

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:	Decolonising Astronomical Science: Cultural & Historical Geographies of the 'Golden Age' of Irish Astronomy and its Legacy, 1785-1978		
Project Summary: <i>(Maximum 100 words)</i>	This project takes the scholarship of 'decolonising science' in new directions by examining the Golden Age of Irish Astronomy in the long nineteenth century and its legacy in the twentieth century. It focuses on Ireland's three historic astronomical observatories at Armagh, Birr and Dunsink, which are understudied institutions that are now coming together to apply for UNESCO recognition as a World Heritage Site. Through partnership with Armagh Observatory & Planetarium, the project will investigate the archival holdings at Armagh, Birr and Dunsink, while also tracing the global networks of these institutions as part of the re-evaluation of their scientific legacies.		
Host University:	Queen's University Belfast		
Name of Non-HE Partner Organisation(s): <i>(Add more lines if needed)</i>			
Armagh Observatory & Planetarium			
Contact(s) at Non-HE Partner Organisation(s): <i>(Add more lines if needed)</i>			
Name:	Michael Burton	Email:	
Name:	Matthew McMahon	Email:	
Primary AHRC Subject Area: <i>Select one subject area from the list here. Please do <u>not</u> add or amend subjects, as there will not be a corresponding Subject Area Review Panel to assess your nomination.</i>	Cultural Geography		
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. Please note that your application will be assessed by the relevant primary AHRC subject area review panel. However, in this space you should indicate which other subject areas your proposal covers and how your methodology is genuinely interdisciplinary.)</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)

Project Aim and Research Questions

This project aims to explore the cultural and historical geographies of the 'Golden Age' of astronomy in Ireland and its legacy through the conceptual lens of 'decolonising science'. Ireland's three historic astronomical observatories at Armagh (est.1790), Birr (est.1845) and Dunsink (est.1785) made world-leading contributions to astronomical understanding in the long nineteenth century, including the spiral form of galaxies, ascertaining the position of over 8,000 stars, and in modern observatory & telescope design, yet they have remained largely unstudied beyond isolated institutional histories and short biographies of key astronomers (Bennett 1990, Carlton 2022). This project will be the first that studies these institutions comparatively, and the first to place them in the context of their colonial & imperial power/knowledge networks, while considering their social, political and cultural legacy into the twentieth century. Beyond the 'Golden Age' period of the long nineteenth century, a key case study will be the Armagh-Dunsink-Harvard collaboration at Boyden Observatory, South Africa, between 1950 and 1978, an example of these institutions' international reach. Armagh, Birr and Dunsink continue to operate today as research and heritage institutions, and the project will provide timely support to the UNESCO World Heritage Site bid by these same institutions as the 'Astronomical Observatories of Ireland', which is currently gathering pace.

The project seeks to answer research questions including:

- To what extent can the astronomical institutions at Armagh, Birr and Dunsink be understood as colonial, imperial and/or post-colonial, across changing historical contexts?
- How have religion, social class and colonialism intersected in the production of astronomical knowledge in Ireland?
- Was there an Indigenous astronomical knowledge in Ireland during the period in question?
- In what ways can anti-colonial perspectives be unearthed in the cultural and historical geographies of modern Irish astronomy?
- To what extent was the Armagh-Dunsink-Harvard telescope at Boyden Observatory, South Africa, implicated in colonialism and imperialism, and how can marginalised voices from this project be recovered?
- How have the material collections of astronomical science in Ireland (e.g. the 1902 Crumlin meteorite) been woven into networks of power/knowledge, for example through their collection and display in museum spaces?

