

### Project Proposal Application

To be completed by the lead proposed supervisor,  
 with input from the non-HE Partner Organisation(s).



Arts and  
 Humanities  
 Research Council

#### SECTION 1: PROJECT SUMMARY AND APPLICANT DETAILS

Proposed Project Title:	Roman ceramic production in the middle Tiber valley: archaeometric analysis of a legacy dataset		
Project Summary: <i>(Maximum 100 words)</i>	Roman economy research emphasises long-distance trade of high-value commodities (e.g. wine) and market integration across the Mediterranean—but such trade formed only a small component of total economic activity. This CDA examines the abundant evidence for small-scale economic activity in the form of cheap, locally-made cooking pots. Using samples from a newly-available dataset of ~80,000 sherds from the hinterland of Rome, archaeometric techniques (thin-section analysis, XRF) are used to identify production techniques and sources of raw materials. Extrapolating results to the wider database will unlock the potential to map local networks of production/exchange and contribute to a reassessment Rome's economy.		
Host University:	Durham University		
Name of Non-HE Partner Organisation(s): <i>(Add more lines if needed)</i>	1. The British School at Rome, Rome, Italy 2.		
Contact(s) at Non-HE Partner Organisation(s): <i>(Add more lines if needed)</i>			
Name:	Prof. Abigail Brundin (Director)	Email:	director@bsrome.it
Name:		Email:	
Primary AHRC Subject Area: <i>Select one subject area from the list here. Do not add or amend subjects - there will not be a corresponding Subject Area panel to assess the application.</i>	Archaeology		
Does the project include a Creative Practice component?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Do you consider the project to be interdisciplinary?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
<b>If you consider the project to be interdisciplinary, please state why:</b> <i>(Maximum 100 words. Note, all applications will be assessed by the appropriate primary subject area cross-institutional panel.)</i>			

Ceramic characterisation uses scientific techniques drawn from geochemistry, petrography and materials science. These well-established methods have been used to analyse archaeological pottery and address questions about ancient technology, economy and society informed by archaeological and anthropological theory. Additionally, studies of the Roman period require appreciation of ancient texts and the wider research framework of the humanities. Hence, this CDA bridges materials science, archaeology, and ancient history. Importantly, it aims to develop a rounded skills set, providing technological expertise to undertake rigorous lab-based analyses, and enabling development of interpretative frameworks to contextualise the results in culturally nuanced and relevant ways.

## SECTION 2: PROJECT PROPOSAL AND CASE FOR SUPPORT

Please provide full details of the proposal and make your case for support below:

(Maximum 750 words)

### Research context

Roman economy research has been energised by new theoretical frameworks and analytical techniques. However, ‘Big Data’ methods and a focus on Roman ‘globalisation’ have steered interpretation towards generalising models emphasising long-distance, high-value trade (e.g. wine). But this activity formed only a fraction of the ancient economy. By targeting the coarsewares, like cooking vessels, the CDA will complement existing studies by illuminating the local economic activity that underpinned the more visible ‘globalising’ trade. As our own society moves into a post-globalisation future, this CDA will advance a **timely new perspective on the ancient economy**. The project focuses on the core of the Roman world – the hinterland of Rome – during the late republican and early imperial period (300BC-AD300) when economic activity peaked. It will build on and significantly expand the results of the British School at Rome’s (BSR) Tiber Valley Project (TVP; Patterson, Witcher & Di Giuseppe 2020). The TVP traced the evolution of Rome’s hinterland from 1000BC to AD1000, based on the first typological study of ~80,000 pottery sherds recovered by the South Etruria Survey (SES). The resulting TVP database incorporates evidence for a full range of production/settlement contexts of republican and imperial date. However, no archaeometric analysis of the pottery was undertaken by the TVP, and only a handful of SES material has been examined using such techniques (Peña 1987). By **applying archaeometric methods to coarsewares and integrating the results with the TVP database**, the CDA will unleash the latter’s potential to track and make visible local production and trade networks and hence **address questions about the production, marketing, and use of pottery in the hinterland of ancient Rome** – and how this changed over time.

