



Historic England

Conserving War Memorials

Case Study: The Conservation of Mortar-Filled Inscriptions

First World War Memorial, Cheltenham,
Gloucestershire



Summary

The [Cheltenham War Memorial](#) is the main location for commemoration in the Borough. It is remarkable for the number and layout of its inscriptions, and the extraordinary quality and precision of the lettering. Factors such as civic pride and the need for commemoration by the general public meant that Cheltenham Borough Council (CBC) ensured that the memorial – particularly the inscriptions – were cleaned regularly. As with many memorials, this regular cleaning caused damage to the surface of the stone, resulting in the stone getting dirty more quickly and encouraging microbiological growth. The treatment involved the cleaning and delicate repair of the inscriptions. The project also considered how to break the cycle of repeated cleaning, to ensure that the inscriptions are retained for future generations.

This guidance is intended for those designing, specifying and undertaking conservation and repair work to free standing war memorials, such as architects, building surveyors, structural engineers, project managers, contractors, craftspeople, and conservators. It will also be of interest to those responsible for making decisions, such as local authority conservation officers, custodians or volunteer groups. It also indicates where to get further help and advice.

This guidance forms part of a series of resources produced by Historic England, to coincide with the centenary of the First World War. This series covers the overall approach to caring for these memorials, as well as some of the more poorly understood technical aspects. It includes:

- guidance on how to record, repair, conserve, maintain, and protect these unique monuments for future generations: [The Conservation, Repair and Management of War Memorials](#) and [Conservation and Management of War Memorial Landscapes](#)
- short technical advice notes covering inscriptions, structural problems and repairs, and maintenance
- case studies on conservation options for specific war memorial issues
- films on technical aspects of war memorial conservation

This guidance has been written by David Odgers and edited by Clara Willett (Historic England).

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[HistoricEngland.org.uk/advice/technical-advice/war-memorials/](https://www.historicengland.org.uk/advice/technical-advice/war-memorials/)

Front cover:

General view of the Cheltenham war memorial after conservation. © Odgers Conservation Consultants

1 Description and Condition

Cheltenham War Memorial is located within a well-manicured garden in front of the Regency style offices of the Cheltenham Borough Council (CBC). It is set within a paved area with stone balustrade surround and large overhanging plane trees.

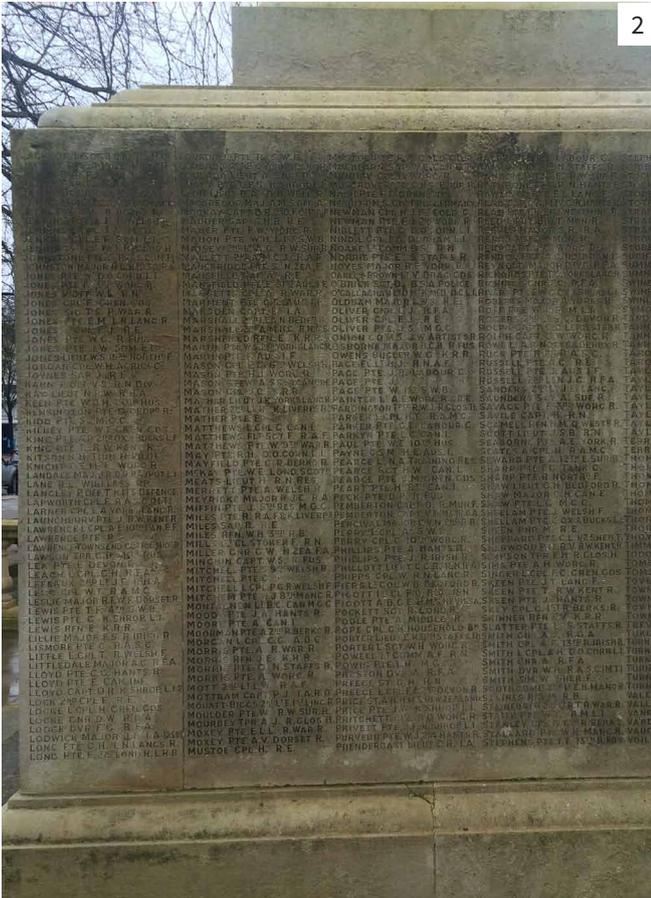
The balustrade was repaired and cleaned in 2012 but in 2015 CBC (who are responsible for the care of the memorial) wished to undertake a programme of conservation as part of the First World War Commemoration Project that involved a number of events in the Borough. The conservation work described was 75% funded by the **War Memorials Trust**.

