

1987 Charter for the Conservation and Restoration of Cultural and Art Objects

(Informally known as Italian Restoration Charter of 1987)

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Translator's notes: *The Italian Restoration Charter of 1987 is the current revision of the laws and regulations governing the restoration and conservation of the elements of the Italian cultural heritage owned by the Italian public sector, the Catholic Church and privately, when these elements are landmarked or designated as part of the national heritage. It is probably the broadest piece of legislation in the world dealing with cultural heritage, both in terms of the range of fields it covers and its detail. I have attempted to render the meaning and the structure of the document. This has been challenging since the document is often not very clear or consistent, and it contains random thoughts and very awkward run-on sentences. I hope this English translation will be of use to readers interested in this field.*

PART ONE

1. The ideas and instructions implicitly or explicitly enunciated in this document are intended to renew, complete and substantially replace the Italian Restoration Charter of 1972. They apply to all objects of all ages and geographical areas that have significant artistic, historic or, in general, cultural importance. Belonging to this universe of objects are architectural works and urban settlements; natural habitats of particular anthropological, faunistic or geological interest; constructed environments such as parks, gardens and agrarian landscapes; technical instruments; scientific and work tools; books and documents; evidence of customs of anthropological interest; works of three-dimensional figuration; works of flat figuration on any type of surface (wall, paper, textile, wood, stone, metal, ceramic, vitreous, etc.).

Such objects are found to a great extent in fragmentary condition in widely distributed archaeological, paleological or paleontological situations. They usually have been subjected from their creation or from their discovery to deterioration, dispersion or destruction by actions of a mechanical, chemical, geological, biological or anthropological nature.

A fundamental interest in humanity's history and development demands that the deterioration, dispersion and destruction of all the objects in question be lessened. All technical means of conservation should be available to preserve the inherent and peripheral attributes of the objects as close to the original state as possible, followed, when possible, by better conservation and restoration.

The following document will be called the 1987 Charter of Conservation and Restoration.

Terms used in the Charter's text are to be understood according to the following definitions:

Conservation: Prevention and safeguarding activities aimed at ensuring for a (possibly) unlimited period the material integrity of the object.

Prevention: Conservation actions performed on an object and its context, based on the most farsighted predictive knowledge.

Safeguard: Any conservative and preventive measures that do not involve direct material actions on the object.

Restoration: Any action that, based on the principles of conservation and all previously acquired knowledge, is aimed at restoring an object's legibility or, if necessary, its function.

Maintenance: Recurring actions to preserve an object's material integrity and functionality, especially after the object has gone through special processes of conservation or restoration.

PART TWO

3. The procedures of conservation apply not only to the safekeeping of a single object (or a group of objects), but also to its environmental context, when this context is historically pertinent and affects the object's physical condition or the ability to maintain it properly. Direct restorations on the object to prevent damage and degradation must respect the appearance of the object as it is expressed by its component materials, while maintaining its legibility. Conservation and restoration do not have to be simultaneous, but they must be complementary; in no case should restoration programs be separate from a program of maintenance and prevention.

4. Every Soprintendenza,* institute or office that is part of the Ministry of Cultural and Environmental Heritage or any local public administration that is responsible for the conservation of cultural/artistic heritage must periodically make a master plan for the conservation, restoration work and archaeological surveys (underground or underwater) that are to be carried out on behalf of government agencies, other institutions or individuals. The Ministry of Cultural and Environmental Heritage must approve all such programs, and the Ministry will base its approval on the opinions rendered by the pertinent committees of the National Council for Cultural Heritage.*

Even after the original presentation of the master plan, any work to be performed on objects (meaning, objects as defined in paragraph 1) must first be described and justified in a technical report. These reports must include the conservation history of the object, its present condition, the nature of the proposed work, any necessary interventions on it surrounding site and the estimated cost of the project.

For work to proceed, the Ministry of Cultural and Environmental Heritage has to approve these reports. For important objects, when conditions are problematic or where required by law, the approval must come from one of the sector review committees of the National Council for Cultural Heritage.

5. In relation to the objectives described above, all conservative activities must consider the impact of environmental factors, positive or negative, daily or seasonal, and how their chemical, geological, biological and anthropic nature affects the objects being conserved. In situations of heavy pollution and environmental damage, if the situation cannot be corrected in a reasonable period of time, the objects, or at least the most important ones, should be removed to a location where the environment conditions are positive and stable.

This applies also to art and objects under threat from natural disasters (e.g., earthquakes, floods and landslides) and to situations where crowds of visitors expose the works to a high risk of theft or damage. Regarding visitors, it will be necessary to determine the rate of visits above which the visitors will have a negatively impact the artwork or sites being preserved. The following factors should be considered to determine such threshold: the volume of the space, the characteristics of the exposed surface, the seasonal and daily climatic and microclimatic variations.

Climate control, cleaning and maintenance procedures must be constantly and carefully monitored.

6. The following types of restoration work to the material condition of an object are not permitted:

a) Completions, whether in an analogous or simplified style, even given documents or models that indicate how the object was or should have been in its completed state. Some limited exceptions can be admitted in the field of architectural restoration, in the form of simplified analogous completions, should they be necessary for the static stability of the surviving building portions, particularly in seismically active areas regions. This applies also to elements that facilitate the normal discharge of rainwater.

b) Demolitions or removals that erase evidence of the object's passage through time, unless these have been limited alterations that deface or are incongruous to the historic value of the object or completions in style that falsify the nature of the object.

c) Alteration or removal of the patinas, unless it can be demonstrated that they have been irreversibly compromised by alterations of the surface materials or where the altered surface material can cause further degradation of the object. This is particularly true when dealing with stone surfaces exposed to atmospheric sulfur pollutants.

