

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:		Windows into Ancient Recycling at Fishbourne Roman palace	
Project Summary: <i>(Maximum 100 words)</i>		The luxury and everyday glass from the Roman Palace at Fishbourne will for the first time be fully catalogued and published, with a particular focus upon the site's exceptional collection of early window glass. This will address a pressing conundrum – the scale and nature of Roman recycling, and its impact upon our understanding of the economy – via a tailored 'round-robin' of techniques, from chemical analysis to experimental reconstruction. Key transferable skills will be developed in examining this assemblage of manageable size yet major potential, addressing the question: are windows the missing piece to the puzzle of Roman glass recycling?	
Host University:		Newcastle University	
Name of Non-HE Partner Organisation(s):			
1. Fishbourne Roman Palace & Gardens / Sussex Archaeological Society			
2. Butser Ancient Farm			
Contact(s) at Non-HE Partner Organisation(s): <i>(Add more lines if needed)</i>			
Name:	Dr Rob Symmons, Fishbourne	Email:	robsymmons@sussexpast.co.uk
Name:	Thérèse Kearns, Butser	Email:	archaeology@butserancientfarm.co.uk
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 type="checkbox"/>	NO <input checked="" type="checkbox"/>
If you consider the project to be interdisciplinary, please state why: <i>(Maximum 100 words. Note, all applications will be assessed by the appropriate primary subject area cross-institutional panel.)</i>			
n/a			

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)

In the mid-late 1st century AD, the innovation of glassblowing democratised glass, with a rapid expansion in production and use facilitated by the movement of the Roman army (Lightfoot 2001). Roman literary sources of the same period see a sudden swathe of allusions to glass, with a particular interest in its potential for recycling, epitomised by the figure of the glass peddler, who trades broken glasses for sulphur in several of the Flavian literary sources (e.g. Martial's *Epigrams*; Statius' *Silvae*). Yet significant questions remain about the nature and scale of recycling practice, and its impact upon our models of the Roman economy (Duckworth and Wilson 2020).

Glimpses of what we are missing occasionally surface, as with the 2nd century glass recycling dump at Guildhall Yard, London (Perez-Sala and Shepherd 2008). Moreover, there has long existed a puzzling discrepancy between records of the scale of glass window production for use in bathhouses (50 tonnes for the 3rd century baths of Caracalla alone), and the tiny volume of surviving glass window fragments at archaeological sites, described by Jennifer Price as a "yawning gap" in the evidence (Price 2005): could window glass be the key to unpacking recycling?

The Roman Palace of Fishbourne, West Sussex, is perfectly positioned to start to fill this gap. The largest Roman complex uncovered to date in the UK, it spans the earliest phase of the conquest of Britain (AD 43) to the later 3rd century, when it was destroyed by fire. Its museum houses >450 fragments of vessel glass, <30 fragments of glass jewellery, and a whopping 2755 window glass panes and fragments, the latter all coming from a single, 3rd century deposit. Only one report of Fishbourne's glass exists (Harden and Price 1971), however, and this focuses upon selected fragments of luxury vessel glass.

The trade of glass across the Roman Empire can be traced by chemical analysis that reveals different recipes and raw ingredients sources, but the data at present is severely skewed towards vessel glasses, and interpreted with the assumption that most glassblowers were using fresh, rather than recycled glass. Yet if Price's "yawning gap" is explained by the extensive recycling of window glass into other objects including vessels, this has profound implications for our understanding of the entire industry and for Roman recycling more broadly. The advantage of the Fishbourne assemblage lies in the quantity of glass panes and the limited context in which they were found, having been removed from the bathhouse windows and stacked in a workshop area in the North Wing before its destruction by fire.

This rare opportunity to sample and chemically analyse a single deposit of window glass will be extremely valuable in identifying chemical 'markers' of recycling (Paynter and Jackson 2016), whether the windows were made from the same glass batch(es), and whether there is a recycling relationship with contemporary vessel glass from elsewhere at the site. Furthermore, experimental reproduction, recycling and analysis of Roman windows will for the first time practically test the relationship between the scale of recycling and its chemical visibility. Exciting recent scholarship has thrown up examples at Roman sites of the dismantling and recycling of materials such as lead pipes and glass on an organisational scale not previously recognised (Munro 2020). The potential for this at Fishbourne will be investigated by a re-examination of the excavation archives and a potential re-interpretation of activities in the North Wing that would be of great value to the Museum and ongoing studies of its collections.

