an anastylosis of very damaged items, by reassembling them with the help of an internal metallic structure which will serve to maintain each piece at the right position, despite the state of its dilapidation, one needs to be aware that you cannot help averting an impression of "museographic" production, as suggested by certain statues which have been stuck together with the help of devices made out of steel or Perspex in replacement of the missing pieces.

Before concluding, there are cases in which the sight of topsy-turvy architectural elements (I am referring to the state of Jerash's Temple of Zeus prior to its restoration, with column drums scattered here and there in a highly dramatic manner, as a metaphor of the collapse) (Fig. 4), is by far more evocative than that of the restored state.

I wish to stop here, yet with an invitation to consider anastylosis as an extraordinary means offered to us for making the ruins of edifices built out of big blocks of stone talk better. However, this possibility has to be handled with care.

Fig. 4. Temple of Zeus, Jerash

5. Shelters on Archaeological Sites

In archaeological sites, one often deals with elements designed and built for internal spaces (mosaics, frescos, stuccos…) which cannot remain without roofing lest they should quickly disintegrate. It is in such cases as these that we may have to think of using a protective shelter. The recourse to roofing as a protection device, however, is not an easy choice to make, marked as it is by an internal contradiction: on the one hand, we seek to preserve fragile remains in an efficient and lasting manner, and, on the other, we want these vestiges to remain unaltered.

In point of fact, archaeological shelters have been the subject of a controversy amongst restoration professionals over the last century or so, with different circumstances and different results surfacing every now and then. No wonder! This issue seems to have posed in an exasperated manner all the difficulties and dilemmas surrounding work on heritage in general. Stopping the degradation of vestiges yet without tampering with their authenticity; preserving the ruin yet without restoring the elements that once served as a protection; sheltering yet without obstructing the appreciation of the remains. Never has a solution – whether implemented or even merely suggested – ever gained unanimous approval on the part of the public and the scientific community at large. It is not possible to review all the works that have marked the evolution of thought on this topic. As such, I shall restrict myself to citing but a few examples that may give us an idea about the variety of issues and possible approaches involved.

Curiously enough, the New World is where we need to look in order to meet the first structures (1903) built for protecting an archaeological fragment. I am referring to the roofing achieved over the ruins of Casa Grande in Arizona to cover the remains of an archaeological monument made out of raw earth, conserved in its dilapidated state, almost as a relic. This structure stands out for what it is without any disguise, that is, a shelter; and perhaps for this very

reason, it has almost become a symbol of archaeological protective shelter.

At Ephesus, the Austrian Archaeological Institute (which has been excavating the site for more than a century) has recently called in a multidisciplinary team to design a protective shelter for two large houses; the project, which was finally implemented, consisted of a large membrane pulled by cables. Although the device seemed to be efficient as far as conservation is concerned, it is raising some doubts as to its visual impact on the scenery.

In the same spirit, although in a very different context, a sort of "tent" was erected over the Byzantine Basilica at Petra: it is a shelter supported by a metallic structure leaning outside the perimeter of the monument.

An almost opposite approach, which deserves to be noted, was developed in England for certain abbeys of Yorkshire which, given their picturesque worth, would have hardly coped with the presence of modern protective structures. By relying on regular maintenance, the specialists of English Heritage decided to restrict themselves to protecting the mosaics during winter months by covering them with straw upon the approach of each winter season.

In the archaeological areas around Mt. Vesuvius, roofing experiences are countless, ranging from those "identical structures" achieved during the thirties to the opposite solution (total differentiation from the original) experimented at Pompeii a few years ago.

It is interesting to note in this regard that an attempt was made during the eighties to systematise the issue by applying three different solutions that correspond to three different levels of archaeological knowledge concerning the shape of the original roofing.

In view of the number of experiments that have been conducted to date, there has been of late a new awareness about the necessity of giving more thought to the conservation efficiency of roofing. Moreover, the emphasis has been increasingly laid on seeking a prior definition of the parameters that a given protective shelter must possess so that it will enable to meet the required standards, yet without generating any undesirable side effects. In this context, it is interesting to mention the case of a Mayan pyramid in Honduras which was subjected to comprehensive research conducted by the researchers of the Getty Conservation Institute. Once the analysis had confirmed the pathologies presented by the stone on a scientific basis, the need for a

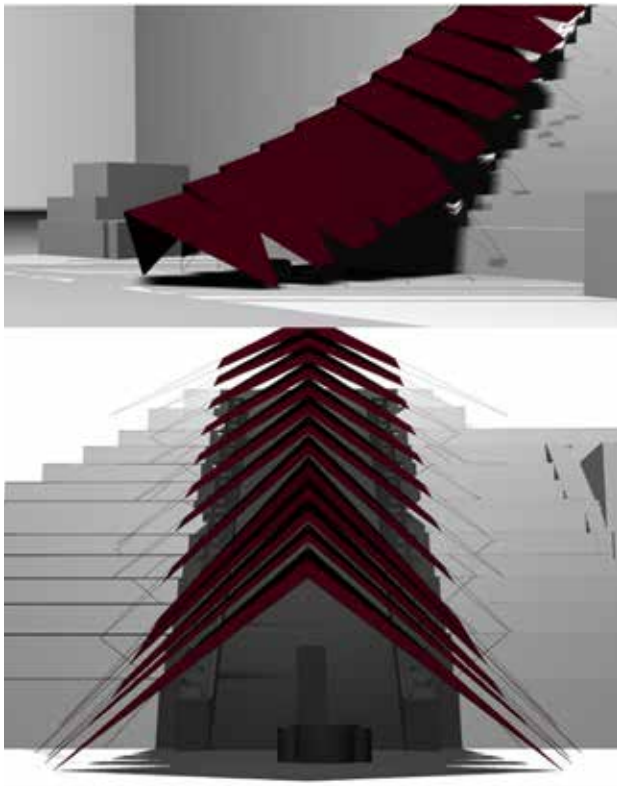


Fig. 5. Shelter proposal for the Maya pyramid at Copan

shelter became clear. The GCI team, therefore, identified in the specifications document for the architect the characteristics that the ideal protective structure should be endowed with from a conservation viewpoint.

There may be cases where the structure required for protecting vestiges is so large that it becomes a fully-fledged building that houses archaeological remains inside. In such a case, we are almost dealing with a museum which is sheltering the excavated monuments.

In a situation like this, the issues at stake, therefore, will be linked to the architectural choice (Modern? Mimetic of the scenery? Evocative of the lost shapes?), as is the case of the Roman Villa of Piazza Armerina in Sicily which has been at the center of a heated debate over the last decade.

Excavated in 1929, the Villa was sheltered towards the end of the fifties under a project conducted by the architect Franco Minissi who, probably for the first time, had resorted to modern materials (glass and plastic) in order to evoke the original volume in a transparent manner. The idea was to partially suggest the ancient form while showing in an unequivocal way the restored parts, in a sort of architectural translation of what the theoretician Cesare Brandi proposed to do during those years for the restoration of paintings.

Fig. 6. Shelter of the Villa di Piazza Armerina, 1960

This intervention has somehow been recorded in the history of archaeological restoration and, as far as protective sheltering is concerned, one must say, has almost become a reference.

Unfortunately, what seemed to be a methodologically perfect approach revealed many weaknesses once it had been put in practice: from an aesthetic point of view, the reconstitution of the original volumes was unsatisfactory and hardly intelligible; from a conservation point of view, the roofing has been quite ineffective (the greenhouse effect and condensation have contributed to the deterioration of the mosaics); from the standpoint of duration, the structure has not aged well (the plastic elements have turned yellow and cracked, the metallic elements have become rusty); from the point of view of museography, the internal space is tantamount to disaster (the high temperature makes the visit very unpleasant and the powerful light prevents adequate observation of the flooring).

When it was finally decided that something should be done to improve the situation, a lively debate started between those who supported the restoration of the Minissi project and the advocates of an altogether new project.

Once the proposal of protecting the Villa with a glass dome of 160 meters in width and 40 meters in height was rejected, a new project was presented. Based on a detailed analysis of climatic factors, the proposed roofing consisted of an opaque (copper) and ventilated shelter, to be conceived in such a manner as to avoid any increase in the temperature in the interior. The supporting structure, light, reversible and manifestly modern (metallic poles), includes as well a lateral opaque enclosure along the perimeter of the Villa in such a way as to reduce the degradations of light in the interior of the entire monument.

Fig. 7. New project for the Villa of Piazza Armerina

The arguments presented in defense of this option have not, however, convinced its detractors, thus providing additional proof that, for the construction of such a large-scale shelter, there are various possible approaches and, inevitably, various viable solutions.

This will lead us to another subject that is beyond the scope of this presentation: the museography of sites. Nevertheless, I wish to conclude on this point by making a very personal observation.

In restoration programmes, communication - the didactic side, site exploitation, etc. -is becoming increasingly important.

This is fine; yet I have noticed that each time we place a notice board, an interactive device, or toilet/parking/cafeteria signposts, the archaeological vestiges are losing a bit of their character: the atmosphere becomes more reminiscent of a museum than of a site. In other words, I have the impression that, in order to make a monument more understandable we tend to deprive it of its soul.

Sites are sites. They are neither museums designed to serve a didactic purpose nor are they archaeological books.

In my view, they can (and must) only speak the language of sites: archaeological fragments, traces of the past, incomplete forms, lights, scenery…

The Conservation of Mosaics on Archaeological Sites

John Stewart

1. Introduction

Mosaics are common features on many archaeological sites in Europe and throughout the Mediterranean region. They are most valued for their pictorial or geometric decoration, which constitutes a rich legacy of ancient art and culture.

The craft of mosaics originated in the Hellenistic period as floors decorated with stone pebbles. It evolved into a great art form in the Roman Empire, primarily as pavements (*opus tessellatum*) but also as wall and vault decoration (*opus musivum*) (Ling 1998). These latter forms were further developed within Umayyad and Byzantine architecture. On archaeological sites, the survival of wall or vault mosaics is relatively rare.

Mosaics are perceived as surfaces applied to a building. Floor mosaics are actually composite structures. Multiple layers of stone and mortar serve as the pavement's structural support, formed of small pieces of stone, ceramic and sometimes glass (known as *tesserae*), set in a fine layer of lime mortar. Mosaics with underfloor heating (*hypocausts*) are supported on brick or stone piers (Fig. 1).

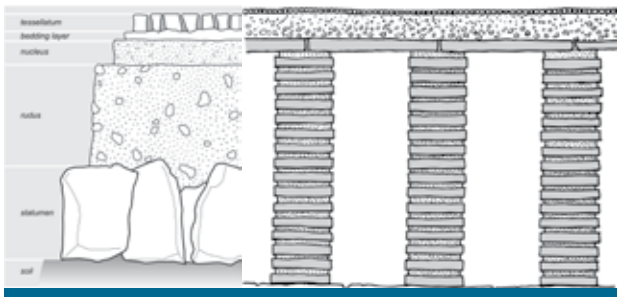


Fig. 1. Sections through a conventional mosaic floor and hypocaust
© Judith Dobie

Fig. 2. A fragment of a Roman floor mosaic, with central *emblemata*

Not all mosaic pavements contain decorative motifs. Some are plain utilitarian surfaces, others have simple geometric designs. The finest are formed of extremely intricate patterns or scenes. In grander Roman buildings, a combination of styles was common: a simple, expansive geometric pattern framed a detailed central panel (*emblemata*), which was exhibited as an expensive and prestigious work of art (Fig. 2).

It is believed that most ancient mosaics were laid by the "direct" method. The mortar bedding was first built up. It was then progressively covered with a fine layer of lime mortar, incised with the outline of the desired decorative pattern. This served both as the fixative for the *tesserae* and template for their placement. When all *tesserae* were in place, a fine grout of lime was spread over the surface to fill the joints between them. Once the grout had set, the mosaic was mechanically polished to create a smooth surface.

The "reverse" method was probably employed only in the most detailed compositions, using minute tesserae and fabricated in a mosaic studio. In this case, the design was first drawn onto cloth and *tesserae* were cut and fixed to it with adhesive. For ease of transport it was sometimes set on a stone tile or a terracotta tray (Neal 1976).

Mortars for ancient mosaics were composed of lime with sand aggregates. Limestone would have been quarried locally and then burnt and slaked with water. Pure limestone ($CaCO_3$, non-hydraulic or high calcium lime) needs contact with carbon dioxide from the air to harden, which is a very slow process also requiring progressively dry conditions. Limestone with clay impurities (calcium silicates and aluminates, or hydraulic lime) yields lime which hardens appreciably faster, due to an additional chemical reaction with water. Hydraulic limes can set in water, without carbon dioxide. In antiquity, it was known that pure lime could attain a hydraulic set with the addition of reactive aggregates containing aluminates and silicates (volcanic ash such as Italian '*pozzolana*', and ground low-fired ceramics). These were used for parts of a building in damp contexts, such as the pinkish mortar with ceramic inclusions (*opus signinum*) common in Roman bath complexes.

2. Deterioration

Mosaics deteriorate from mechanisms inherent in their materials, and from external agents or events. Any damaged or weakened materials and structure provide a path of entry for other agents of deterioration (Velloccia 1978).

Mosaic pavements on archaeological sites survive because of their burial under a mantle of soil. Deterioration still occurs in burial conditions, for example from tree roots or burrowing rodents (Fig. 3). On some sites the mortar of mosaics is affected by the very slow dissolution of calcium carbonate by organic acids in the soil. This accounts for degraded mortar found on excavation. However, the rate of deterioration of buried mosaics is certainly much slower than in an exposed environment. Above ground, the greater variations in temperature and moisture content facilitate a host of aggressive processes. Water in its various forms acts as a catalyst for many forms of deterioration of exposed mosaics.

Fig. 3. Fracturing of a mosaic by tree roots in burial conditions

Soluble salts: certain soluble salts can cause the progressive breakdown of porous materials (stone, ceramic, mortar) through crystallisation pressures of repeated wetting and drying. This does not occur in burial conditions. The variable pore structure of different materials means that some can be more degraded by salts than others (Fig. 4). Salts usually originate from the ground, but may be deposited as marine aerosols near the sea.

Fig. 4. Preferential erosion of white limestone *tesserae* by soluble salts from the ground

Freeze-thaw: similarly, water within porous materials expands upon freezing, causing pressures that can rupture their structure. Certain soils are also subject to heave upon freezing, which can disrupt a mosaic above.

Expansion–contraction: different minerals undergo dimensional change from thermal gain or variations in moisture content. In some cases it can result in detachment of the *tessellatum* from its support, and bulging.

Biological growths: some, such as algae are not particularly aggressive, but facilitate colonisation of higher, more destructive forms, such as moss which can penetrate porous materials to some depth. Root systems of all forms of plants, shrubs and trees cause major disruption to mosaics.

Burrowing animals: where they are present, the activity of burrowing animals can breach the surface of the mosaic, and undermine mosaic structure.

Poor conservation and restoration practice: countless mosaics have sustained serious damage as a result of the use of inappropriate materials, such as cement. This is excessively strong and cannot be removed without damage to the ancient fabric. When mosaics are lifted and re-laid in cement mortar reinforced with iron, corrosion of the iron causes its expansion and fracturing of the mosaic (Fig. 5).

Fig. 5. Corrosion of iron reinforcement beside crude cement repairs

Damp conditions obviously accelerate this process. Another negative practice is the physical abrasion or polishing of surfaces of mosaics to highlight decorative patterns. This destroys the original surface and its archaeological integrity.

Site management: lack of adequate maintenance is responsible for the greatest loss of exposed mosaics on archaeological sites. The rate of attrition is often severe, but the lack of good records means that it cannot be easily quantified (Fig. 6).

Fig. 6. Gradual fragmentation of a mosaic due to lack of maintenance, eventually leading to its complete loss

3. Conservation Principles

Conservation is about caring for cultural heritage so it can be sustained for the benefit of future generations. In the case of mosaics this requires observation of underlying principles and procedures. In summary, these are:

- documentation of all mosaics, by means of an inventory;
- determination of the relative significance of all mosaics;
- recording the condition of mosaics and understanding causes of deterioration (Corfield 2003; Getty Conservation Institute 2003);
- prioritisation of a conservation programme, according to significance and condition;
- application of benign materials and treatments, which are fully recorded;
- continuous maintenance and monitoring of condition.

Good conservation is ultimately about good planning (Nardi 1992; Sease, 2003).

A value often ascribed to antiquities is material authenticity. This respects historical materials and their surviving form, as unique and irreplaceable creations of the past (Fig. 7). In the case of mosaics, authenticity is best maintained by **preservation in situ** (Vaccaro 2003).

Sustaining material authenticity requires:

- the use of measures which prevent damage and deterioration (**preventive *conservation***);
- stabilising degraded materials and structure with new materials (**remedial conservation**) as necessary to restore structural integrity and prevent further loss.

In practice, these are complementary, but there should always be a presumption in favour of preventive measures before remedial ones are applied (Nardi 1992, 1994, 2003).

Fig. 7. A heavily restored and polished mosaic, with modern restoration indistinguishable from ancient areas, devaluing its material authenticity

4. Conservation Treatments

4.1 Preventive Treatments

4.1.1 Site stabilisation

In the wider environment, this may entail interventions such as flood defenses, improved drainage, or slope stabilisation (Fig. 8) (see "The Stabilisation and Protection of Archaeological Sites from Natural Processes" in this volume).

4.1.2 Reburial

Archaeological pavements have survived through burial in soil. Reburial can be a cost-effective method of protecting excavated mosaics, if properly executed. It can be applied:

- for the short term (e.g. between excavation seasons);
- for the medium term (e.g. during planning for conservation, fund-raising, etc.); and
- for the long term (for mosaics that are not to be presented to the public).

Reburial can reduce the rate of deterioration, the cost of

maintenance, and the risk of theft or vandalism. It allows resources to be focused on those mosaics identified most appropriate for public display. Even mosaics that are reburied for the long term should be effectively preserved for the future, when managers may then opt for their presentation.

4.1.3 Cover buildings

Cover buildings are either roofed frames with open sides (shelters) or fully enclosed. They should provide protection as well as access and interpretation. To be effective, their design needs to be based on an understanding of the local environment, the condition of mosaics to be covered and risks to them (Stewart, J. *et al*. 2003). A bad design can inadvertently lead to damage by creating a harmful environment. Any new structure on an archaeological site will invariably have a visual impact, but this may be mitigated by sensitive design. Yet ultimately, its primary function is to present mosaics for current public benefit, and at the same time preserve them for future generations.

4.1.4 Storage facilities

Mosaics that have been lifted and re-laid on new mobile supports require sound and secure conditions of storage. This is particularly important if the backing is reinforced with iron bars, which are very susceptible to corrosion. Basic requirements for a storage facility are:

- dry conditions, with storage units raised above the ground;
- security against fire, flooding and theft;
- access for recording, conservation and transport.

There should be an inventory of mosaics in storage, along with an assessment of their condition.

Fig. 8. Erosion of a slope onto a mosaic, which is easily prevented by planting or soil reinforcement

4.2 Remedial Treatments

Most remedial treatments entail the use of mortars. Portland cement mortars have been used extensively. However, these are not appropriate as they lack properties required of conservation mortars: good water-vapour permeability; negligible soluble salt content; and low strength (permitting removal). These properties are satisfied by traditional non-hydraulic (high calcium) lime mortars, and lower strength natural hydraulic lime mortars. Non-hydraulic lime mortars with reactive additives (low-fired, ground brick or tile, volcanic ash) are useful as low-strength alternatives to hydraulic lime. Sand for mortar should be well graded and be free of soluble salt and iron, to prevent salt crystallisation and staining.

4.2.1 Filling borders and fissures

Unprotected edges of mosaics need to be secured, either by filling voids in the *tessellatum*, or applying borders with non-hydraulic or weak hydraulic lime mortar (Fig. 9). The mosaic needs to be thoroughly cleaned and pre-wetted with water before mortar is applied. The fresh mortar is covered with damp fabric to prevent rapid drying, which is kept moist as the mortar progressively dries and hardens (Roby 2006).

4.2.2 Cleaning

Algae or lichen are disfiguring and may lead to the colonisation of higher plant forms. Tenacious growths can be killed through light exclusion over a period of time, for example with cloth sand bags. Cleaning is carried out with salt-free water, soft plastic brushes, sponges, and wooden or plastic spatulas. If used, any detergents should be non-ionic in nature. Biocides may be applied, but their effect is limited; and some are problematic as they leave residual salts.

Fig. 9. Filling of a fracture in a mosaic with lime mortar

Lime concretions can form on mosaics during burial, concealing the *tessellatum*. Mechanical removal with strong abrasive tools destroys the original surface of the mosaic. Specialist chemical pastes (with chelating or sequestering agents) can release calcium ions and allow for more gentle mechanical removal. Fine air-abrasive cleaning is also effective. However, both are specialist operations.

4.2.3 Emergency repair

Fragile areas of *tessellatum* can be protected with a cotton gauze facing applied with a reversible solvent-based adhesive (e.g. methyl methacrylate co-polymer, *Paraloid B-72*). This is useful for mosaics in storage awaiting full treatment. In external conditions adhesives are less durable and subject to softening in high temperatures.

4.2.4 Consolidation

Degraded *tesserae* of stone, ceramic or glass may benefit from application of conservation-grade consolidants chosen specially for them by an experienced conservator. Their efficacy in exposed environments can be very limited, requiring re-treatment. Inappropriate consolidants will accelerate deterioration.

4.2.5 Grouting

Fluid mortar grouts are injected into a mosaic to re-adhere a detached *tessellatum* to its substrate, and to fill large structural voids with the bedding. The area of voiding is identified by tapping and access holes are created with a hand drill. Ample amounts of water (possibly with ethyl alcohol) are fed to wash out any loose material, and pre-wet the ancient mortar to prevent excessive suction from the grout.

Grouting detached *tessellatum* utilizes very fluid grouts based on hydraulic lime alone. If only non-hydraulic lime is available, a reactive additive needs to be added (such as low-fired brick powder) to achieve a set in the absence of air, and possibly an acrylic emulsion. Large voids require grouts with reactive aggregates to prevent shrinkage. Grouts are fed into voids with hypodermic syringes until filled.

4.2.6 Lifting and relaying in situ

The lifting and relaying of the *tessellatum* on a new sound support is a major intervention. Ancient bedding mortars have to be sacrificed and the aesthetic character of the mosaic is inevitably changed. Therefore, it should only be undertaken if other forms of repair are not feasible. The most common justification is when ancient mortar is degraded and *tesserae* lack adhesion. Environmental threats are another reason, such as a high water table with aggressive soluble salts (however, reburial will also prevent further deterioration in this case).