Research Context

Recent geographical scholarship in 'decolonising science' has understood the complicity of scientific knowledge in past and present practices of colonialism and imperialism, typically since the modern age of 'Enlightenment' science but also aware of the ongoing legacies of imperial science in the public realm, for example in museum collections (Radcliffe 2022, Craggs 2019, Esson et al 2017). Concurrently, research in the history of astronomy has acknowledged the imperial basis of astronomical science across the former British Empire (Schaffer 2010, McAleer 2013, Saul 2019). Astronomy in Ireland, however, has been overlooked in this context with its unique history as both a colonised space as well as a place from which imperial practices emanated. This legacy of imperialism is still relevant to the political, social and cultural spaces of Ireland, including through an understudied astronomical heritage. In relation to astronomy and space science globally, attention has been drawn to decolonial imperatives in relation to the proposed Mauna Kea observatory in Hawaii (Sammler & Lynch 2021), the enclosure of Indigenous land for rocket testing and observation in central Australia (Gorman 2005), and recognising Indigenous nomenclature of celestial phenomena (Bawaka Country, 2020). To date, this approach to decolonising astronomical knowledge has not been applied to the island of Ireland.

Methods and Sources

The project will be carried out through archival and material culture research, as well as critical analysis of published sources. Armagh Observatory & Planetarium, the project partner in Northern Ireland, holds a historical collection of over 32,000 records and artefacts, the majority of which pertains to the late modern period, which is a resource that remains largely untapped. Working with the AOP archivist and Director, additional archival holdings relating to the wider scope of this project will be identified. This is likely to include the holdings at Dublin's Dunsink Observatory, Birr Observatory in County Offaly, the Royal Irish Academy in Dublin, the Public Record Office of Northern Ireland in Belfast, the Armagh Robinson Library, and newspaper archives held at the Cultural Heritage Services Library in Armagh and Trinity College Dublin. Access to the Boyden Observatory papers at the Smithsonian Institution, USA, will also be sought. Oral history interviews will supplement this documentary research, with, for example, known individuals who worked at Armagh and Boyden Observatory during the post-war period.

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)

The student will be trained in the necessary archival retrieval and document handling skills by the archivist at AOP. They will have a workspace at both AOP and QUB and full access to AOP's reprographics and data visualisation laboratories. Additional training in doctoral research skills will be provided by QUB Graduate School and AHRC Northern Bridge, including training in oral history (via QUB's Oral History, Technology & Ethics hub).

The main resources and archives required for this project are spread over the island of Ireland, with some additional British and international holdings. Through AOP's existing networks, the student will gain access to the unique sites and collections of Dunsink Observatory, Birr Observatory and the Royal Irish Academy.

Expenses to cover archive trips and conference attendance will be sought from the funder to the maximum of £550 per annum and the student supported to seek additional research funds as necessary from organisations such as the British Society for the History of Science, the Royal Irish Academy and the Royal Geographical Society. As part of the investigation of the Armagh-Dunsink-Harvard observatory network (Boyden papers), the student will apply to the Smithsonian Institution for a funded graduate Fellowship programme.

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)

This collaboration emerges from a long-running institutional partnership that dates back to the 1850s. Since 2019, AOP and QUB have collaborated on two successful CDAs leading to sustained research in the cultural spaces of astronomy, both led by this project's lead supervisor. Since 1981, there have been 60 AOP-QUB astronomy PhDs, reflecting the solid, sustained and successful working relationship upon which this project will build. Communication channels are consequently well-established.

At least twelve in-person meetings will be arranged annually between the student and supervisors, supplemented by email and video-conferencing where needed. Meetings will alternate between QUB and AOP sites to ensure equity between the partners and offer opportunities for site-specific activities. Academic progress will be monitored by the first and second supervisors (QUB), with substantial input from the AOP advisor, through reviews of draft work and completion of paperwork in accordance with QUB's procedures. A formal process of Initial Review, Differentiation and subsequent Annual Progress Reviews will be completed as part of such procedures, overseen by academic experts.

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

(Maximum 200 words)

In 2023, AOP joined with Dunsink and Birr observatories to launch a new network ('The Astronomical Observatories of Ireland') dedicated to pursuing UNESCO World Heritage status for the three sites. Their application will rely upon demonstrating the outstanding universal values associated with the cultural, technological and site-specific significance of these observatories. This PhD project will directly contribute to securing UNESCO recognition by providing evidence of the political, social and cultural significance of the observatories, including the acknowledgement of their imperial and colonial legacies.