Methods and Objectives

Working closely with their supervisory and advisory team at Newcastle, Fishbourne and Butser, the successful candidate will:

- (i) Create a fully contextualised catalogue of the Fishbourne glass [YEARS 1,2].
- (ii) Re-examine the excavation archives and re-interpret the 1960s chronology of the North Wing with reference to later excavations (1980s, 1990s) [YEARS 1,2].
- (iii) At Butser Ancient Farm's new 'hot-working' area, publicly recreate and recycle windows in a Roman-style, wood-fired furnace [YEAR 2].
- (iv) At British Geological Survey, Keyworth, use mass spectrometry (LA-ICP-MS) to analyse <130 samples of window and vessel glass and c.20 samples of reconstructed windows to compare the observed chemical 'markers' with those found in Roman window and vessel glass and broadly quantify the scale of recycling that these might reflect [YEAR 2].
- (v) At Fishbourne, stage an exhibit showcasing its glass collection and the evidence for Roman glass recycling [YEAR 3].

Outputs

- Public glassmaking event at Butser

- Museum exhibit at Fishbourne
- Catalogue of Fishbourne glass Fishbourne
- 2-3 peer-reviewed journal papers

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)

Total maximum estimate: £5252

- (1) Mounting and analysis of the glass samples by LA-ICP-MS. The estimated cost is based upon recent quotations from British Geological Survey (BGS) and will be up to **£2000**.
- (2) Consumables for public experiments at Butser. Based upon previous work by Duckworth's research group, this is estimated at **£400 for clay**, and **£500 for fuel**. Glassmaking sand (**£30**) will be combined with glassmaking chemicals available in the Wolfson Laboratory, Newcastle.
- (3) Travel between Newcastle and Sussex and local accommodation in Sussex. Estimate based on 5 days per week for a total of eight weeks in Years 1 and 2, and 1 week in Year 3. Return train travel x 9 = **£810**; accommodation 4 nights x 9 = **£1512**.

The candidate will be supported in applications for external funding to help cover their costs and build their CV, including:

- o Butser student scholarship
- o NERC/BGS bursary or research grant
- o MATCH small grant (Newcastle)
- o Public Pastas small grant (Newcastle)

All other training (collections management, public engagement, etc.) will be provided free of charge by the supervisory and advisory teams at Newcastle, Fishbourne and Butser as will access to laboratory space, library resources, and teaching training.

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)

The candidate will benefit from a combination of in-person supervisory meetings with Duckworth and Collins in Newcastle, or with Symmons in Fishbourne, to a minimum of one per month.

During the first six months of the project, there will be bi-monthly online group project meetings including the candidate along with all members of the supervisory and advisory team. After this, group project meetings will be held twice per year, with additional ad hoc meetings if required (e.g. while planning the exhibit).

Duckworth will be present for the duration of the public experiment at Butser, with Kearns and Symmons also present for a significant portion of the time. Duckworth will also visit Fishbourne at least once in the first year of the project, and again during the preparation of the exhibit. Symmons will be invited to Newcastle to present in the archaeology research seminar series. These costs will be borne by Duckworth's research allowance and the School's seminar budget.

Newcastle University will be responsible for monitoring academic progress via the candidate's annual progress review (APR). All members of the supervisory and advisory team will be given the opportunity to feed into the APR. Duckworth and Symmons will mainly communicate via email.

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

(Maximum 300 words)

The candidate will benefit from the opportunity to work with a world-class museum collection, to develop essential skills and experience that will enhance their employability. **Skills** to be developed at the partner organisations (in collaboration with

Newcastle University) include finds specialism, archaeological science and experimental archaeology, all three of which are in shortage in the UK's heritage sector. **Experience** of working with two high profile public institutions will include the day-to-day running of museums, visitor engagement programmes, delivery of public talks or other engagement activities, and collections management, all of which are frequent essential requirements in job adverts.

