

The Conservation of Historic Cemeteries and Funerary Monuments

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Abstract

This article sets out to present an overview of the domain of restoration and conservation of funerary monuments of different types, with a focus on stone. It analyzes aspects such as associated professions, strategies for intervention, ethics, common types of degradation, as well as practices and challenges related to the execution of works and their organization. It aims to underline the specific character and particularities that set gravestones, crypts, mausoleums and funerary chapels aside from other types of built heritage and works of art. Cemeteries themselves can represent historical architectural ensembles which need to be studied, documented and protected as a whole.

Keywords: conservation, restoration, stone, funerary monuments, cemeteries

Introduction

The conservation of historic funerary monuments, although a niche subject, has been a domain of interest and research since antiquity. Numerous architectural marvels of undisputable value fall under this category, such as the Taj Mahal (Agra, India), Al-Khazne (also known as The Treasury, at Petra, Jordan) the the Tomb of Pharaoh Khufu (also known as the Great Pyramid of Giza, Egypt). This article focuses on a more specific side of conservation, that of historic cemeteries and their monuments. While some cemeteries have become very well-known due to their architecture and artistic value, such as Highgate in London, Pere Lachaise in Paris, and Staglieno in Genoa, many other such places around the world have faded into obscurity due to their location and age. Moreover, the disappearance of certain ethnical communities or their relocation to other countries has led to the widespread existence of abandoned graveyards.

Besides their original intended value, it's important to preserve such monuments with great care in order to maintain the precious history contained within. On this subject, several organizations, institutions and individual authors have published guidelines and recommendations which can serve as the basis for further development.

Professional development in the field

Depending on the region or country, the most common materials used in historic cemeteries are stone of different types, metals (iron, bronze, lead), brick masonry and various mortars. These represent separate branches of conservation. Furthermore, funerary monument restoration can be considered a domain of its own. This raises the question of proper classification for the professional in this field. In practice, active cemeteries are maintained by public authorities or

private companies acting as administrators. Inactive cemeteries have an uncertain status, as they don't pose any economic interest and are often abandoned. At the same time, the status of the cemetery worker is inevitably low (Muniyandi and Barani, 2024) and presents no perspective for the future. Considering all this, the study of funerary monuments during vocational training for restoration professions seems to be the best approach.

Strategies for preservation and remedial work

In the absence of a regulated approach, remedial work can be done as periodical activity of NGOs, as standalone projects, or as cooperation with public institutions. A successful approach has been the involvement of volunteers, under the supervision of conservators. The benefits of this approach are the high motivation of the volunteers as well as lower expenses. The detriment is creating very low incentive for specialists to work in the field, due to improbability of earning an income, as opposed to activity on other types of historic monuments.

Responsibility and ethics

When considering the conservation of burial sites or isolated tombs, it's important to act methodically, following already established principles and relevant national or international policies. The procedures should ideally respect not only local legislation but also religious and cultural aspects. Aside from this, the work should not have a negative environmental effect and care should be given to the local natural habitat, both flora and fauna. Uninhabited areas tend to become refuges for wildlife, some of which may be endangered or vulnerable species (Löki et al., 2019).. Moreover, the work should be carried out and divided according to the professional competence of each person involved. While some activities are perfectly suitable to volunteers of all ages and backgrounds, specialized interventions on ornaments, engravings and fragile stone structures must be assigned to trained restorers/ conservators. This assures the safety of the artistic and historical value of the monuments. Furthermore, expertise from archaeologists and historians may be essential.

Surveying and planning

Before carrying out any work, the cemetery should be mapped, organized into plots and rows and the graves assigned numbers. Additional sources of information are local archives and church records. A general assessment of the site should be done, observing the type of stone or other materials used, the types of deterioration present, design typologies, identifying priority areas and operations. Documenting the condition of each monument may be aided by the use of standardized forms giving its inventory number and location, a transcript of any inscriptions – including possible mason's marks, material used, dimensions, state of conservation. Sketches and photographs should be included where possible. Digital methods of documentation are essential, but should not exclude classical ones, since file formats frequently become outdated while hand written scripts have survived since antiquity.