The PhD will offer the student direct access to rich material, archival and specialised library resources at AOP, while also gaining access to other institutional resources across the UK, Ireland and internationally. They will participate in AOP research seminars and engage with heritage and education staff to further up-skill. The collaboration offers a unique opportunity for the student to engage directly with PhD students working in astronomy and to develop interdisciplinary insight. They will have the opportunity to present their research to the public through outreach at AOP, including public talks, exhibitions and social media.

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

*(Maximum 200 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.)*

AOP will contribute access to its wide-ranging facilities, networks and audiences and a designated on-site workspace, amounting to a substantial in-kind commitment to the project. Beyond supervision, AOP staff will provide support and training in using specialised facilities, collections and in delivering public engagement outputs. This will include access to the same ICT and administration support enjoyed by AOP staff. During periods when extended stays in Armagh would be beneficial, AOP can host the student free-of-charge at their on-site accommodation, Bailey House.

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

(Maximum 200 words)

Collaboration between the two organisations will allow the student to work alongside astronomers, heritage practitioners, academics and educators to pursue a deeper understanding of how astronomy was performed in the past, and how this can be explained in the present. This community will provide the student with manifold opportunities for learning and sharing their research in spaces such as seminars and student discussion groups.

The student will work directly on archival holdings at AOP that have been rarely accessed for historical and cultural research. They will also undertake cataloguing work to enhance the accessibility of the archive and to develop their own skills and employability under the guidance of the AOP archivist.

In researching the archival holdings at Birr and Dunsink Observatories, the student will also enhance the new Astronomical Observatories of Ireland network in working towards the UNESCO bid. They will be further encouraged to engage with the national and international research community through the AHRC Northern Bridge DTP Consortium, the Royal Geographical Society, the Society for the History of Astronomy and others.

SECTION 3: SUPERVISION AND EXTERNAL ADVISORS

Primary (or Co-) Supervisor:

Dr. Oliver Dunnett

School or Department:

Geography

Email Address:

Secondary (or Co-) Supervisor:

Dr. Diarmid Finnegan

School or Department:

Geography

Email Address:

Advisor based at the Non-HE Partner Organisation:

Prof. Michael Burton

Organisation/Institution:

Armagh Observatory & Planetarium

Email Address:

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)

Dr Oliver Dunnett (FRGS) is a cultural and historical geographer, and Senior Lecturer in Human Geography. He has been involved in collaborative scholarly work with Armagh Observatory & Planetarium since 2015, and leads a regular undergraduate field trip to Armagh. He has published scholarly work relevant to the project, including his research monograph *Earth, Cosmos and Culture:*

Geographies of Outer Space in Britain (Routledge, 2020), as well as articles in leading geography journals and interdisciplinary edited collections, including on the spaces of outer space (*Routledge Handbook of the Social Studies of Outer Space*, 2023), the geopolitics of outer space (*Geopolitics*, 2021) and the geographies of light pollution in Britain (*cultural geographies*, 2015). He is a member of the advocacy group 'Right to the Night' which brings together artists, academics and public sector bodies in Belfast to promote amateur astronomical observation and access to dark skies. He has supervised four doctoral students to completion, including the Northern Bridge CDA project 'Placing Astronomy: Landscape, Space and Science at Armagh Observatory, 1790–1916'.

Dr Diarmid Finnegan (FRGS, FRHistS) is Reader in Human Geography and has published widely on the historical geographies of science in the nineteenth and twentieth centuries. His research has been funded by the AHRC (project AH/J004952/1) and the John Templeton Foundation. He is a longstanding member of the British Society for the History of Science, sits on the committee of the History of Science, Technology & Medicine Network of Ireland and is co-Chair of the Science & Culture Research Group at Queen's University Belfast. He was previously Postgraduate Research Coordinator for the School of Natural and Built Environment and has extensive experience in the training and supervision of postgraduate research students (including four funded by Northern Bridge). He has supervised eleven PhD students to successful completion (six as first supervisor) and is currently first supervisor for one PhD student (funded by Northern Bridge).