Lifting and relaying on a new support will certainly stabilise a pavement, but it will not protect ancient *tesserae* from ongoing deterioration in an exposed environment, particularly if these are in a poor condition (Fig. 10).

There are two forms of lifting: in flat sections, or less commonly by rolling the entire pavement (Getty Conservation Institute 1991). For lifting in sections, the pavement is first traced on polythene sheeting with an indelible marker to provide a reference for reassembly. Separation or cutting lines are chosen, usually through straight border elements, to isolate manageable surface areas (e.g. under 4 m^2). *Tesserae* along the lines are removed and retained. The surface is washed and cotton gauze is intimately applied with adhesive. This is followed by a stronger fabric, such as hessian. Water-soluble adhesives (e.g. polyvinyl acetate) have the advantage of ease of removal but poor grades may not remain easily soluble. The mosaic is then undercut through its mortar bedding, well below the level of the *tesserae*, with a long iron blade and mallet (Fig. 11). A wooden panel is slid beneath it and another on top. It is then turned over, and the facing fabric nailed to the panel to secure the mosaic in place.

Fig. 10. A mosaic re-laid in a good lime mortar base, but with fractured tesserae still subject to environmental erosion

Fig. 11. Undercutting a pavement with iron bars, requiring great skill and judgement to prevent damage

Details of ancient fabrication are recorded, and unsound or excessive mortar still adhering to the mosaic is removed with a hammer and chisel. Mortar samples are also retained for eventual archaeological analysis. A new base is built on the site, if necessary with an impermeable layer (e.g. bitumen) and drainage. Each mosaic panel is progressively re-laid in fresh lime mortar, and *tesserae* from cutting lines are replaced. A fine fluid lime grout is spread over the mosaic to fill empty joints between *tesserae*, and any residue thoroughly washed off.

4.2.7 Removal of cement support

Many mosaics have been lifted and re-laid in cement mortar reinforced with iron bars. Such a backing needs to be detached if iron is corroding and fracturing in the panel. This is a slow and difficult process. The surface of the mosaic is faced with a strong fabric and solvent-based adhesive. Once lifted and reversed, a wooden or metal rig is built around and over the mosaic, to guide a rotary blade stone cutter. The cement is incised along parallel lines at regular intervals a few centimetres apart, stopping short of the *tessellatum* (Fig. 12). The cement is then gently undercut with a hammer and chisel.

Fig. 12. Removal of cement mortar from the back of a pavement, by mechanical incisions, and working with a hammer and chisel

4.2.8 Treatment of lacunae

Areas of missing tesserae are conventionally filled with a lime mortar sympathetically coloured with natural sand/crushed stone aggregates. If any restoration of missing *tessellatum* is undertaken, this must avoid conjecture and be fully recorded.

5. Conclusion

Good conservation practice for mosaics requires a variety of complementary measures, both preventive and remedial. These should be chosen according to the significance and condition of the pavement, within a coordinated planning strategy for the site. Regular monitoring of condition, with appropriate levels of maintenance, is essential to preserve the material integrity of the pavement for the future.

References

Corfield, M. 2003. "A Framework for the Documentation of in situ Conservation Projects", in: *Mosaics Make a Site: The Conservation in situ of Mosaics on Archaeological Sites. Proceedings of the VIth International Conference of the International Committee for the Conservation of Mosaics.* Nicosia, Cyprus, 1996. Rome: ICCROM: 123-48.

Getty Conservation Institute. 2003. *Mosaics in situ Project Illustrated Glossary. Definitions of terms used for the graphic documentation of in situ floor mosaics.* December 2003. http://www.getty.edu/conservation/publications/pdf_publications/mosaicglossary.pdf

Getty Conservation Institute. 1991. *The Conservation of the Orpheus Mosaic at Paphos, Cyprus.* Marina del Rey, CA: The Getty Conservation Institute.

Ling, R. 1998. *Ancient Mosaics.* London: British Museum Press: 6-18.

Nardi, R. 2003. "The Treatment of Mosaics in situ". In: *Mosaics Make a Site. The Conservation in situ of Mosaics on Archaeological Sites. Proceedings of the VIth International Conference of the International Committee for the Conservation of Mosaics.* Nicosia, Cyprus. Rome: ICCROM: 187-202.

Nardi, R. 1992. "Planning as a Means of Preventive Conservation", in: *La Conservation Préventive.* Paris: 8 -10 October 1992. Paris: ARAAFU: 105-19.

Nardi, R. 1994. "The First Step in Preventive Conservation: The analysis of the problem", in: The *Proceedings of the Vth Conference of the International Committee for the Conservation of Mosaics. Conservation - Protection - Presentation.* Conimbriga, 1993. Lisbon: Instituto Portugues Museu: 185-95.

Neal, D. 1976. *Floor Mosaics, Roman Crafts*. Strong, D., Brown, D (eds.). London: Duckworths: 240-52.

Roby, T. 2006. "The Conservation of Mosaics in situ: Preserving Context and Integrity, Stories in Stone", *in: Conserving Mosaics of Roman Africa. Masterpieces of the National Museums of Tunisia.* ed. ben Abed, A. Los Angeles: J. Paul Getty Trust: 101-13.

Sease, C. 2003. "Planning for Conservation of an in situ Mosaic, Before, During, and after Excavation", in: *Mosaics Make a Site. The Conservation in situ of Mosaics on Archaeological Sites. Proceedings of the VIth International Conference of the International Committee for the Conservation of Mosaics.* Nicosia, Cyprus, 1996. Rome: ICCROM: 67-76.

Stewart, J. *et al*. 2003. "Chedworth Roman Villa: A methodology for the monitoring of in situ mosaics, in: *Mosaics: Conserve to Display? VIIth Conference of the International Committee for the Conservation of Mosaics.* 22 – 28 November 1999, Arles – Saint-Romain-en-Gal, France. ed. Blanc, P. Arles: Conseil Général des Bouches-du-Rhône: 135-43.

Vaccaro, A. M. (2003), "Philosophies Favouring in situ Conservation", in: *Mosaics Make a Site. The Conservation in situ of Mosaics on Archaeological Sites. Proceedings of the VIth International Conference of the International Committee for the Conservation of Mosaics.* Nicosia, Cyprus, 1996. Rome: ICCROM: 17-29.

Velloccia, M. L. 1978. "Conservation Problems of Mosaics in situ", in: *Mosaics No. 1. Deterioration and Conservation.* Rome: ICCROM: 39-46.

The Stabilisation and Protection of Archaeological Sites from Natural Processes

John Stewart

1. Conservation Planning and Risk Management

Archaeological sites can be vulnerable to a variety of destructive natural processes or events, such as erosion or flooding. One critical objective of site management is the removal of the sources of potential damage, or mitigation of its effects where possible (Fig. 1).

The conservation process is based on a sound understanding of archaeological resources, their extent and significance. It begins with an inventory of natural and archaeological features. A preliminary survey of the site follows, identifying potential natural risks within the landscape, the condition and vulnerability of known archaeological features, and the need for essential, more detailed surveys by relevant specialists (hydro-geologists, civil engineers).

Inventory and survey enable the critical process of risk analysis. This relates the historical frequency and intensity of specific natural events to the vulnerability of archaeological features. One output of risk analysis is the **risk map** (Accardo, Giani & Giovagnoli 2003), a useful planning tool which locates the geographical position of specific zones at risk, and ranks relative risks within the broader context (Fig. 2). It can also complement regional planning data on a GIS (Geographic Information System) database.

Preventive measures need to respond to the degree (potential severity) and scale (surface area) of risk. They can be simple, with very low environmental impact and cost, or large-scale technical interventions requiring professional expertise. These fall into the following broad categories:

- stabilisation of landscape;
- water management;
- vegetation management;
- management of livestock and burrowing animals;
- site capping and reburial.

Many sites require complementary interventions. For example, in temperate climes, drainage and vegetation control are often integral to stabilisation of landscape or reburial of archaeological features.

Measures proposed to protect an identified archaeological site, such as drainage, may put archaeological deposits at risk. Any such loss needs to be weighed against the benefits of the preservation of the site as a whole. The extent of buried features can be identified by means of remote sensing and trial excavation trenches. Rescue excavation may follow.

Fig. 1. Remains of an excavated Roman structure subject to seasonal flooding and ponding, which is typical of low-lying sites (Arles, France)

Fig. 2. A risk map of damage caused by tree cover, including potential extension of roots, over the subterranean remains of the Domus Aurea, Rome, (© Giulia Caneva; from Caneva & Ceschin 2006)

2. Materials for Site Stabilisation and Protection

Technical interventions need to employ materials which meet necessary performance requirements (e.g. physical and chemical properties, such as pH, porosity, compressive and shear strength, thermal values, transmission or containment of water).

Soil, sand, crushed rock and gravel all constitute potential materials for site protection, sometimes in conjunction with fabricated products. Soil from an excavation is often a useful, economical resource, unless contaminated by industrial pollutants.

A broad range of fabricated materials is employed within civil engineering practice to stabilise sites from natural processes (Kavazanjian 2004). However, these are not necessarily essential in basic interventions. Locally available materials may suffice.

2.1 Geosynthetics

These are planar materials made of synthetic polymers, serving as separation, cushioning, filtration, drainage, reinforcement or erosion control. There are also some equivalents based on natural materials. They constitute a variety of different forms (Fig. 3):

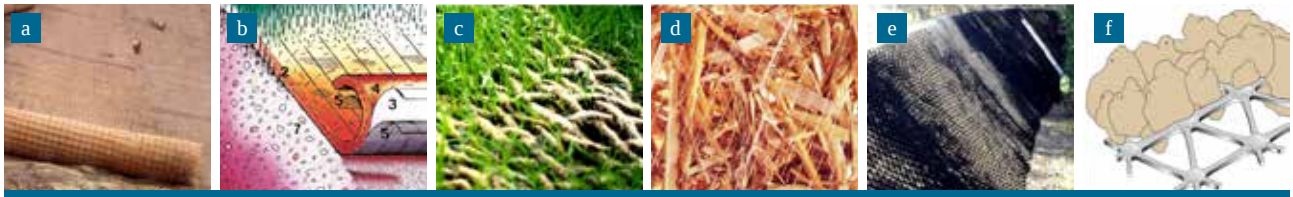


Fig. 3. A variety of geosynthetic and natural products used for stabilising slope surfaces, some of which also promote vegetation growth: a) permanent erosion control/turf reinforcement matting (Verdamat C350® Verdant Solutions); b) seeded mat (Covamat Plus® Greenfix UK) c) jute fibre mat (Geojute® Greenfix UK); d) straw and coir fibre blanket (Biomac® Maccaferri); e) geocell (Verdacell® Verdant Solutions); f) TriAx geogrid TM (® Tensar)

- geotextiles: sheets of polyester, nylon or polypropylene fibres of varying thickness. They are classified according to their manufacturing process, which also determines their principal properties (strength, flexibility, water permeability);
- geomembranes: impermeable sheets as barriers to water flow for waste management;
- geogrids: thin webs for soil reinforcement;
- geocells: stiff diamond-shaped cells filled with soil to provide erosion resistance;
- erosion control nets: synthetic or natural nets for soil reinforcement;
- geodrains: plastic panels with raised nodules, wrapped in geotextile.

3. Stabilisation of Landscape

Erosion of an archaeological landscape risks the exposure and loss of unexcavated deposits, as well as the destruction of exposed features. It is often associated with surface water (Fig. 4). This may be a result of complex inter-related natural factors, exacerbated by erratic or severe weather patterns, or human intervention (e.g. deforestation). The effects of erosion depend on the prevailing geography (geology, hydrology, topography) of a specific location and may be gradual and continuous, intermittent, or sudden (U.S. Army Corps of Engineers. 1992, Nickens 2000).

3.1 Soil slope erosion

Migration or collapse of unstable soil on a slope is prevented by surface or subsurface stabilisation (Abramson *etal.*2002).

Surface stabilisation (Fig. 3):

- Geogrids, erosion control nets or seeded culture blankets;
- Wire mesh.
- These serve to contain and reinforce topsoil and some encourage rapid establishment of vegetation. As surface treatments, there is no disturbance to buried archaeology.

Subsurface works:

- modification of slope (reprofiling): lowering the slope, removal of unstable slope material;
- buttresses: removal of the base of a slope and replacement with rock fill;
- drainage trenches: catchment along levels of a slope;
- micropiles: reinforcement with parallel or radial piles;
- stone columns: reinforcement with vertical piles;
- ground nailing;
- geocells;
- soil grouting (cement, bentonite).

Fig. 4. Erosion of a hill slope and rainwater runoff is a common cause of the destruction of archaeological deposits and structures, such as the collapse of this Roman vaulted chamber in southern Turkey

Archaeological earthworks are 'built' structures and preservation of their profile is integral to their authenticity. Small-scale damage can instigate more substantial erosion, therefore consolidation is essential (Berry & Brown 1994; Rimmington 2004). This entails filling of erosion scars and reinstatement of ground profile, for example with soil-filled sacks, or concealed wooden revetments filled with local soil or gravel, and with turf or vegetation cover.

3.2 Rock slope erosion

Rock fall is a consequence of unstable rock face. The most common interventions consist of (Abramson *et al.* 2002):

- drainage: at the top of the rock slope or cliff;
- gabions: retaining walls of rock in wire mesh boxes;
- pinning: metal rods or anchors;
- metal containment nets (Fig. 5);
- consolidation: internal grouting, filling of exposed weak rock strata.

3.3 Shoreline erosion

Protection from shoreline erosion aims to dissipate the energy of flowing water or waves on exposed and sheltered coasts (Fig. 6). This is particularly difficult on ocean or sea shores, as any construction transfers destructive action further along the coast. Protective measures depend on the context:

Exposed coasts (sea or ocean):

- wooden revetments (at 90° to the coastline);
- masonry sea walls;
- offshore breakwaters: concrete blocks and boulders;
- beach replenishment: import of sand.

Sheltered shorelines:

- landscape stabilisation (revegetation);
- rock armour: rock piles, *riprap* (crushed rock);
- gabions (metal mesh cages filled with rock) (Fig. 7);
- seeded culture blankets.

Fig. 5. Metal containment nets are one method employed to retain unstable rock slopes, as on this mediaeval site of Tintagel, England (©Arthur McCallum – English Heritage)

Fig. 6. Shoreline stabilisation over a reburied classical site, Zeugma, Turkey (©Centro di conservazione archeologica)

Fig. 7. Protection of an embankment with gabions (Maccaferri)

3.4 Wind erosion

In certain environments wind erosion exposes archaeological sites through depletion of soil or sand cover (*deflation*), or in others subjects exposed features to mechanical abrasion, by windborne particles. Mitigation of the wind effect entails the establishment of wind breaks which filter particles in the air:

- wind barriers: fences or screens (e.g. geosynthetic nets), usually perpendicular to the principal wind direction;
- revegetation: planting of trees, shrubs, or grasses.

If vegetation is to be effectively employed, it must be relatively dense, with a mature height sufficient to afford protection.

4. Water Management

Water originates from natural sources (seas, oceans, rivers, streams, groundwater, and precipitation) or man-made features (water and sewerage mains, canals). It usually plays a destructive role on archaeological sites, causing damage from ponding or flooding, or serving as the catalyst for other forms of deterioration (e.g. soluble salts). However, water is essential to the preservation of waterlogged sites, where the survival of organic material requires high water levels to retain anaerobic (oxygen-free) conditions in the soil.

4.1 Removal of water: drainage

Drainage has a potential role in many forms of site protection, in removing or mitigating the effect of water in the ground. Effective drainage design requires determination of the source of moisture and the nature of drainage required.

Landscape drainage is intended to intercept and evacuate water, reducing its level in the ground. The conventional drain is a trench with a perforated pipe at its base, which is filled initially with gravel, and progressively finer materials to act as a filter. The width of the trench is proportionate to the depth necessary to function adequately. The construction of drains obviously destroys archaeological deposits. This loss can be reduced by the use of modern plastic geodrains (Fig.8), which are much thinner than conventional drainage trenches. Most drains are prone to blockage by fines in the soil, and need to be renewed. There are multiple forms of drainage (Abramson *et al.* 2002):

Surface drainage:

- vertical wells: filled with aggregate to prevent ponding;
- grading and berms: redirection of surface runoff.

Subsurface drainage:

- drain blankets;
- trenches;
- cut-off drains;
- relief drains;
- drainage tunnels.

Drainage can be installed over very large areas, such as a perimeter ring around a site, or alternatively around specific features.

Many waterproofing techniques are used in new construction (impermeable coatings, injection of hydrophobic chemicals, or insertion of an impermeable damp-proof course layer). These are not appropriate in archaeological structures, being damaging and irreversible.

Fig. 8. Example of a geodrain installed on an archaeological site

Groundwater often contains soluble salts which cause deterioration of exposed structures of stone, brick, plaster and mortar. In general, perimeter drains cannot lower a high water table sufficiently to prevent such damage, and may only accomplish a small reduction in height of the **capillary fringe** (the level attained by capillary moisture rising within a wall). However, they can be useful to intercept water at the base of slopes, before it reaches an exposed structure (Collombet 1985). In rare cases, removal of groundwater by mechanical pumping may be justified, but this entails many risks, such as ground subsidence, structural settlement and mechanical breakdown of pumping equipment. Reburial is another method to prevent deterioration from soluble salts (see below).

4.2 Flood protection

Flooding occurs when the amount of water in a lake or river overflows its boundaries, when there is excessive surface runoff on a slope, or in periods of high river or coastal tides. Sites which are close to the source of flooding are particularly vulnerable, as well as low-lying areas. The latter is often a consequence of excavation. Prevention consists of:

- dikes: natural or artificial slope or wall along the course of a river;
- reservoirs: catchment and containment of water behind a dam;
- weirs: small over-flow dam raising the level of a river or stream.

Many preventive strategies developed for civil protection can be applied to vulnerable archaeological sites.

4.3 Maintenance of water table

Waterlogged or wetland sites contain organic artefacts or structural material in an anaerobic environment which prevents biological activity. Their preservation depends on maintenance of the level of the water table, or the zone of permanent saturation. This can be at risk from local water abstraction, pollution, drought, drainage, new construction, peat or mineral extraction (Corfield 1996). The stability of the site is measured by its **Redox** potential, which is the rate of chemical reaction (transfer of electrons) in an aqueous environment, influenced by the presence or absence of oxygen (Caple 1998). If at risk, the water table needs to be maintained by containment features, such as geomembranes.

5. Vegetation Management

Vegetation can be destructive to buried archaeology and to exposed features through physical disruption from the growth of their woody root systems. Conversely, maintenance of existing vegetation or revegetation can be highly beneficial in the stabilisation of archaeological landscapes (see soil slope erosion above). It is natural, relatively low cost, enhances biodiversity, and disperses wind and water energy (Thorne 1992).

5.1 Tree management

The role of tree cover on a particular site requires a preliminary assessment of its protective or detrimental role (Fig. 2). This determines tree species, age, root size, depth and extent, density, and location in relation to recorded archaeological features (Crow & Moffat 2005). Trees typically have shallow but widespread root systems. However, rooting depth depends primarily on soil conditions and individual species.

Tree root systems put shallow archaeology at risk. Another threat from trees is windthrow, or upheaval of the root plate in heavy storms, and uplift of archaeological deposits. The risk is dependent on tree species and soil type. Woodland management is the principal means to prevent overloading of tree cover/umbrella.

Planting of new trees in strategic locations may be one solution to stabilise a site. The potential risks of these to archaeological resources can be reduced by selection of tree species of known rooting depth, and which are appropriate for local soil and environmental conditions.

5.2 Vegetation and soil reinforcement

The removal of trees from a slope to protect archaeological deposits, or for other reasons, can result in soil erosion. Stabilisation requires the establishment of a suitable vegetation cover with a root system which increases the resistance to mechanical shearing and erosion of soil (Thorne 1992). Plants should be native to the area, with shallow root systems capable of holding soil in place. Manufactured surface nets or blankets are designed to promote re-vegetation. Some contain seedlings (Fig. 3 – d).

A designed vegetation cover may be one means to discourage livestock where they are present, but it may also protect burrowing animals, such as rabbits, from their natural predators.

6. Management of Livestock and Burrowing Animals

6.1 Livestock

In some archaeological landscapes cattle, sheep or goats may have considerable freedom to graze and roam. If access is not restricted, damage can be inflicted to exposed structures and pavements from physical disruption, or to earthworks, from surface trample and scarring (Fig. 9).

Prevention entails:

- barriers: vegetation, fences, dry stone walls;
- management of pressure points: moving gates, fences, feeding troughs, or creation of new sheltered tree cover away from the vulnerable features, such as earthworks (Rimmington 2004).

Damaged surfaces need to be consolidated and re-turfed (see Stabilisation of landscape above).

Fig. 9. Unrestricted access by livestock to an archaeological site risks physical disruption of ground and structural features such as by this sheep herd at Ostia Antica, near Rome

6.2 Burrowing animals

Burrowing animals cause major disturbance to archaeological deposits and earthworks. In the first instance the species causing problems need to be identified. However some may have legal protection and any control may be regulated by law. Potential methods of control consist of the following (Dunwell & Trout 1999, Rimmington 2004):

- culling: creation of sacrificial feeding areas for eradication, toxic baits and traps. This should ideally be carried out prior to the breeding season;
- exclusion: fencing for large mammals, netting for small mammals and birds, wire netting of the ground of small sites (fencing is extended to protect areas after removal has been achieved);
- habitat modification: control of ground cover through the removal of trees and scrub which offer protection from predators;
- repellents: foul coatings or odour repellents to deter feeding on plants (only with short-term effects), or planting of offending vegetation if possible;
- frightening devices such as sonic emitters, effigies, lights, reflectors.

Reduction of burrowing animals is challenging and requires programmed planning of complementary measures if it is to be successful.

7. Site Capping and Reburial

7.1 Capping

Relatively shallow unexcavated sites at risk from natural phenomena can be preserved by means of a protective cover, or 'capping'. To be effective this needs to be based on an assessment of the nature and depth of archaeological deposits, classes of artefacts present, natural soil mechanics, and an analysis of risk of the new cover and any surface activity, such as physical compaction and changes in hydrology.

Materials employed for capping need to be relatively inert, have a pH compatible with that of the site, and be resistant to compaction (Thorne 1991). The most common material is **riprap**, which is more stable than sand or soil. Coarse, angular rock is more resistant to compression than rounded rock. Geotextiles can be laid over the site to serve as 'horizon markers' of human intervention, and prevent contamination of contexts. Compaction by heavy vehicles during delivery of cover materials is to be avoided (Ardito 1994). Depending on site use, revegetation may be necessary to maintain surface stability.