The experimental project at Butser and the exhibit at Fishbourne will deepen the candidate's public engagement experience and profile. By working to advertise and promote these events with the experienced teams at Fishbourne and Butser, they will also gain valuable insight into media engagement.

Fishbourne will benefit from the production of a fully contextualised catalogue and the first comprehensive re-examination of their glass collection for over 50 years, feeding into the ongoing transformation of the site's interpretation that has recently been highlighted by the re-examination of other finds in its collection, such as the animal bones. The integration of excavation archives from the 1960s, 1980s, and 1990s has the potential to directly challenge previous interpretations of the chronology of the site's North Wing. Finally, the museum exhibit will be promoted to local and national press, drawing attention to Fishbourne's collections and activities.

Butser will benefit from the permanent addition of a glass furnace to their hot-working area, the opportunity for metallurgists and other experts to develop their understanding of glass technology, and the public engagement elements of the experimental project.

Butser and Fishbourne will benefit from the deepening of their links to one another, and their growing partnership with Newcastle University.

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.)*

Fishbourne Roman Palace will provide desk space, access to IT, training resources and museum databases, and full access to the archives and collections.

Butser Ancient Farm will provide a permanent space in the hot-working area of the site, access to facilities and public outreach channels, and access to staff facilities and areas.

Kearns and Symmons will both provide in-person training and the opportunity for job shadowing as part of the candidate's career development.

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

(Maximum 300 words)

There will be multiple training and CV-building opportunities available to the selected candidate, which will be discussed in early meetings as part of their training development plan, to ensure a balance is struck with their PhD research.

At Fishbourne, the candidate will have the opportunity to give public presentations to and engage with a broad audience from school children to professionals and amateur enthusiasts. They will have the chance to assist with exhibit design during the first two years of the project, building their skills before designing their own exhibit in its third year. They will train in collections management and have the opportunity to shadow members of the team in various roles. They will be fully integrated into the team for the duration of their research, benefitting from online and in-person training activities, networking events, and attendance at staff meetings: as such, they will build both skills *and* experience in heritage management. They will be afforded desk-space and full access to Fishbourne's extensive collections and archives, and the opportunity to develop their finds expertise by interacting with experts in a whole range of material from the museum as well as the glass.

At Butser, the candidate will benefit from the opportunity of working at one of the world's foremost centres for experimental archaeology. Both the experimental parameters and public outreach elements of the project will be developed in close

partnership with Butser’s experts, who have recently established a hot-working craft area close to the site’s renovated Roman villa. The research will benefit from the rare concentration of cross-craft knowledge that has been developed at Butser, as well as significantly boosting the candidate’s knowledge and understanding of a range of craft processes (particularly pyrotechnological ones) and how these intersect with one another.

SECTION 3: SUPERVISION AND EXTERNAL ADVISORS

Primary (or Co-) Supervisor: Dr Chloe N. Duckworth

School or Department:	History, Classics and Archaeology	Email Address:	chloe.duckworth@newcastle.ac.uk
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Secondary (or Co-) Supervisor: Dr Rob Collins

School or Department:	History, Classics and Archaeology	Email Address:	rob.collins@newcastle.ac.uk
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Name of the Advisor based at the Non-HE Partner Organisation: Dr Rob Symmons

Organisation/Institution:	Fishbourne Roman Palace	Email Address:	robsymmons@sussexpast.co.uk
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Organisation/Institution:		Email Address:	
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Name of Additional Internal or External Advisors or Academic Supervisors, if any: Thérèse Kearns

Organisation/Institution:	Butser Ancient Farm	Email Address:	archaeology@butserancientfarm.co.uk
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Explain how the expertise of the supervisory team and external advisor(s) will allow them to support the proposed project and the selected candidate:

(Maximum 500 words)

The candidate will benefit from a supervisory and advisory team that boasts a robust and complementary set of strengths in public engagement, finds specialism, archaeological science, experimental archaeology, and the museums/heritage sector.