7. Regarding restoration work that involves the material structure of the object, the following restoration and reintegration actions are allowed:

a) Additions of ancillary parts when the structural integrity of the object requires them; retouching or replacing small sections in a manner that is historically verifiable in order to maintain the harmonious appearance of the object and as long as such additions are clearly recognizable as new, and not part of the original. Different materials may be used as long as they are chromatically well matched to the context, are physically and chemically compatible with the supporting material from a physical and chemical point of view, and will not result in damage caused by the from differential thermal expansion (due to differing in thickness, method of application and composition).

These inserts must in any case be identifiable at close inspection with the naked eye. This can be accomplished by using surface treatments that are different from the traditional, particularly at the joining point between the insert and the original material. Each insert must be sealed and dated by the restorer in a discreet manner.

b) Cleaning of paintings and polychrome sculptures, but never reaching the pigment and the technique must respect the patinas and original varnish layers. For all other types of objects, the cleaning process should never reach the bare matter of the object. Some exceptions will be tolerated, for example, in buildings where keeping the degraded surface can lead to further deterioration (see paragraph 6e). In such cases the procedure will have to adequately documented.

c) Anastylis if well documented (the reassembly of a broken object from its original fragments); replacement of missing pieces as long as these are small and reconstruction uses techniques that are clearly differentiated from the original and recognizable to the naked eye. The infills must have neutral surfaces or be at a different level than the original. Another acceptable approach is to leave the original core of the object exposed. Such infills must not reconstruct patterned areas or elements that affect the figurative nature of the object in a substantial manner.

d) Modifications and new insertions for the purpose of static consolidation of the internal structure or of the supporting substrata. These are permissible as long as at the end of the work there is no observable alteration of the chromatic quality or surface of the structure. This is to be done only in extreme situations where conservatory approaches are not possible. In the field of architecture, experience in the last 20 years has led us to mistrust internal approaches such as steel pins, pre-stressed steel, cement or resin injection due to their invasiveness, poor durability, irreversibility and undependability.

Even though such techniques are more visible, it is preferable to use traditional methods of consolidation such as buttresses, infills and metal straps or belts, which can easily be inspected and replaced.

e) Changing the object's location or arrangement when the traditional location or arrangement no longer exists or when the conditions necessary for its conservation require that it be placed in a different setting (see paragraph 5).

PART THREE

8. Any effort to restore an object or its surroundings, undertaken according to the goals described in paragraph 3, must be carried out using materials and methods that render future restoration and conservation work possible. Regarding architectural restoration, only the techniques and materials mentioned in paragraph 7d have been proven reliable by long-term experience (some limited exceptions are described in attachment B).

Before work begins, all interventions must be studied and justified in writing. During the execution of the work, a journal will be kept; that will be followed by a final report, with photographic documentation of the state of the object before restoration, during the process and after work is completed. In addition, all scientific tests done on the object, whether they are physical, chemical, microbiological or any other type, will be documented. Records of all this documentation will be kept in the appropriate administrative section as per paragraph 4 and another copy will be sent to the Istituto Centrale per il Restauro*. When an object is to be cleaned, a small area of surface at an edge is to be kept untouched, as sample of the unclean surface. In the case of additions are being removed, the removed parts are to be stored and/or documented in a special archive/warehouse belonging to the pertinent government agency.

9. New conservation or restoration procedures and materials (ones other than those currently approved) have to be approved by the Ministero per i Beni Culturali ed Ambientali.* This ministry will base its decision on the evaluation made by the Istituto Centrale per il Restauro.* This institute's responsibility is to discourage the use of obsolete, damaging or untested methods and materials and to recommend new, improved ones; should the institute lack the tools or the skills to perform the appropriate research and testing, it will identify a party that is capable of making such an evaluation.

10. Measures taken to preserve objects described in paragraph 1 from pollution or atmospheric, thermal and humidity variations must respect, within the limits of the possible, the nature and color of the surface materials and any other element that substantially and permanently characterizes the objects and their context. Such measures must not alter the perception of the age and period when the object was created.

11. The specific methods to be used in conservation and restoration in the historic urban cores, on architectural monuments, archaeological monuments, in archeological excavations for paintings, sculpture, applied arts, books and archival material are found in attachments A through F to the present document.

12. Any conflict arising from an ambiguity of category will be resolved by the Ministero dei Beni Culturali e Ambientali* based on the reports of the local supervising agencies, the various pertinent Institutes and the pertinent discipline committee at the Consiglio Nazionale dei Beni Culturali.*

ATTACHMENT A: GUIDELINES FOR THE PRESERVATION OF HISTORIC URBAN CORES

The concept of "historic center" can be understood by bringing together two ideas: "center," which is understood as a human settlement in the form of a city or a village, and the qualification of such as historic. A "historic center" can be defined as a human settlement whose nature is irreplaceable in the history of human culture. Aigues-Mortes and San Gimignano are prominent examples of historic centers.

Custom shows that usually a "historic center" is identified with the "old city," the historic areas of a larger city that has expanded in modern times, with a different structure, sometimes expanding chaotically, and sometimes overwhelming the original core. The main mission is the protection, conservation and restoration of historic centers and/or areas that have survived natural and manmade disasters, and unregulated urban and industrial development. This task is not an easy one, involving several different government agencies: the Regions, the Ministry of Culture Heritage, the Ministry of Public Works, Ministry of the Environment and more. There is no law that requires coordination among all public institutions involved in the work of conservation, preservation and rehabilitation (hopefully this will be done in the future by the Ministry of Cultural Heritage and Environment). In this document we can only present a few general principles and detail guidelines regarding urban planning.

When starting a project in an urban center the following should be carefully considered:

- a) the history of the original settlement;
- b) the reasons that led to the settlement's survival in the past, its partial disappearance, its relative stagnation or present state of conservation;
- c) what factors, in the short and long term, cause it to require conservation, whether these are threats of abandonment, threats of demolition for more profitable land use or threats to specific structures. Other factors to be considered are the hydrogeological situations arising mainly from the absence of good management of natural, manmade and land resources.