Special attention should be given to funerary chapels, mausoleums, ossuaries, columbariums and memorials, which will require proper architectural drawings. These will serve not only to document the current state of these structures but also to illustrate the exact location of the interventions for further reference.



Fig.1 – mortuary chapel



Fig.2 – interior of a mausoleum

Common issues and deteriorations

Some of the most frequent problems and deteriorations include:

- Irregular terrain, bumps and depressions. This leads to accumulating rainwater unevenly, perpetuating irregularities and possibly affecting nearby monuments.
- Excessive vegetation. While ivy and other plant species may look charming, their effect can be very destructive when not kept under control. The close proximity of dense vegetation and buildup of fallen leaves also favor excessive humidity, while fruit-bearing trees may cause staining, especially visible on marble.
- Leaning or even collapsed monuments. Mostly due to the previously mentioned. Stagnant humidity leads to uneven settling of the ground, while tree roots frequently cause instability of gravestones.
- Biodeterioration, associated with moss and lichens.
- Accumulated dirt or dust.
- Black crust.
- Oxidation of metal elements associated with volume expansion (in the case of iron), causing breaks and spalling of stone. Oxidized metals also cause staining, especially noticeable from bronze or copper which turn into specific hues of green.
- Delamination and scaling, especially on sandstone elements. Frequently on very old gravestones there will be detachment of layers and substance loss in the lower region, where capillary infiltration of humidity perpetuates cycles of evaporation.

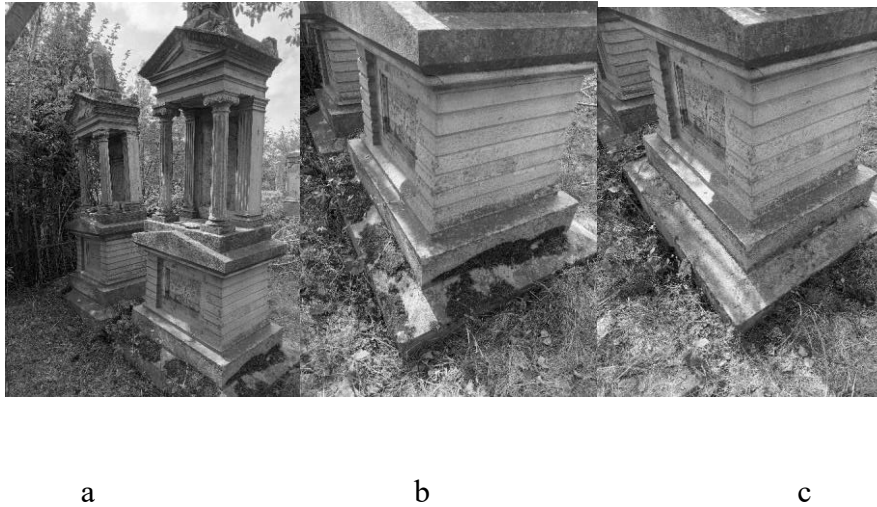


Fig.3: a- monuments leaning, b, c – before and after preliminary cleaning of biological surface deposits on stone

- Cracks, loss of fragments, breaks, loose components.
- On mausoleums, mortuary chapels: humidity-related issues, swelling and loss of plaster/ stucco and decorative elements. Infiltration and migration of soluble salts.
- Improper repairs using cement.
- Vandalism.



Fig.4: Gravestone with neogothic ornaments exhibiting cracking, scaling, delamination, biodeterioration

Worksite preparation and organizing

In accordance to the size and complexity of a project, organizing it should comply to the established requirements of restoration and construction sites. After assessing the situation and establishing the work targets, further planning will involve setting a budget based on expenses.

These will be regarding materials, transport, necessary utilities (water and current), as well as payment of professional services including laboratory test results. Larger projects may require storage space and scaffolding. Work safety and fire hazard measures and instruction will have to follow the local legislation and will prevent un-necessary incidents. Separate disposal of debris, construction waste materials and chemicals should be organized in an orderly manner. Establishing the timeframe for activity will need to take into account the local climate and later it may be adjusted according to the weather forecast as some phenomena may be unpredictable. Prolong rainfall and storms as well as heatwaves will hinder activity.