Professor Michael Burton is the Director and Chief Executive of Armagh Observatory and Planetarium, the first person to run both these historic facilities. The role combines providing leadership in scientific research, education and outreach, together with custodianship of internationally significant heritage. He is a leading researcher in astronomy, with over 250 refereed publications (speciality: the formation of stars and the interstellar medium) and successfully supervising 17 PhD students. Before his appointment to Armagh, he spent over two decades with senior academic responsibilities at the University of New South Wales in Sydney, including as Director of Teaching in Physics. He is now leading the bid of Ireland's historic observatories of Armagh, Birr and Dunsink to seek UNESCO world heritage accreditation. A key skill he brings to this project is his deep understanding of astronomy and how it is conducted, able to ensure the underlying scientific context of this project is both valid and relevant within its historical narrative. He has recently been elected as President of the International Astronomical Union's Commission for 'World Heritage and Astronomy'.

SECTION 4: RESEARCH ENVIRONMENT

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

(Maximum 500 words)

This application follows on from two previous successful recruitments to the Northern Bridge CDA scheme in 2020 and 2022: 'Placing Astronomy: Landscape, Space and Science at Armagh Observatory, 1790–1916' (thesis submitted 09/2024) and 'Theatre of the Cosmos: Performance, Space and Science at Armagh Planetarium, 1968-2016' (ongoing). These projects identified areas of neglected study in the cultural understanding of astronomy, and have established connections with other institutions and archives that will be crucial to this project's success. The two prior students have successfully collaborated on projects, including presenting at the AHRC-funded 'Observatory Sites and Networks' conference at Armagh in 2021, and publishing an academic article (McMahon and Black, 2024). A further parallel CDA application between AOP and QUB under the title of 'Observing the Heavens from the 'Periphery': Astronomy in Ireland 1640-1830' will complement the present project with its contrasting focus on the early modern period of astronomy in Ireland. The successful student will therefore benefit from the extended collaboration on cultural and historical research that now exists between AOP and QUB.

Queen's University Belfast has an internationally-recognised profile for research in cultural and historical geography, and in particular the historical geographies of science. This has been evidenced through the work of Professor David Livingstone CBE on the spatiality of scientific culture and intellectual history, Professor Nuala Johnson on the historical geographies of botanical science, memorialisation and landscape, Professor Keith Lilley on historic maps, landscapes, and built environments, Dr. Diarmid Finnegan on the historical geographies of the life and earth sciences, and Dr. Oliver Dunnett on cultural and historical geographies of outer space, including astronomy and space science. As well as joining this group of scholars in historical and cultural geography and the postgraduate research communities in Geography, the student will become a member of the interdisciplinary 'Science and Culture' research group, fostering broader scholarly discourse through seminar series, reading groups and other research events.

The student will become a member of the QUB Graduate School, which offers a world-class intellectual and social hub that connects students from all disciplines to one another, and to mentors, leaders and employers within the University and beyond.

At AOP the student will join a thriving team of postgraduates working on questions of astronomy, science and culture (small solar system bodies, lives of stars and history of science), who participate in weekly reading groups and seminars. AOP boasts a well-established graduate student body. Since 1942 PhD students have studied astronomy and astrophysics at the Observatory, and it has also hosted artists in residence, and historians. AOP boasts a cutting-edge data-visualisation laboratory, giving the successful student the opportunity to integrate this into their work. The student will also participate in wider national and international research communities, including those of which the supervisory team are active members, such as the History of Irish Astronomy Network, the History of Science, Technology and Medicine Network of Ireland, the Geographical Society of Ireland, and the Historical Geography Research Group of the Royal Geographical Society.