### Objectives

The project aims to:

- sample targeted SES coarsewares, using the TVP database to identify individual sherds of the highest research significance (e.g. pottery from production sites).
- characterise ceramic fabrics and identify production techniques and sources of raw materials using thin-section/petrographic analysis, X-Ray Fluorescence (XRF), X-Ray Diffraction (XRD) and Scanning Electron Microscopy-Energy Dispersive Spectroscopy (SEM-EDS). These techniques will facilitate new insights into Roman economic activity, yielding information about how and where vessels were made and how they were traded.
- cross-reference results with the SES typological data to identify, map and quantify local ceramic networks.
- relate local production and exchange networks to current research on the Roman economy in central Italy and wider debates on ancient Mediterranean production/trade.

### Work plan

In Y1, the student will visit the BSR to familiarise themselves with the SES archive and establish sampling methods. In Durham, the student will review secondary literature and undertake bespoke training in lab-based methods. Writing of the introductory, context and method chapters.

An extended BSR stay towards the end of Y1/early Y2 will be dedicated to sampling ~300 sherds. Following best practice (e.g. Quinn 2022) in the application of these well-established methods, the student will sample 20-40 sherds per site, selecting at least 10 sites to cover a range of production/settlement contexts. Although methods are destructive, samples are small and will be taken from broken vessels. In Rome, the student will also participate in BSR activities (e.g. seminars) and have access to the library and archives, guidance from the BSR Advisors (Kay/Ceccarelli) on the SES material, permits and regional archaeology, plus opportunities for discussion with Rome-based pottery specialists. In Durham, the student will undertake primary lab-based work and write up results.

In Y3, the student will analyse data generated in Y2, integrating the results into the TVP database and analysing them using GIS and statistical methods (network analysis and aoristic modelling) to map the distribution of pottery from production sites and model how it was marketed. They will also complete writing up of analysis, discussion, and conclusions.

### Outcomes

This CDA will **substantially extend a major, newly-available database** of Roman pottery by integrating novel data about ceramic fabrics which will allow existing typological and chronological data to be **mapped and quantified in new ways**. The results will permit the evaluation of the scale and organisation of local economic activity in Rome’s hinterland and contribute to a wider **reassessment of the Roman economy**. During the CDA, the student will disseminate the academic results via presentations in

Durham and Rome, and at Roman archaeology and archaeological science conferences. The resulting thesis will provide a reference dataset for future archaeometric analysis and offer significant new insights into Roman pottery production in central Italy, a key region for understanding the impact of the first ancient metropolis on local, regional and global economic activity.

**Provide details of any resources and facilities, including equipment, fieldwork, training, etc., that will be required to complete the project successfully. NBC has limited Research Training Support Grant funding, which may affect the feasibility of high-cost projects. Please note where you might also secure additional funding, (e.g. partner organisations; department or school).**

**Include estimated costs:**

(Maximum 200 words)

- Y1. Initial visit to the BSR to establish project; **2 weeks; full-board accommodation: £850**
- Y2. Extended visit to the BSR to retrieve and sample pottery; **2.5 months; full-board accommodation: £4510**
- Flights for travel to BSR in Y1 and Y2 covered by higher CDA stipend to cover costs of travel to non-HEI partner and applications to college travel funds; **£1000**
- The petrographic, XRF, XRD, and SEM-EDS analyses can be undertaken free of charge in Durham Archaeology's archaeological materials labs, constituting a significant saving on commercial rates. To ensure the most productive use of time, the production of thin-sections for petrographic and SEM analyses would be subcontracted to the Durham Earth Sciences Department at £15 per thin-section – a cost 4-5 times below current market rates and representing a substantial indirect subsidy for the project; 300 samples @£15 each = **£4500**.
- Export and return of samples: **£200**.

Additional potential sources of funding Roman Society, Durham college travel funds, Departmental Cramp Fund, etc.

**Outline the arrangements for communication between the non-HE partner organisation and the academic host institution in regard to project management and monitoring academic progress:**

(Maximum 200 words)

At Durham, Witcher will take the lead in supporting the student in the literature review, methodology, theoretical framework, analysis and writing up, and will oversee general project administration. Badreshany will train the student in sampling procedures for different analytical techniques and the use of equipment, and supervise the processing, integration, and interpretation of the archaeometric data. At the BSR, Kay will lead on organising access to the materials, providing institutional context on the SES/TVP projects (having worked directly on the latter and now managing the BSR's archaeology section). He will also facilitate institutional support with permits and assist in networking with other Rome-based scholars and scientists. Ceccarelli will provide specialist support in terms of sample selection and guidance on local ceramic fabrics.