Description

The memorial was constructed in 1921 and consists of a Portland stone obelisk on top of a large base set on a stepped plinth. The most notable element of the memorial is the extent and nature of the inscriptions: 1284 names are inscribed on three sides of the base. The letters were cut so as to receive lead fills but whether from cost or unavailability of craftsmen, the incisions were actually filled with coloured cement mortar with an oiled finish to simulate lead.



1 The Cheltenham War Memorial.

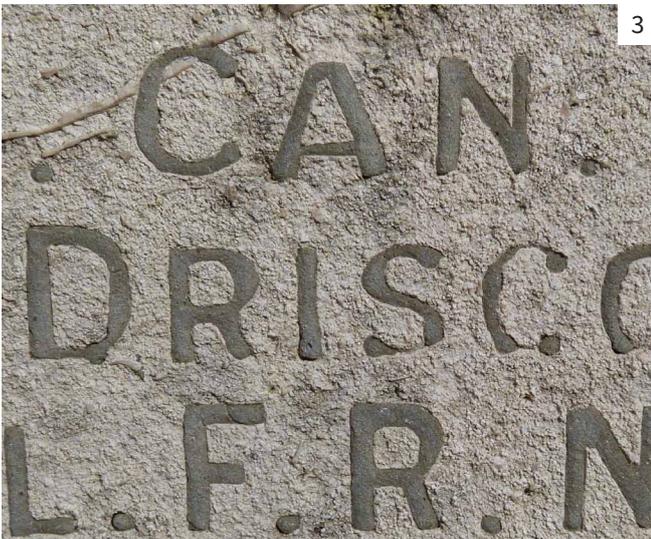


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Condition

The condition of the Portland stone was generally good. Over the 100 years or so since its construction there had been some erosion, and in 2012 a few stone indents had been inserted in the inscription panel on the south elevation. The main issue was the legibility and survival of the inscriptions.

The original design allowed water to track down the obelisk and because there was no overhanging moulding this resulted in saturation of the top of the inscription panel. The combination of this design flaw, the local environment with overhanging trees and the porous nature of the stone meant that there existed ideal conditions for the growth of algae. As a result of this, inscriptions - particularly those in the upper parts of the panels - became obscured. In order for legibility to be restored, the memorial was therefore regularly cleaned, usually with pressurised water. Unfortunately this cleaning process caused the edges of the inscriptions to become worn and a consequent loss of some of the mortar infill. In places grey paint had been rather crudely applied as a replacement for missing infill.