In general, those activities that contribute to halting the destruction, abandonment or disordered reuse must be identified and harnessed to help in the preservation and restoration of historical centers. Careful study should be done of the most compatible reuses for the structures in a historic center, the refurbishing of distinguishing features, distinguishing volumetric features, the road system, the coloring of individual buildings and surviving street furnishings. This study should lead to the elimination of forms of reuse that are incompatible with the rehabilitation and conservation of the historic areas.

Among the first actions to be taken should be making sure that the hydrogeological conditions of the area are maintained in good state and coordinated with land use policies for agricultural and forestry resources. Here too it is essential to have a good culture of land use management.

Plans for urban renewal and maintenance of historic centers must first carefully considered the environmental and urban context. For example, a well preserved and isolated small center (Monteriggioni) needs to maintain a green buffer area proportional to the size of the center in order to preserve historic areas already in the process of being transformed by modern development and should implement appropriate limits of height and volume. The available planning instruments should be used promptly and preventively, because if applied too late, the impact of intensive urbanization may tighten like a noose in the historic areas, subjecting them to intolerable stress from cars and other forms of environmental pollution.

Preserving the entire fabric of an urban space requires consideration of individual buildings, public spaces (streets, squares, etc.), private open spaces (courtyards, gardens, open space, etc.), significant structures (city walls, gates, rock outcroppings etc.), or any natural features that are part of the urban environment, and that to a greater or lesser extent characterized that urban landscape (natural contours, watercourses, or geomorphologic peculiarities such as the cliffs of Orvieto). The buildings should be preserved not only in their physical, architectural aspects, but also in their typological characteristics as an expression of functions that have over time characterized the use of the city. In such cases, the guidelines laid out in Attachment B will apply.

During urban renewal work, attention must be paid to the road and traffic system in the city so that incompatible flows of traffic are routed away from the historic districts. This will reduce a series of urban pathologies that normally result from such inappropriate use of the historic core.

Changes in the urban furnishings and landscaping of streets, squares and all other open spaces (courts, gardens, etc.) must be done in a way as to create a consistent connection between buildings and the open space; this also applies to the chromatic aspects of structures in the historic center.

Preservation work on buildings usually can be categorized as follows:

- 1) Structural consolidations and modernization of the plumbing and ventilation systems. These should try to conserve the existing structure, the typology, avoid transforming the overall character of the building and follow the guidelines set in Attachment B.
- 2) Adaptive reuse of the building. This should be done only when it is absolutely necessary for the building to continue to be an occupied and useful structure. In this type of intervention it is most important to respect the typological and structural nature of the building and avoid uses that will deform substantially the character of the building.

The legal/institutional instruments relevant to the situations above are:

- a) The land use plans for improvement and coordination of water recourses, geological conditions and agriculture and forestry in relation to transportation routes (roads, railroads, sea, river and lake).

- b) Land use plans for coordination of urban areas to be incorporated into the above mentioned.
- c) Provincial master plans. These are to be coordinated with the instruments mentioned above.
- d) City master e.g. plans. Which structure the relation of the historic center with the surrounding territory, and with the city as a whole.
- e) Sub-district plans for the historic centers.
- f) Detail plans of blocks or other homogeneous elements of the city.
- g) Urban color plans for the historic centers that are consistent with the "chromatic traditions" of the city. These plans should be based on an extensive investigation that includes visual observation, material and chemical data, bibliographic and iconographic studies and other available documentary sources.

ATTACHMENT B : INSTRUCTIONS FOR THE EXECUTION OF ARCHITECTURAL RESTORATIONS

Timely maintenance assures a long life for monuments, slowing damage and deterioration. Buildings should be under continuous surveillance, so that conservation measures can be applied before restoration work of larger magnitude becomes necessary. Moreover, it is important that *conservation* be the theme of all restoration, respecting historical additions and avoiding new additions or reconstructions.

To assure the survival of monuments, it is important to carefully consider whether a new use for an old building is compatible with the historic or artistic nature and content of the monument.

The adaptation work will have to be kept to a minimum, conserving scrupulously the external shapes and avoiding substantial alterations to the building's typology, structure, construction systems and the inner circulation. The architectural restoration plan and design must be preceded by a careful study of the monument that takes into consideration such things as regional context, the urban fabric, building typology, formal quality and visual prominence, structural systems and , in relation to the original building as well as to the future additions or modifications.

This study should research the building's bibliography, iconography and archival records in order to acquire every possible piece of historical data. The subsequent design project will require a complete and accurate set of measured drawings, a photographic survey, a study of the regulating patterns, proportional systems, and will also include a separate, precise study of the structural condition of the building.

Restoration of monuments is a very delicate operation involving great responsibility and is to be entrusted only to specialized contractors. The work should be paid for on a "fixed price" basis, not priced "by the piece." The restoration work must be continuously and carefully supervised in order to guarantee good execution and allow quick response in case of unexpected conditions or the discovery of structural problems. This is also important in order to avoid damage or destruction to any elements not documented in the survey that may be discovered during demolition, but which are useful to the understanding or the restoration of the building. In particular,

the site supervisor must discover any traces of decoration before cleaning or removing paint or plaster, and know the original textures and colors of the walls and vaults.

Fundamentally, the restoration has to respect and preserve the authenticity of the monument's component elements, and this principle must guide the operating choices. In the case of out-of-plumb masonry, for example, even if practical necessity suggests demolition and reconstruction, straightening the wall without replacing the original masonry must first be considered and tried. Only in the most extreme conditions would damaged stones be replaced.

Substitution of decorative work should be held to a minimum and it will always have to be distinguishable from the original elements, differentiating the new materials or surfaces. The preferable method is usually to have a clear and continuous contour line where the new work meets the original, using, for example, small strips of metal, a continuous line of tile fragment or by making a visible groove on the surface, whichever is most appropriate. The consolidation of stones or other materials will require test trials beforehand using methods that have been accepted by the Istituto Centrale per il Restauro.

