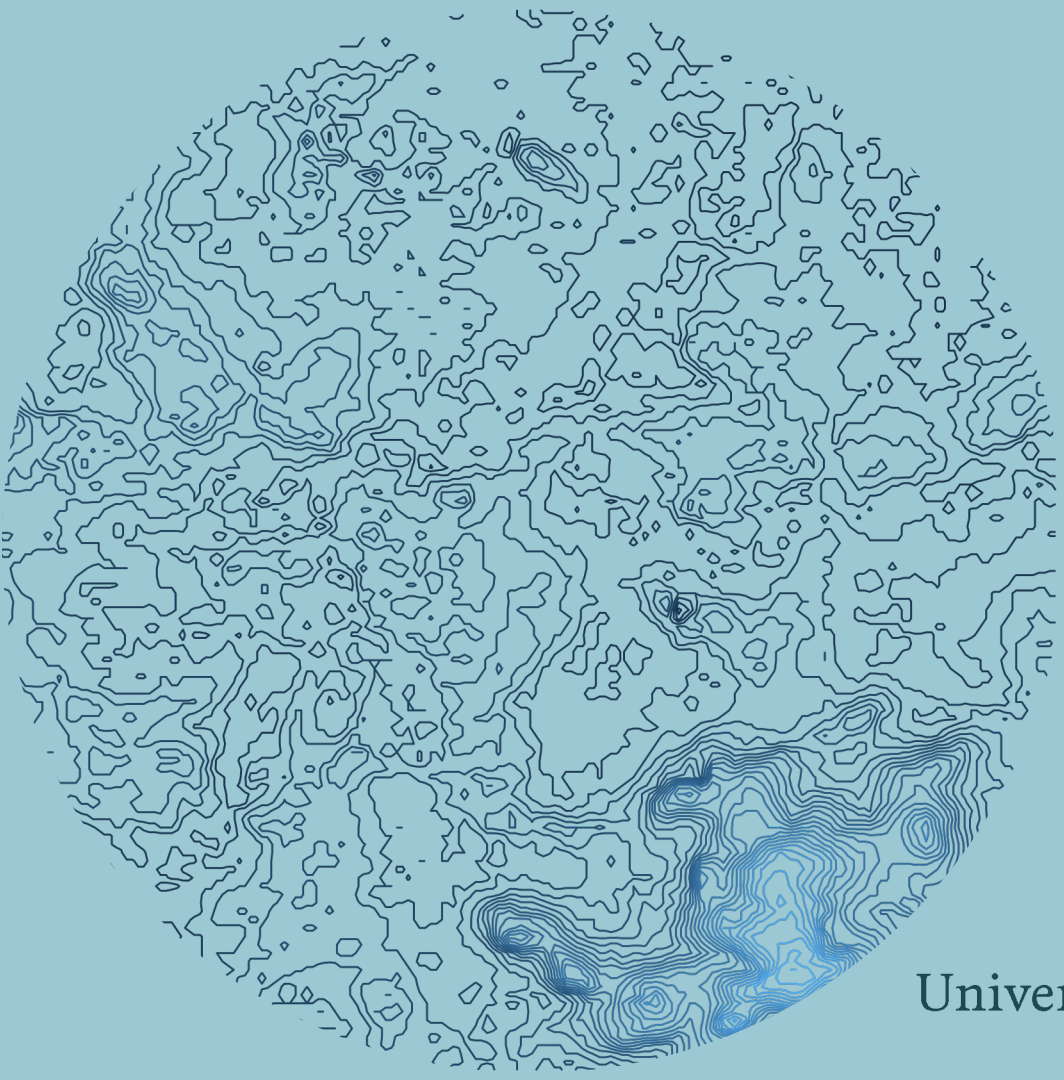
CAA United Kingdom

Programme & Abstract Booklet



9—10 Dec 2025
University of Cambridge

UNIVERSITY OF CAMBRIDGE | Department of Archaeology

McDonald Institute for Archaeological Research

Important Information

Venues

The **main conference venue** is the Henry Wellcome Building (HWB), Department of Archaeology, Fitzwilliam Street, Cambridge, CB2 1QH.

The entrance to the Henry Wellcome Building (HWB) is through the metal gates on Fitzwilliam Street.