7.2 Reburial

Most remains that have survived from antiquity have done so in burial conditions. Organic materials require a waterlogged environment, but inorganic materials such as stone, brick and mortar are preserved in most soils. All materials deteriorate, but the process of deterioration of these inorganic materials is certainly slower below ground.

Intentional reburial (or backfilling) offers several advantages (Fig. 10):

- long-term protection with a minimum of resources;
- protection during conservation planning;
- protection during excavation seasons;
- protection at minimal expense of some features, releasing funds to better protect and present other features selected for public display.

It can be applied to parts of sites, or even entire small sites (Getty Conservation Institute 2003).

Fig. 10. The mediaeval Pueblo structures of Chaco Canyon, New Mexico were excavated in the early 20th century, but have been selectively backfilled to maintain their structural integrity and reduce maintenance

When planning for tourism, as in much of the Mediterranean, reburial is not considered as a conservation option. It is assumed that all excavated sites and features will be of interest to all visitors. The reality is that most sites – large and small - are poorly interpreted, access is often restricted, and minor features fail to captivate public imagination. However, reburial is a proven conservation option and is used as a cost-efficient tool in many other countries (Demas 2004). For this reason it is described in additional detail below.

7.2.1 Planning for site reburial

The study of existing burial environments and the design of new ones is a new area of scientific research. This may involve the creation of a quantitative site decay model or matrix to determine the desired new environment to be created (Mathewson & Gonzalez 1988). However, empirical observations made for the survival of inorganic building materials provide some basis for the design of protective burial environments by relatively simple means (Stewart 2004).

A poorly designed reburial regime will afford no protection. Criteria for design of a reburial regime mainly include the classes of archaeological materials and features present, their condition, the local climate and the intended duration of reburial.

7.2.2 Environmental criteria for reburial

- Water management: the free movement of water through the soil and archaeological features/deposits;
- materials compaction: ancient burial needs to be replicated, with continuous and intimate contact between burial material and reburied features;
- depth of cover: adequate thermal protection and physical deterrent to deep-rooted vegetation;
- protection against site erosion: slope stabilisation and surface or subsurface drainage.

7.2.3 Functional criteria for reburial

- Duration of reburial (short, medium or long-term): defines the materials and depth of cover required;
- separation membranes: the inclusion of synthetic sheets (see below) to facilitate re-excavation as part of on-going archaeological investigations, or to serve as 'horizon markers' of archaeological activity (Fig. 11);
- security against theft and vandalism: the addition of physical barriers to inhibit illicit excavation;
- ease of maintenance: use of durable landscape materials/vegetation that require the minimum of maintenance, while providing sufficient protection.

Fig. 11. A designed reburial regime over a Roman mosaic with a stratigraphy of different materials, including a geotextile to facilitate re-excavation. If applied directly on the pavement there is a risk of adhesion of the geotextile to its surface

7.2.4 Materials for reburial

- Ideal properties: physical/chemical stability, or with a pH similar to reburied features/soil conditions; non-staining; fully permeable to water but preventing perching of water in a specific layer (e.g. no coarse sand);
- fill materials: soil from the excavation is normally excellent (except from contaminated industrial sites), well-graded sand allowing free capillary movement of water;
- separation membranes: open weave plastic netting, geotextiles with good water-vapour permeability (Roby 2004);
- soil reinforcement grids or nets: to stabilise cover material and encourage growth of suitable vegetation (Fig. 3 a – d);
- landscaping cover: turf, hardy vegetation with shallow root systems, solid pavements (depending on site topography and use requirements).

Materials such as plastic sheeting, some geotextiles, gravel, and clay pellets do not satisfy these criteria and should be excluded from burial design. The properties of geotextiles vary greatly (pliability, drainage, root penetration, absorption) and normally only those with proven water-vapour permeability would be used (e.g. non-woven and mechanically bonded, needle punched).

8. Maintenance and Monitoring of Interventions

All interventions require maintenance and monitoring of performance over time. Monitoring technique is specific to the nature of the site:

- ground profile (reburied sites or earthworks): measurement through metric survey or with soil erosion pins (fixed metal rods as benchmarks to measure changes in soil level) (Rimmington 2004);
- vegetation: survey of vegetation species, size and density;
- drainage: excavation or monitoring of moisture content with soil moisture cells to identify blockage;
- ground water levels: manual or electronic recording of water in piezometers or dip well tubes;
- chemistry of waterlogged sites: extraction of groundwater and chemical analysis of its Redox potential (Corfield 1994).

However, the basis for monitoring all interventions is routine visual inspection.

9. Conclusion

Many destructive processes or events affecting archaeological sites can be prevented by proven materials and techniques. These are being applied with growing experience and confidence. However, expert advice is essential when dealing with complex issues. As with other forms of conservation, implementation and maintenance of these protective measures require a robust management infrastructure.

References

Abramson, L.W., Lee, T.S., Sharma, S., & Boyce, G.M. 2002. *Slope Stability and Stabilisation Methods*, 2nd edition. New York: John Wiley & Sons.

Accardo, G., Giani, E., Giovagnoli, A. 2003. "The Risk Map of Italian Cultural Heritage", *Journal of Architectural Conservation*, 9/2: 41-57.

Ardito, A. J. 1994. "Reducing the Effects of Heavy Equipment Compaction through in situ Archaeological Site Preservation", *Antiquity* 68: 816-20.

Berry, A. Q., Brown I.W. (eds.) 1994. *Erosion on Archaeological Earthworks: Its Prevention, Control and Repair.* Clwyd: Clwyd Archaeology Service.

Caneva, G., Ceschin, S., De Marco, G. 2006. "Mapping the Risk of Damage from Tree Roots for the Conservation of Archaeological Sites: the Case of the Domus Aurea", *Conservation and Management of Archaeological Sites* 7/3:163-70.

Caple, C. (1998), "Parameters for Monitoring Anoxic Environments, Preserving Archaeological Remains in Situ". *Proceedings of the Conference of 1st-3rd April 1996.* Museum of London Archaeology Service - University of Bradford. Corfield, M., Hinton, P., Nixon, T., Pollard, M. eds., London: Museum of London Archaeology Service. 113-23.

Collombet, R. 1985. *L' Humidité des Bâtiments Anciens: Causes et Effets, Diagnostic, Remèdes*. Paris: Editions du Moniteur.

Corfield, M. 1996. "Preventive Conservation for Archaeological Sites", *Archaeological Conservation and its Consequences. Preprints of the Contributions to the Copenhagen Congress*, 26-30 August 1996. Roy, A. & Smith, P., eds., London: International Institute for Conservation. 32-7.

Corfield, M. 1994. "Monitoring the Condition of Wet Archaeological Sites", *Proceedings of the Fifth ICOM Group on Wet Organic Archaeological Materials Conference*, Portland, Maine, 16-20 August 1993. Hoffmann, Per, ed. Bremerhaven: Deutsches Schiffahrtsmuseum. 423-36.

Crow, P., Moffat, A. J. 2005. "The Management of the Archaeological Resource in UK Wooded Landscapes", *Conservation and Management of Archaeological Sites*, 7/2: 103-16.

Demas, M. 2004. "Site Unseen: The Case for the Reburial of Archaeological Sites", *Conservation and Management of Archaeological Sites*, 6/3 & 4: 137-54.

Dunwell, A. J., Trout, R.C. 1999. *Burrowing Animals and Archaeology*. Historic Scotland Technical Advice Note 16. Edinburgh: Historic Scotland.

Getty Conservation Institute 2003. *Archeological Site Management Bibliography (Reburial)* http://gcibibs.getty.edu/asp/

Kavazanjian Jr., E. 2004. "The Use of Geosynthetics for Archaeological Site Reburial", *Conservation and Management of Archaeological Sites*, 6/3 & 4: 377-93.

Nickens, P. R. 2000. "Technologies for In-place Protection and Long-term Conservation of Archaeological Sites", *Science and Technology in Historic Preservation*, Williamson, R. A., Nickens, P. R.,(eds.) New York: Kluwer Academic/Plenum Publishers. 309-32.

Mathewson C., Gonzalez, T. 1988. "Protection and Preservation of Archaeological Sites through Reburial", *The Engineering Geology of Ancient Works, Monuments and Historical Sites. Preservation and Protection. Proceedings of an International Symposium*, Athens, 19-23 September 1988. Marinos, P. G., Koukis, G. C. (eds.) Rotterdam: A. A. Balkema. 519-26.

Rimmington, N. J. 2004. *Managing Earthwork Monuments. A Guidance Manual for the Care of Archaeological Earthworks under Grasslands Management*, A Heritage Laboratory Project funded by the European Union's Raphael Programme, n.p.

Roby, T. 2004. "The Reburial of Mosaics: An Overview of Materials and Practice". *Conservation and Management of Archaeological Sites* 6/3 & 4: 229-36.

Stewart, J. 2004. "Conservation of Archaeological Mosaic Pavements by Means of Reburial", *Conservation and Management of Archaeological Sites*, 6/3 & 4, 237-46.

Thorne, R.M. 1991. *Intentional Site Burial: A Technique to Protect against Natural or Mechanical Loss.* Technical Brief No. 5. Washington, DC: US Department of the Interior, National Park Service. http://www.nps.gov/archeology/pubs/techbr/tch5.htm

Thorne, R.M. 1992. *Revegetation: The Soft Approach to Archaeological Site Stabilisation.* Technical Brief No. 8. Washington, DC: US Department of the Interior, National Park Service. http://www.nps.gov/archeology/pubs/techbr/tch8.htm

U.S. Army Corps of Engineers. 1992. *The Archaeological Sites Protection and Preservation Notebook*. Vicksburg, VA: U.S. Army Engineers Waterways Experiment Station.

Chapter IV

MANAGEMENT ISSUES AND LEGISLATION FOR CULTURAL HERITAGE

Cultural Landscapes in Environmental Management

Katri Lisitzin

Sustainable development is based on a resource management approach. International conventions and national environmental legislations have lately recognized cultural heritage both as a non-renewable resource, and as a development factor (World Heritage Convention, UN Millennium Development Goals, Habitat Agenda, and European Landscape Convention). Indeed, according to UNDP's *Human Development Report 2004: Cultural liberty in today's diverse world*, cultural heritage is far more important for wealth and democracy than previously presumed.

1. A Challenge for Conservation Professionals

When one adopts this perspective, there remains no difference between the safeguarding of natural and cultural heritage values, or indeed, between the management of biodiversity and cultural diversity. Many biotopes can be seen as historical remains in the cultural landscape, and must be treated accordingly. Reciprocally, significant environmental gains can be achieved by linking local resource-based techniques and traditional know-how with ecological management.

At the same time, the rapid transformation of our environment puts the cultural landscape under great pressure. Development initiatives, often financed by international agencies, give priority to large infrastructure projects, overall environmental rehabilitation, and new urban structures. These will all go on to have a strong impact on the existing cultural and natural environment. Cultural heritage is of course also often linked to economic development through tourism development.

The indirect effects of these large projects are extensive. A new road rehabilitation with a new standard attracts new development, it can disrupt traditional settlement structures and use, and enforce a new lifestyle. The recent focus on preventive environmental conservation in connection with disaster relief has stressed the need for effective mitigation measures where the complexity of existing cultural and social structures is taken into consideration during the reconstruction process. Research on environmental effects has shown that many small cumulative impacts may result in greater environmental – and cultural – impact than foreseen, thus adding up to considerable damage in the long-term.

Some international development actors who have included cultural environments in their checklists are, for example the World Bank, UNEP (United Nation Environment Programme), IUCN (The International Union for the Conservation of Nature), FAO (United Nations Food and Agriculture Organisation), UNESCO, IADB (Inter-American Development Bank) and ADB (Asian Development Bank).

Some definitions:

UNESCO World Heritage Convention: Cultural landscapes are cultural properties and represent the "combined works of nature and of man". They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

IUCN/WCPA: Community Conserved Areas: Natural and modified ecosystems, including significant biodiversity, ecological services and cultural values, voluntarily conserved by indigenous peoples and local and mobile communities through customary laws or other effective means.

FAO: Remarkable land use systems and landscapes which are rich in biological diversity evolving from the ingenious and dynamic adaptation of a community/population to its environment and the needs and aspirations for sustainable development.

Fig. 1. Defining Cultural Environments

Yet, in current general practice, cultural heritage is seldom integrated into overall environmental planning and management. The management of cultural heritage encounters hurdles within environmental planning processes because cultural values are considered by decision makers, regulatory authorities and developers as being neither easily identifiable, nor quantifiable or measurable. Furthermore, as responsibility for cultural heritage is shared, on a landscape scale, amongst several political, administrative and professional sectors, management responses to environmental and socio-economic changes remains a challenge for conservation professionals.

2. Environmental Impact Assessments, a Tool to Meet the Challenge

New tools, coordination mechanisms and practical approaches are currently being explored in order to gain a better understanding of how to safeguard cultural values on a landscape scale.

The use of one such environmental planning tool has been explored as part of the ATHAR programme. Though the programme participants' current practices centre around archaeological and cultural properties, urban and cultural landscape management is recognised as a field where new professional competences are needed. Indeed, the conservation situation in a great number of sites is drastically affected by urban development, infrastructure projects and environmental degradation.

The aim of an EIA is to support the integration of environmental considerations into policymaking, planning, programming and decision making. For larger projects, EIAs are required in national legislations and in the directives for international funding agencies: "The environmental impact assessment shall identify, describe and assess in an appropriate manner [. . .] the direct and indirect effects of a project on [. . .] human beings, fauna and flora; soil, water, air, climate and the landscape; material assets and the cultural heritage [and] the interaction between [these] factors" (EC Council directive 97/11/EC of 3 March 1997).

Architectural and archaeological heritage is included as an aspect of the environment. It follows that cultural heritage is to be treated as thoroughly as other environmental aspects. The long-term cumulative impacts of proposed changes must be identified.

EIAs are increasingly used in urban planning to evaluate the impacts of various alternative solutions. For the conservation field, the questions asked in an EIA – namely if, where and how a development should take place – are relevant. The option to require alternative solutions has proven to be a very useful way for finding adaptive solutions. The EIA also allows one to specify mitigation measures – and, perhaps as importantly, to identify those impacts that cannot be mitigated.

A critical discussion among ATHAR course participants dealt with the constraints of working with qualitative measures (i.e. qualitative indicators and quality objectives addressing cultural heritage management). The main question remains whether such data can be used to assess the changes a new project will bring, whether it will lead to deterioration or bring about improvements, and how these changes can be mitigated and monitored. Relevant and comprehensive baseline data is essential to adequately assess heritage impacts. Yet, many of the existing EIAs present ambitious technical data about the project itself and its implementation, but lack a concise analysis of its cultural environment.

Guidelines, formal and voluntary, and EIA good practice are emerging on a local and international scale. They concern themselves with the physical aspects of cultural landscapes and properties, but also impact intangible values and local communities' perceptions. For example, there are voluntary guidelines for the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on, or which are likely to have an impact on sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities (Akwé: Kon, *Voluntary Guidelines*, Secretariat of the Convention on Biological Diversity, 2004; *Sustainable Development Guidelines for the Review of Environmental Impact Assessments*. Sida, 2003).

A successful EIA must have a structure which allows for dialogue between developers, professionals and the local community. Through good EIA practice, attitudes and decisions about cultural heritage will be directed towards recognizing cultural heritage as a highly beneficial resource rather than an added cost or an obstacle to development.

Fig. 2a.

Fig. 2b.

Fig. 2c.

Fig. 2a, 2b, 2c. The World Heritage Sites of Byblos (Lebanon), Rice Terraces of the Philippine Cordilleras (Philippines) and Kotor Bay (Montenegro) illustrate how environmental planning issues are closely linked to the safeguarding of cultural heritage. Byblos illustrates growing urbanisation and consequent environmental degradation. The Rice Terraces show the importance of traditional land use as the basis for ecological sustainability. Kotor establishes the need for integrated natural and cultural conservation measures

Links:

UNEP2002. *EIA Training Resource Manual* (www.unep.org): www.ea.gov.au/assessments/eianet/unepmanual/index.html

World Bank: www.worldbank.org

International Association for Impact Assessments: www.iaia.org

Visual Impact: Colour and Aesthetics in Built Heritage Conservation and Restoration

Andrea Urland

One of the challenges faced when conserving and restoring façade surfaces hinges on the fact that, in most cases, there is no reliable information on their colour appearance in earlier periods. Moreover, many buildings will have lost their original context, or have been modified over time. Yet, the final appearance achieved through conservation must be acceptable to professionals as well as to the general public. All of the above, together with the interruption or loss of traditions in many places around the world, make using research results and tools such as colour plans a key step when selecting colour schemes for individual buildings, groups of buildings or historic urban structures.

1. Colour in International Documents on Conservation and Restoration

Although colour and appearance are mentioned in the major internationally accepted documents as subjects of concern and protection with regard to selected aspects, there are still no set guidelines on how to face the challenge posed by colour.

Indeed, Article 6 of the The Venice Charter: International Charter for the Conservation and Restoration of Monuments and Sites (ICOMOS 1964) deals with the colour of a single monument in relationship to the setting. It states that the "[c]onservation of a monument implies preserving a setting which is not out of scale. Wherever the traditional setting exists, it must be kept. No new construction, demolition or modification which would alter the relations of mass and colour must be allowed."

In the The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (ICOMOS 1979 and later revisions), Article 8, which deals with setting, specifically mentions the notion of colour in relation to the visual setting. It states that: "[c]onservation requires the retention of an appropriate visual setting and other relationships that contribute to the cultural significance of the place." The explanatory notes go on to clarify that "[a]spects of the visual setting may include use, siting, bulk, form, scale, character, colour, texture and materials".

Under the heading "Principles and Objectives" of The Washington Charter: Charter for the Conservation of Historic Towns and Urban Areas (ICOMOS 1987), Point (2/c) relates colour to formal appearance: "Qualities to be preserved include the historic character of the town or urban area and all those material and spiritual elements that express this character, especially: The formal appearance, interior and exterior, of buildings as defined by scale, size, style, construction, materials, colour and decoration."

Under Point (j) of The Principles for the Recording of Monuments, Groups of Buildings and Sites (ICOMOS 1996), the need for assessing the visual and functional relationship between the heritage and its setting is again emphasized.

Adopted by the participants, lecturers/staff of the International Architectural Conservation Course and published in Architectural Surfaces: Conservation and Restoration of Plastered Façades (ICCROM/ Bundesdenkmalamt 1996), the "Recommendations of the Course Participants on the Conservation of Historic Façades" provide valuable statements. Statement No II confirms that a historic building's first impact is always an emotional one. With regard to this fact, the notions of age value (patina) and material authenticity should also be applied to plastered façades and their colour schemes. In Statement No. III, the relationship of historic buildings to larger settings (ensemble, townscape, landscape) is stressed, and the need to develop regulations for materials and colours is therefore put forth.

2. Colour Choices: The Conditioning Factors

Choices of exterior colour schemes were in the past constrained by possibilities mainly technical and financial such as access to materials and cost, but also by questions of taste – stylistic influences as well as the owner's or builder's personal preferences. Colours were thus an important means of integrating buildings into the current style, thus favouring artistic unity.

Colour is a means of interpretation and presentation. As such, it is conditioned by the changing material and technological possibilities, the developing human vision and knowledge, as well as evolving philosophies, tastes and aesthetic inclinations. Today, we benefit from a vast offering of materials and colours with no major price differentiation.

3. Findings and the New Decision-making Process

Being sacrificial layers, architectural surfaces and surface finishes were often replaced; fewer and fewer authentic remains of paint and colour are to be found. As such, information on original and historic colour schemes can be sought either in archives, or in some cases in situ by means of stratigraphic analysis. Sometimes, talking to residents and eliciting their memories can also be a source of useful information. The findings arising from these sources are, however, not fully reliable.

The frequent rebuilding and adaptation of façades results in an assortment of historical situations that overlap. Dating layers and co-existing colours is difficult (Fig. 1). Various value categories of façades – and their surfaces – are found side by side. The above mentioned methods of survey and analysis generally provide information on materials but not on appearance (i.e. hue, blackness, content/lightness, chromaticity/saturation) or on the distribution of colours on the façades (co-existence in time). In situ stratigraphy findings can tell us about the materials and technologies used, and sometimes about the texture, but due to dirt deposits, weathering, the application of subsequent layers, etc., the colours might have changed over time. In general, documentation on colour is not precise enough and there is no unity in its elaboration.

Fig. 1.

During the critical process of colour selection, in addition to historical evidence, we need to take into consideration colouristic aspects. The aim should be to maintain the memory, maximum richness of authenticity and credibility, truthfulness and, at the same time, provide for continuity – for this is a dialogue with time. In those cases where original surfaces are missing, the reconstruction of a known original or historic colour scheme can be envisaged if the object's overall artistic value is to be emphasized, or if the documentary value calls for re-proposing these colours. This approach may not be acceptable in relation to the surroundings, the context, or with regard to the "age" value. Other factors influencing the decision-making process can include the shift in aesthetic feelings (time factor) and the building's changed function/position in society.

When intending to re-propose historic colours, we encounter further problems. Expectations vary greatly. Some imagine new and beautiful buildings whilst others remain staunch advocates of minimal intervention. The transformed context of an individual building is rarely sufficiently considered. By respecting nothing but the historical evidence, we run the risk of creating colour schemes that had never existed before or coexistence where there had been a time sequence, and thus risk sacrificing conceptual harmony in favour of a virtual, though well documented, historical reality.

Another factor which must bear a strong influence on colour choices is the current setting. Most buildings have, over their history, been several times modified or rebuilt, including their façades. The original colour scheme applied to the building's first incarnation has in most cases been succeeded by other historic colour schemes. So, we find ourselves with the challenging task of deciding whether to respect the present-day façade or that of the historical period we intend to restore it to.

Any decision-making about exterior colour schemes is an intervention in an existing environment, a present-day intervention, an interpretation of cultural heritage. For this reason, colour choices must be based on three considerations:

- **the historical aspect** (understanding the "original" situation, builder's intention and aims, and the subsequent historical changes and modifications);
- **the material-technological aspect** (such as optical properties or craftsmanship);
- **the philosophical aspects** (questions of authenticity, understanding the current setting, knowledge of present-day taste and requirements, the role/position of the building in society and its setting, local traditions, and "colour climate").

4. Colour as Phenomenon: Relevant Aspects from Colour Science

It is important to remember that when considering colour, we are always dealing with a complex array of factors: colours in combination and interaction, complex aesthetic colour combinations under the influence of light, colours themselves, area size, distance, texture, function of the object, etc. The effects of colours applied on object surfaces are physical, physiological and psychological (emotional).