The student will be based in Durham, with one short and one extended visit to the BSR. Whilst away from Durham, fortnightly supervisory meetings will be scheduled between the student and the Durham supervisors. At Durham, meetings will be held monthly or more frequently as required and the BSR Advisor will be able to attend as via Zoom. There will also be close, regular contact in the lab.

**What benefits will there be for the candidate and the non-HE partner organisation as a result of your collaboration?**

(Maximum 300 words)

Candidate: the student will have scope to mould the research design to their career development needs, supported by training opportunities in Durham and hands-on experience in Rome. They will develop professional networks through Durham, the BSR and with Rome-based scholars/specialists; training in archaeometric methods, highlighted as a key skills gap in UK archaeology, and other disciplines, enhancing skills and employability; access to a large dataset previously subject only to limited scientific analysis and without the benefit of the typological restudy now available.

BSR: the BSR lacks laboratories or analytical equipment to conduct ceramic analysis; the collaboration brings access to equipment and expertise. The SES material has been central to the BSR's research for decades, with each generation of scholars bringing innovative methods and questions to extract new value and meaning from the dataset. The CDA will build directly on this tradition by helping to realise the full potential of the TVP database. The current database includes high-quality data generated by 10 ceramic specialists, but analysis has focused on the implications for the dating of Roman settlement. By integrating archaeometric data, it will be possible to shift the focus to economic activity and especially local ceramic production, exchange and consumption patterns that are inaccessible through the macroscopic / typological research done to date. The CDA therefore provides a new lease of life to a major 'legacy database' from one of the BSR's flagship projects (SES/TVP). The CDA directly aligns with the BSR's Strategic and Research Plan 2020-25 which emphasises the intention to extend collaboration with Doctoral Training Partnerships and enhance its international pre-eminence in the field of archaeological research. Developing the link with Durham provides scope for collaboration to support other BSR research (e.g. Falerii Novi Project), to leverage the

potential of other legacy datasets, and to underpin wider funding applications.

**State what financial (if any) or in-kind contribution the non-HE partner organisation will be making over the duration of the award:**

*(Maximum 100 words. A financial contribution is not a requirement. However, the AHRC expect that non-HE partners based overseas will make a financial contribution to the costs of the student's return travel and accommodation when visiting.)*

The BSR will provide **access** to the SES materials that form the basis of the CDA; the pottery is currently stored at the BSR. Support will be provided to apply for the necessary **permits** for the destructive sampling and export of the material (small fragments of ceramic fabrics). The project will benefit from a **discounted accommodation rate** at the BSR, allowing the student to be based in the same building as the material, maximising access and efficiency of work during the Y2 visit; it will also facilitate integration into the School's community and provide access to the library and archives.

**Describe the nature of the collaborative arrangement and the activities the candidate will be undertaking with the non-HE partner organisation:**

*(Maximum 300 words)*

The BSR is a UK overseas research institute funded by the British Academy. A leading cultural hub in Rome, the School has a permanent staff (including Archaeology Manager) and a large community of UK/Commonwealth visiting fellows. Projects are undertaken collaboratively with a wide range of scholars and institutions based in the UK and around the world. The CDA will match the SES material archive and the BSR's experience of fieldwork in the study area with Durham's expertise in materials analysis. A visit in Y1 will focus on establishing the project, by meeting key individuals (including BSR Advisors, Kay & Ceccarelli) and familiarising themselves with the archive. A second, extended visit, will focus on sampling. The student will use the TVP database to identify individual sherds for sampling and physically retrieve these from the BSR pottery store. Although well-organised, the quantity of material is significant and therefore retrieval will be time-consuming. Based in the BSR archaeology suite, the student will clip a small fragment from each selected sherd. These fragments will be packed for export and thin-sectioning in Durham. Importantly, once sampled, the pottery must be returned to store to ensure that material is available for other researchers. Whilst at the BSR, the student will have access to the library for up-to-date research publications and will be able to network with relevant Rome-based scholars and ceramic specialists including those who worked on the original TVP. The student will present the general project at a BSR seminar during the Y2 visit. Throughout the project, joint supervision of the student will ensure good, ongoing communication. The student will submit a report on their work for publication in the BSR's journal, *Papers of the British School*.

