

Collaborative Doctoral Award: Application of Covers to Conserve Historic Marble and Metal Monuments

Research area: Conservation Science/Monument Protection

Supports: NHPP 2C2 - Attritional Environmental Threats

University Partner

University College London

Project Summary

Many historic house gardens were designed with sculpture as an integral part and feature of them. The eighteenth century often used white marble sculpture. This material does not survive well in the industrial UK environment, with prolonged exposure roughening the marble surface and leading to localised erosion. Once cracks are formed, they allow further accelerated attack in the absence of repeated expensive conservation.

There was a tradition of covering marble sculpture over winter in some historic house gardens. Initial trials have shown this can be beneficial depending on the local environment and particularly rainfall distribution. Several designs of cover are possible and their relative benefits are not obvious. For example a high degree of thermal buffering is advantageous; however, it often increases the relative humidity under the cover.

This project will address the following research questions;

1. What is the history of cover use in UK gardens? When where they used, was there any particular rationale, i.e. for sculpture under trees? This will be investigated through historical research of documentary evidence.
2. What are the visitors' perceptions of covers? Gardens often have longer opening than houses and for best effect it is likely covers would need to be used for some period whilst the gardens remain open. Are different types of covers (close wraps or tents are main categories) perceived in different ways? These questions would be investigated by surveys.
3. Is there a best design or designs of covers for marble? What are the most suitable materials? This will be investigated through site trials of different cover designs and materials at properties with different environments.
4. Is there any scope to extend the approach to cannon especially in maritime locations? Cannon maintenance is another very resource intensive process. Will winter covers reduce this to a significant degree? This will depend on when in the year the most corrosion occurs. Simple methods are now available to measure iron corrosion. This will be investigated through site trials.

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