Both the disciplines of physics and psychology view colour as a phenomenon. In physics, it is considered an objective phenomenon – radiant energy, electromagnetic waves. In psychology, it is understood as a subjective phenomenon, a response to physical stimuli, a visual quality.

The colour appearance of an object depends on the spectral distribution of incident light, the spectral reflectance of the object's surface, and the observer's spectral response. Colour terminology is rooted in three disciplines: physics, psychophysics and psychology. In practice, we most often use the psychological terminology to characterise colours: hue, saturation/chromaticity, brightness/lightness/blackness content. In instrumental measurements, we use terminology from the other two disciplines and speak of wavelength, wavelength-composition and intensity. In relevant cases, we use colourimeters or spectrophotometers to measure colour instrumentally, in addition to employing visual colour specification and measurement. Identification and description of colour for the purposes of documentation, and, communication with regard to time and distance can thus be performed visually or instrumentally depending on the specific aim and needs.

Organising colours is also a cultural phenomenon, with colour being increasingly understood as a separate phenomenon with its own system. Precision levels of measurement were set out in 1965 by K. L. Kelly in his *A Universal Color Language*, where he specified six different levels of increasing precision. The higher levels rely on standards and internationally accepted colour order systems. The latter are exemplified through the use of colour atlases (Fig. 2) or colour indices. These tools do indeed allow us to specify colours through visual methods and to a sufficient level of accuracy.

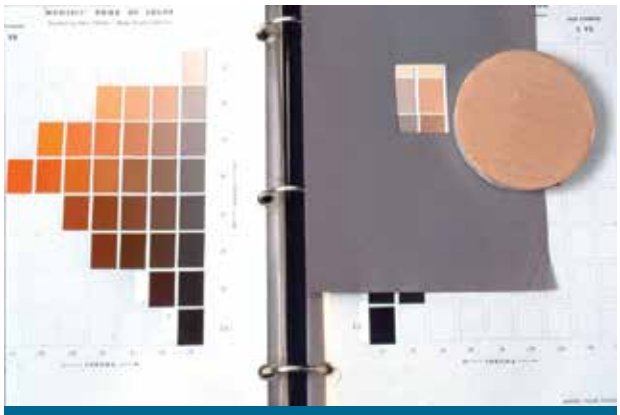


Fig. 2.

5. Principles and Approaches

In practice, we encounter façades and colour schemes that are of varying value levels and degrees of protection. Where original materials and colour traces are still preserved, the aim should be to conserve them and complete missing parts by integration (Fig. 3.a and 3.b). In the case of façades that have lost their original or historic surfaces and expression through heavy rebuilding, a more contextual approach to their new colour schemes is often possible. There are many façades that have lost their original stylistic purity and expression due to subsequent modifications. The task at hand in such cases is to select those colours which correspond to the stage/state of the façade agreed upon as the one to present.

The effects of colour – physiological, psychological and contextual – should be carefully taken into consideration in all colour scheme decisions. The loss or interruption of traditions, the vast offer of new materials and the resulting inappropriate use of colours pose an important challenge

Fig. 3.

Fig. 4.

which must be tackled through strict reliance on surveys and research, and on the use of appropriate tools. In practice, when dealing with colour in an urban context, coordination is necessary in order to avoid anarchy. It can be achieved by following colour plans (Fig. 4), regulations and guidelines. As early as in 1989, Jean Barthélemy had articulated the challenge we still face today: "the colour environment of towns, its continuity is a complex problem. Referring to history should be mitigated by a healthy respect of the artistic feeling of the present day, respecting also psychological, economic and technical aspects."

References:

ICOMOS Australia. 1979. Charter for Places of Cultural Significance – Burra Charter, rev. 1999, in: *International Charters for Conservation and Restoration Monuments and Sites I.* Second edition, ICOMOS, München: Lipp GmbH, 2004, 65.

Charter for the Conservation of Historic Towns and Urban Areas – Washington Charter, 1987, in: *International Charters for Conservation and Restoration Monuments and Sites I.* Second edition, ICOMOS, München: Lipp GmbH, 2004, 98.

Faulkner, W. 1972. *Architecture and Colour*. Wiley – Interscience: 116.

ICOMOS. 2004. *International Charters for Conservation and Restoration Monuments and Sites I.*

Principles for the Recording of Monuments, Groups of Buildings and Sites, 1996, in: *International Charters for Conservation and Restoration Monuments and Sites I.* Second edition, ICOMOS, München: Lipp GmbH, 2004, 132.

Recommendations of the Course Participants on the Conservation of Historic Façades, in: *Architectural Surfaces – Conservation and Restoration of Plastered Façades*. Kartause Mauerbach: Bundesdenkmalamt Arbeitehefte zur Baudenkmalpflege, 1997, 42 – 43.

{cf http://www.worldcat.org/title/architekturoberflache-konservierung-und-restaurierung-von-putzfassaden-architectural-surfaces-conservation-and-restoration-of-plastered-facades/oclc/49235051.

http://primo.getty.edu/primo_library/libweb/action/dlDisplay.do?vid=GRI&afterPDS=true&institution=01GRI&docId=GETTY_ALMA21129596650001551.

Ronse, D. 1989. Les couleurs et la ville – un colloque pour le renouveau urbain, in: *Nouvelles du Patrimoine 30.*

Venice Charter – International Charter for the Conservation and Restoration of Monuments and Sites, 1964, in: *International Charters for Conservation and Restoration Monuments and Sites I.* Second edition, ICOMOS, München: Lipp GmbH, 2004, 37.

Kelly, K. L., *A Universal Color Language*, N.B.S. Circular, 553, 1965. (ref sourced here: http://digitool.library.mcgill.ca/webclient/StreamGate?folder_id=0&dvs=1411653925908~653.)

International Standards for the Protection, Management and Promotion of Cultural Heritage

Ridha Fraoua

1. Introduction

This paper does not aim at conducting a comprehensive analysis of international standards for the protection, management and promotion of cultural heritage. Our goal is rather to delineate the international legal framework and its main constituent elements through an examination of existing international instruments. In other words, we aim to review the scope of international codification pertaining to this area by sketching out the range of international instruments and, in particular, the compass afforded by those measures.

We will focus on binding legal instruments, excluding from our discussion recommendations and other statements which fall under the heading of 'soft law' (i.e. law in the making or in the course of inception). We will further focus on conventions of a universal character, disregarding regional or bilateral agreements. We will, however, make an exception in favour of the 1992 Council of Europe's European Convention on the Protection of the Archaeological Heritage as it is the only treaty whose scope is exclusively drawn with archaeological sites and cultural property in mind, a fact of resounding interest to us.

The international codification for the protection of cultural property is mostly carried out under the auspices of UNESCO, a specialised organisation of the United Nations. UNESCO was founded after the Second World War as a result of the ratification of The Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict. This codification continues in our day with the adoption, on October 20th 2005, of the Convention on the Protection and Promotion of the Diversity of Cultural Expressions. Some regional organisations have also taken upon themselves to contribute to this codification. Such is, for instance, the case with the Council of Europe and the Organization of American States. The Arab League has not, to our knowledge, adopted any binding rules in the field of the protection of cultural property.

2. The Hague Convention and its Additional Protocols

The Hague Convention of 1954 regulates the protection and safeguarding of cultural property, be it movable or immovable, against the predictable effects of armed conflict. By armed conflict, we mean a state of war between two or more belligerents. Whether or not this state of belligerency is formally declared or acknowledged by one or more of the belligerents is irrelevant. Occupation, even if it is not met with armed resistance, is to be treated as a form of armed conflict.

The Convention is also applicable in situations of armed conflict between a State Party and a non-State Party, provided that the latter State expresses its willingness to accept and implement the provisions of the Convention. Conversely, the issue of whether the Convention is also applicable to armed conflicts in which peoples are fighting for the right to self-determination has not yet been unanimously agreed upon. Nevertheless, it is generally accepted that the fundamental rules of the Convention are an integral part of customary international law.

The Convention places an obligation on States Parties to protect their cultural heritage and that of third party countries in situations of armed conflict. It prohibits the use of cultural properties or their immediate surroundings for purposes that could expose them to destruction. It requires that States Parties take measures to "prohibit, prevent and, if necessary, put a stop to any form of theft, pillage or misappropriation of, and any acts of vandalism directed against cultural property" (art.4, para.3), as well as "refrains from any act directed by way of reprisals against, cultural property" (art. 4, para.4). The Convention also requires that States Parties occupying all or part of the territory of another State Party ensure the protection and safeguarding of cultural property in the occupied State. It, furthermore, provides for a special level of protection for markedly important, movable or immovable, cultural property. Such cultural property enjoys immunity when registered in the 'International Register of Cultural Property under Special Protection'. The Implementing Regulations of the Convention define the conditions for inclusion in the Register. Cultural property under special protection must be provided with a distinctive emblem as defined in Article 16 of the Convention.

The First Protocol to the Convention places States Parties under an obligation to prevent the export of cultural property from occupied territories in wartime. If cultural property is imported from an occupied territory to the territory of a State Party, the latter is bound by the First Protocol to return the property in question at the close of hostilities, to the competent authorities of the territory previously occupied. Cultural property illegally exported from the occupied territory of a State may not be retained as war reparations (Toman 1994).

In 1999, the Second Protocol to the Convention was created with the express aim of circumventing certain loopholes in the First Protocol. It identifies and elaborates on the implementation modalities of the general protection principles. It establishes an enhanced system of protection reserved, under certain conditions[1], for cultural property, provided it is cultural heritage of the greatest importance for humanity and is included in the List of Cultural Property under Enhanced Protection by a Committee established under the Protocol (Peletan 2005). The use of cultural property enjoying enhanced protection for military purposes is considered as criminal offences punishable by appropriate penalties that comply with general principles of law and international law.

3. The UNESCO Convention of 1970

The UNESCO Convention of 1970 on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property is the first multilateral agreement governing the international transfer of cultural property. It aims to promote the protection of cultural property in different States, to protect and safeguard the cultural heritage of mankind through cooperation between all states, and to combat illicit trafficking of cultural property, which is one of the foremost reasons behind the loss of cultural heritage in countries of origin (Raschèr, Bauen, Fischer & Zen-Ruffinen 2005).
The Convention is directed at States Parties (legislative and executive) and does not posit any individual rights or obligations. It is therefore not directly applicable and must be implemented at the national level (art. 16).

The Convention applies to movable cultural property. Cultural property is here defined as: "property which, on religious or secular grounds, is specifically designated by each State as being of importance for archaeology, prehistory, history, literature, art or science" and which falls into one of the eleven categories of cultural property listed in Article 1 of the Convention. In addition, the Convention has no retroactive effect. It can only be put into operation, in a given state, after the Convention has come into force for the aforementioned state. The Convention, nevertheless, pronounces explicitly that nothing in it shall prevent States Parties from concluding special agreements among themselves or from continuing to implement agreements already concluded regarding the restitution for cultural property removed from its territory of origin before the entry into force of the Convention (art. 15).
The Convention places States Parties under numerous obligations, which can be summarised as follows:

- To oppose and to put a stop to the import, export and transfer of ownership of cultural property (art. 2). All acts effected contrary to the provisions adopted under the Convention are deemed illicit (art. 3). Also illicit is the export and transfer of ownership of cultural property under compulsion arising directly or indirectly from the occupation of a country by a foreign power (art. 11)[2].

- To acknowledge the criteria that delineate, exhaustively, the elements which constitute national heritage. These criteria are the artist's nationality or place of residence, the location at which the piece was discovered, and the conditions of its legal acquisition. As a general rule, national legislations on the protection of cultural property do not mark out the content of their national heritage nor do they cite criteria allowing for the easy demarcation of this heritage. Hence the importance of Article 4 of the Convention which constitutes the first and only attempt in international law at codifying criteria for the delimitation of national cultural heritage. Regrettable though this may be, the Convention does not provide a mechanism for settling disputes between two Member States both claiming that a cultural object is part of its own national heritage. Article 17, paragraph 5 of the Convention does indeed stipulate that UNESCO "may extend its good offices to reach a settlement" in the case of disputes over the implementation of the Convention between Member States, but it does not spell out the applicable procedure nor does it define the authority, within UNESCO, which is to take on such a role.

1 It must be a property of the utmost importance for humanity and one which benefits from a high level of domestic protection, guaranteed by legal and administrative measures which recognize its outstanding cultural value, and it cannot be used for military purposes, see art. 10, Second Protocol.

2 This provision follows the principles of The Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict of 1954.

- To set up one or more national services specialising in the protection of cultural heritage. These services must be provided with qualified staff and sufficient financial means to carry out the multiple tasks incumbent upon them. The tasks are listed in the Convention. They include the formation of draft laws and regulation for the protection of cultural heritage, establishing and maintaining a national inventory of important public and private cultural property, promoting the development or the establishment of scientific and technical institutions required to ensure the preservation and presentation of cultural property, organising the supervision of archaeological excavations, establishing rules in conformity with the ethical principles set forth in the Convention chiefly applicable to curators, antique dealers and collectors, stimulating and developing respect for the cultural heritage of all States through educational activities, seeing that appropriate publicity is given to the disappearance of any item of cultural property, and co-operating with all those services dedicated to the protection of cultural property from other States Parties to facilitate the restitution of illicitly exported cultural property to its rightful owner, (art. 5, 13, let. b, and 14).

- To introduce a certificate specifying that the export of the cultural property is authorised in order to prohibit the export of uncertified cultural property, and to publicise this prohibition (art . 6).

- To prohibit the import of cultural property stolen from a museum or from a religious or secular public monument and listed on the inventory of that institution. The theft, however, has to have occurred after the entry into force of the Convention for the States concerned (art. 7, let. b (i)).

- To recover and return, at the request of the State of origin, any such cultural property imported into the second State's territory after the entry into force of the Convention in both States. This obligation is, however, subject to the condition that the requesting State Party provides, at its own expense, evidence to support its claim for the return and delivery of the stolen cultural property and that it pays, in addition, a just compensation to the innocent purchaser of such property (art. 7, let. b (ii)).

- To include, within domestic legislation, penalties or administrative sanctions on any person responsible for infringing the prohibitions on the import and export of cultural property (art. 8).

- To participate in any concerted international effort to control the exports, imports and international commerce when called upon by a State Party whose cultural patrimony is in jeopardy from the pillaging of archaeological or ethnographical property. Pending agreement, each state concerned should take provisional measures to prevent irremediable injury to the cultural heritage of the requesting State (art.9). These measures may include the systematic control of cultural property imported from the requesting State or prohibition of all imports of such property from the State under threat. No such concerted international effort has been initiated since the Convention has entered into force on April 24, 1972. However, the United States of America, for example, has concluded several bilateral agreements with States Parties whose archaeological and ethnographical heritage is in jeopardy from pillage.

- To restrict by education, information and vigilance, movement of cultural property illegally removed from any State Party, and to oblige antique dealers to maintain a register recording the origin of each item of cultural property, names and addresses of the supplier, a description and price of each item sold and to inform the purchaser of the cultural property of the export prohibition to which such property may be subject in order to prevent by all appropriate means transfers of ownership of cultural property likely to promote the illicit import and export of such property (art.10, let. a, and art. 13, let. a).

- To endeavour by educational means to create and develop in the public mind a realisation of the value of cultural property and the threat to the cultural heritage created by theft, clandestine excavations and illicit export (art.10, let. b).

- To admit actions for recovery of lost or stolen items of cultural property brought by or on behalf of the rightful owners (art. 13,let. c).

- To recognize the indefeasible right of each State Party to classify and declare certain cultural property as inalienable which should therefore *ipso facto* not be exported and to facilitate recovery of such property by the State concerned in cases where it has been exported (art. 13, let. d).

4. The UNESCO Convention of 1972

The UNESCO Convention of 1972 concerning the Protection of World Cultural and Natural Heritage is the only legally binding international instrument applicable to both cultural and natural property. It aims to complement national protection measures by establishing a system of international cooperation and assistance specifically designed for cultural and natural properties of outstanding interest and whose disappearance would lead to the impoverishment of the heritage of mankind. To put it differently, the Convention introduces a mechanism for the identification, the protection on an international scale, and the preservation and enhancement of cultural and natural heritage of outstanding universal value "designed to support States Parties to the Convention in their efforts to conserve and identify that heritage" (art. 7).

Articles 1 and 2 of the Convention define cultural and natural heritage. Declared as integral parts of our cultural heritage are monuments (architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings); groups of buildings (groups of separate or connected buildings) and sites (works of man or the combined works of nature and man) which are of outstanding universal value from the point of view of history, art, science, aesthetics (art.1). As for natural heritage, it is defined by the Convention as the natural features consisting of physical and biological formations, geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened animals and plants and natural sites that are of outstanding universal value from an aesthetic, scientific or conservation point of view (art.2).

Outstanding universal value is defined as "cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole" (WHC.05/2, 2005- 49).

The Convention calls for establishing a "World Heritage Committee" and a "World Heritage Fund" (art. 8 and art.15).

While respecting the sovereignty of States on whose territory the world cultural and natural heritage is situated, the Convention requires States Parties to:

- Recognize the international community's collective duty in cooperating on the protection of this heritage (art. 6, para. 1).

- Ensure the identification, protection, conservation, presentation and transmission to future generations of world cultural and natural heritage situated on their territory, as well as offer their assistance for this purpose to other States Parties who request it (art. 4 and 6, para. 2).

- Adopt a general policy which aims to give cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes (art. 5, let. a).

- Set up within its territories, where such services do not exist, one or more service departments for the protection, conservation and presentation of cultural and natural heritage, staffed appropriately and possessing the means to discharge their functions (see art. 5, let. b)[3].

- Develop scientific and technical studies, and research and work out operating methods which will make the State capable of counteracting the dangers that threaten its cultural or natural heritage (art. 5, let. c).

- Take the appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation, and rehabilitation of this heritage (art. 5, let. d).

- Foster the establishment or development of national or regional centres for training in the area of protection, conservation and presentation of cultural and natural heritage, and encourage scientific research in this field (art. 5, let. e).

- Not to take any deliberate measures that might damage, directly or indirectly, the cultural and natural heritage situated on the territory of other States Parties to the Convention (art. 6, para. 3)

- Submit to the World Heritage Committee an inventory of property forming part of the cultural and natural heritage, situated on its territory and suitable for inclusion in the World Heritage list (art. 11, para. 1).

3 This obligation has been derived from art. 5 of the UNESCO Convention of 1970.

- Undertake to pay their contributions to the World Heritage Fund regularly (art. 16, para. 1).

- Encourage the establishment of national public and private foundations or associations whose purpose is to invite donations to support the protection of world heritage (art. 17).

- Give their assistance to international fund-raising campaigns organized for the World Heritage Fund (art. 18).

- Strengthen the appreciation of and respect for natural and cultural heritage by their peoples through educational and information programmes, and keep the public broadly informed of the dangers threatening this heritage (art. 27).

- Provide information on legislative and administrative provisions which they have adopted, as well as other actions which they have taken for the application of the Convention (art. 29 para. 1).

It is the World Heritage Committee's responsibility to establish, keep up to date and publish a list of properties forming part of the cultural and natural heritage which it deems to be of outstanding universal value (World Heritage List, art. 11, para. 2). To be considered of outstanding universal value, a property must meet at least one of the ten criteria set by the Committee (Art. 11, para. 5), satisfy the conditions of integrity and authenticity and must have an adequate long-term legislative, regulatory, institutional and/or traditional protection and management to ensure their safeguarding.

It is also the World Heritage Committee's duty to establish, keep up to date and publish a list of property necessitating major safeguarding operations and for which assistance has been requested (List of World Heritage in Danger, art. 11, para. 4). Thus, to be inscribed on the List of World Heritage in Danger, the property in question must appear on the World Heritage List, be threatened by serious and specific dangers, require major work for its preservation and be the subject of a request for assistance.

It is noteworthy that the Convention explicitly states that the fact that a cultural and /or natural heritage property has not been included in the World Heritage List and /or the List of World Heritage in Danger should in no way be construed to mean that it does not have an outstanding universal value "for purposes other than those resulting from inclusion in these lists" (art. 12).

It is also worth mentioning that the very success of the Convention is not without negative impacts. The enthusiasm shown by States Parties in having as many of their cultural and natural heritage properties included in the World Heritage List as possible, is most often motivated by a wish to promote their economy. This overrides the main objective of the Convention, which is to foster a better national and international protection of those properties inscribed on the List. In this regard, it becomes particularly important to ensure that inclusion on the List does not become a means to an unintended end and does not, paradoxically, lead to a deterioration of the state of conservation of inscribed cultural or natural properties. It is true that the Convention puts the principle of national sovereignty in too prominent a position and consequently reduces the legal scope of the system for the collective protection of cultural and natural heritage of outstanding universal value. It is perhaps of some significance that this system of collective protection is clearly discussed only in connection with the List of World Heritage in Danger (See art. 11, para. 4 of the Convention). The Convention remains rather nebulous and shies away from defining the rights and obligations of States Parties whose cultural or natural properties are included in the World Heritage List. It also does not flesh out the legal consequences arising from inclusion in the said List.

It should, nevertheless, be acknowledged that the World Heritage Committee has taken several initiatives to improve the procedure for inclusion in the World Heritage List, to refine the selection criteria, to monitor the state of conservation of world heritage properties and to ensure that the List is representative, balanced and credible. In one such instance, the Committee reviewed its strategic guidelines which led it to adopt, during its26 th session in 2002, a comprehensive strategy focusing on the following strategic objectives:

- To strengthen the credibility of the World Heritage List;
- To ensure the effective conservation of world heritage properties;
- To promote the development of effective capacity building measures in States Parties;
- To increase public awareness of, involvement in, and support for world heritage through communication (Budapest Declaration and WHC.05 / 2, 2005).

5. The UNIDROIT[4*] Convention of 1995

The numerous bilateral, regional and multilateral instruments focusing on the public law aspects of the international protection of cultural property have not prevented the internationalisation and spread of illicit traffic. Difficulties encountered during the implementation of these instruments are due to the vastness of their scope, and the absence of international standards governing the private law aspects of the international protection of cultural heritage. The issue of the protection of *bona fide* purchasers has so far been particularly contentious and has constituted a major obstacle to the widespread recognition of international rules in this area (Reichelt 1986). Furthermore, the implementation difficulties posed by the basic provisions of the UNESCO Convention of1970 on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (art.7, let. b(ii)) on the restitution of stolen cultural property (Knott 1990), has led UNESCO to seek the assistance of UNIDROIT in this matter. Several States have, indeed, deemed it impossible to ratify the UNESCO Convention of 1970 on the grounds that it was incompatible with their domestic legislation which prescribes the protection of *bona fide* purchasers. UNESCO had quickly realised that these problems, inherent in private law, could not be resolved within the framework of a new convention dealing with the private law aspects of the international protection of cultural property and that UNIDROIT was the ideal body to carry out this further task. As a result, the 1995 UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects, was adopted under the auspices of the Institute.