All events, unless otherwise stated on the programme, will take place in the HWB Seminar Room on the ground floor. The HWB Library is on the 3rd floor

What Three Words: reader.grand.cubs

Accessibility information can be found on the AccessAble website

The **drinks reception** will take place in the McDonald Institute for Archaeological Research, Downing Street, CB2 3ER.

It is a 5-10 minute walk from the Henry Wellcome Building.

What Three Words: dining.skin.lungs

Accessibility information can be found on the AccessAble website

Poster Sessions

Posters will be displayed throughout the conference in the HWB Seminar Room, with coffee breaks being an opportunity to discuss with authors.

Story Through an Image

Image submissions for the 'Story Through an Image' competition will be on display during the drinks reception.

The competition submission will remain open until the 8th of December 2025, so please send in your submissions to caauk25@mcdonald.cam.ac.uk!

Programme

DAY 1

11.30—12.30	**Workshops**	
	1: Introduction to Bayesian Statistics *with Enrico Crema (University of Cambridge)*	HWB Library
	2: Introduction to Arches *with Phil Carlisle (Historic England) and the MAHSA and MAEASaM team*	HWB Seminar Room
12.30—13.30	Registration	HWB Seminar Room
	Lunch	HWB Library
13.30—15.30	Session 1: Approaches to Landscapes	HWB Seminar Room
15.30—15.45	Coffee Break & Poster Session	
15.45—17.30	Session 2: Innovations in Heritage	HWB Seminar Room
17.15—18.15	CAA UK AGM	HWB Seminar Room
18.00—19.00	Drinks Reception	McDonald Institute

DAY 2

9.00—9.30	Registration and coffee	HWB Seminar Room
9.30—11.15	Session 3: Modelling the Past	HWB Seminar Room
11.15—11.30	Coffee Break & Masters Award Announcement	
11.30—13.45	Session 4: New Digital Horizons	HWB Seminar Room

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Session Overview

Session 1: Approaches to Landscapes

chaired by Alexes Mes

13.30	Avebury Revisualised: Digitised Cartographies of a Contested Past Madeline Meltesen
13.45	Georeferencing Carvalho's Travel Maps in Central Africa: Methods and Contribution for Archaeology Hannah Nachtegaele
14.00	Methodological GIS Roadblocks: A Case Study on the Indian Palaeolithic Vaneshree Vidyarthi
14.15	Ecological Niche Modelling as A Means to Assess the Potential Uptake of Farming in Coastal North Africa Michaela Heale
14.30	The topography of human mobility in pre-modern Europe Joseph Lewis
14.45	Recovering the Lost Heritage: Speaking Archaeologically and Digital Recording Practices for Mapping Heritage At Risk Sites in India Shriya Gautam, Simran Kaur Saini*
15.00	Developing a Coastal Change Vulnerability Index for Archaeological Sites Along the Lebanese Coast Celia Prescott
15.15	Q&A

Session 2: Innovations in Heritage

chaired by Stefania Merlo

15.45	DIY Heritage Orhun Uğur
16.00	An Audio-Tactile Approach to Accessibility in Heritage Abigail Goodland
16.15	Bring the Past to Life: 3D Animation of Artefacts Meng Meng
16.30	Virtual Lightbox: Computer Generated Conservation of Stained Glass Kasi Zoldoske
16.45	Reimagining Heritage: Using Game Jams to Disrupt the Archive Matthew Morton
17.00	Archaeological Gameplay: Using Roguelite Videogames as a Pedagogical Tool to Teach Archaeological Methods Katrine Haydock
17.15	Q&A

Session 3: Modelling the Past

chaired by Enrico Crema

09.30	Settlement Hierarchy, Coalescence, and Centrality in Iron Age Societies of North -Western Iberia Santiago Tuñas-Corzón
09.45	Simulating Late Muisca Geopolitical Patterns Eduardo Herrera Malatesta*, Andrew Bevan, Pedro M. Argüello García, Aranka Kriekaart, Alexander Geurds
10.00	Spatial Models to Reconstruct the Regional Geographic Variations in the Arrival Times of Cultural Traits Alexes Mes
10.15	Exploring Change in Inequality During Environmental Instability Using Computational Modelling Adrian Timpson, Simon Carrignon*, Stephen Shennan, Mark Thomas
10.30	Tracking Spatial and Temporal Variation in Body Size and Proportions across Ancient Chinese Groups Doudou Cao*, Enrico R Crema, Emma Pomeroy
10.45	Agricultural Production in the Mediterranean Throughout the First Millennium CE: Agent-Based Model Beyond Time and Space Anastasia Nikulina*, Helen Foxhall Forbes, Vicky Manolopoulou, Massimiliano Borroni, Jakub Sypiański, Michele Abballe, Ismini Lypiridou, Dan Lawrence
11.00	From Motifs to Networks: Digital Spatial Analysis of Mesolithic Rock Art in the Betwa Source Region, India Shriya Gautam
11.15	Q&A