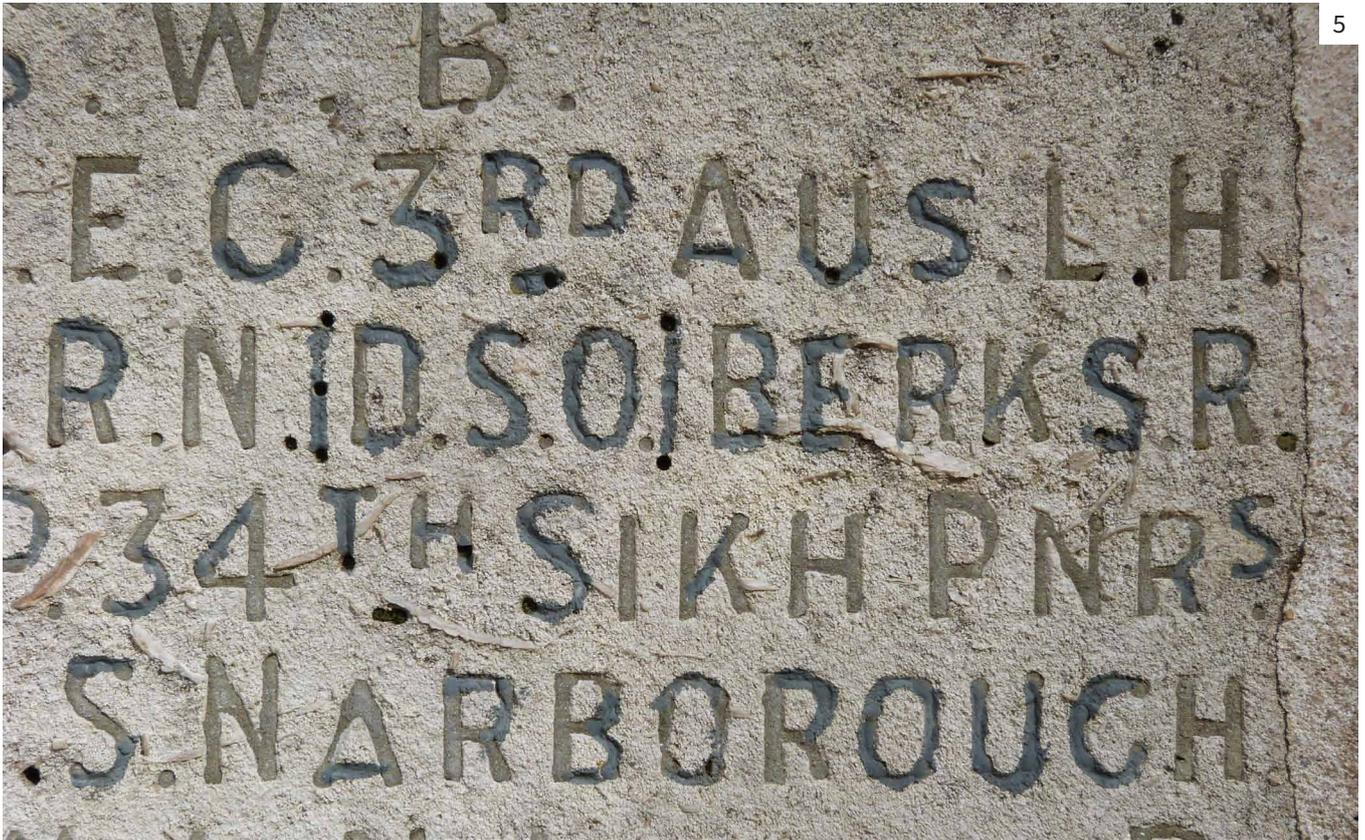


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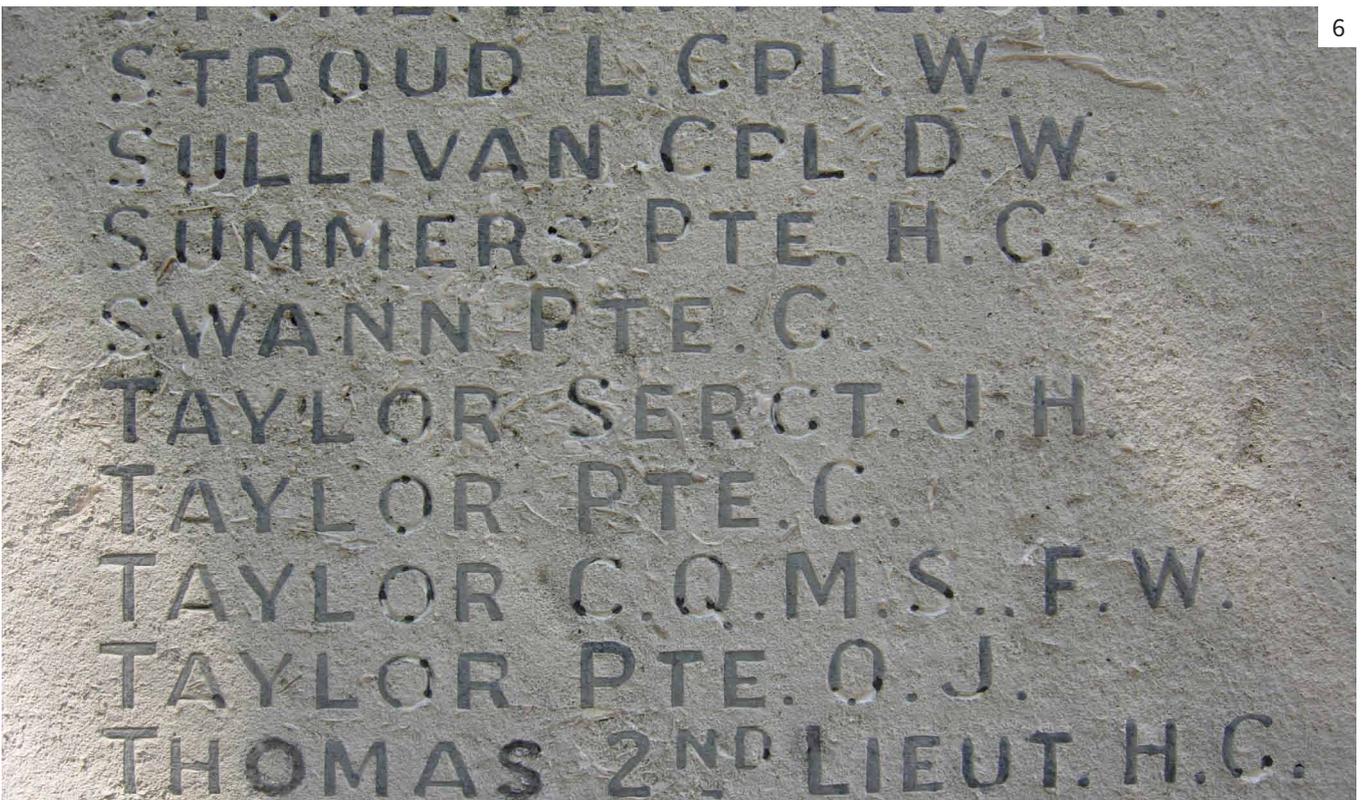


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- 2 Side panel showing extent of lettering and how it is obscured by microbiological growth
- 3 Typical area showing original technique of lettering and how the abrasion from regular cleaning has caused loss of mortar and reduced legibility.
- 4 Magnification (x50) showing the loss of mortar from a single letter. This also shows the fine aggregate in the mortar.



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- 5 Lettering where mortar has fallen out and been replaced by crudely applied grey paint.
- 6 The extent of the work required can be seen in this typical example from a total of 1284 names.