Further difficulties are to be expected, such as lack of vehicle access, lack of utilities, uneven terrain, hazards to human health.

Onsite restoration of stone

Stone restoration and conservation has had to blend traditional methods employed by stonemasons with museum laboratory techniques and materials. What sets apart funerary monuments from other works of art and built heritage is not only their surroundings but also their original purpose. This particularity cannot be separated from their physical fabric in the process of conservation and restoration. Therefore the legibility and integrity of inscriptions are priorities. The restorer must balance historic veracity with respect for the monument's purpose. One of the challenges in this field is the vulnerability of the stone itself. Aside from granite, the stone types used for ornamental carving tend to have lower mineral hardness on the Mohs scale rendering them prone to erosion. Also due to the height of most gravestones, they are positioned with their natural bedding vertically. On less compact rocks such as some sandstones, this leads to delamination or vertical cracks. When separation of the bedding occurs close to the front surface, the monument may lose its inscription completely. The process is accelerated by cycles of moisture evaporation and freeze-thaw in the cold seasons (Sleater, 1973). In these cases, compromise solutions may be used to prolong the structural integrity of the stone. The procedure will start with careful cleaning, preliminary consolidation, stabilizing the margins of the layer with a compatible mortar, followed by micro grouting of the fault line and fissures where possible. Caution should be used regarding the permeability of the materials used for consolidation as creating an impervious surface will lead to more damage.

Other frequent interventions involve re-positioning fallen fragments or joining broken headstones with the help of stainless steel dowels. NAMM guidelines (2018) suggest dowel holes should be deeper into the upper element, while the ones in lower elements may have a larger diameter, depending on thickness of the slab. However, any indications remain purely orientative, as such procedures need to be carefully adjusted on a case by case basis. When using fluid mortars for fixing dowels, there is a chance of later contraction of the material, accentuated by a higher percentage of binder. At the same time, a lower binder percentage will have a lower initial strength. Pre-mixed mortars and synthetic resins are frequently used due to their advantages regarding suitable curing time, tensile strength and low percentage of shrinkage. These interventions are not reversible in the generally accepted sense, therefore focusing on quality and precision is crucial. Percussion drilling is also not advisable on fragile ornamental works.



Fig.5: Re-positioning upper fragment on 19th century headstone.

All interventions should be sustainable and adequate for exposure to the elements, which rules out the generally accepted methodology of museum conservation. Volumetric reintegration or gap filling should also ideally match the color of stone, since using subsequent chromatic reintegration will inevitably fade, leaving a patchy appearance. Precisely cut matching stone replacements should also be considered.

Finally, it must be accepted that some defects cannot be remedied. This can be addressed according to the situation.

Conclusion

The restoration and conservation of funerary monuments is a complex task, in a domain that is still developing. Understanding past efforts of research is important in order to select the best approach without resorting solely to trial and error. By establishing and using proper procedures and balancing minimal intervention with utility, valuable cultural heritage can be preserved for future generations.

References:

- Löki, V.; Deák, B.; Lukács, B.A.; Molnár, V.A. (2019). Biodiversity potential of burial places - a review on the flora and fauna of cemeteries and churchyards. *Global Ecology and Conservation*, 18, e00614.
- Muniyandi, C. and Barani, T. (2024). An Analysis on Caste Practices and the Vulnerabilities Faced by Burial Ground Workers in Sivagangai District, Tamil Nadu - *IJFMR* Vol. 6, Issue 5, September-October.
<https://doi.org/10.36948/ijfmr.2024.v06i05.27565>
- NAMM. (2018). The code of working practice for memorials in burial grounds and other commemorative sites.
https://www.namm.org.uk/ShowDocument?path=NAMM_CoWP_2018.pdf
- Sleater, G. (1973). A review of natural stone preservation. National Institute of Standards and Technology, Gaithersburg, MD. <https://doi.org/10.6028/NBS.IR.74-444>