Dr Chloe Duckworth (main supervisor, Newcastle University) is an expert in the history and archaeology of technology, with a focus on the scientific analysis and experimental reproduction of glass and other vitreous materials. She has published on Bronze Age, Roman and medieval glass, and on Roman recycling (e.g. *Recycling and Reuse in the Roman Economy* 2020). Her PhD thesis explored the social context of glass invention and innovation from a multidisciplinary perspective including scientific analysis, archaeological theory, and socio-linguistics. She has directed archaeological fieldwork at two UNESCO World Heritage sites in Spain, and this summer reconstructed and operated a medieval glass workshop in collaboration with leading glass artists including Elliot Walker, winner of *Blown Away Series 2* (Netflix). She is PI of a MSCA Global Research Fellowship (PDR Dr Camilla Bertini), has successfully supervised two PhD projects to completion, and is currently the main supervisor of a further three. Her public engagement experience includes co-presenting *C4's The Great British Dig* (1 million viewers per episode) and authoring a regular column ('Archaeology Now') for *British Archaeology* magazine.

Dr Rob Collins (co-supervisor, Newcastle University) is an expert in Roman artefacts and frontier studies, with a particular focus on Roman Britain. He has led major community and public archaeology projects (e.g. WallCAP: Hadrian’s Wall Community Archaeology Project), has extensive experience of working with artefacts (e.g. with the Portable Antiquities Scheme), and has supervised or co-supervised eight PhD projects. He also co-leads the School of History, Classics and Archaeology’s mentorship programme, and is the Degree Programme Director for Archaeology at Newcastle University.

Dr Rob Symmons (co-supervisor, Fishbourne Roman Palace & Gardens) has been the Curator at Fishbourne Roman Palace for 18 years, and so has an unequalled knowledge and understanding of the site's collections and archives. During this time, he has supported over 300 collections-based projects, at all levels and across a broad spectrum of topics. This has included 28 PhD projects, including co-supervising a collaborative doctoral partnership with Nottingham University (completed 2011). He has also been a partner on a range of major research projects, including "The Chicken Project" (Bournemouth University), "Dama International" (Nottingham University), "Do Not Feed the Animals" (Exeter University – ongoing) and "REMADE" (Reading University – ongoing), all of which focus on the use of scientific analysis to better understand stored museum collections.

Thérèse Kearns (advisor, Butser Ancient Farm) is responsible for all aspects of research at this world-leading centre for experimental archaeology. She completed an MSc in the Technology and Analysis of Archaeological Materials at UCL, and undertook further training in analytical techniques with UCL and Historic England. For the past 20 years her work has largely focused on the examination of archaeological materials generated from high-temperature technologies, particularly glass, metals and ceramics. She has a track record of mentoring students and devising experimental projects and methodologies.

SECTION 4: RESEARCH ENVIRONMENT

Please provide details about the research environment the selected candidate will be joining and its suitability:

(Maximum 500 words)

The candidate will join a vibrant research community of PGTs, PGRs, PDRs and academic staff in the School of History, Classics and Archaeology at Newcastle University. HCA's exceptionally strong focus on Roman archaeology and close links with the forts and museums of Hadrian's Wall has attracted a highly active and multidisciplinary community of researchers at all stages of their careers. The Roman Archaeology Seminar Series and the Archaeology Research Seminars run weekly during term-time, and are followed by well-attended social events.

Newcastle University's archaeological science capacity has grown exponentially in the past 7 years, and the candidate will benefit from state-of-the-art laboratory equipment including a high-spec atmosphere-controlled furnace, glassmaking facilities, a micro-CT scanner, and optical microscope suite. The monthly laboratory meetings often include presentations of research in progress, providing a supportive opportunity to develop ideas and methodologies. The bi-monthly 'craft brunches' are interdisciplinary gatherings at which attendees try their hands at experimental archaeology and traditional skills from spinning yarn to bead-making.