Every precaution should be adopted to avoid further deterioration, therefore all restoration work will have to include measures to eliminate the causes of damage. For example, if a stone has been cracked by rusting iron clips or bolts that expand as they rust, it is desirable to disassemble the offending part to replace the iron with bronze or copper or, even better, with stainless steel (which is a nonstaining material).

Stone sculptures located outdoors or in public squares must be carefully supervised and, whenever possible, and following the procedures described above, consolidated and protected (sometimes seasonally). If preservation outdoors is impossible, sculptures should be moved indoors. To preserve bronze or stone sculptures in fountains, the circulating water should be decalcified. This eliminates limestone accumulation and the resulting harmful periodic cleanings.

The patina of the stones must be conserved for obvious historical and aesthetic reasons, but as well for practical, technical reasons. Patina has a general protective function, evidenced by corrosion on surfaces where the patina is missing. Material that accumulates on the stone can be removed (detritus, dust, soot, bird guano) using only brushes with vegetable bristles or air jets at moderate pressure. Metallic brushes and scrapers must be avoided. Likewise, generally to be excluded are pressurized jets of steam, water or sand blasting. It is even advisable to avoid any form of washing.

ATTACHMENT C: INSTRUCTIONS FOR THE CONSERVATION AND THE RESTORATION OF ANTIQUITIES

Beyond the guidelines contained in the articles of the Charter of 1987 for Conservation and Restoration (87 CRC)*, it is necessary to keep in mind the special requirements for preservation of underground archaeological sites and the conservation and the restoration of artifacts during land and underwater archaeological searches (per article 4).

Of particular importance in the preservation of underground archaeological sites are coordinating laws and regulations regarding eminent domain, land-use regulations governing the creation of archaeological preserves and parks, and any other site specific legal constraints. An overriding concern will be the accurate identification of the boundaries of archaeological sites. This requires data that can be acquired by collecting scattered ceramic shards, documenting structures showing above the ground and using techniques of land surveying and remote sensing. A complete understanding of the site's archaeological nature will allow a better formulation of preservation guidelines, land use restrictions, local land use master plans, and surveillance of the site in situations of agricultural uses or building construction.

In order to preserve underwater archaeological heritage (in accordance with the laws and binding regulations of underwater excavations) and in order to prevent indiscriminate and unauthorized tampering with ancient shipwrecks and their cargo, and with submerged ruins and sunken sculptures, the following is mandatory: the systematic exploration of the Italian coasts by specialized staff to create an accurate "Forma Maris" (coastal sea map) identifying the location of shipwrecks and submerged monuments. This is also in order to provide better programming for underwater scientific searches.

The recovery of wrecks of ancient boats will not be recovered before done before having predisposed the facilities and equipment have been prepared for the purpose of sheltering items recovered from the sea bottom and for performing the required treatments, particularly in the case of wood items, which need extensive washings and soakings in special consolidating substances in spaces with special air and temperature controls.

The systems for raising and recovering sunken boats will be designed to meet the specific needs of conservation of each wreck, keeping in mind experience acquired internationally in the last few decades. The same applies to land-based archaeological explorations: methods of conservation and restoration of artifacts will be tailored to the type of artifacts and component materials that are being excavated. For example, for ceramic materials and amphorae, all measures will be taken to help identify traces of the content, data that is vital for the study of commerce and daily life in antiquity. Particular attention will also be given to documenting and stabilizing or fixing inscriptions painted on the body of the amphorae.

During land-based archaeological explorations, the documentation and recovery guidelines fall more in the framework of excavation methodology. With regards to restoration, the right resources must be available during the excavation in order to

guarantee the immediate conservation of the most perishable artifacts, and later for the final preservation and conservation operation.

Regarding finds of dissolved or scattered elements, decorations in stucco, painting, mosaic or opus sectile*, it is necessary, before and during their removal, to hold them together with plaster, gauzes and adhesive, so as to facilitate their resetting and restoration in the laboratory.

In the recovery of glass it is advisable not to do any cleaning during the excavation, due to the ease with which glass disintegrates.

Regarding ceramics and terracotta, special care must be taken to avoid any form of washing or cleaning which can damage delicate painting and varnishes.

Special care must be taken in collecting objects or fragments of metal, especially if they are oxidized. Besides resorting to consolidation systems, measures must be taken to provide adequate supports. Special attention must be given to fragments and traces of woven fabric.

It's also part of well-established practice, particularly in Pompeian archaeology, to make plaster casts of cavities left by plants and perishable organic materials.

In order to implement these precautions, restorers who can carry out these initial tasks of recovery and consolidation must be on hand or quickly available during an excavation.

Particular attention needs to be given in situations where the removal of paintings or mosaics from their original supports is necessary and reinstallation in situ is planned. Experience teaches that removal without damage is not always possible and reinstallation is not advisable, particularly without modifying the environmental conditions that caused the original damage. The removal of a painting from its support and reinstallation in its original location should be considered exceptional and not the rule. Where it has been established that it is necessary to perform a "stacco" or "strappo" and successive reinstallation in situ, it is recommended that the new supports be of a material that is chemically and physically compatible with the painting.

In places such as prehistoric caves, tombs and other small spaces, particular care must be given to protecting interior decorations such as mural paintings from damage deriving from climatic conditions. For the best conservation of paintings in this situation, two environmental conditions must be kept perfectly stable: air humidity and temperature. Both of these are easily altered if care is not taken with crowding by visitors, excessive lighting, and movement of exterior air into the location. One answer is to control admission of visitors by means of "air locks," vestibules that separate the exterior atmosphere from the old preserved space. Such precautions are already in use at prehistoric painted monuments in France and Spain, and would be desirable at many Italian monuments, such as the tombs in Tarquinia.