### SECTION 3: SUPERVISION AND EXTERNAL ADVISORS

**Primary (or Co-) Supervisor:** Dr Robert Witcher

School or Department:	Department of Archaeology, Durham University	Email Address:	r.e.witcher@durham.ac.uk
-----------------------	---	----------------	--------------------------

**Secondary (or Co-) Supervisor:** Dr Kamal Badreshany

School or Department:	Department of Archaeology, Durham University	Email Address:	kamal.badreshany@durham.ac.uk
-----------------------	---	----------------	-------------------------------

**Name of the Advisor based at the Non-HE Partner Organisation:**

Stephen Kay (BSR Archaeology Manager)  
Letizia Ceccarelli (BSR Research Fellow)

Organisation/Institution:	British School at Rome	Email Address:	s.kay@bsrome.it
---------------------------	------------------------	----------------	-----------------

Organisation/Institution:	British School at Rome/Policlinico di Milano	Email Address:	letizia.ceccarelli@gmail.com
---------------------------	---	----------------	------------------------------

<b>Name of Additional Internal or External Advisors or Academic Supervisors, if any:</b>		
Organisation/Institution:		Email Address:
<p><b>Explain how the expertise of the supervisory team and external advisor(s) will allow them to support the proposed project and the selected candidate (500 words):</b></p> <p>Supervisor1: Witcher's research focuses on the archaeology of pre-Roman and Roman Italy. From 1999-2002, he was a researcher on the Leverhulme-funded TVP at the BSR, collaborating on the restudy of SES; he led on completion of a monograph (Patterson, Witcher &amp; Di Giuseppe 2020) and the TVP databases. Expanding from this long-term research focus he has published on the Roman economy and agriculture, developing landscape methods using GIS. Current projects include an international collaboration (Roman Hinterland Project; Attema <i>et al.</i> 2022) to integrate multiple regional surveys and bring these legacy datasets to new research questions about settlement and economic activity. Witcher is the Editor of the world journal <i>Antiquity</i> and leads mentoring workshops to support early career researchers write and submit journal articles, running workshops in Europe, South Asia and East Africa. He has co-supervised 15 RPGs to submission. Current relevant RPG supervisions include a study of the SES photographic archive and an analysis of the Mancetter-Hartshill ceramic industry in Roman Britain (both NB-funded, the latter supervised jointly with Newcastle University).</p> <p>Supervisor2: Second Supervisor Badreshany joined the Durham Department as PDRA in 2013 following the completion of his PhD at the University of Chicago titled <i>Urbanization in the Levant: An Archaeometric Approach to Understanding the Social and Economic Impact of Settlement Nucleation in the Biqā Valley, Lebanon</i>. Now Assistant Professor, he leads the Durham Archaeomaterials Research Centre, an analytical research facility based in the Department of Archaeology that offers advanced chemical and materials analysis for academia and industry, with particular expertise in ceramic petrography. His research focuses on the analysis of archaeological materials using archaeometric techniques, including ceramic petrography, scanning electron microscopy, XRF, ICP and X-ray diffraction, and he has published extensively on Mediterranean ceramics, as well as on urbanism, ancient economies and ancient technologies. He currently supervises 10 RPG (plus two to submission), including one CDA-funded student working on the Bronze Age Levant utilising similar methods to those described above.</p> <p>Advisor1: Kay is the BSR Archaeology Manager, overseeing the School's portfolio of archaeological projects in Italy and beyond. He is an expert in Italian landscape archaeology, specialising in the use of geophysical survey techniques. Extending back two decades to his involvement in the TVP, he has extensive experience of the archaeology of the CDA study region (south Etruria) and currently co-directs an international field project there, at Falerii Novi. He maintains an extensive professional network with both visiting BSR scholars and Rome-based archaeologists. He publishes widely including scholarly articles stemming from collaborative research projects; he is a visiting researcher at Newcastle and Southampton universities.</p> <p>Advisor2: Ceccarelli is BSR Research Fellow and Visiting Scholar at McDonald Institute for Archaeological Research (Cambridge) and Policlinico di Milano. Her research focuses on archaeometric characterisation of clay materials and the study of kiln structures, firing technology and ceramic production. She directed the excavation of Roman kilns sites and is currently working on ceramics from the Falerii Novi project. Her knowledge of local pottery sequences and relevant scientific methods will provide expert support.</p>		