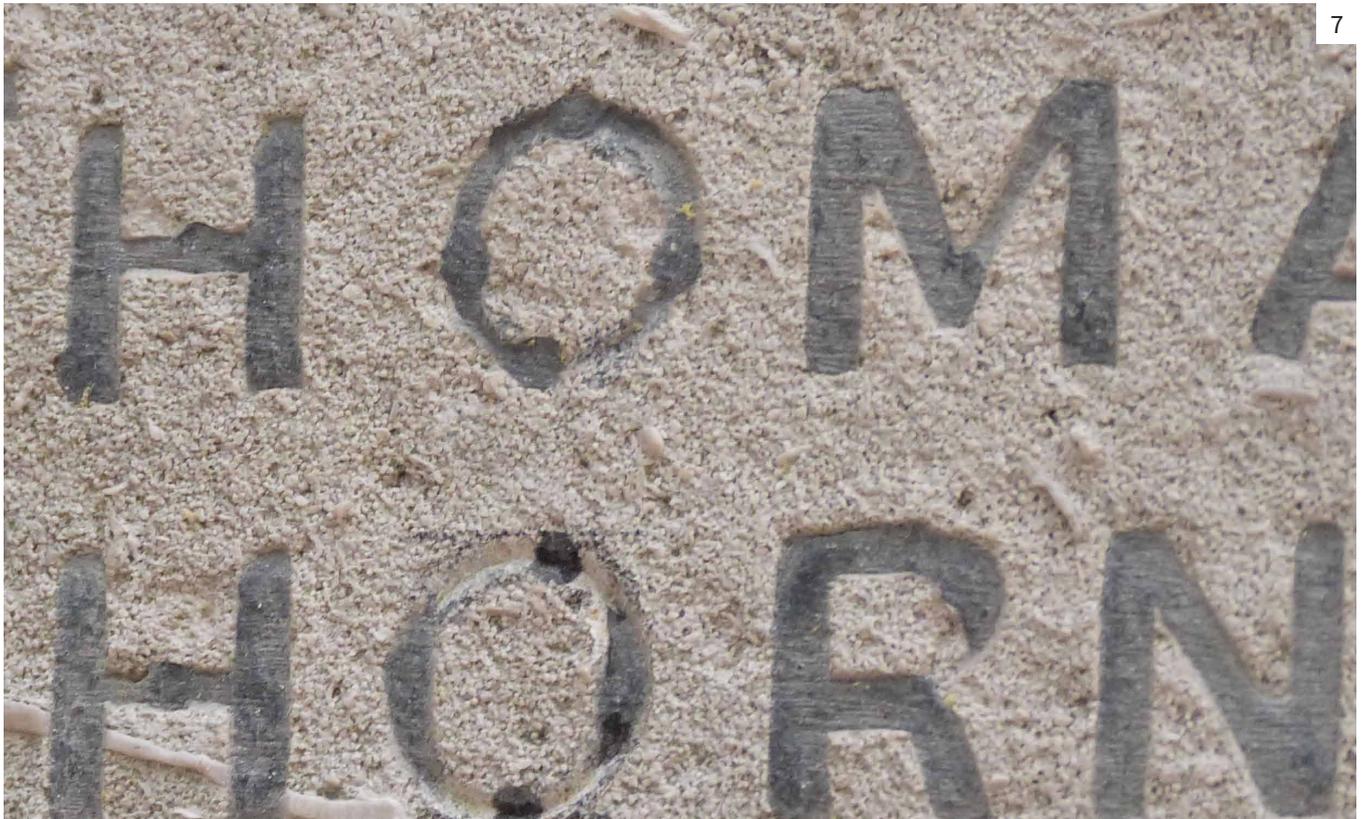
2 Remedial Treatment

Cleaning

The cleaning process (including the removal of the grey paint) revealed the full extent of decay and damage to the inscriptions. In general, although all of the names remained legible, much of the sharpness had gone and there were a significant number of letters where the mortar infill was wholly or partially absent. As an example, the erosion of fine detail meant that the letter 'C' and 'G' had become largely indistinguishable.