It is useful to ponder the text of this Convention, to introduce and analyse its main provisions, especially since it has sparked a few misunderstandings, particularly in Arab countries, which it would be appropriate to dispel at this stage.

This Convention is the first multilateral agreement to establish a binding obligation for the restitution of stolen cultural property and to returning illegally exported cultural objects. It leads to the unification, albeit one limited to international situations, of the minimum requirements necessary to lodge a claim for stolen or illegally exported cultural objects. Its main provisions are, furthermore, directly applicable to individuals. It is, however, only applicable between signatory States and does not therefore bind third party States. Thus, even though it provides for a uniformly substantive law, the Convention is not *erga omnes*. Besides which it only achieves a partial unification of the law.
Hence, when scrutinised in its entirety, it cannot be considered to form a uniform law (Prott 2001-3).

The Convention applies to international applications for the restitution of stolen or illegally exported cultural objects. It defines cultural objects, as objects which "on religious or secular grounds, are of importance for archaeology, prehistory, history, literature, art or science and belong to one of the categories listed in the annex to this Convention" (art. 2). The annex inventories the list of categories as they appear in article 1 of the UNESCO Convention of 1970. This broad definition is, however, misleading as it does not provide the reader with a clear idea about the scope of the Convention. Indeed, although the restitution of stolen cultural objects principle applies to all categories of cultural property covered by the definition, the restitution of illegally exported objects principle is not applicable to certain categories of objects. This discrepancy has been justified by the argument that theft is, universally, a punishable offence whereas illegal export is not so. It was further argued that broad international protection in this area should not raise any objections. Hence, the principle of restitution does not apply to objects whose export "is no longer illegal at the time at which the return is requested"; nor does it apply to objects exported during the lifetime of the person who created them or during a period of fifty years following the death of that person[5]. Objects created "by a member or members of a tribal or indigenous community for traditional or ritual use by that community" are not included in the aforementioned category and will be returned to that community (art. 7). This exception to the exception aims to protect the ethnographic properties or objects of a tribal community which serve ritual or cultural functions within that community. Whether these objects were exported during the lifetime of their creators or during the period of fifty years after their deaths becomes irrelevant. Of course, this exception does not apply to all ethnographic, ritualistic or cultural objects. Only items considered by the community to be vital to the survival of its culture and its traditions may benefit from the protection of the Convention (UNIDROIT, Study LXX, no 48, § 163). In

4 * International Institute for the Unification of Private Law.

5 The fifty years deadline was chosen to comply with the Berne Convention for the Protection of Literary and Artistic Works whose art.7, para. 1, stipulates that the protection of a work expires fifty years after the death of its author.

addition, the Convention only covers international situations without, however, specifying what is meant by "claims of an international character". It thus leaves to jurisprudence the task of providing a uniform interpretation of what constitutes an international situation.

The Convention does not provide an autonomous definition of the concept of theft either. Applicable legislation must be resorted to each time in order to describe the act in question. A consensus has, however, emerged in favour of a broad interpretation of the concept of theft. That is why the Convention treats as stolen objects, cultural objects which have been unlawfully excavated and lawfully excavated but unlawfully retained (art. 3, para. 2). This broadening of the definition allows, as will soon become clear, requesting States to benefit from the less restrictive clauses of Chapter II of the Convention concerning the Restitution of Stolen Cultural Objects. Requesting States can thus ensure, with greater ease, the return of objects originating from archaeological excavations and illicitly exported. The Convention defines illegal exports as those objects removed from the territory of a Contracting State "contrary to its laws regulating the export of cultural objects for the purpose of protecting its cultural heritage."

Through this complex formulation, the Contracting States simply aim to emphasize that the illicit character of a transfer should not be based on any legal provision of the requesting State, but must emanate solely from the rules on export control. These must also be wholly motivated by cultural considerations, such as the preservation on the national territory of the most eloquent elements of the national heritage. Therefore, the Convention does not apply to exports deemed illegal because of a tax law violation in the requesting State. As such, the courts would not have to enforce protection rules based on any considerations other than cultural. In addition, the unlawfulness of the export of a cultural object must be assessed at the time of the export itself, as well as when its restitution is requested. As already clarified above, exports may no longer be considered unlawful if the export of cultural objects from the territory of the Contracting State is no longer illegal at the time of the restitution request. Finally, the notion of illegal export has been extended to cover other acts which do not necessarily correspond to the definition above. One such act is the unlawful seizure of cultural property as a result of a temporary lawful export. The aim is to extend protection to cultural objects that have been temporarily exported for the purpose of restoration, exhibition, or research under a permit issued according to the law of the requesting State and were not returned to its territory in accordance with the terms of that permit. According to the Convention, these objects are considered to have been illegally exported (art. 5 para.2), thus benefitting from the protection of the Convention in general, and from the principle of return in particular. The requesting State must be able to demand the return of such objects, even if the case is not, strictly, one which concerns the violation of its export legislation, as the objects were exported legally. In other words, the export of a cultural object owned by State B to State C can be in contravention of the laws of State A even if the object in question was, at first, legally exported from the territory of the former State.

The Contracting States are of the view that courts ought not to refuse the restitution under the pretext that the very first export from the territory of the requesting State was authorized. This is indeed a legitimate solution and one necessary to promote the legal circulation of cultural property on an international scale. To have decided otherwise would have caused a resurgence of protectionism among exporting countries and would therefore have contravened the Convention's objectives. It would have gone against the very aim of creating a relationship of trust between exporting and importing countries and of promoting exchanges of cultural objects in a legal framework guaranteeing an adequate international protection of cultural heritage.

The Convention lays down rules or conditions which differ according to whether the restitution pertains to stolen cultural property or to illegally exported cultural objects.

Regarding the return of stolen cultural objects, the Convention reinforces the protection of the dispossessed owner by stating that "the possessor of a cultural object which has been stolen shall return it" (art. 3, para. 1). Any claim for restitution should be brought within a period of three years from the time when the claimant learns the location of the cultural object and the identity of its possessor, and in any case within a period of fifty years from the time of the theft (art. 3, para. 3). However, a claim for restitution of a cultural object "forming an integral part of an identified monument or archaeological site, or belonging to a public collection" should only be subject to the three-year time limitation (art. 3 para. 4)[6]. The three-year period commences at the time when the claimant knew the location of the cultural object and the identity of its possessor.

6 The Convention designates as public collection any set of inventoried or otherwise identified cultural objects belonging to public bodies, religious institutions or private cultural institutions recognized by the State (art. 3, para. 7).

The Convention allows Contracting States the freedom to declare that a claim is subject to a time limitation of 75 years or such longer period as is provided in its law (art. 3, para. 5). The claim for restitution of a "sacred or communally important cultural object belonging to and used by a tribal or indigenous community in a Contracting State as part of that community's traditional or ritual use" is also subject to the time limitation of three years, or to a period of 75 years, or to an even longer period if it is brought into the territory of a Contracting State having made a declaration under article 3, paragraph 5 of the Convention. The restitution of stolen cultural objects is subject to payment of fair and reasonable compensation to the *bona fide* purchaser [7]. The purchaser must, however, prove his good faith (art. 4, para. 1). This represents a significant departure from the laws of several national legal systems which enshrine the presumption of good faith[8]. The possessor of a stolen cultural object is required to return it and is entitled, at the time of its restitution, to fair compensation, provided that the possessor neither knew nor ought reasonably to have known that the object was stolen and that s/he can prove that due diligence was exercised when the object was acquired. This reversal of the burden of proof is undoubtedly one of the legal milestones in the fight against illicit trafficking in cultural heritage (Annuaire de l'Institut de Droit International, 1992). To be entitled to compensation, the possessor must prove that s/he exercised due diligence when acquiring the object. The authority before which the case is brought will assess the faith of the possessor. It will take into account all the circumstances of the acquisition, including the character of the parties, the price paid, and whether the possessor consulted any reasonably accessible register of stolen cultural objects[9]. The criterion of consultation of available registers or other databases of stolen cultural property is important insofar as it reinforces the impact of these lists. With regard to the degree of due diligence required, it should be noted that the Convention is highly demanding of the purchaser, who is no longer allowed to buy cultural objects frivolously, and must now concern her/himself with the identity of the seller and the origin of the object. As a consequence, proving that a stolen cultural object was acquired in good faith is made more difficult (art. 4, para. 4).

The return of illegally exported cultural objects stands as the Convention's major innovation. Bestowing a normative scope on this principle is indeed proof that international public law has been recognized and is being enforced; especially as this attests to the reversal of traditional practice where the application of international public law was traditionally rejected (Lagarde 1988; Jayme 1993). Only the State may request the court or other competent authority of another Contracting State to order the return of a cultural object illegally exported (art. 5 para. 1).

According to article 5, paragraph 3 of the Convention, a State shall order the return of an illegally exported cultural object if the requesting State establishes that the removal of the object from its territory significantly impairs one or more of the following interests:

- the physical preservation of the object or of its context;
- the integrity of a complex object;
- the preservation of information of, for example, a scientific or historical character;
- the traditional or ritual use of the object by a tribal or indigenous community.

The above list of criteria is aimed at restricting the scope of the principle of restitution. The requesting State cannot obtain the return of just any cultural object illegally exported, but only those whose export has been detrimental to specific interests.

For instance, the Convention does not recognize national prohibition of exports which is motivated by political, economic or simply 'protectionist' considerations. Its application requires a certified violation chiefly of cultural interests, but also of scientific or historical interests. Those listed interests relate to specific situations and specific categories of cultural objects. Objects threatened by destruction, objects forming part of an architectural ensemble or of a composed property[10], and archaeological and ethnographic objects are within the Convention's scope of interest. The criteria from article 5, paragraph 3, also apply, in an alternative and non-cumulative manner.

7 The Convention, alongside art. 7, let. b (ii) of the UNESCO Convention of 1970, does not spell out the concept of fair compensation thus leaving to the judge the task of determining it according to the specific circumstances of the case. The price paid by the bona fide purchaser and the commercial value of the property in both the requesting and requested States are indicative elements, but there are others which the judge can, if relevant, take into consideration.

8 See, for example, art. 3, al. 1, of the Swiss Civil Code which States that "good faith is presumed when the inception or effects of the law derive from it." (unofficial translation).

9 See, for example, the Stolen cultural property database, at http:// www.interpol.int/ or The Art Loss Register's databank, at www. artloss.com

10 For example, the Parthenon friezes or panels of a triptych.

In other words, it suffices that the export infringes one of these interests[11] for the principle of restitution to apply. Also, the detrimental impacts to interests, be they cultural, scientific or historical, must be significant. These impacts must be of a certain scale and should be assessed in relation to the occasioned damage. Assessing the degree of damage inflicted whilst taking into account the specific circumstances of the case is the judge's duty, or that of any other authority before which the case is brought. A requesting State may also obtain the return of illicitly exported cultural property if it establishes that "the object is of significant cultural importance." This criterion was introduced at the end of article 5, paragraph 3, to cover those rare cases in which cultural objects are of significant cultural importance but do not meet the other four criteria (The All England Law Reports, 1982). Such objects are, by virtue of their very nature, worthy of protection and should therefore be included within the scope of the Convention. Furthermore, according to article 9, paragraph 1, nothing in the Convention prevents Contracting States who wish to do so from applying any rules more favourable to the restitution or the return of stolen or illegal exported cultural objects than provided for by the Convention[12].

Hence the alternative character assigned to the criterion of cultural importance which, by extending the scope of the restitution principle, introduces a degree of balance into the consideration of those conflicting interests involved. It is the judge's responsibility, or the competent authority's, to assess the specific cultural importance of claimed objects taking into account, first, the characteristics of the object and, second, the nature, magnitude and richness of the requesting State's cultural heritage. The requesting State is obligated, under the terms of article 5, paragraph 4, of the Convention, to include any information of factual or legal relevance in its application for restitution. Again, it is up to the authority before which the case is brought to decide, on a case-by-case basis, whether the evidence provided by the requesting State is sufficient.

A proposal was put forward by the Committee of Independent Experts to have the requesting State also provide assurances regarding the state of conservation, levels of security and accessibility of the cultural object after its return. The proposal has not been accepted (UNIDROIT DOC, 1990). A majority of experts feared that such a condition of admissibility will serve as a pretext allowing importing countries to systematically refuse the implementation of the restitution principle. The request for the return of illegally exported cultural objects is also subject to limiting conditions and conditions for compensation. Article 5, paragraph 5, of the Convention adopts the same limitation periods as those set for the return of stolen cultural property. The onset points for these deadlines are also identical[13]. The only difference lies in the fact that objects forming part of public collections do not benefit, in case of illicit export, from a longer limitation period[14]. In addition, the *bona fide* possessor of cultural property illicitly exported "shall be entitled, at the time of its return, to payment by the requesting State of fair and reasonable compensation, provided that the possessor neither knew nor ought reasonably to have known at the time of acquisition that the object had been illegally exported" (art. 6, para. 1). To determine that the possessor did indeed act in good faith, the authority must consider the circumstances of the acquisition and other relevant pieces of evidence, such as the absence of an export certificate[15] required under the law of the requesting State (art. 6, para. 2). To promote the return of illicitly exported objects even in situations where requesting States cannot afford to indemnify the *bona fide* possessor, the Convention allows for the use of alternative means of compensation, provided that the requesting State consents to this. Thus, according to article 6, paragraph 3 of the Convention, the possessor may, while transferring the object to the territory of the requesting State, choose either to retain ownership of this object, or to transfer ownership against payment or gratuitously to a person of its choice. The latter must reside on the territory of the requesting State and must also submit "the necessary guarantees" (UNIDROIT DOC. Study LXX, No. 19, 1990). The purpose is, of course, to prevent the object being transferred back to the person who had illicitly exported it or to another person who might re-export it to a different State which is non-party to the Convention.

Regarding the temporal scope of the Convention, it is specified that actions for restitution or return are limited to cultural objects stolen or illegally exported after ratification of the Convention by both the requesting and requested States.

11 Art. 5, para. 3 of the Convention specifies that the export should have significantly impaired "one or more of the following interests ...".

12 Indeed, the Convention introduced a set of minimum standards but leaves to each State the freedom to show increased solidarity in the protection of cultural heritages.

13 See art. 3, al. 3 of the Convention.

14 See art. 3, para. 4 and 5 of the Convention.

15 The reference to export certificates serves to support art. 6, let. a of the UNESCO Convention of 1970 which requires that States Parties introduce an export license.

In other words, the Convention has no retroactive effect, as is the case for all other international instruments concerned with the protection of cultural heritage[16]. Crucially, the non-retroactivity principle on which the Convention is based in no way affects the right of every State to claim, through any other suitable means, especially diplomatic, the restitution or return of objects stolen or illegally exported before the entry into force of the Convention. It certainly does not legitimize any illegal transaction which might have taken place before the entry into force of the Convention (art. 10, para. 3). UNESCO established in 1978, a body whose aim is to assist States wishing to reclaim cultural property stolen or illegally exported in earlier times. This body is the Intergovernmental Committee for Promoting the Return of Cultural Property to its Countries of Origin or its Restitution in case of Illicit Appropriation (UNESCO DOC. CLT-2005/ CONF. 2002/2, January 2005).

No Arab State wishes, for the time being, to accede to the Convention. This refusal stems from a position common to all Arab members of UNESCO who regret, collectively, the fact that this Convention does not benefit from a retroactive effect and does not provide sufficiently lengthy limitation periods. Arab States are indeed concerned that their accession to the Convention would be interpreted as a legitimization of previous acts of theft and looting. They are also anxious that their accession should not be viewed as an abandonment of their right to claim cultural objects stolen or illegally exported before the entry into force of the Convention.

And yet, as mentioned above, article 10, paragraph 3 of the Convention clearly States that:
"This Convention does not in any way legitimize any illegal transaction of whatever nature which has taken place before the entry into force of this Convention or which is excluded under paragraphs (1) or (2) of this article, nor limit any right of a State or other person to make a claim under remedies available outside the framework of this Convention for the restitution or return of a cultural object stolen or illegally exported before the entry into force of this Convention".

As per the matter of limitation periods, we must not lose sight of the fact that when compared with the protection offered by several Western legal systems to *bona fide* possessors, which seldom exceeds five years, the extension of limitation periods to fifty or seventy-five years for public collections constitutes a sizeable progress and a commendable compromise.

Finally, it is certainly noteworthy that no Arab State has, to our knowledge, concluded bilateral agreements with third countries, including neighbouring countries, to ensure, subject to reciprocity, the restitution of cultural objects stolen and/or illegally exported from its territory.

6. The Council of Europe Convention of 1992

The European Convention on the Protection of the Archaeological Heritage of 1992 is a revised version of the 1969 European Convention on the Protection of the Archaeological Heritage.

The Convention was designed "to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study" (art. 1, para.1). The archaeological heritage includes "structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kinds as well as their context, whether situated on land or under water" (art . 1, para. 3). Each State Party to the Convention undertakes to:

- Institute a legal system for the protection of the archaeological heritage, making provisions for the inception and maintenance of an inventory of its archaeological heritage and the designation of protected monuments and areas; the creation of archaeological reserves for the preservation of material evidence to be studied by later generations; and mandatory reporting to the competent authorities by a finder of the chance discoveries of elements of the archaeological heritage and making them available for examination (art. 2).

- Apply procedures for the authorization and supervision of archaeological excavations guaranteeing their scientific significance, preventing any illicit excavation work, thwarting unlawful activities during the course of excavations, and subjecting the use of metal detectors or any other detection equipment to prior authorization (art.3).

16 For instance, neither one of the UNESCO Convention, or the 1976 Convention of the Organization of American States on the Protection of Archaeological, Historical and Artistic Heritage of the American Nations, or the 93/7/EEC Directive include a retroactivity clause, see art. 7, let. b(ii) of the UNESCO Convention of 1970; art.11 of the O.A.S. Convention and art. 13 of the 93/7/EEC Directive.
See also art. 15 of the UNESCO Convention of 1970 and art. 14, al. 2, of the 93/7/EEC Directive.

- Ensuring the physical protection of the archaeological heritage by making provisions for the acquisition or protection by other appropriate means by the authorities of areas constituting archaeological reserves; for the conservation and maintenance of the archaeological heritage, preferably *in situ*; and for appropriate storage places for archaeological remains which have been removed from their original location (art. 4).

- Reconciling the respective requirements of archaeology and development plans by ensuring that archaeologists participate in planning policies designed to ensure well-balanced strategies for the protection, conservation and enhancement of sites of archaeological interest (art. 5 (i));

- Ensure that archaeologists participate in the various stages of development schemes (art. 5 (ii) in order to avoid any damage to archaeological heritage, and to better reflect the specific needs of this heritage;

- Ensure that archaeologists, town and regional planners systematic consult one another in order to permit the modification of development plans likely to have adverse effects on the archaeological heritage (art. 5 (iii) and (iv));

- Ensure that environmental impact assessments and their resulting decisions involve full consideration of archaeological sites and their settings (art. 5 (vi));

- Ensure that the opening to the public of archaeological sites does not adversely affect the archaeological and scientific character of such sites and their surroundings (art.5 (vi)).

- Provide public financial support for archaeological research and increase the material resources for rescue archaeology (art. 6).

- Facilitate the study of, and dissemination of knowledge about archaeological discoveries by making or bringing up to date surveys, inventories and maps of archaeological sites and by taking all practical measures to ensure the drafting, following archaeological operations, of a publishable scientific summary record before the necessary comprehensive publication of specialised studies (art. 7).

- Facilitate the exchange of elements of the archaeological heritage for professional scientific purposes and promote the pooling of information on archaeological research and excavations in progress, and contribute to the organisation of international research programmes (art. 8).

- Develop awareness, in public opinion, of the value of the archaeological heritage and of the threats to this heritage, and promote public access to important elements of this heritage (art. 9).

- Prevent the illicit trafficking of archaeological property through the exchange of information concerning any illicit excavations identified, or concerning the illicit circulation of archaeological objects with other States and scientific institutions; report suspicious offers and refuse to acquire or to allow the transfer of elements of the archaeological heritage suspected of having an unlawful provenance (art. 10).

- Undertake to afford mutual technical and scientific assistance through the pooling of experience and exchange of experts in matters concerning the archaeological heritage (art. 12 (i)).

Despite the fact that its scope is only regional[17], the Convention is of importance because it is the only legally binding international instrument that establishes a minimum standard of protection specifically applicable to archaeological heritage.

7. Further UNESCO Conventions

Three other international instruments, which should be of interest to Arab States, have been added to this international legal framework. They are the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage, the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage and the 2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions.

17 It is nevertheless worth noting that the accession of non-member States of the Council of Europe to the Convention is theoretically possible since art. 15, para. 1 of the Convention posits that the Council of Europe's Committee of Ministers may invite such States to accede to the Convention.

The UNESCO Convention of 2001 aims to ensure the protection and preservation of underwater cultural heritage. It draws out general principles such as the *in situ* preservation of underwater cultural heritage and the repudiation of the exploitation of this heritage for commercial purposes. It acknowledges the States Parties' exclusive right to regulate and authorize activities that may affect the underwater cultural heritage located in their internal waters, their archipelagic waters or their territorial seas. The Convention imparts equal rights onto States Parties in their contiguous zones. It also imposes a duty to protect underwater cultural heritage in the exclusive economic zone and on the continental shelf, in conformity with its provisions. Finally, a peculiarity of the UNESCO Convention of 2001 is that it is followed by an annex which includes a set of regulations, predominantly technical, governing activities directed at underwater cultural heritage.

The UNESCO Convention of 2003 principally aims to "safeguard the intangible cultural heritage; to ensure respect for the intangible cultural heritage of the communities, groups and individuals concerned; raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof; to provide for international cooperation and assistance."

The Convention defines intangible cultural heritage as: "the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage."

By associating "instruments, objects, artefacts" with intangible cultural heritage, the 2003 UNESCO Convention effectually extends its scope to tangible cultural heritage. The 2003 Convention should therefore be considered in the course of the application of other international instruments dealing with the protection of tangible cultural heritage. The UNESCO Convention of 2003 establishes a General Assembly of States Parties and an Intergovernmental Committee for the Safeguarding of Intangible Cultural Heritage whose mandate is to ensure the implementation of the Convention and the promotion of its objectives. It also lays down an obligation on States Parties to take measures to safeguard their intangible cultural heritage, including identification and documentation of such heritage. It also establishes, along the same line of the UNESCO Convention of 1972, two lists of intangible cultural heritage, namely the 'Representative List of the Intangible Cultural Heritage of Humanity' and the 'Heritage List of Humanity in Need of Urgent Safeguarding'. The criteria for the establishment, updating and publication of both aforementioned lists would be set by the Intergovernmental Committee for the Safeguarding of Intangible Cultural Heritage and approved by the General Assembly of States Parties.