For the restoration of archaeological monuments, besides the general guidelines contained herein for architectural restorations, it will be necessary to consider certain

other requirements for dealing with ancient buildings. When doing a complete restoration of a monument, a historical study must be done, which includes test excavations of the foundations. Such work must be conducted using stratigraphic methods that can reveal precious information on the history and phases of construction of the building.

For restoring veneer masonry, such as *opus incertum**, *quasi reticulatum**, *reticulatum** and *vittatum*, if the same type and quality of tuff or tuff blocks are used, to differentiate the new material from the original the new must be fitted on a slightly shallower plane. In the case of brick veneer, the new bricks should have a chiseled or grooved surface or could include narrow strips of a different material. Finally, dated tags or seals should be applied to the patches. For work in or near Rome, gaps in white marble can be filled with travertine. This technique was successfully tested by Giuseppe Valadier in his restoration of the Arch of Titus.

In ancient monuments, particularly those of the archaic period, it is undesirable to place adjacent to each other in the restored sections sharply different or anachronistic materials, which, from a chromatic point of view, may result in a strident and offensive appearance. It is possible to treat the new material of the same type as the old so as to differentiate the new from the old, thus maintaining harmonious color patterns. The capping of ruined walls constitutes a particular problem with archaeological monuments. Capping walls can spoil the scenic quality of a ruin; one solution is copings made of *cocciopesto* with double slope and overhanging drip that protect the faces of the wall from the rain.

With regards to the general problem of the consolidation of architectural materials and of exterior sculptures, experimentations with methods not sufficiently proven and that may cause irreparable damage must be avoided.

For archaeological structures, avoid as far as possible the use of cement injections and steel pins; it is practically impossible not to spill cement, and this will stain the external surface of the structures.

In the case of concrete with brick facing it is preferable to rebuild the missing parts with even using bricks that will have the appropriate depth and texture to match the jagged nature of the *lacunae*. For further information on the protection of wall facings see attachment B.

The budget of an excavation campaign must include the costs of temporary covering and adequately protecting the excavated area and structures while the excavation is in progress. The budget must also include the cost of publishing a complete report of the finds and the surveys of the archaeological area excavated so as to create a complete record of the work for the future. Should it not be possible to turn the archaeological area into a permanently protected zone it is preferable to rebury the site once the work has been completed.

Such filling must be done carefully with a functional drainage system and with materials that are sterile, inert and light in weight (mixtures of *pozzolana* and *lapilli* ash, etc.).

Italy's many different climactic zones must also be considered when choosing methods for restoring and conserving archaeological monuments.

ATTACHMENT D: GUIDELINES FOR THE CONSERVATION AND RESTORATION OF ARTISTIC WORKS, WHETHER PLASTIC, PICTORIAL, GRAPHIC OR APPLIED

Preliminary Operations

The first step in any work on any artistic or historical relic is a thorough survey of the state of conservation of the object itself and the environmental conditions in which it has been kept.

This survey should, where possible, establish or reconstruct the climate and the microclimate in the space in which the object has resided. This means using instruments to acquire data on the limits and variations in temperature, barometric pressure, humidity and light the object has been exposed to, as well as conditions affecting the entire building (beginning with prevailing wind directions). Another key piece of data is the chemical composition of the air that surrounds the object, to identify the origin and nature of any pollutants and also the material composition of the environment in which the objects exist (structures, surface finishes, furnishings, etc.).

With regard to the state of conservation of the object it is crucial to establish the materials and manufacturing methods used; to determine which parts are original and which are spurious additions or undisguised ones and to determine the approximate period when they were done. The possible conditions inside the object should also be explored.

Such investigation, which at first will be autoptic*, must also be corroborated by physical and chemical analysis. For this scientific testing, nondestructive test methods should always have priority. This analysis and testing is to be conducted in close collaboration with experts from various fields and accurately recorded in the restoration log. Documentation has to include the following specific items: photographs in black and white and color, in the visible spectrum, documenting the entire object and all appropriate details; also multispectral, single-band infrared, ultraviolet, and X-ray images. It is understood that this imaging must be done using highly controlled and controllable sources of light and can effectively deal with surface glare, spatial conditions, sensitive materials and filtering of contrasts and chromaticity. All objects originally intended for view from the front must be photographed also from other points of view (back, sides, interior parts, etc.).

To establish the presence of the original varnish layers or to determine the condition of the preparation layer, if it is impossible to use nondestructive methods, small samples may be taken from the artwork, avoiding any important area of the image, and they should be very limited in number. The exact location of the samples taken will be marked in a set of photographic images of the entire artwork and/or of the close-up details and should be noted and referenced in the restoration journal.

As for wall paintings or paintings in stone, or ceramics or other media that are not movable, a search must be made for any problems owing to moisture, and whether the problem is from seepage, condensation, or capillary action, wall mortar or rubble wall cores must be sampled to measure the moisture content. If biodeteriogens* are noticed in the wall, those too should be subjected to scientific analysis.

In the case of sculptures, investigations should not be limited to the surface, they should be extended to the core structures, possibly by means of nondestructive testing (radiography, gammagraphy, ultrasound, magnetometry, etc.).

Guidelines in the Implementation of Conservation Measures

Preliminary investigations will establish the direction of the work, whether it is a simple cleaning operation, a consolidation, removal of over-paintings, transport of the image to a new support or decomposition of fragments. The best specific procedure, however, is not always revealed by scientific examination. In such cases the only method left is cautious small-scale testing of all the substances and procedures to be used, on the actual material being restored.

In the case of wooden supports (as for any other type of support that is in relatively good condition), it is preferable not to alter them, so as not to disturb the balance in the material that has been achieved over time. If action is taken to straighten or reconnect and/or patch supports, use procedures that respect the orientation of the wood fibers and the same botanical species.