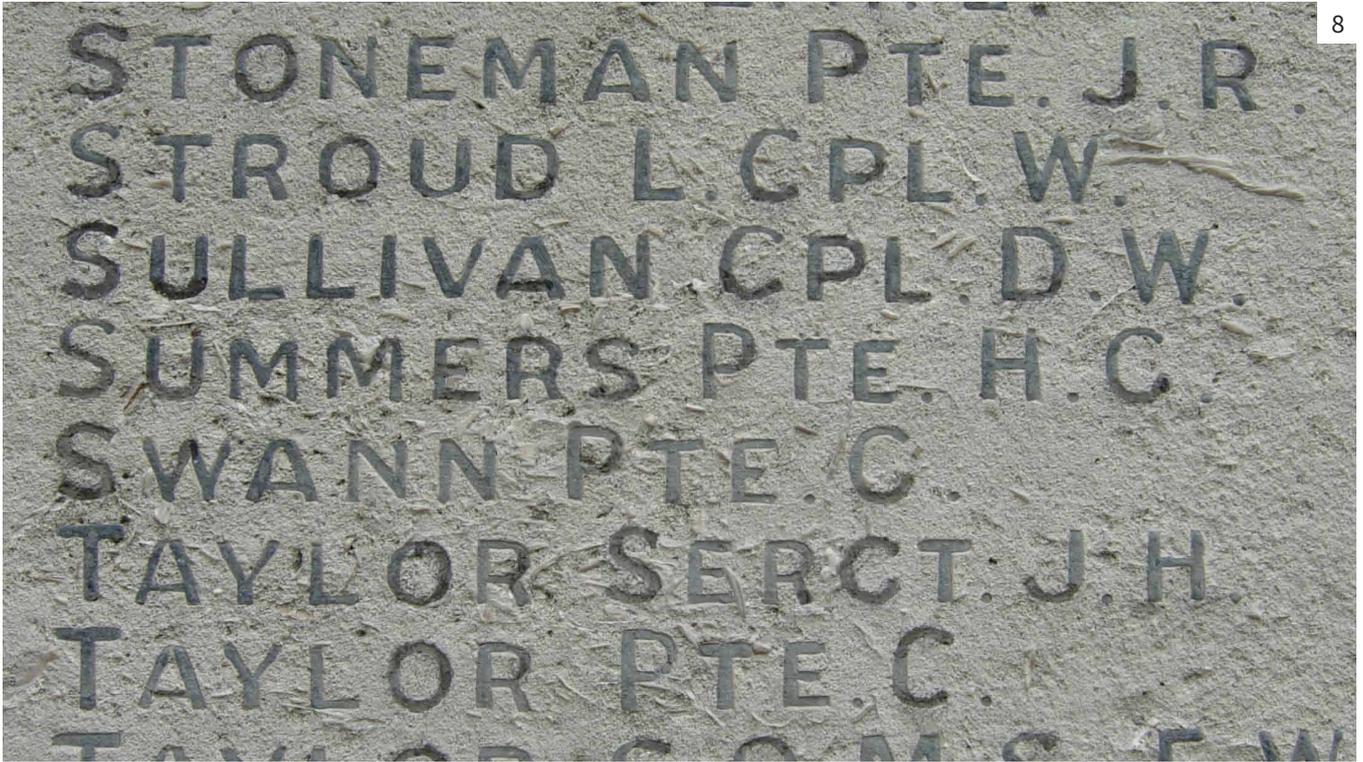
Replacing the mortar infills

To reinstate the legibility it was necessary to replace the mortar infill. Before the mortar could be applied, it was necessary to ensure that there was a suitable incision to fill. This required delicate work of re-cutting, involving mostly only part letters. The letters were carefully incised to follow the weathered surface, rather than attempting to flatten the surrounding stone. The extent of this work could only be decided by the letter cutter on site.



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7 The skill of the letter cutter is in deciding how much of the letter needs to be cut, and then carrying out the work with great precision, using a very sharp chisel.



- 8 The fills were carefully placed and packed into the incisions and then scraped back flush with the surface when leather-hard.

Mortar trials

Several trials of replacement mortar were made. This mortar needed to match the original, set quite quickly so that it could be modelled, but also be hard enough to set when only 2–3 mm thick. After trials the mortar selected was:

This mortar was applied to the pre-wetted surface and allowed to take on an initial set before being cut back to the right dimension. It was kept damp for several hours after application.

1 part	lime putty
2 part	rapid set cement
0.5 part	slate dust
0.5 part	sieved charcoal dust
0.03 part	black cement pigment
0.25 part	casein powder
0.03 part	citric acid (acting as a retardant for the set)
<i>All ingredients were measured by volume</i>	

3 Lessons Learnt

Post-project reflections are useful for learning what could be done differently in the future. The nature of conservation often means that unforeseen dilemmas and situations arise and even the best planned projects require flexibility and adaptation to resolve them to produce appropriate outcomes.

The project demonstrated the need to consider why there is a need to clean. It also showed that limited re-cutting of inscriptions is a good option as long as it is done with skill and sensitivity. Inscriptions are arguably the most significant part of any war memorial and so every effort should be made to retain their legibility *in situ*.

Fortunately in this case, the intervention was carried out before legibility became substantially compromised. The challenge in the future is how to prevent the cycle of algae growth and regular cleaning being re-established.



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9 The extraordinary number and detail of the inscriptions is clear after completion of all the work; the challenge is to maintain it in this state.

4 Acknowledgements

Project Team

Client: Cheltenham Borough Council

Project manager: Jane Stovell

Conservation Consultant: Odgers Conservation Consultants

Principal Contractor: Cliveden Conservation

Project manager: Berenice Humphreys

Conservator and letter-cutter: Phillippa Fawcett

Costs: £40,000 (ex VAT)

Images

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