

# PhD Studentship in Conservation

A Collaborative Doctoral Partnership studentship between Cardiff University and English Heritage  
Funded by the Arts and Humanities Research Council

**Project Title:** Conservation of Late 19th and 20th Century Artillery Pieces

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## Project Overview

English Heritage (EH) cares for over 400 cannons, carriages and guns from many eras, across 29 historic sites including Dover Castle, Pendennis, and Tilbury Fort. Their function means artillery are often situated in exposed sites that include coastal peninsulas and ports, subjecting them to a range of environmental conditions that include exposure to airborne salts and pollution, which accelerates corrosion and increases the need for remedial conservation. The complexity of more modern artillery designs involves a wider range of materials and components that act as water traps, which increases their vulnerability to corrosion. Developing evidence based long term collections care strategies is imperative to protect these heritage assets and to prioritise their conservation. With this in mind, this research will take a cross-disciplinary integrated approach combining three key areas, namely historical study, material science and conservation management, to provide robust evidence and recommendations for designing collections care.

The key research question is:

*What is the most effective management strategy for modern artillery in the English Heritage collection?*

To answer this, the project will ask:

- i) What is the historical context in which artillery is found across the EH estate?
- ii) Which artillery pieces display the greatest corrosion and how does this relate to factors specific to outdoor display environments?
- iii) What is the relative effectiveness of coatings to protect artillery from corrosion?

*Historical study:* Establishing historic context and site specificity of late 19<sup>th</sup> and 20<sup>th</sup> Century artillery within the EH collection will connect locations and collections to provide a unique perspective on England's history. EH has already been conducting work on the history and significance of each gun and their site specificity which will inform prioritisation of treatment. The student will examine this to develop an understanding of relationships between location and historic use of specific artillery, allowing them to correlate condition and site.

*Condition and corrosion:* Scientific investigation of the artillery pieces will assess the composition and condition of components, identifying those parts that show the greatest signs of corrosion and linking these to the initial research into provenance. Literature review and in-situ analysis using portable spectroscopy will determine alloy composition, which will be related to artillery production and corrosion processes occurring.

*Effectiveness of coatings:* The project will then focus on understanding the effectiveness of conservation treatments for artillery within their appropriate contexts, concentrating on assessing performance of current coating systems and investigating novel alternatives such as fluoropolymers. The duration of this project offers the opportunity to couple artificial ageing with real-time degradation studies onsite.

### Details of Award

- Starts 2<sup>nd</sup> January 2020
- 3.5 year award (includes a “[Student Development Fund](#)” equivalent to 0.5 years of funding)
- The award pays tuition fees up to the value of the full time home/EU UKRI rate for PhD degrees as well as full maintenance for UK citizens and residents only. The value of the maintenance stipend is to be confirmed; however is expected to be around £15,559\*.  
*\*based on RCUK National Minimum Doctoral Stipend for 2018 of £15,009 plus an additional £550 per annum for CDA students*
- The student is eligible to receive an additional travel and related expenses grant during the course of the project courtesy of the Historic Buildings and Monuments Commission for England, worth up to £6000.

### Eligibility

- Due to restrictions on the funding this studentship is open to UK/EU students who meet the residency requirements set out in the UKRI Conditions of Research Council Training Grants. <https://www.ukri.org/funding/information-for-award-holders/grant-terms-and-conditions/>
- Applicants should have or expect to receive a relevant degree-level qualification, or be able to demonstrate equivalent experience, including appropriate research skills. Suitable disciplines are flexible, but might include **Conservation, Heritage Science, Corrosion Science, Electrochemistry, Physics and Chemistry** amongst others.
- Applicants must be able to demonstrate an interest in the heritage sector and potential and enthusiasm for developing skills more widely in the areas of **Conservation and Heritage Science**.
- Experience in the use of relevant analytical laboratory techniques would be an advantage, for example, EIS, FTIR, XRD, XRF, coatings testing or other techniques that could be advantageous to the project.
- As a collaborative award, students will be expected to spend time at both the University and English Heritage properties and offices.
- Part time study will be considered for this studentship.

### How to apply

- Candidates will need to apply for a PhD in Conservation within the School of History, Archaeology and Religion at Cardiff University, clearly indicating that the application is for the AHRC/ English Heritage CDA in **Conservation of Late 19th and 20th Century Artillery Pieces**.  
<https://www.cardiff.ac.uk/study/postgraduate/research/programmes/programme/conservation>
- As part of your application, you will need to include:
  - *An individualised research proposal, in which you amplify the proposal set out above. You should set out your contribution to the project research design and how the project topic will be tailored to your particular strengths and research interests.*
  - A CV.
  - *Two references from referees.*
- **Application deadline: 14<sup>th</sup> October 2019**
  - Interviews will take place on 21<sup>st</sup> October 2019

**Further Enquiries:**

For further information you may contact:

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