Session 4: New Digital Horizons

chaired by Rebecca Roberts

11.45	Beyond the ruins at Fountains Abbey: Interactive Storytelling with Geophysics Dushyant Naresh
12.00	Archaeological Digital Twins and the ARTEMIS Project: The Story So Far Sarah Middle*, Julian Richards and Holly Wright
12.15	Sinumorph. A R-Package to Simulate Diachronic Shape Evolution Alfredo Cortell-Nicolau*, Anne Kandler
12.30	Computer-Vision Software for Automating and Enhancing Data Capture and Analysis of Lithics: Principles and Applications of PyLithics Robert A. Foley*, Jason J. Gellis
12.45	Partitioning Archaeological Data in Space and Time: A Multi-Objective Clustering Algorithm for Regional Time Series Analysis Victor Yan Kin Lee*, Adrian Timpson, Simon Carrignon, Stephen Shennan, Mark G. Thomas, and Fernando Racimo
13.00	Fusing Text and Terrain: An LLM-Powered Pipeline for Preparing Archaeological Datasets from Literature and Remote Sensing Imagery Linduo Li, Yifan Wu*, Zifeng Wang
13.15	From Paper to Data: Exploring AI for Archaeological Record Digitisation Alphaeus Lien-Talks
13.30	Q&A & Closing Remarks

Paper Abstracts

Session 1: Approaches to Landscapes

Avebury Revisualised: Digitised Cartographies of a Contested Past *Madeline Meltesen*

Avebury Henge, Britain's largest stone circle, has for centuries been interpreted and reinterpreted by individuals projecting their intellectual frameworks onto the site. By examining how these interpretations have been shaped, this paper challenges the assumption of technological objectivity in archaeology, critiquing notions of techno-optimism and technological determinism. It argues that, from 17th-century antiquarian surveys to modern geospatial techniques, every era's interpretations reflect its own cultural biases and methodological subjectivities, not just available tools. The project addresses this by digitising and georeferencing historical plans by John Aubrey, William Stukeley, Alexander Keiller, and Isobel Smith from Ucko et al.'s (1991) *Avebury Reconsidered*. These are integrated into an original interactive web map, designed to democratise access to fragile archival materials. The analysis reveals significant discrepancies between surveys, demonstrating how Aubrey's methodological inconsistencies, Stukeley's desire for geometric perfection, and Keiller's determination to reconstruct the Neolithic each imposed a unique interpretive layer on the site. The study concludes that archaeological knowledge is not a linear progression towards truth, but an ongoing dialogue between past material culture and present perspectives. It advocates for a reflexive approach to digital tools, demonstrating that, while web mapping can enhance accessibility and critical public engagement, the most crucial component in archaeological practice remains the critically aware mind of the researcher, not the technology itself.

Georeferencing Carvalho's Travel Maps in Central Africa: Methods and Contribution for Archaeology *Hannah Nachtegaele*

Among the many uses of GIS in Humanities, the georeferencing of historical maps is of interest to retrace ancient territory dynamics, gather information about historical places and reconstruct ancient exchange networks. For instance, studying the maps within 19th century travel accounts of Central Africa could inform us on trade routes in the region but also territorial organisation of polities.

The presentation will focus on the itinerary of Portuguese traveller Henrique Augusto Dias de Carvalho's journey, from Luanda to the *mussumba* of the Lunda states at the end of the 19th century. Through his accounts, Carvalho reports on many aspects of historical significance, and produces a wealth of information regarding the polities as well as the roads that were connecting the different parts of the region at the time. The four volumes published also display maps of his journey that allow for physically retracing his itineraries, offering an interesting case study for experimenting with GIS georeferencing tools. Georeferencing these maps allows us to retrace Carvalho's routes in the field. In this presentation, I will discuss the methods used and issues that arose as well as the insights they offer for understanding the history and the materiality of long-distance trade routes in central Africa.