In particular, where a painting on a wood support is in good condition, despite cracks and gaps at the joints between the boards, any wood patch should have the same level of internal humidity as the original wood, should be used in small segments and follow well-established practice. When the thickness of the painted panel is too thin compared to the painted surface, a *parchettatura** type of support can be added on the rear, which will ensure the natural expansion and contraction of wood to which it is applied. Wood supports that have suffered biological attack (insects, microorganisms, etc.) should be disinfected with specific gases that are known to be without adverse action on the material itself and on the pictorial layer. This method eliminates the organisms, but does not prevent future attacks, so it's useful to then apply more durable preventive treatments.

Only when the wood is practically destroyed can you think of transferring the pictorial layer to a new support. In such a situation, where possible, the original *imprimatura** should be retained and it is also desirable to retain the original pictorial layer's surface shape. It is important to choose the new support material for physical stability and it should not be prone to twisting, expansions or contractions. In addition, the mounting adhesive should be carefully chosen for stability, and to avoid damage during the transfer operations .

When the support of a painting is a canvas, relining the canvas is not the only option. In cases where there are no lesions on the canvas but only a loss of canvas tension, it will suffice to adjust the tensioning system.

If the canvas edges are weakened they can be reinforced with strips of cloth that just slightly overlap the edge of the stretchers (strip lining)*. However, when relining the whole canvas is deemed necessary, the following should be avoided: the use of nonremovable adhesives, too much compression and high temperatures (which could damage the pictorial layer). Never attach a canvas painting to a rigid support.

Stretchers should be designed to maintain proper canvas tension, which can be done by simply ensuring that there is an adequate overlap of the relining canvas for any subsequent replacement of the stretchers or retensioning.

The preparation of the pictorial layer requires, first, carefully establishing the state of its adhesion and cohesion to its support, to be followed by consolidating all detached and weakened sections. The adhesives used must be compatible with the original materials and methods of application locally and over the entire surface. All surplus adhesive must be completely removed to avoid damage from the possible contraction of the adhesive material.

When the entire pictorial layer must be protected with a veil (i.e., Japanese rice paper), the adhesive should be removed with solvents that do not damage the original materials. Cleaning the artwork will be done mainly in two ways: with solvents or mechanically. The mechanical means (scalpels, etc.) should always be used with caution and working with a microscope. When using solvents, these must be selected, mixed and calibrated so that they evaporate completely, leaving no residues in the pictorial layers, and as far as possible, to keep toxicity levels low (for the sake of the restorer)*. Cleaning must not damage the natural aging protective skin (patina) created on the surface of the painting by the hardening of the binder and the final protective layer, therefore the solubility of the cleaning agents must be tested, to determine the depth and time of cleaning.

The primary purpose here is conservation of the original artwork, however, this does not exclude repairing gaps, to restore continuity to the image. The integration process is acceptable if the lacunae are completed using proper critical techniques, and must stop when the additions become hypothetical.* The materials used should be reversible and, at a close distance, be distinguishable from the original. The final protective layer must be of material similar to the painting, but be sufficiently resistant, be easily reversible in time and offer no risk of damage to the pictorial layer.

Precautions for Conservation and Restoration of Wall Paintings and Mosaics

As with movable artworks, before beginning any work on murals it is necessary to determine as precisely as possible the technique and materials used and to survey the state of conservation of the artwork and the causes of any deterioration. Before any work is done on the artwork, the structure around it must be repaired so as to eliminate any agent of deterioration from the poor state of conservation of the building.

Removal of dust from the surface should be done with a great deal of caution so as not to remove along with the dust parts of the chromatic surfaces that with time have become powdery. It is also important to examine the dust for biodeteriogens, so as to intervene with appropriate pesticides if necessary. The first conservation work should

address cohesion and adhesion of the various layers. The materials to be used for such operations should be chosen based on laboratory tests, including aging tests (at least 15 years), that guarantee reversibility, structural integrity and color stability.

Cleaning methods may follow the practices used with movable paintings, except for the removal of incrustations of poorly soluble salt deposits, to which reference is made to existing literature.

A mural is an integral part of a work of architecture, so its transfer is justifiable (even if traumatic) only in cases where the building or support must be destroyed or removed or it has suffered catastrophic damage (earthquakes, fires, floods, etc.). When dealing with a palimpsest, transfer is permissible only in very exceptional cases.

If it is necessary to remove a mural painting from its wall, the most desirable method is "stacco," which maintains the paint surface in its original conformation. If it is necessary to resort to the "strappo" method to remove the fresco, particular attention should be given to the possibility of recovering the sinopia. In this case, the support should be replaced with one that guarantees the maximum mechanical stability, inertness and chemical neutrality. It will need to be the same size as the painting and without intermediate sutures, which with passing time will, inevitably, be visible on the surface painting. The glue used to hold the pictorial layer's canvas to the new support must dissolve easily in a solvent that does not damage the painting.

The best new support materials currently are so-called rigid self-supporting panels. These use different designs and materials, but always have an intermediate layer between the painting (the first new layers) and the rigid support. This layer, called the work layer, is made of durable materials, is lightweight, but also is easily removable with solvents or by mechanical means, thus avoiding in the future having to glue a protective canvas* on the pictorial layer when the new backing needs replacing.

Mosaics have, more or less, the same characteristics as murals. When it is necessary perform a "stacco," unless the mosaic's surface is perfectly flat, its components must be assembled into their original shape and when reattached the original surface shape and position of the tessera* maintained. Before application of the gauze and plaster to lock the pieces of the mosaic in place and remove the tessera, it is important to check the conservation state of the tessera, which may require consolidation. Particular attention must be given to preserving the tectonic character surface and, in the case of floor mosaics, avoid any grinding of the surface.