The UNESCO Convention of 2005 on the Protection and Promotion of the Diversity of Cultural Expressions seeks to "reaffirm the sovereign right of States to maintain, adopt and implement policies and measures that they deem appropriate for the protection and promotion of the diversity of cultural expressions on their territory". It thus excludes these policies from the constraining liberalization of services promoted by the World Trade Organization. The founding elements of this Convention are as follows:

- The recognition of the specificity and of the dual nature, economic and cultural, of cultural activities, goods and services, because they convey identities, values and meaning, and must therefore not be treated as solely having commercial value.
- The Sovereign right of States to adopt measures for the promotion and protection of the diversity of cultural expressions, including media diversity.
- Recognition of equal dignity and respect for all cultures, including the cultures of persons belonging to minorities and indigenous peoples.
- The fundamental role of cultural diversity as a factor for sustainable development, particularly in developing countries.
- The need to give cultural diversity a more prominent place in the international legal order, thus ensuring parity between the Convention and other international instruments.

8. Conclusion

The preceding discussion helps define a set of minimum rules for the protection, management and promotion of cultural heritage. These rules define the minimum set of measures to be enshrined by States Parties in their domestic laws. The rules, furthermore, reflect the international community's stark determination to improve

the protection, management and promotion of cultural heritage notwithstanding that the emphasis is still, in this area of international law, very much on protection and management, perhaps at the expense of promotion. Only the UNESCO Convention of 1972 plays, in this regard, a significant role, due in part to the World Heritage Committee and the World Heritage List. Both the Committee and the List contribute uniquely to the enhancement of the world's cultural and natural heritage, albeit without guaranteeing a comprehensive protection against the risks occasioned by the excessive promotion of this heritage for touristic and economic purposes.

Moreover, and despite the variety of their personal and material scopes, the international conventions discussed in this study, together constitute a coherent legal framework for the protection, management and promotion of cultural heritage. Certainly, their most constructive characteristics are their compatibility and their complementarity. Thus, the 1995 UNIDROIT Convention reinforces the provisions of the UNESCO Convention of 1970 by settling the private law aspects of the illicit traffic of cultural heritage[18]. This latter does, indeed, only concern itself with public law aspects of the illicit traffic in cultural objects. It suffices to compare the objectives of the UNESCO Convention of 1970 and of the UNIDROIT Convention of 1995 to become aware of the striking complementarity of these two texts. In that regard, whilst the UNESCO Convention aims to bestow international legitimacy onto the public law provisions adopted by a State Party and to promote recognition by other States Parties of implementation measures for such provisions, the UNIDROIT Convention somewhat strengthens the very same public law provisions through the creation of uniform material rules. The annex to the UNIDROIT Convention defines the concept of cultural objects based on the categories of cultural property listed in Article I of the UNESCO Convention, in order to further highlight the link between the two agreements.

Yet, even a hasty comparison between the UNESCO Convention of 1970 and the UNIDROIT Convention underscores the evolution of international law regarding the protection of cultural heritage and the progress made in this area since 1970. Where the obligation to the restitution of inventoried cultural property was limited to property "stolen from a museum or a religious or secular public monument or similar institution"[19], a general obligation[20] is now recognized to the restitution of stolen cultural objects in addition to certain illegally[21] exported cultural objects. Many States, in particular Arab States, have not yet grasped the true reach of such a considerable progress nor are they aware of how they may utilize it to ensure better protection and more effective management of their cultural heritage.

The complementarity of the Conventions governing the protection, management and promotion of cultural heritage has also been recognized by the World Heritage Committee, established by the UNESCO Convention of 1972. The Committee stresses the benefits of better coordination of its work with that of other UNESCO programmes and their conventions. It seeks to ensure the exchange of information between the UNESCO Convention of 1972 and other conventions.

Several non-binding instruments are associated with the international legal framework, even if they do not constitute, *stricto sensu*, an integral part of it. They are thus of some importance when it comes to delineating the minimum international regime necessary to the protection, management and promotion of cultural heritage. Chief amongst these instruments are UNESCO's Declaration concerning the Intentional Destruction of Cultural Heritage of 2003[22], the International Code of Ethics for Dealers in Cultural Property[23], the International Council of Museums' (ICOM) Code of Ethics[24], and the Charters adopted under the auspices of the International Council on Monuments and Sites (ICOMOS)[25].

18 UNESCO constantly highlights the complementarity of these two conventions and encourages Member States of the 1970 UNESCO Convention to also join the 1995 UNIDROIT Convention. See, for example, UNESCO DOC. CLT-2005/Conf/803/2, June 16 2005.

19 See art. 7, let. b (i) and (ii) of the UNESCO Convention of 1970.

20 This requirement applies to all categories of cultural property covered by the UNESCO Convention, regardless of the theft location and of whether the property was inventoried or not, see art. 3 of the 1995 UNIDROIT Convention.

21 See art. 5 of the 1995 UNIDROIT Convention.

22 Adopted by UNESCO's General Conference in its 32nd session, following the tragic destruction of the Buddhas of Bamiyan in Afghanistan

23 Adopted by the Intergovernmental Committee for Promoting the Return of Cultural Property to its Countries of Origin or its Restitution in case of Illicit Appropriation during its 10th session in January 1999 and approved by the 30th General Conference of UNESCO in November 1999.

24 Adopted by ICOM's 15th General Assembly in November 1986, amended by the 20th General Assembly in July 2001 and revised by the 21st General Assembly in October 2004.

25 See, for example, the International Charter for the Conservation and Restoration of Monuments and Sites (Venice Charter, 1964); the International Charter for the Conservation of Historic Towns and Urban Areas (Washington Charter, 1987); the Charter on the Protection and Management of Underwater Cultural Heritage, 1996; the International Cultural Tourism Charter, 1999; and the Charter on the Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage, 2003.

References

For a commentary on The Hague Convention of 1954, its Regulations, and on the First Protocol, see Jiri Toman, "La protection des biens culturels en cas de conflit armé", Paris, 1994. Sandrine Peletan, ''Vers la consolidation de la protection internationale des biens culturels en cas de conflit armé'', *Miskolc Journal of International Law*, 2005, vol. 2, n° 2: 34-44.

For a commentary on the Convention, see Andrea F. G. Raschèr, Marc Bauen, Yves Fischer & Marie-Noëlle Zen-Ruffinen, *Cultural Property Transfer,* Zurich, Bâle, Genève, 2005, pp. 13-26; Patrick J. O'Keefe, *Commentary on the UNESCO 1970 Convention on Illicit Traffic*, Leicester, 2000 and Ridha Fraoua, ''Convention concernant les mesures à prendre pour interdire et empêcher l'importation, l'exportation et le transfert de propriété illicite des biens culturels. Commentaire et aperçu de quelques mesures nationales d'exécution'', UNESCO DOC. CC-86/WS/40, Paris, 1986.
UNESCO DOC. WHC.05/2, February 2nd, 2005, para. 49, p. 15.

See the Budapest Declaration on World Heritage: http://whc.unesco.org/en/budapestdeclaration;
See also : ''Orientations devant guider la mise en oeuvre de la Convention du patrimoine mondial'', UNESCO DOC. WHC.05 / 2, February 2nd, 2005.

For an analysis of the issue of the *bona fide* possessor of cultural objects, see : Gerte Reichelt's study, ''Etude demandée à UNIDROIT par l'UNESCO relativement à la protection internationale des biens culturels à la lumière notamment du projet de Convention d'UNIDROIT portant loi uniforme sur l'acquisition de bonne foi d'objets mobiliers corporels de 1974, et de la Convention de l'UNESCO de 1970 concernant les mesures à prendre pour interdire et empêcher l'importation, l'exportation et le transfert de propriété illicites des biens culturels'', UNIDROIT DOC. Study LXX, n° 1, December 1986, p. 17 and pp. 24-8.
This provision supports the return of stolen cultural property even if it is in the possession of a *bona fide* purchaser. It sets no time limitation for restitution claims, but fixes the principle of compensation for the *bona fide* purchaser. For an analysis of this provision, see Hermann J. Knott, ''Der Anspruch auf Herausgabe gestohlenen und illegal exportierten Kulturguts, thesis, Arbeiten zur Rechtsvergleichung, vol. 147, Baden-Baden, 1990, p. 160.

For an article-by-article commentary on this Convention, see Lyndel Prott, ''Commentary on the UNIDROIT Convention 1995'', Leicester 1997; ''UNIDROIT Convention, Explanatory Report'', *Uniform Law Review*, vol. VI, 2001-3, pp. 476-581.
DOC. UNIDROIT, Study LXX, no 48, § 163, p. 41.
This idea is however not new and has already been examined in art. 4, al. 2, of the resolution on the "International Sale of Works of Art from the Angle of the Protection of the Cultural Heritage", adopted by the Institute of International Law at its session in Basle, on September 3rd 1991. For this session's preparations work and the text of the resolution, see *Annuaire de l'Institut de Droit International*, vol. 64, tome I, Paris, 1991, p. 90 and tome II, 1992, pp. 402-6.

See Paul Lagarde, ''Le commerce de l'art en droit international privé francais, La vente internationale d'oeuvres d'art'', Geneva Colloquium, 11-13 April 1985, Geneva, 1988, pp. 397-399. See also, Erik Jayme, ''Anknüpfungsmaximen für den Kulturgüterschutz im Internationalen Privatrecht'', *Etudes de droit international en l'honneur de Pierre Lalive*, 1993, Bâle and Francfort-sur-le-Main, p. 717 and in particular pp. 724-31.
This concerns, in particular, rare or unique objects such as the Taranaki sculptures in Attorney General of New Zealand, see:. Ortiz and others, *The All England Law Reports*, London, 1982, vol. 3, pp. 432-68.
UNIDROIT DOC. Study LXX, no 19, August 1990, p. 3.

The Convention does not specify the nature of these guarantees. These must be determined in relation to the objective of the Convention, namely the protection of cultural objects. Therefore, these guarantees must necessarily relate to the protection, safety or preservation of cultural objects. See UNIDROIT DOC. Study LXX, No. 19, August 1990, § 74, p. 33.

For an overview of this Committee's activities, see the UNESCO Secretariat Report on the 13th session of the Committee which was held in Paris from 7 to 10 February 2005, UNESCO DOC. CLT-2005/CONF. 2002/2, January 2005. UNESCO DOC. CLT-2005/Conf/803/2, June 16, 2005.

Introduction to Monitoring as a Means of Preventive Conservation in Heritage Management Processes

Zaki Aslan

Abstract

Often, monitoring projects are driven by fascination with trendy information systems and indicators. However, it is within the context of applying conservation as a vehicle in bringing substantial benefits to communities, that questions relevant to measuring the quality of a site management should be addressed. Monitoring practices need to be integrated in a comprehensive management framework rather than developed for their own sake. Thus, it is necessary to devise monitoring programmes that are based on defined significance and site-specific purposes, and within available resources and constraints. These programmes not only require measuring the physical changes of a site, but also should consider external pressures, effectiveness of conservation strategies, and, more importantly, the range of heritage values of a site. These values should be widely shared. While in the past the preparation of monitoring and reporting resulted in only collecting data relative to the physical conditions of a site, new guidance emphasises the collection of data in three main areas: state of the social, physical, and economic environment surrounding a site; physical condition of the main fabric; and effectiveness of strategies adopted in a management plan. To achieve a holistic approach to preventive conservation, various types of base-line references for each of these categories are needed. In addition, integrating them with heritage site values is essential. Ultimately, the effectiveness of indicators to measure the quality of change at a site largely depends on the care taken in defining the objectives desirable to extend its life, and on the subject areas for which indicators need to be established.

1. Introduction

It has increasingly been recognized that effective monitoring is crucial in heritage management processes to lessen the vulnerability of historic areas to the various causes of deterioration or loss. In the case of living heritage, this is particularly relevant to losses associated with gentrification and tourism development. In this context, international organisations have embraced the importance of monitoring heritage sites as a means of preventive conservation. This article highlights some of the principles crucial to the application of heritage monitoring programmes.

There are several examples of monitoring programmes in a European context. To name a few, one may note the Carta del Rischio (Risk Map) of Italy (Castelli 1997) and the IPA Technical and Scientific Information System for the inventory of architectural heritage in Portugal (Costa 2002), where macro monitoring management tools were initiated with features ranging from a nationwide to site-specific risk preparedness. These inventory-based projects integrate Geographic Information Systems (GIS) with heritage databases for effective site monitoring. The Delta plan of the Netherlands devised for museum collections in the early nineties is another example of efforts to save museum objects (Talley 1999). More recently, UNESCO launched a project involving the production of satellite images for World Heritage and implemented by the European Space Agency[1]. Monitoring may also involve climatic changes affecting museums (de Guichen 1984) or archaeological sites (Stewart 1999). The range of examples and techniques used is wide, illustrating the various possibilities and use of today's available technology. Nevertheless, there are underlying principles of monitoring that are often overlooked in the course of developing tools for monitoring programmes.

2. Monitoring in the Context of Overall Heritage Management

Devising management and monitoring schemes are ongoing, interactive and collaborative activities. The purposes of such schemes are to reach stakeholders, raise awareness, enhance the appreciation of cultural heritage,

1 http://www.eurekalert.org/pub_releases/2003-06/esa-stf062403.php; http://www.esa.int/export/esaCP/SEMKZ9WO4HD_index_0.html

and influence decisions affecting the historic fabric. To achieve these objectives there is a need to make monitoring records current and accessible to key interest groups and linked to related databases of various institutional actors in an integrated manner.

Monitoring of heritage properties comprises measuring and evaluating change. It is undertaken in order to gain information for possibilities of course correction or remedial actions, strategies to improve the performance of strategic conservation plans, or improvement of ambient conditions.

Although monitoring can generally be limited to measuring and evaluating perceived problems and situations, it is considered to be an activity forming an integral part of a property's management cycle (Fig. 1). When applied to individual structures or monuments, monitoring involves measuring qualities and conditions so that those responsible for the management of heritage properties can optimize existing conservation efforts. At a macro-management level, monitoring involves measuring and assessing patterns across many properties and large territories by compiling observations and assessments made at individual sites (Costa 2002).

In the process of selecting appropriate methods for monitoring, an understanding should guide the purpose to the choice of subjects to be monitored. In fact, the particular choice of management tools and indicators should be appropriate to the purpose of the monitoring activity, rather than the other way round. This is due to the fact that monitoring projects, as applied to date, are often based on choices of fashionable monitoring tools (e.g. GIS) or a set of attractive indicators, without serious thought given to the purpose these tools are meant to address.

Thus, while monitoring projects can often be driven by a fascination with trendy information systems and indicators, it is within the context of applying conservation to community benefits that questions related to measuring the quality of a site should be addressed. Thus, monitoring practices need to be integrated in a comprehensive management framework rather than being developed in isolation. In addition, it is necessary to devise monitoring programmes that are based on defined significance and site-specific purposes, and within available resources and constraints. Monitoring programmes not only require measuring the physical changes of a site; they should also consider external pressures, effectiveness of conservation strategies and a site's range of heritage values. In a heritage management context, these values need to be widely shared.

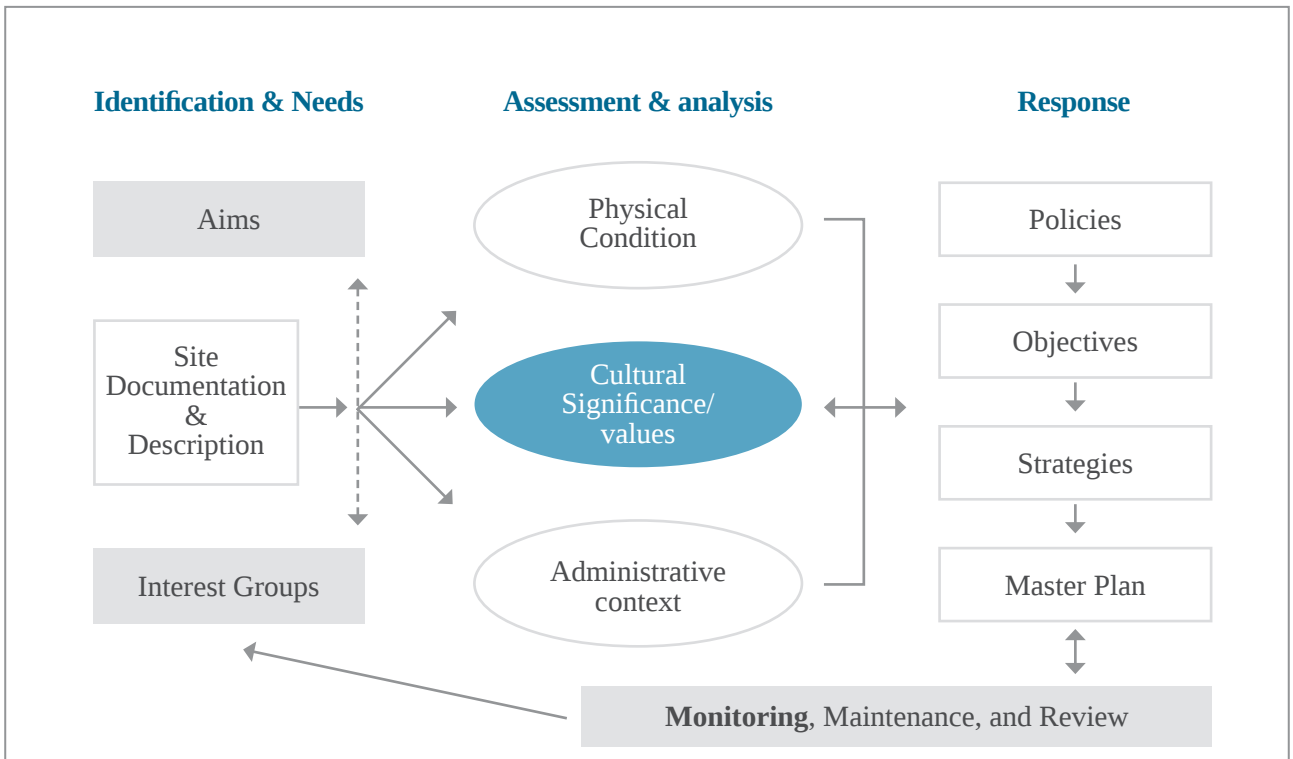


Fig. 1. Monitoring in the Process of Site Management

3. Benefits of Monitoring to the Heritage Profession

For heritage managers and conservation professionals, monitoring offers particular benefits. These benefits may include various items on different levels (Fig. 1):

a) On the physical conservation level, monitoring enhances scientific development in the field by refining and developing methodologies and technologies for the conservation discipline.
b) In an administrative context, monitoring can identify resources necessary for enhanced site management enabling, for example, resources for training or skills needed to achieve management objectives, funding, tools, etc.
c) Monitoring promotes community involvement in site management where citizens can effectively participate in the planning process, thus increasing community awareness and interest in promoting heritage values and ways of conserving them.
d) On the strategic level, monitoring largely contributes to the improvement of national and sub-national policies and strategies for conservation by identifying needed changes to existing policies in relation to legislation and financial resources required to improve conditions of conservation at local and site levels. Furthermore, monitoring allows identification of broad regional priorities of needs, which would benefit from actions taken by governments at a national level, or by international agencies working in a regional context.

4. Advancements in Monitoring Procedures in a World Heritage Context

In a World Heritage context, attention to monitoring has focused on the main issues important in the context of site management. These have included: what aspects should a monitoring project measure? What are the important conditions for effective monitoring? What are the tools and methods that are most effective for monitoring? What skills of those involved should be brought to the process? ICCROM and ICOMOS have been trying to give these issues presence at World Heritage discussions since the mid 1980s.

In spite of a relatively uncoordinated international approach, several experimental monitoring initiatives provide some insights for the World Heritage operations. In Europe, ICOMOS Norway organized monitoring meetings involving external consultants to review the state of conservation of its sites. ICOMOS UK monitored its sites through inspections carried out by its secretariat. In 1993 the World Heritage committee and the advisory bodies in co-operation with the World Conservation Monitoring Centre in Cambridge, UK, organized an expert meeting to review and compare approaches. Conclusions included fundamental issues relevant to the impact on cultural values, baseline data that includes social, administrative, and physical conditions of a site, and distinction between monitoring, as a continuous element in the management cycle, and reporting, as a step taken at a specific time in the life of a property. Essentially, conclusions included the need to develop a common approach to monitoring. Following this development, states parties were invited in 1998 to include statements of significance in their nominations. Nomination and periodic reporting processes were also recognized as joint actions relevant to the same topic. A distinction between systematic and reactive monitoring was then recognized. At this time, ICCROM and ICOMOS were commissioned to develop a monitoring reference manual. The monitoring manual is based on a pressure-condition-response model used in the field of environment to recognize information and to prepare indicators (Castelli 1997). The topic was a main theme of a workshop held on the occasion of the 30th Anniversary of the World Heritage Convention (UNESCO WHC report 2003). Co-organised by ICCROM and the World Heritage Centre, this workshop underlined issues highlighted in this presentation.

5. Planning Monitoring Programmes

Monitoring involves two distinct procedures. The first is concerned with observation of conditions or performance and the second is the evaluation of conditions or changes observed. Benchmarks against which performance is measured need to be established for both procedures. During observation, benchmarks are usually related to previous records of conditions; nevertheless, the collection of baseline data must also include daily management information. In the process of evaluation, benchmarks require definition of indicators for the subjects of observed changes.

Thus, the steps in setting up a monitoring system include:
- defining the specific subject area of monitoring efforts;

- defining particular parameters to be measured in correspondence to the selected specific subject area;
- defining appropriate orientations; for example, the preferred direction of a desired change, the philosophical principles and guidelines for a desired change, sustainability, improved integration, etc;
- defining helpful indicators for the selected parameters within identified specific subject areas.

In the past, the preparation of monitoring and reporting schemes resulted in collecting data relative only to the physical conditions of a site. New guidance emphasises that data are to be collected in three main subject areas.

1- The state of social, physical and economic environment surrounding a site. Relevant subject areas here may include evaluating external factors such as demographic pressures, economic and social pressures, environmental pressures, technological changes, and changing patterns of political and economic cooperation in society.
2- The cultural significance and physical condition of the material fabric. Relevant subject areas here may include heritage significance, values and messages, integrity assessments in relation to defined significance, physical condition, and the state of the key attributes through which significance is expressed (Anon 1995).
3- The effectiveness of strategies adopted in a management plan. Relevant subject areas here may include legislative and institutional frameworks for site protection, economic incentives and financial support systems, research and documentation schemes, heritage evaluation and inventory systems, measures for communication and protection of identified values including design intervention and development guidelines, and measures for securing public support.