<b>SECTION 4: RESEARCH ENVIRONMENT</b>
<p><b>Please provide details about the research environment the selected candidate will be joining and its suitability:</b>  <i>(Maximum 500 words)</i></p> <p>While UK-based research in archaeology is world-leading in many areas, the skills-base within UK-academia with regard to material culture has become depleted in recent decades. The current project is a step towards rebuilding this knowledge, while introducing the student to <b>cutting-edge analytical techniques</b>, of a kind which will allow ceramic studies to contribute to wider debates within the discipline. To support this, the Department has extensive <b>expertise on material culture</b> (e.g. Ben Roberts, Robin Skeates), and world-class facilities for the preparation and archaeometric analysis of ancient ceramics.</p> <p>Durham represents an outstanding fit for this project being one of a handful of departments in the UK with world-class facilities</p>

and expertise in archaeological materials science (e.g. Badreshany and Roberts) along with a large and growing group of RPGs using materials analysis in their research projects. Durham Archaeology has sustained global **leadership in landscape/survey archaeology** with multiple ongoing funded projects and a large community of associated RPGs and PDRA. The Department has well-established **collaborative and supervisory links** with Earth Sciences, Chemistry, Geography and Physics where an additional range of equipment and expertise is available and regularly accessed by staff and students in Archaeology.

At Durham, the student will join a leading department of Archaeology with a substantial RPG community and with established **track record of PhD supervision**, including CDA awards and joint supervisions with Classics and History. The student will have the opportunity to participate in regular Departmental activities including weekly research seminars; RPGs also organise their own seminar series to discuss their work in an informal environment. RPGs are expected to engage with **Departmental Research and Impact groups** with access to funding (e.g. for workshops); the 'Material and Visual Culture' and Landscapes of Complex Societies' groups are ideally suited to support this project. Through the provision of **desk space within the Department**, the student will have daily interaction with staff and peers and direct access to laboratory and computing facilities. The Department currently hosts more than 100 RPGs, ensuring exposure to a diversity of topics and approaches, and the potential to collaborate with fellow students working on connected themes or materials (e.g. current projects include ceramic production and economic exchange).

Alongside bespoke lab-based training, the student will be encouraged to audit relevant taught PG classes as appropriate, including modules such as 'Roman landscapes' and skills-based classes including databases and statistics. If the student does not already have appropriate skills, Italian language training will be available through the University's Centre for Foreign Language Study.

## SECTION 5: RECRUITMENT INFORMATION

In the event that your project is successful it will be advertised on the Northern Bridge Consortium website to aid recruitment:  
<http://www.northernbridge.ac.uk/applyforastudentship/cda/>

Please therefore complete the following Applicant Criteria so that advertising can begin immediately following the outcome of the competition:

<i>For further information about this Collaborative Doctoral Award and to submit an Expression of Interest, please contact:</i>	
Lead Supervisor (or Alternative Contact):	Dr Robert Witcher
Email:	r.e.witcher@durham.ac.uk
Expressions of Interest must be received no later than:	8/1/24
<b>Expressions of Interest must take the following format:</b>	
<ul style="list-style-type: none"><li>• CV</li><li>• Covering letter (detailing research interests and evidencing how they meet each criterion listed below)</li></ul>	
Interviews for shortlisted candidates are expected to take place:	w/c 29/1/24

### APPLICANT CRITERIA

*Candidates must also meet the criteria for acceptance on a doctoral programme as set out by the host institution's Postgraduate Admissions Service. The successful candidate will be required to submit a postgraduate application to their host institution following notification that they are to be awarded a conditional CDA studentship, and meet the conditions of the offer of a place on the doctoral programme.*

<b>Education and Professional Qualifications</b>	Essential Criteria	Masters (MA or MSc) in Archaeology or close cognate discipline
	Desirable Criteria	Courses in petrography and statistics
<b>Research and Impact Experience and Training</b>	Essential Criteria	Familiarity with Mediterranean archaeology Experience of working with archaeological ceramics
	Desirable Criteria	Experience of working in a materials laboratory
<b>Professional Practice and Job-related Experience</b>	Essential Criteria	Familiarity with working in academic and/or commercial archaeology environments
	Desirable Criteria	Experience of writing academic articles and/or commercial reports
<b>Interpersonal Skills</b>	Essential Criteria	Excellent written and oral communication skills
	Desirable Criteria	Experience of working as part of a research team

<b>Other Factors</b>	Essential Criteria	Willing to undertake international travel
	Desirable Criteria	Italian language skills or willingness to learn / Experience working with Italian archaeological literature