Precautions for Conservation and Restoration of Sculpture

After determining the materials and the technique used to create the sculptures (marble, stone, plaster, papier-mâché, terracotta, glazed earthenware, fired clay, painted unfired clay, etc.), where there are no painted surfaces and cleaning is needed, washing with water must be ruled out. Even if this leaves the material intact, it may destroy the patina. Therefore, when a sculpture is excavated or discovered in open water (sea, rivers, etc.), any deposits or incrustations should be removed mechanically.

When dealing with wood sculptures, where the wood is in bad condition, the use of fixatives has lower priority than preserving the original appearance of the wood. If the wood is infested with woodworms, termites, etc., it must receive a suitable gaseous treatment to terminate the infestation. For sculptures consisting of fragments, use nonoxidizing metals for any bolts, brackets, etc. For bronze objects, particular care should be taken to preserve the “noble” patinas (atacamite, malachite, etc.) as long as under the patina there is no ongoing corrosion.

General Guidelines for Relocating Restored Works

If temperature and humidity problems in a building or in a specific wall are the reasons for a restoration, all possible and necessary building repairs and environmental improvements must be made so the art can be brought back to its original location; this is essential for its historical and aesthetic integrity. However, the restored artwork should never be placed in its original location if the necessary repairs to guarantee its good conservation have not been completed.

ATTACHMENT E: BOOK CONSERVATION AND RESTORATION

Before doing any restoration work, books should be considered in their multifaceted complexity: historical, artistic, physical and functional.

When dealing with Library Heritage, talking about “multiformity” is very appropriate, being that the objects involved are made of various materials, such as paper, parchment, papyrus or other writing media, such as wood, metal, leather, cardboard, twine, alum tanned leather, and textiles.

Knowledge of all a book’s original materials, and the new ones that will be included during the restoration, is indispensable. The restoration will be guided by a systematic investigation conducted by experts: the librarian curator (book’s history, artwork, the importance of the book, etc.) to the biologist, the physicist and the restorer. Libraries will run periodic checks on the conservation status of their stacks, making systematic and sustained measurements of temperature and humidity, in order to ascertain whether they are keeping within the temperature and relative humidity ranges (16 to 20°C, 40% to 65%, respectively) considered optimal for the preservation of books.

A maintenance plan should provide both for improvements to the library environment and the restoration and conservation of individual books. This should take into consideration not only the books but also the users; such programs should also plan for preserving alternative media (microfilms, microfiche, any video discs).

When there is deterioration of biological origin the restoration work should be preceded by a disinfection and/or extermination procedure.

In the card catalog the details of each book should be described, including the record of any damage and of any restorations it has sustained. This will be useful to future librarians who will be able to evaluate based on this information the results of past methods of restoration and make improvements in their approach to conservation.

When restoring a book, a choice must be made whether to make a total or partial intervention. It is always preferable to perform a “small restoration,” one that is done without unbinding the book. The intervention will thus be minimized and the book’s original features will not be altered owing to re-binding. Where it is considered essential to dismantle the binding of the book, it should be done with the utmost caution, to avoid losing even the smallest evidence of the book’s history. Radical restoration work will not be done or be considered necessary if a book is particularly important due to its structure, age or artistic value, or in cases where physical consultations are rare or where there are other valid reasons for noninterference, to be assessed on a case-by-case basis.

Before dismantling volumes, the original page numbering must always be checked, to avoid errors during the rebinding of signatures. Any abnormality should be reported to the responsible librarian. There will never be the same criteria for each book to be restored, because the work has a life that should be considered in relation to the content, its history, the subject matter and its use. Therefore we can never give a single rule whether to save or set aside the binding, or when to privilege the text relative to the structure and so on.

There are many case studies. As a general principle, we can say any action that can alter the general appearance and value of the book must be avoided. Conservation work should try to preserve as much as possible of even seemingly insignificant items. Books are also functional objects that need to be touched, opened and manipulated, in the manner required for their use. So sometimes the original binding needs to be replaced because it no longer is able to fulfill its intended use.

More often than not, the original bindings are not completely replaced but are re-attached to a new cover, which performs the mechanical binding function. Regarding the stitching, the principle of “where it was and how it was” applies, except in special cases dictated more by functional criteria. For the pages it will be necessary to perform solubility tests on the inks and colors before doing any “wet” procedures (washing, de-acidification in water and alcohol, measurement of pH, solvents, fixatives). These operations, carried out only if absolutely necessary, must be monitored closely. All precautions should be taken not to lose any fragments of the sheet during washing by using, for example, frames and screens.

After washing, the sheets will be reattached. If the paper requires consolidation, partial or total, this will be done by attaching a transparent but strong layer of Japanese rice paper with a soft brush and a reversible adhesive. An important step is the pressing of sheets needed to restore the original appearance of the surfaces. Small marble weights should be used to avoid too much pressure. When this procedure is not sufficient, use a hand press, the force of which can be adjusted to preserve reliefs and other recesses that can be found in the sheets of paper.

The actual patches must be of material that scientific tests have determined to be appropriate. Obviously it must be recognizable as a patch. There will be no restoration of elements that have been voluntarily removed from the book: miniatures, drawings or anything else, because that is now part of the history of the book. Only those points where there is the greatest mechanical stress will be reinforced. Consideration should be given to using sleeves, boxes or similar to better preserve the book. For parchment,

the principles of restoration are the same as paper, except for washing, for which, if necessary, a mixture of water and ethyl alcohol will be used. The pressing process will be only a "stretching," using small weights or small straps.

It should be emphasized once again in these general rules that a book is considered a work of art in the broadest sense, both for its intrinsic material cultural value (e.g., the crafting of the book, introduction of certain devices or elements, use of particular materials, influence of manuscript copying centers) as well as its purely artistic value (any miniatures, engravings or watermarks the book contains). For these reasons, each book must be treated as a special case. The problem of modern book conservation should be given some special consideration. The basic criteria are the same as for an old book, but because the paper produced from the 19th century onwards is of lower quality than from earlier times, modern books have a greater tendency to deteriorate.