Integrating the various types of baseline references for each of these categories with heritage site values is essential. It should also be repeated, as the sequence of steps suggests that in real life the process is iterative rather than linear, and involves continuous, rather than intermittent, adjustment of management decisions and plans.

On local and practical levels, it is recommended that collaboration be made possible between municipalities and site management bodies to computerise permits or records, and to set up monitoring systems linking databases with GIS, periodically updating information for the purposes of strategy analysis and periodic assessment of action plans. However, again, it has to be borne in mind that computerised systems, while being useful tools, are not enough to monitor the complexity of legal, social, and economic frameworks, where societal attitudes also become integrated objects of monitoring change. Such monitoring of the changing complexity addresses not just the features of reality but also the relationships between such features and values measured against a set of notions in large cultural and historical contexts.

6. Summary and Conclusions

Basically, monitoring is a means to corrective actions, whereby (ICCROM Newsletter 2002) it can be stated that monitoring tools (e.g. GIS) should be servants of monitoring purposes (not the opposite). In addition, effective monitoring systems for cultural heritage must be designed to take intrinsic and extrinsic factors into consideration and immediate physical changes and external pressures. The key issue in monitoring cultural heritage is the degree to which heritage values are intact and lie at the heart of decision-making processes. Furthermore, objectivity in defining these heritage values requires the application of scientific methods and ensuring that the values identified are widely shared among the various interest groups. Ultimately, the effectiveness of indicators to measure the quality of change at a site depends largely on the care taken in defining the objectives desirable to extend its life, and on the subject areas for which indicators are established.

Providing guidance for heritage monitoring is much needed. Manuals in preparation by the advisory bodies (ICCROM and ICOMOS) of the World Heritage Committee will be useful to guide best practices and inform heritage managers. In addition, monitoring guidance can be achieved effectively by providing examples of the various heritage types (historic cities, archaeological sites, museums) where international collaboration to learn from previous practical experiences is required in order to devise informed monitoring guidance and methods.

References

Anon. 1995. “Nara document on authenticity”, in: *Proceedings - Nara Conference on Authenticity in Relation to the World Heritage Convention:* Nara, Japan, 1-6 November 1994.

Larsen, Knut Einar (ed.), UNESCO. World Heritage Centre. Paris, France. ICCROM. Rome, Italy. Agency for Cultural Affairs. Tokyo, Japan. Trondheim: Tapir Publishers.

Castelli, G. (ed.). 1997. La carta del rischio del patrimonio culturale. (The risk map of the cultural heritage), Rome: Istituto Centrale per il Restauro.

Costa, V. 2002. “The Technical and Scientific Information System for the Inventory of Architectural Heritage in Portugal (IPA)”, in: Proceedings of L’énseignement du patrimoine mondiale et leas nouvelles technologies en Afrique: 15-17 October, 2002. Dakar, Sénegal. http://www.gn.refer.org/IMG/pdf/doc-125.pdf;
see also: http://www.monumentos.pt.
For example: De Guichen, G. 1984. *Climate in Museums* (2nd edition).

Rome: ICCROM; Museums and Galleries Commission. 2000. *Relative Humidity and Temperature Pattern Book. A guide to understanding and using data on the museum environment.*
ICCROM Newsletter 28, September 2002: 17, 18.

Stewart, J. *et al*. 2003. “Chedworth Roman Villa: A methodology for monitoring of in situ mosaics”, in: *7th conference of the International Committee for the Conservation of Mosaics*, Arles, Nov. 22- 28, 1999. Arles: ICCM: 135-43.

Talley, M. K., Jr. 1999. “The Delta Plan: A nationwide rescue operation”, in: *Museum International.*

UNESCO. 2003. “Monitoring World Heritage”, in: *Report: World Heritage 2002- Shared Legacy, Common Responsibility.* An International Congress organized by UNESCO. Paris: World Heritage Centre: 150-1.

Introduction to the Economic Valorisation of Cultural Heritage

Isabelle Skaf

Abstract

The ATHAR programme has for founding aim to protect and promote cultural heritage in the Arab Region. Within its framework, a number of training sessions have been dedicated to introducing notions relating to the economic valorisation of cultural heritage.

These sessions were designed to make participants aware of the multiple definitions of "heritage", and of the diverse cultural and economic values which are associated with such definitions. During the sessions, the subject of value assessment tools was addressed in some detail. The economic valorisation of cultural heritage often draws on complex notions. It goes against the grain of preconceptions, and sometimes seems to contravene the traditional manner in which heritage sites are managed in the Middle East. ATHAR participants have shown a marked interest for the topic, as they have found it to offer some answers to endemic administrative and financial problems they have been facing—problems which are largely due to a take on heritage management and, in particular, on the management of archaeological sites which is conventional in that it privileges "cultural" arguments. The present article summarises the subjects tackled during these ATHAR sessions which took place in Tripoli (Lebanon), Bosra (Syria) and Sharjah (Emirates).

1. Natural Capital, Cultural Capital

The two notions of cultural capital and natural capital are very similar. Owing to the role agricultural land plays in the economic production of goods and services, 19th century economists, such as Thomas Malthus and David Ricardo, regarded the "environment" as capital. Today, natural capital is considered as an inherited good and a "free" gift of nature. Environmental economy identifies the four components of natural capital (Throsby 1999) as follows:

- Renewable natural resources (fish, forests, etc.);
- Non-renewable natural resources (oil, minerals, etc.);
- The ecosystem, which sustains lands, air and water, and maintains their quality;
- Biodiversity.

Within the notion of capital, two concepts must be distinguished: The concept of natural capital "stock" (fish, forests, oil, mineral fields, etc.) and that of the "flow" of services deriving from it (fishing, the timber industry, waste recycling, erosion control, landscaping, etc.) which can generate income.

Tangible cultural capital, as inherited from past practice, is similar to our "inherited" natural capital. Indeed, natural capital has been given us by nature; cultural capital is given us by man's creative genius. Cultural and natural capitals have much in common: largely intangible benefits, issues of long term conservation and touristic development, etc.

A Michael Angelo sculpture and a historical building are two examples of tangible cultural capital assets: both require a physical and human investment to be made or constructed. In the long term, both will deteriorate if not properly maintained. Both assets generate flow (such as services) and therefore income (museum or building visits). They can both contribute to the production of new goods and services (the sculpture serving as source of inspiration for new works of art, or the historical building being transformed into office premises).

However, cultural capital has values which distinguish it from traditional economic assets, as it calls upon two logical strands—one "cultural" and one economic—which may appear antithetical. Heritage professionals look upon it as capital which ought to be preserved and conserved, its "valorisation" arising from its ability to further human knowledge, advance research and develop cultural practices. Yet "there is no reason why heritage should not provide other services hence widening its valorisation scope … From an economic perspective, heritage matters less per se than the totality of services that can be derived from it—services which will in turn become the source of more potential markets…"(Greffe 1999).

2. Cultural Values

"[Cultural] significance assessment is essential because, even when a site is considered to be of Unesco World Heritage status… active conservation-managers need detail as to why it is significant in order to protect the values that make it so. In fact, the greater the level of physical intervention envisioned, the more detailed the assessment of significance or value should be, since the possibility of damaging or destroying undetected or poorly understood aspects of significance is much more likely as intervention increases."(Sullivan 1997)

Cultural values are the sources of fulfilment traditionally associated with culture. They are religious, aesthetic, artistic or other values primarily conferred upon material heritage (objects or places). It is difficult to incorporate them in an economic study. In some cases, assessing such values on a monetary scale can be "degrading". For instance, it is difficult to assess the spiritual significance of a religious object or place of worship. It is equally difficult to quantify the aesthetic qualities which underpin artistic expertise and appreciation, and are the outcomes of creative endeavour. What price tag can be put on the ability of heritage to bring unity, and to shape up a common cultural identity (regional, tribal, etc.)?

2.1 Aesthetic and Artistic Values

Aesthetic value is the founding stone of the cultural valorisation of heritage. "It is the pleasure and emotion felt by a person when looking at a heritage object—emotion which differs from one person to the other and leads to purely subjective assessment processes".(Greffe 1999) Conversely, artistic value is a rationalisation of aesthetic value since the artistic value of a monument or object is judged in the context of the artistic movement it pertains to, the quality of its execution, or its innovative merits. These factors are especially important as they can assist in reaching investment decisions (whether to develop a site for example). If a site is in disrepair or if restoration work carried on it threatens its authenticity by not conforming to international standards, the site will lose its artistic value.

2.2 Historical Value

Monuments teach us history and their historical value is directly derived from their ability to provide an authentic testimony of the past (the manner in which people lived, etc.).

2.3 Cognitive Value

Cognitive value relates to learning. Even if a heritage object does not strictly conform to aesthetic or historical criteria, it can still constitute a pedagogical tool serving to illustrate aspects of history or of art.

2.4 Social Value

Heritage reinforces social identity and fosters feelings of belonging to a community. The interaction of a community with its heritage can reinforce its social fabric. By the same token, lack of social cohesion and community fragmentation can adversely affect heritage conservation and preservation. "Awareness of a shared past allows for the creation of a present and future common identity, provided everyone is committed to the idea". (Greffe 1999)

2.5 Religious Value

In Lebanon, a country built on religious and political sectarianism, religious value is regarded as one of the most important heritage values. An instance of such a view was evident in the 1998 classification of the Holy Qadisha Valley on the World Heritage List. The site fulfils the following criteria:

Criterion iii: Since the beginnings of Christianity, the Qadisha Valley has given shelter to monastic communities…
Criterion iv: The monasteries of the Qadisha Valley are among the most significant surviving examples of the strength of the Christian faith.

3. Economic Values

In order to assess the economic value of heritage, one must distinguish use values from non-use values related to the concepts of flow and "stock" of capital.

3.1 Use Values

"The use value of heritage results from the explicit assessment by users of benefits they derive from it. Usually, the cost of entry tickets is a good way to gage use value".(Greffe 1999) Further methods have been developed to assess visitors' willingness to pay—a willingness which rests on the assumption that they will derive maximum enjoyment and fulfilment from their heritage visit.

Four distinct methods are used to gage willingness to pay (WTP):

- The contingency valuation methodology (CVM);
- The "value for money" methodology;
- The hedonic pricing methodology;
- The travel cost assessments methodology.

3.2 Contingency Valuation

This methodology consists in asking potential users about their willingness to pay (WTP) for a specific benefit, or their willingness to receive compensation in case of "loss" or non-satisfaction. The methodology is grounded in the study of hypothetical behaviour through the compiling of a questionnaire which aims to determine the ex ante value of a given good for the user.(Desaigues 1998) Compiling the questionnaire is the crucial element. The quality of data mined will be directly linked to the relevance of information relayed through the questionnaire, namely:

- description of the good or service on offer;
- time delays affecting the implementation of said service, if any (significant time delays must be raised);
- funding sources the visitors would prefer to see drawn upon (taxes, etc.)

The methodology has its limitations and biases(Greffe 1999) which must be borne in mind when its results are interpreted. These include the overrepresentation, in the questionnaire, of extreme values to the detriment of average and median values. The "inclusion bias" is due to the fact that respondents may give more value to moral satisfaction as a way of distinguishing it from material goods. The "fiscal bias" also presents some difficulties. It tends to display an unwillingness to pay because it is dependent on the respondents being able to take into account the fact that they themselves are already fulfilling part of the service, by paying taxes for example.

3.2.1 The Value for Money Methodology

This method consists in asking potential consumers about the value they perceive the good to have once they have paid for it and "consumed" it. Are they satisfied with the experience? If the response is positive, then the goods' value is assumed to be at least equal to the quoted price, and vice-versa. This methodology also raises some issues:

- What should one consider the "price" to be: is it the entrance fee only, or is it the visitor's total incurred expenditure (transport, food and entrance fees)?
- Often, visitors pay discounted prices (concessionary rates, etc.). Can the value for money methodology still be applied then?

3.2.2 The Hedonic Pricing Methodology

This methodology analyses the actions of consumers. It utilises the purchase value of a commodity to deduct the value of a non-commodity (heritage). The value of a house situated in the vicinity of a historical building is often higher than that of a similar house in an area devoid of heritage. But can one adduce that the value of heritage is equal to the difference between the two values, even assuming that both houses are of strictly similar specifications? This is a complex methodology which also requires numerous statistical adjustments.

3.2.3 The Travel Cost Assessments Methodology

This method is based on the idea that the greater the importance they place on visiting the heritage site, the higher the transport costs visitors will be willing to incur. Transport costs are considered as shadow entry fees, and a relationship is drawn between entry fees and visitor numbers using a demand function. It is a complex process, which poses some difficulties particularly when it comes to simplifying hypotheses and information.

3.3 Non-use Values

Non-use values are related to the benefits that can be derived from a non-exploited or non-used site, hence the introduction of existence and option values:

- **Existence Value**
  One may bestow value upon a site (a museum for instance) without visiting it. Another example (Pagiola 1999) is value conferred upon endangered species, such as blue whales, which most of us will never have the privilege of seeing. Bamiyan Buddhas in Afghanistan are also a case in point. Originally, they were little know of the general public but their destruction was felt to be a resounding loss and generated a strong reaction in public opinion throughout the world.

- **Option Value**
  This is the value which would be derived were a site to be used. The potential of the site's importance to increase following a find (or even an inscription) is also an option value.

4. Tourism

Increasing interest in heritage has led to the emergence of cultural tourism. The World Tourism Organization predicts that the transfrontier flux of tourists will increase from 625 millions to 1.6 billions by 2020.(UNESCO 1999) Tourists will spend 2000 billion dollars, up from 445 billion in 1999, making tourism the largest economic activity in the world. Nonetheless, this expansion of tourism is not without risk. Tourism may identified as a major risk for heritage, particularly in cases where visitor numbers become very large such as in Petra (Jordan) or the Valley of the Kings (Egypt). Some criticise, often with good reason, the excessive exploitation of sites which may "rob host communities of their traditional cultural landmarks and destroy the authenticity and significance of their heritage"(Patin 1999) and yet, tourism contributes to giving heritage a place within the economy.

5. Methodologies for Assessing Investment Projects

An economic feasibility study is often required when trying to assess the validity of a financial injection earmarked for the development of a site, monument or museum. The awarding of public funding must also be justified by a clear economic purpose, most often founded on the tourism argument.

Traditionally, the question posed during the course of the development of a cultural heritage project is that of the correlation between cost and efficiency. The main objective being limited to the preservation of the site, development and conservation have to be performed in the most efficient manner and for the lowest cost. This leads to reduced financial and human resources, an reality which brings to the fore the limitations of this particular approach. These limitations are given greater emphasis when one is facing a multitude of issues on several sites and when what meagre resources are available must be shared between a number sites or projects. Admittedly, the importance and originality of a site or monument do justify expenditure which is solely related to conservation and restoration (preserving its existence value). Then again, from an economic viewpoint, all additional disbursements need to be subject to a detailed cost-benefit analysis.(Pagiola 1999) In that respect, the general criteria used for the assessment of investment are equally relevant to heritage projects:

- The Payback Period uses a liquidity criterion to tackle budgetary constraints. The focus here is on recouping funds by rapidly generating cash flow.
- The Net Present Value (NPV) .
- The Internal Rate of Return (IRR) .

5.1 Pricing

There is increasing pressure for heritage sites to generate more revenue, thus relying to a lesser extent on public funds or patronage. In this regard, entry fees allow to:

- Gage the value of the service offered;
- Raise the budget needed for their running;
- Restrict, or indeed stimulate, the demand for heritage services in the face of fluctuating capacities.

Pricing the entry fee is often a matter of public policy. However, the financing, partial or total, of the entry fee makes good funds management an imperative, whereas

public funds and donations are aleatory and do not empower managers or foster responsibility in them. Initially, the price can be determined through the willingness to pay methodology, or, in the absence of relevant studies, through approximations (cause-effect analysis of the relationship between pricing and attendance).

5.2 Full Cost Methodology

The practice most frequently envisaged in initial pricing is the full cost methodology. It consists in dividing the expenses incurred by the monument by the number of visitors expected over the course of a given period (one year). It is a simple method and one which is suitable when the visitor numbers are easily predictable, but it presents three issues:

- It is only applicable in a non-competitive context where visitors do not react to price. "When it comes to heritage and as a result of the substitutability of monuments, the public is often regarded as a captive audience. It is not so, especially in light of the fact that heritage does tend to attract less conventional visitors who perceive the visit as a leisure activity amongst several others. An entry fee which is pricier than a cinema ticket will deter visitors." (Greffe 2003)

- The entry fee should cover a proportionate share of the costs incurred through the opening and running of the monument. Visitors cannot be made to bear the total cost of conservation as this would mean their bearing the production cost of existence value from which they only derive a fractional benefit—this would lead to under-consumption and losses. Therefore, the full cost can be reduced as long as the existence value is subsidized.

- The last issue is one of accountancy. The full cost methodology is used in the private sector. It presupposes an autonomous management structure combined with an excellent knowledge of cost structures. It does therefore not easily lend itself to cases where several monuments are administered by the State.

Pricing decisions are often strategic. "Varying the pricing will inevitably result in losses. Indeed, by raising prices we risk losing some visitors, and if we lower them there is no guarantee that an increase in visitor numbers will necessarily follow—unless we adopt the free entrance model, in which case visitor numbers tend to increase steeply."(Greffe 2003)

6. Links between Economic and Cultural Values

Contrary to popular belief, economic and cultural values are closely connected(Throsby 1999) on a number of levels:

- The value of a tangible heritage asset (such as a historical building) stems from its existence as an immovable asset. In addition to which, its economic value will increase (or decrease) significantly owing to its cultural value, or its classification in the framework of relevant legislation. The economic value of service flow produced within a cultural heritage site is also related to the historical value of said site. The contingency value measured through the pricing of entry tickets should—all else being equal—be proportional to the cultural value visitors grant the site.

- But it is chiefly within the realms of sustainable development and long term sustainability that economic and cultural value intermesh and complement one another. "A sustainable development policy is one which fulfils present needs without prejudicing future generations' ability to, in turn, fulfil their needs. Consequently, it is advocated that the general balance and value of natural and cultural capitals be preserved, and that policy assessment tools are put in place so that the true cost of conservation and of consumption is determined. The aim of sustainable development is to satisfy the intergenerational equity criterion, first and foremost."(Desaigues 1998)

This is the logic that frames certain strategic decisions to protect a great number of archaeological sites and present them to the public. Some sites in Lebanon for example, remain unvisited by tourists and are in an advanced state of degradation due to insufficient financial and human resources. "The introduction of more flexible and more collaborative management methods is probably the best way to develop monuments which cannot be funded by the State. This would also have the advantage of combining innovation and resourcefulness with the State's technical know-how, thus leading to better valorisation…"(Greffe 2003)

Could one, however, justify investing large sums to develop quasi-abandoned sites merely to preserve their cultural value and without the guarantee of deriving

economic benefits from such an investment? Could the cultural value of such sites not be preserved for future generations through new solutions such as partial or total reburial? This solution would preserve historical and scientific data as well as option and existence values, and would allow for what precious few financial resources are available to be allocated to the development of other sites (or site zones) which attract more visitors and hence generate more revenue.

This is not an easy choice to make. Nonetheless, to ignore problems will only exacerbate them, and will indubitably lead to the destruction of many sites which remain unknown to the public.

All decisions concerning the conservation and preservation of heritage, and its transmission to future generations must be made in the inescapable context of economic management. They must however be reached without forgetting that the long term valorisation of heritage is dependent upon a tight-knit collaboration between conservators/restorers, managers and culture and tourism experts. Most importantly, we must recognize that “heritage is not immutable, it adapts to the world surrounding it. It is vital, in the interest of both conservation and tourism, that heritage should endeavour to adapt. To be effective, a vision is needed which can be expressed through a comprehensive plan that serves the interests of heritage and the needs of visitors equally.”(Chamberlain 1999).

References

Aslan, Zaki (2000), "Petra (Jordanie) : quand un grand site s'ouvre au tourisme mondial" *Accueil, aménagement et gestion dans les grands sites*. Les Cahiers de la section française de l'ICOMOS, pp. 55-61.

Avrami, Erica & Mason, Randall, & Torre, Marta de la (2000), *Value and Heritage Conservation: Research report*, Los Angeles, Getty Conservation Institute.

Anon. (1999), "Tourism and Culture: rethinking the mix", *The UNESCO Courier*, July-August, p. 27.

Baxter, Ian & Chippindale, Christopher (2002), "From 'National Disgrace' to Flagship Monument: recent attempts to manage the future of Stonehenge", In *CMAS Conservation and Management of Archaeological Sites*. Vol. 5, No. 3, pp. 151-184.

Ball-Lechgar, Lisa, (2004) "Inner-City Revival: World Bank project back on track" *Lebanon Opportunities*, April, pp. 82-84.

Bennet, Jeff (2001), "Valuation Methods: Applications to Cultural Heritage" *Heritage Economics: challenges for heritage conservation and sustainable development in the 21st century*, Conference proceedings, Canberra Australia, 4 July 2000, Australian Heritage Commission. pp. 31- 39.

Beschaouch, Azedine (1998), 'Les Archéologues dans la reconstruction de l'identité patrimoniale préislamique' *Patrimoine et passions identitaires : Actes des Entretiens du Patrimoine*, Paris, 6-8 January 1997. Fayard, Editions du Patrimoine, pp. 327-337.

Benhamou, Francoise (1996), *L'Economie de la culture*, Paris, la Découverte.

Benhamou, Françoise (2001), "L'Economie du monument" *Façadisme et identité urbaine : colloque international*. Paris, 28-30 January 1999, Paris, Actes du colloque, Editions du Patrimoine, pp. 153-167.

Common, Mike (2001), "The Role of Economics in Natural Heritage Decision Making", *Heritage Economics: Challenges for heritage conservation and sustainable development in the 21st century*", Conference proceedings, Canberra, 4 July 2000, Australian Heritage Commission, pp. 22-30.

Calame, Jonathan (1996), *Financing cultural/Natural heritage and Sustainable Development: International conference*, Dubrovnik, Croatia, May 28-31 1996. New York, World Monuments Fund.

Carter, Bill & Grimwade, Gordon (1996), "Balancing Use and Preservation in Cultural Heritage Management" International Journal of Heritage Studies IJHS, Vol. 3, No.1, pp. 45-53.

Cernea, Michael (1999), *Cultural heritage and Development: A Framework for action in the Middle East and North Africa*, World Bank's Middle East and North Africa region, Washington, World Bank.