Methodological GIS roadblocks: a Case Study on the Indian Palaeolithic *Vaneshree Vidyarthi*

The Indian subcontinent has ample archaeological material but compiling and analysing it as a whole remains elusive, due to fragmented and incomplete data sets. As such, whilst the use of GIS (Geographic

Information Systems) and computational methods in archaeological research has gained traction in Indian academic discourse, it nevertheless runs into various methodological and interpretative roadblocks.

This presentation will focus on a case study based on sampled legacy data on the Indian Lower Palaeolithic obtained by the author from the Archaeological Survey of India's annual publication called Indian Archaeology – A Review to highlight the methodological challenges often facing researchers who work away from the Western world. The research demonstrates: a) How a simple GIS process such as geo-coding can run into various obstacles when the dataset in question is inconsistent in detail and format. This study also demonstrates that geocoded sites are not necessarily accurate, but rather indicate the most likely location option; b) How preferential archaeological sampling in a region can be better understood through an appreciation of the social, political and economic realities of the time; and c) How a temporal perspective on the sequence of site surveys, the nature of their reporting and the changing geographic locations of reported sites over two post-Independence decades can revealed nuanced information on the changing historical narratives of Indian prehistory within global context. The distant structure (iei.e. top down) and application of GIS makes it intrinsically divorced from local reality. Including vernacular sensitivity in GIS, and thus making it better suited to work with non-Western datasets, would make it far more accurate and useful.

Ecological Niche Modelling as A Means to Assess the Potential Uptake of Farming in Coastal North Africa *Michaela Heale*

North Africa has long languished as a forgotten coast in the story of the Mediterranean, despite this southern littoral being affected by the same ebbs and flows of climate and social variability. In particular, the story of the spread of agriculture and its related Neolithic revolution is underrepresented and under-investigated in comparison to elsewhere in the Mediterranean and beyond. Why does it seem as if the so-called 'Neolithic package' did not insinuate itself onto this landscape? What are the factors that might have affected its uptake or lack thereof? Or is it just down to a lack of evidence yet to be discovered?

Using ecological niche modelling (ENM), a methodology borrowed from ecology, I investigate at least the environmental role in the spread of domestic crops and agriculture in Mediterranean Africa. Using the plethora of data from elsewhere in the Mediterranean, I will relate spatial data to palaeoenvironmental variables to ascertain the niche of early farming. Thus, I aim to judge if agriculture was hindered by an unsuitable environment, or if there are areas of North Africa which proved just as inviting to farmers as the northern reaches of the Mediterranean world.

The Topography of Human Mobility in Pre-Modern Europe *Joseph Lewis*

Human mobility has long been shaped by the constraints of terrain, yet the geography of mobility in (pre-) history, including pre-modern Europe, remains poorly understood. At the general level, empirical evidence shows that routes in pre-modern Europe were not formally engineered but emerged through repeated use, often as multiple parallel tracks across valleys or along shallow slope gradients. Considering slope gradient as the primary explanatory factor of mobility, this study introduces a spatial choice model to estimate mobility preference from documented pre-modern routes in northern and central Europe.

In contrast to modelling movement using techniques such as least-cost path analysis, the act of movement, materialised archaeologically as routes in the landscape, is modelled as a choice between alternative movements in a Digital Elevation Model. This approach explicitly links the underlying mobility preference that structured movement at the local scale to that which ultimately produced the route systems observed in the archaeological record.

When extrapolated to the continental scale, the model reveals high-resolution patterns of mobility preference that reproduce mobility corridors along valleys, coastal plains, and gently sloping gradients while highlighting mobility barriers such as the Alps. Crucially, the model also predicts plausible routes where archaeological or historical evidence is limited. Predicted mobility preference shows a significant positive association with documented pre-modern settlements, providing independent validation of the results. The spatial choice modelling framework provides a replicable approach for inferring mobility preference from fragmentary records, enabling new perspectives on how mobility structured patterns of connectivity in human history.

Recovering The Lost Heritage: Speaking Archaeologically and Digital Recording Practices for Mapping Heritage At-Risk Sites in India *Shriya Gautam, Simran Kaur Saini**

At present, archaeological sites around the world are facing major threats due to the increasing rate of climate change and urban development, accompanied by depleting resources and socio-political crises. Such threats become more pronounced in the case of unprotected structures and unlisted structures that were excluded from the mainstream mapping and conservation processes during the colonial period. In India alone, amongst the 10,000 sites that have been documented, only 3% are protected while only 0.025% are officially listed. Such a scenario merits the use of collaborative, digital data recording and management tools in order to monitor and better safeguard Heritage At Risk (HER) sites in India.