Traditional raw materials were purer and old books often are naturally protected against acidity due to alkaline substances (carbonates) in the paper. Developments in the 19th century caused a steep drop in paper quality, the paper becoming fragile, rigid, difficult to size* and strongly subject to browning. Specifically these changes were the result of the introduction of alum, acidic compounds, the misuse of the "Dutch paper making machine," the use of wood pulp containing lignin, the use of chlorine bleach to whiten rags and the sizing of paper with rosin and alum, which also causes acidity.

We are facing more problems, which are more and more difficult to resolve in part because little is known about the composition of contemporary papers. There should be more careful research and studies in this topic. The final recommendation to library conservators is to carefully assess the urgency and utility before engaging in any form of restoration which should be considered a measure of last resort and to rely primarily on effective programs of prevention and maintenance.

ATTACHMENT F: THE RESTORATION OF ARCHIVAL DOCUMENTS

Archival documents should be restored only when the structural integrity of the media is seriously compromised to the detriment of the historical record and not before having established the causes of deterioration. Moreover, because of the special value of historical, political and legal documents archived and collected by the state, the handling operation for conservation and restoration must guarantee the integrity of the information contained in each document. Every restoration of archival documents must be authorized by the Centro di Fotoriproduzione, Legatoria e Restauro degli Archivi di Stato (CFR)*, based on a written request, with an explanation of the reasons for the work from the directors of the State Archives or the Archival Soprintendente of the respective institutions. The CFR will either perform the work itself or authorize other parties to do it. The proposal must include an analytical description of the deterioration and its causes, together with photographic documentation.

Any proposal for restoration work of greater complexity, due to the nature of the media, graphics, bindings, dimensions, or the need for physical chemical and/or biological testing, must be scrutinized and approved by the CFR. The restoration work

should be described in detail and in advance for each individual operation: methods, equipment, products and materials. The restoration must preserve the originality of the document in respect of form, structure, support or any other original feature.

The restoration should be reversible. The patching of missing parts should be obvious to the naked eye. In no case will there be any reintegration of missing graphic elements.

Work in excess of the minimum that is required can be justified only by the needs of future conservation.

Any added items that, over time, have improperly altered the original document, must be removed.

The use of mechanical devices for the restoration of paper documents is allowed only after a careful evaluation of the conservation status of the supporting media and the stability of graphic elements.

Restoration and various operations must be documented in a detailed report describing every task, methodology followed, equipment used, products and materials applied with an indication of the concentration and type.

All restoration must be performed by qualified staff, at properly equipped workshops. The goods and materials to be used (adhesives, glue, fixatives, solvents, solutions, paper, skins, etc.) must meet the requirements of durability, stability and reversibility and must be tested and approved by the CFR.

The CFR is responsible for guidance and oversight through inspections, while work is in progress and after the work is completed, to determine the suitability and compliance of the restoration with the technical guidelines.

After the restoration, the storage conditions, dictated by the CFR, must be carefully followed by regular control of the storage environment and the state of conservation of the documents.

NOTES AND GLOSSARY

* Term included in the notes or glossary

Comment in Italics – Comments by translators

Anastilosis – (Lat./English) Reconstruction of a building or artwork from remaining fragments.

Autoptic – Visible by the naked eye.

Biodeteriogen – Biological agents of deterioration.

Cocciopesto – Hydraulic cement or mortar made by mixing water, lime, sand and ground ceramic, bricks or tiles.

Consiglio Superiore delle Antichità e Belle Arti – Government advisory council for artistic and archeological matters.

Cuci e scuci (Ital.) – A masonry restoration method that allows walls to be restored or rebuilt without large-scale shoring or knocking down the wall. The method

entails demolition and rebuilding of small sections of the wall. Where necessary, the process is repeated several times until a much larger portion of the wall has been completed.

Imprimatura – Ground or base coat applied on the support of a painting.

Istituto Centrale per il Restauro (ICR) (now called Istituto Superiore per il Restauro e la Conservazione, ISRC) – Main Italian government restoration school and research center, located in Rome.

Lacuna (Lat. lake, pit, cavern) – Missing section of artwork normally used to refer to two-dimensional artwork.

National Council for Cultural Heritage. (*Consiglio Nazionale dei Beni Culturali e Ambientali*) – Multi disciplinary council within the Ministry of Cultural Heritage that evaluates issues of policy and technical procedures regarding the conservation of cultural heritage.

Opus incertum – Cement core walls built with small irregular stone blocks.

Opus reticulatum – Cement core walls with stone facing blocks that are square and arranged in a diagonal "netlike" pattern.

Opus sectile – Mosaic done with different size stones.

Opus vitatum – Cement core wall with stone facing that includes at regular intervals horizontal bonding layers bricks

Parchettatura – Joining and stiffening structure for a painting done on multiple woodplanks; it consists of a grid of sliding boards attached to the back of the wood boards.

Reintegration or integrations (English adaptation of Italian) – Retouching, refilling or visually linking of lacunae or missing section of artwork.

Sandwich support – Fiberglass panel with aluminum honeycomb core.

Soprintendenza (Sovrintendenza) – (Italian) In this document, a supervising government agency usually means the regional agencies of the Ministero dei Beni Culturali e Ambientali. These agencies do the in situ supervision and management of the cultural heritage.

Soprintendente (Sovrintendente) – (Italian) Head of a soprintendenza.

Stacco – Method of removing the pictorial layer from mural paintings or tesserae from mosaics when the pictorial layer is removed along with the supporting material.

Static – Structural.

Strappo – Method of removing pictorial layer from mural paintings or tesserae from mosaics when the pictorial layer is torn away from its support. (This practice is no longer considered desirable.)

Tessera- A piece of stone or glass used as a component piece of a mosaic.