Chamberlain, Kenneth, (1999) "La Gestion des visiteurs dans les sites naturels" *Accueil, aménagement et gestion dans les grands sites*. Paris, Les Cahiers de la section française de l'ICOMOS, pp. 45-52.

David, Jean Claude (2003), "Patrimoine historique, identités nationales et enjeux politiques", La maison de l'Orient et de la Méditerranée, p. 1. www.mom.fr/com/presentation/Themes/th.

Desaigues, Brigitte & Bonnieux François (1998), *Economie et politique de l'environnement*, Paris, Dalloz.

Dixon, J. (1999) "The City of Fes Medina" *Valuing Heritage—Beyond Economics*, Rome, ICCROM, p. 4.

Greffe, Xavier (1999), *La Gestion du patrimoine culturel*, Paris, Anthropos.

Greffe, Xavier (2003), *La Valorisation économique du Patrimoine*, Paris, La Documentation Française. Ministère de la culture et de la communication.

H@R, Heritage at Risk/ Patrimoine en péril, Liban (2000), ICOMOS, www.international.icomos.org/risk/leban2

Hutter, Michael & Rizzo, Idle (1997), *Economic Perspectives on Cultural Heritage*, London, Mc Millan Press.

Torre, Marta de la (1999) "Economic aspect of heritage", in *US ICOMOS newsletter*, July-August, pp. 1-5.

Leaver, Bruce (2001) "Cultural Heritage: An economic value not fully realized " *Heritage Economics: Challenges for heritage conservation and sustainable development in the 21st century*, Conference proceedings, Canberra, 4 July 2000, Australian Heritage Commission, pp. 3-5.

Le Goff Jacques (1997), “Introduction Générale” dans *Patrimoine et passions identitaires, Actes des Entretiens du Patrimoine*, Paris, Editions du Patrimoine, pp. 9-17.

Les Enquêtes de la section française de l’ICOMOS (2001), *Grands sites et Patrimoine Mondial : Quel accueil touristique ? Quelques exemples*. Paris, ICOMOS.

Leniaud, Jean- Michel (2003), “L’Extension de la notion de patrimoine et ses dangers”, *Culture, Etat et marché*, Les Cahiers Français, No. 312, p. 62.

Mason, Randall & Throsby, David & Klamer, Arjo & Bluestone, David (1999), “The Economics of Heritage Conservation: a discussion” *Conservation: The Getty Conservation Institute Newsletter*, No. 14, pp. 9-11.

Mason, Randall & Bluestone, Daniel & Klamer, Arjo & Zuidhof,Peter-Wim (1999), *Economics and Heritage Conservation*, Los Angeles, The Getty Conservation Institute. Fayard, Editions du Patrimoine, 1998.

Miossec, Jean-Marie, (1993), “Tourismes dans le monde arabe : Méthodes et concepts” Montpellier, *Recherches urbaines dans le monde arabo-musulman*. Coll. URBAMA, Vol. 24, pp. 97-111.

Pagiola, Stefano, (1996) “Economic Analysis of investments in Cultural Heritage: Insights from environmental economics”. Environment Department, World Bank. spagiola@worldbank.org.

Patin, Valery (1999), “Sauver le patrimoine : Culture et tourisme : vers une économie de marché. Tourisme et Culture : un mariage d’intérêts” *Le Courier de l’UNESCO*, pp. 35-36.

Pearson, M., & Sullivan Sharon (1995) *Looking after Heritage Places: The basics of heritage planning for managers, landowners and administrators*. Melbourne University Press.

Powell, Judith (2000), “Expanding Horizons: Environmental and cultural values within natural boundaries”. *International Journal of Heritage Studies IJHS*, Vol. 6, No. 1, pp. 49-65.

Stanziola, Javier (1998), “Modeling the Heritage World: Economic, legal and political considerations” *International Journal of Heritage Studies IJHS*, Vol. 4, No. 3-4, pp. 168-176.

Sullivan, Sharon (1997) “Modèle de planification pour la gestion des sites archéologiques” *La Conservation des sites archéologiques dans la région méditerranéenne*, Actes de conférence, Los Angeles, The Getty Conservation Institute, pp. 15-27.

Yarwood, John (2003), “Integrating Conservation Strategies into the Overall Development Process”, *Art, Antiquities and Law*, Vol. 8, No.1, pp. 63-71.

Communicating Conservation: New Challenge for Heritage Professionals

Monica Ardemagni

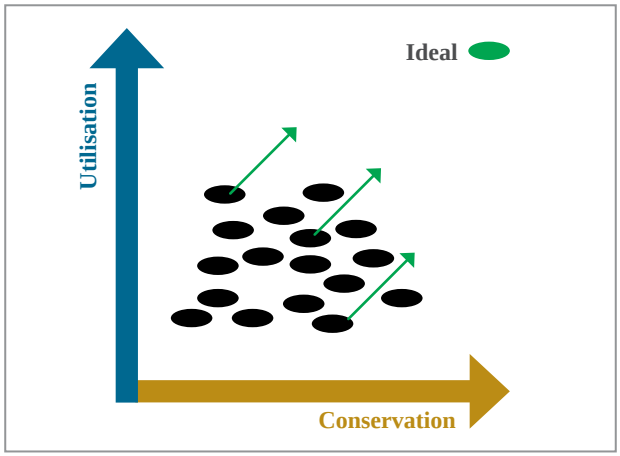
1. Conservation and Utilisation: Two Irreconcilable Realities?

In recent practice, the notion of "preventive conservation" is no longer limited to the consideration of technical aspects. Indeed, to "preserve" means not only to take adequate measures to stop or delay the deterioration process a cultural property is subject to, but to also *make it available to the public* so that they may come to understand and appreciate it. Thus, the aim of conservation is not only to protect heritage so that its message may be safeguarded for future generations but also to create better conditions for the contemporary public to enjoy it, use it, and experience it, whilst drastically minimising the risk of it being damaged. Heritage needs "users". If it remains unused, it becomes regarded as unnecessary and devoid of interest, and is ultimately abandoned. Public access - physical as well as intellectual - is a component of conservation and encompasses the triad of *"presentation, explanation, communication"*.

Let us consider the example of the Lascaux Caves of the Vézère Valley in France, discovered in 1940 and opened to the public in 1948. They hold a unique ensemble of prehistoric paintings dating as far back as 20,000 years ago. Their exceptional state of conservation led to high visitor numbers (1200 visitors per day). However, ten years on, the first signs of deterioration began to appear, caused by excess carbon dioxide from visitors' breathing. Despite the introduction of a highly sophisticated humidity control system, the state of conservation of the paintings remained unstable. In view of the uniqueness of the Lascaux Caves, which led to inscribing the property on the World Heritage List, the French Ministry of Culture decided to close the site to the public whilst reproducing a perfect copy of it for the public's benefit. At present, access to the Lascaux Caves is only granted to the site staff in order to monitor the state of conservation of the caves. The closure of the Lascaux Caves seems to confirm that when it comes to heritage, conservation and enjoyment seem to be two irreconcilable realities continually acting one against one another.

How might the needs of the public and those of conservation be reconciled, despite the added hurdle of the constant rise in visitor numbers at heritage sites[1] ? For conservators, to strike a *balance* (or *ideal point*) between the *utilisation* of heritage and its *conservation* has become the new challenge.

To reach this aim, it will be essential to collaborate with the general public. Conservation cannot be carried out *against* the public will, but must be done *with* their cooperation[2] . It is important to understand that Lascaux Cave's closure is an extreme scenario and not indicative of a general rule.



1 The World Tourism Organisation predicts that the number of visitors travelling internationally will rise from 700 million to one and a half billion in 2020.

2 Gaël de Guichen, introduction to Youth and the Safeguard of Heritage, (ICCROM, 2001). Both diagrams included above are designed by Gaël de Guichen.

More than ever before, there is a need to involve the public in the conservation process, by making it aware of the value of heritage but also of its fragility and of the need to preserve it. In this regard, the Athens Charter suggested, as early as in 1931, that "]…[the best guarantee in the matter of the preservation of monuments and works of art derives from the respect and attachment of the peoples themselves". Have conservation professionals really strived to promote this view since then?

First, one must briefly ponder the meaning of such terms as *"gaining awareness"*, *"sensitisation"* and *"raising heritage awareness"*. Dictionary definitions outline the following:

- *Gaining awareness* is grasping a reality, and being capable of assessing it;
- *Sensitising* is making someone receptive to something, and susceptible to react to it;
- *Raising awareness* is warning, alerting, and attracting one's attention to something.

Sensitisation is a three-phase process:

1. Information: the public is informed of the value of heritage, and of its state of conservation;
2. Awareness-gaining: the public change their attitude to heritage, and learn to respect it;
3. Reaction: the public is no longer passive, they take action to protect heritage when it is endangered. The public disposes of various means of change[3] such as media campaigns, petitions, etc.

During the learning phase, it is important that the following messages be communicated:

- Heritage is unique and irreplaceable (once gone, it is forever lost);
- Heritage carries intrinsic messages (historical, religious, political, artistic, symbolic, etc) which can alter over time;
- Heritage is an important economic resource (one may, for example, think of all the activities derived from cultural tourism).

Once the concept of the value of heritage has been enshrined, attention must be paid to the following:

- Heritage is fragile (aggression risks have significantly increased in recent years[4]);
- Conservation does not just happen (it requires technical competencies as well as considerable human and economic resources);
- The preservation of our heritage is dependant on all of us, on our actions and our attitudes.

2. Communication: A New Aspect of Conservation

A great communication effort is necessary to change the public's attitude towards conservation and ensure that they become involved. The media (press, television and the internet) is an effective means to reach the largest target audience. However, members of the press and media are reluctant to tackle matters relating to heritage. When they do, it is only to report on sensationalist cases (theft of notable works of art, destruction or indeed, collapse of monuments during earthquakes or bombings, etc). General press articles dealing with the day to day maintenance of heritage are few and far in between. Heritage officials should encourage the media to engage with the culture of conservation. They should interact with journalists to encourage better and more balanced reporting on the realities of conservation.

Conservators have various communication tools at their disposal: leaflets, posters, publications, videos, CDs, the internet, advertising campaigns, press agencies, educational services, tourist guides, etc. The elected method or methods will depend on the budget, which is usually very limited. However, there are more means of communication conservators can easily employ, as sensitising also means:

A. Explaining the reasons behind prohibitions: Rather than just stating "touching is prohibited", it is easier and more effective to show the consequences a small gesture such as touching can have on a work of art. This was successfully implemented by the Louvre Museum (Paris, France) through a poster campaign. On the poster, the message "do not touch" is repeated six times, fading further each time until it becomes illegible. The concept is simple; the soundness of the message is communicated graphically. At the bottom of the poster is the following commentary: "Works of art are unique and fragile. They

3 For heritage, the worst enemy is public indifference.

4 Risk factors include mass tourism, pollution from cars and industry, unplanned urban development, and the increasing numbers of temporary exhibitions, etc.

have endured for centuries, and must be safeguarded for future generations. Touching a painting, a sculpture or a piece of furniture, though lightly, will damage it - especially if this gesture is repeated thousands of times. Help us protect our common heritage." Another example of effective communication is the "STOP! History is not for sale" campaign, launched by the Sharjah Archaeological Museum (United Arab Emirates). In order to draw attention to the illegal sale of archaeological objects, the museum produced a series of posters and leaflets delineating the damage done by trafficking and showing that it not only deprives countries of their heritage but also, prevents archaeologists from understanding the past by removing objects from their archaeological context.

B. Highlight conservation and deterioration whenever possible: It is unusual to find any information on the state of conservation of objects on display. It is assumed that such information is of no interest to visitors when it merely needs to be adapted to lay-persons.

C. Open conservation sites to the public: By opening conservation sites to the public, visitors are given the opportunity to witness the work of conservators, ask questions and gain a better understanding of the complexity of conservation interventions.

D. Promote initiatives which aim to explain aspects of the deterioration and conservation of heritage in order to encourage the public to become actively involved in its protection. In this respect, please refer to ICCROM's website to learn more about the 15 year long "Raising Awareness" programme.

Considering the importance of communication in raising awareness, the following are fundamental principles which must be borne in mind:

- Identify the target group and adapt the communications' language to their knowledge level;
- Use clear and simple language;
- Avoid including too much technical information;
- Establish a connection with the interlocutors' experience and emotional sphere - as with the Louvre example, this will ensure that the message has a more effective impact;
- Pertinent communication always anchors itself in reality;
- Avoid phrases such as "do not …" or "it is forbidden to", and, in general, all negatives;
- Request the public's collaboration by using phrases such as "help us to…" and always thank them;
- If the desired effect is not achieved, the communication was ill-conceived.

The public is not a uniform monolithic entity. There are several publics to be addressed: young people, individual visitors, groups, members of the press, local communities, tour operators, service providers, administrators, and decision makers. Each needs to be communicated to through relevant means and intermediaries, and using appropriate linguistic registers.

Often, heritage preservation is in conflict with the private interests of certain groups, as it may for instance become an obstacle to modern urban development. In these cases, it is necessary to launch a robust awareness-raising campaign targeted at the local community, listen to issues they raise, and work towards a solution which takes their demands into account whilst respecting heritage. At the crux are mediation and cultural attitudes: if people are educated from a young age to understand the value of heritage, they will come to accept the constraints necessary to safeguard it more easily. In this respect, the role of schools in the creation of this new mind set is self-evident.

Today, we intend for conservators-restorers to be communicators as well. Are they ready to embrace this new role? At present, their professional training is yet to incorporate communication, in spite of the fact that conservation and communication are but two aspects of the same cultural project.

Recommended Reading:

Public et sauvegarde du patrimoine, Université Libre de Bruxelles , 1999.

The Press and the Safeguard of Heritage, ICCROM, 2000.

Youth and the Safeguard of Heritage, ICCROM, 2000.

Museum International, N. 243 , 102 – 110.

Chapter V

LIST OF CONTRIBUTORS

Zaki Aslan

An architect, holds a PhD in Heritage Conservation and Management from University College London, U.K. and an MSc degree in Conservation of the Built Environment from the University of Montreal, Canada. His professional expertise covers the fields of heritage conservation, World Heritage, documentation and conservation of historic stone monuments, architectural conservation besides teaching, training, capacity building, planning and management of cultural heritage at the regional level. He is currently the Director of ICCROM-ATHAR Conservation Centre in Sharjah.

Jukka Jokilehto

A former assistant to the Director General, Chief of Architectural Conservation/ ICCROM, studied architecture and urban planning at Teknillinen Korkeakoulu Helsinki, Finland (1966) and got his PhD at the University of York, UK (1986) on the 'History of Architectural Conservation: the Contribution of English, French, German and Italian Thought towards an International Approach to the Conservation of Cultural Property'.

His professional expertise in the field cultural heritage covers training, teaching and development of programme activities. He has published widely on the theory of architectural conservation and has won international recognition.

Hossam Mahdy

Studied architecture at Ain Shams University, Egypt (1981), earned an MSc. degree in the conservation of historic buildings and towns from the University of Leuven, Belgium (1991) and a PhD.in the field of conservation of architectural heritage from the University of Glasgow, U.K. (1992).

Research, teaching and training are significant aspects of his work profile besides working as a consultant in the field of conservation of architectural heritage and management of heritage sites.

Ana Almagro Vidal

Earned a degree in Architecture from the Escuela Técnica Superior de Arquitectura (University of Granada, Spain, 1999) and a European Master in Restauro Architettonico e Recupero Edilizio, Urbano e Ambientale (University of Roma Tre, 2001) and a PhD in Architecture on perceptual analysis of space in Islamic architecture in Spain through computer graphic reconstruction from the University of Granada (2005).

Mario Santana Quinterno

Studied architecture at Universidad Central de Venezuela (1994) and earned a PhD on the use of three-dimensional documentation and dissemination techniques in studying built heritage from the R. Lemaire International Centre for Conservation (K.U. Leuven 2003).

Naif Haddad

Has a Master degree in architecture (1985) and a PhD in the field of ancient architecture from Aristotle University of Thessaloniki (Greece) (1995). He has participated in several excavations, research and documentation programmers and restoration and conservation projects in Greece and Jordan.

His work experience covers university teaching, research and publication in his field of specialisation. He is as well a script writer of a number of documentaries and a television producer and director.

Talal Akasheh

Studied Chemistry at the American University in Beirut (AUB) and pursued higher education at the University of California, Los Angeles (UCLA) where he earned his PhD.

His work experience covers university teaching and dealing with problems of conservation of records and archival materials as director of a university library in Jordan.

His main interest was directed to the study of weathering of the sandstone monuments of the site of Petra in particular and presented a project for the establishment of a Petra Stone Preservation collaborated in its implementation.

May Shaer

Received her Bachelor of Architecture (B. Arch) from the American University of Beirut (AUB), a Master of Archaeology specialising in Applied Sciences in Archaeology from the Institute of Archaeology and Anthropology, Yarmouk University (Jordan), and a PhD from Munich Technical University. She is currently working at the UNESCO office in Baghdad.

Ziad Al-Saad

Earned his PhD in conservation and analysis of archaeological materials from University College London, U.K. His work involves teaching conservation of cultural heritage and establishing teaching and training programmes in the field of conservation and cultural resources management. His research work is mainly in the fields of conservation and scientific analysis of archaeological materials as well as the application of scientific techniques in the study of various types of archaeological materials.

John Stewart

Studied art history at the University of British Columbia, Vancouver, Canada, architectural conservation at Columbia University, New York and artefact conservation at the Institute of Archaeology, University College London, and was trained in mosaics conservation at the Atelier de Restauration de Mosaiques in Vienne, France. He worked as a consultant for conservation practices in archaeological sites and is widely published in this field of study. His wide professional experience covers scientific publications in the field of the preservation of mosaics, university teaching and lecturing on archaeological site conservation.

Gionata Rizzi

Studied at the University of Milan and at the Institute of Advanced Architectural Studies in York, U.K. where he earned a Master Degree on the consolidation of masonry ruins. He participated in many architectural conservation projects and worked in a number of World Heritage sites.

His professional expertise covers university teaching, research, publications and lecturing in the field of his specialty.

Katri Lisitzin

Has a degree in ethnology, sociology and art history from Helsinki University, Finland (1972), a MSc. Degree in architecture and urban planning and conservation from Oulu University in Finland (1985) and is working towards her PhD at the Department of Urban and Rural Studies at Ultuna SLU, Sweden. She has a long theoretical and practical working experience in integrated conservation and urban and territorial heritage planning and management and is responsible for interdisciplinary research projects and Masters courses at university level with special focus on cultural heritage as well as thorough experience in capacity building and awareness projects.

Andrea Urland

Andrea Urland is Associate Professor at the Faculty of Architecture of the Slovak University of Technology in Bratislava and Senior Academic Fellow of the Academia Istropolitana Nova, where she also lectures in post-graduate training programmes in conservation of built heritage.

Her professional experience includes teaching and training in the fields of architectural conservation in general and the conservation of architectural surfaces in particular, integrated territorial and urban conservation and modern architecture conservation.

Ridha Fraoua

Ridha Fraoua is a lawyer and a legal expert. He earned a PhD in Law on international legal protection of cultural properties (1985) and attended courses in classical archaeology and ancient history at the Université de Fribourg, Switzerland (1980). He has been a UNESCO consultant since 1986 and has regularly been on missions aiming at protecting cultural heritage in a number of Arab countries besides his work as Head of Legislation at the Swiss Federal Office of Justice.

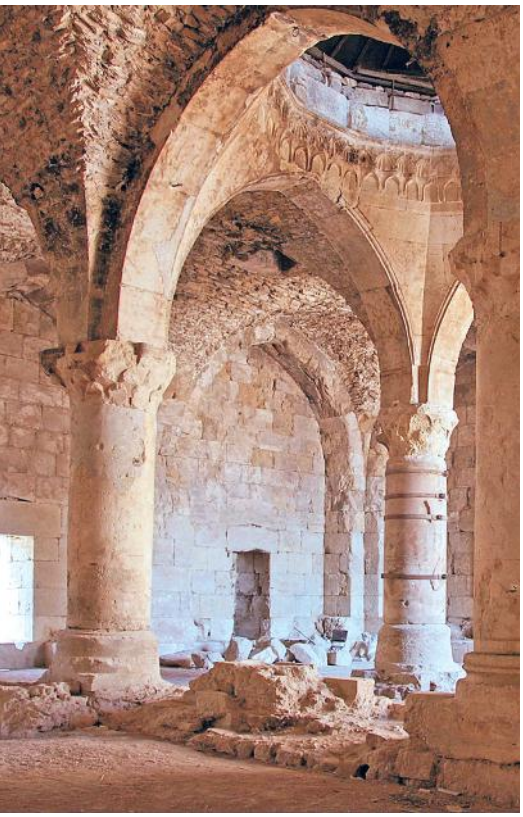
Isabelle Skaf

Isabelle Skaf is conservator-restorer. She earned a BSc degree in the field of archaeological conservation and materials science from the University College London, UK (1985) and an MBA from the Ecole Superieure des Affaires, Beirut (2004) as well as attended courses in art history in the USA.

Her professional experience covers conservation in several museums and laboratories and in a number of UNESCO projects in Lebanon and in other countries. She also worked as a conservator for the Beirut Central District excavations and is a member of the technical committee for the rehabilitation of the Lebanese National Museum. Since 2002 she is manager of conservation-restoration company which she has founded.

Monica Ardemagni

Studied Ancient Greek History at the University La Sapienza of Rome, and taught literature at high school level for 10 years. Since 1990 she worked at ICCROM's programme of Public Advocacy then as a project manager until 2004 implementing several advocacy activities targeting school children, visitors, guidebook editors, tour operators and decision makers. She collaborated with ICCROM's ATHAR Programme in developing a manual on the management of heritage sites for schoolteachers in the Arab region.



ICCROM ATHAR

ICCROM-ATHAR Regional Conservation Centre in Sharjah

PO Box: 48777, Sharjah, U.A.E.
e-mail: athar-centre@iccrom.org
www.iccrom.org/athar

www.facebook.com/iccrom
@ICCROM

ICCROM is an intergovernmental organization founded by UNESCO in 1956 with headquarters in Rome, Italy. ICCROM-ATHAR Regional Conservation Centre (ICCROM-ATHAR) was established by ICCROM and the United Arab Emirates (UAE) following decisions made at ICCROM's 27th General Assembly in November 2011. The Centre represents ICCROM for the service of its Arab member states. Its legal status in the United Arab Emirates has been based on a decision made by the Council of Ministers of the UAE in March, 2015, and a Headquarters Agreement signed between ICCROM and the Ministry of Foreign Affairs of the UAE in October 2015.

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