Archaeological science at Newcastle is closely tied to experimental archaeology. Newcastle is affiliated with EXARC (the international group for experimental archaeology), and is rapidly developing a thriving community from undergraduate students through to post-doctoral researchers and academic staff (e.g. Dolfini, Duckworth, Jackson). Newcastle researchers have close connections with the Anglo-Saxon Farm at Jarrow Hall, where there is a dedicated craft area that is frequently used for projects open to all members of the department, such as Duckworth's glass bead-making experiments, or Dolfini's experimental iron-smelting. The candidate will also have the opportunity to shadow the MA module *How To Survive The Apocalypse*, which combines materials science with practical reconstructions of past craft, and to volunteer to join Duckworth's summer fieldwork projects which alternate between excavation/survey, and experimental archaeology.

The candidate will be able to build their academic CV at Newcastle through undertaking training in HE teaching, and through the many opportunities available to apply for small grants to fund additional activities, for example from the faculty research group 'MATCH' (Materials, Artefacts and Technologies in Culture and History). Their public engagement work will benefit from the advice of a dedicated Press Office who will draft and circulate press releases about the project's activities to the local and national press.

In addition to the training and development opportunities mentioned above at Fishbourne Roman Palace, the candidate will have the opportunity to be involved in the research activities of Sussex Archaeological Society, including their annual conference, and to access the site's extensive library. Fishbourne is a popular visitor attraction and boasts a modern, well-organised artefact store which features multiple working areas, so the candidate will have plenty of opportunities to engage with other researchers

and volunteers working at the site as well as having their own dedicated office space. Butser Ancient Farm is also a well-visited site, and draws a large number of visiting experts (for example in blacksmithing events), allowing the candidate to tap into a valuable network of reenactors, archaeological scientists, and ancient craft experts.

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/applyforstudentship/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 Chloe Duckworth
Email:	Chloe.Duckworth@ncl.ac.uk
Expressions of Interest must be received no later than:	15 th January 2024
Expressions of Interest must take the following format:	
<p>Please email your expression of interest to Dr Chloe Duckworth, including the following:</p> <ul style="list-style-type: none"> • An approximately 500-word personal statement briefly mentioning how you meet the applicant criteria, why you want to apply for this opportunity, and (if relevant) how the training and experience will benefit your career development. • A 2-page CV including your main qualifications and work experience to date, as well as any other information relevant to the position. • The names of two referees, at least one of whom can comment upon your research and writing skills. It is not necessary to supply the written references at this stage. <p>PLEASE NOTE: We do NOT expect applicants to meet every one of the ‘Desirable Criteria’, but we strongly encourage you to mention any of these that you do meet in your statement along with anything else of relevance to the project. The successful applicant will discuss their training needs with the supervisory and advisory team at the start of the project, and will develop a training plan that prioritises the areas in which they have the least experience.</p>	
Interviews for shortlisted candidates are expected to take place:	Monday 4 th March 2024

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.

Education and Professional Qualifications	Essential Criteria	EITHER an undergraduate or postgraduate degree in archaeology or a related discipline OR a postgraduate degree in a subject other than archaeology, with demonstrable voluntary or professional archaeological experience.
	Desirable Criteria	Demonstrable interest (e.g. master’s degree, undergraduate module selection, dissertation topic, voluntary or paid work, participation in fieldwork) in any of the following: Roman archaeology, archaeological finds, experimental archaeology, archaeological science, technology and production, the history

		and archaeology of glass.
Research and Impact Experience and Training	Essential Criteria	The ability to write fluently in English, to critically convey complex or specialist arguments. Experience of conducting and writing up independent research (e.g. for a dissertation or report), including the use of appropriately-cited academic literature.
	Desirable Criteria	Experience of writing for publication (e.g. archaeological site or finds report; journal paper).
Professional Practice and Job-related Experience	Essential Criteria	Understanding of archaeological stratigraphy and recording. The ability to read and interpret archaeological site reports or related publications. Experience of archaeological fieldwork and recording.
	Desirable Criteria	Experience of working with archaeological finds, writing archaeological reports, and/or working in the commercial archaeology sector. Experience of voluntary or professional work in the heritage sector (e.g. museums, public engagement, community archaeology).
Interpersonal Skills	Essential Criteria	Willingness to engage politely and professionally with supervisory and advisory team, other researchers/experts, and members of the public.
	Desirable Criteria	Experience of public outreach or engagement, especially in an educational context.