The paper critically evaluates the role of the digital recording initiatives at *Speaking Archaeologically* in identifying, mapping, and documenting vulnerable, at-risk sites. *Speaking Archaeologically* is an archaeological education group, founded in 2015, which aims to document vulnerable sites alongside making archaeological data accessible to the wider public. Through the use of digital tools and open access platforms, *Speaking Archaeologically* has been working towards ethical co-creation of archaeological data and is currently one of the largest digital heritage archives in India. Combining on-ground field surveys and recording with legacy datasets, the organisation has been able to map more than 300 sites to date. Thus, the paper seeks to highlight the critical role and challenges of ethical collection of archaeological data, which is at risk through digital tools.

The paper undertakes the evaluation of the digital recording methods used by *Speaking Archaeologically* by taking a look at the use of quantitative datasets generated using Epicollect5, QGIS, and photogrammetry, as well as qualitative datasets, which involved interviews with the local communities to locate at risk sites. This is supplemented by interviews with the students involved in the digital recording initiatives and engagement insights from the organisation's social media platforms.

Developing a Coastal Change Vulnerability Index for Archaeological Sites Along the Lebanese Coast *Celia Prescott*

Climate change poses a clear threat to cultural heritage through long-term sea-level rise, coastal erosion, and increasingly frequent extreme flood events. These impacts are particularly relevant in Lebanon, where at least twenty-six archaeological sites and hundreds of features attest to millennia of near-continuous human settlement along a relatively narrow coast. Despite its rich material record, no national-scale assessment of coastal change hazards to heritage in Lebanon has yet been undertaken. Information on both coastal heritage and geomorphology is scattered across multiple sources and formats, and inconsistencies in data resolution make broad-scale hazard assessment difficult to approach.

This paper presents initial results from the development of a coastal change vulnerability index for

archaeological sites along the Lebanese coast. The study compiles a national geospatial database of archaeological features that integrates archaeological and geomorphological attributes. Specific aspects of coastal erosion and flood hazard are identified by overlaying the database with open-source data on historic shoreline change rates and global sea levels respectively in ArcGIS Pro. Each record is assigned values for shoreline change rate and extreme sea level return levels through Near Analysis. The compiled information is used as a foundation to develop a vulnerability index which calculates a relative vulnerability score for each record in the database as a function of its attribute data. Indicators are chosen, scaled and weighted according to previous workflows and tailored to Lebanon's specific archaeological and environmental context.

By enabling the vulnerability of individual features to be ranked and visualised spatially, the research offers an effective tool for both heritage management and climate change policy development. The resulting database also provides a key baseline for further research into the impacts of coastal change on archaeology in Lebanon.

Session 2: Heritage Innovations

DIY Heritage *Orhun Uğur*

Cultural heritage management has undergone fundamental changes with the improvement of information technologies. With the rise of the World Wide Web, heritage information has finally escaped the physical boundaries of memory institutions (Galleries Libraries Archives and Museums) and reached the public.

Although this has been a major step toward public participation in heritage management, the relationship between institutions and people has largely remained one-sided. People act as consumers, using interfaces designed by institutions and accessing heritage information curated by them. As heritage authorities, these institutions select materials based on factors such as budget, capacity, and policy. Inevitably, valuable information for communities or individuals often falls outside this scope.

Guided by the sentence "Don't wait for anyone else to save what's valuable to you", I created the DIY Heritage project. Guided by the phrase "Don't wait for anyone else to save what's valuable to you", I created the DIY Heritage project. As a starting point, I focused on street art because it is a distinctive and ephemeral form of cultural expression that institutions often overlook. It holds significant value for future archaeologists, especially in repressive contexts where walls act as anonymous voices of the people. To preserve and give access to this material, I taught myself web development and created the website www.diyheritage.com, where I shared the collection with a wider audience.

As a result of this process, I was able to develop a functioning, flexible site where the information is well organized. As a result of this process, I was able to develop a functioning, flexible site where the information is organised. However, it still lacks participation and faces challenges in interoperability and sustainability. As an individual, I was able to preserve a collection and experiment with heritage management, but sustainability ultimately requires collaboration.

An Audio-Tactile Approach to Accessibility in Heritage *Abigail Goodland*

Accessibility within museums and all cultural heritage institutions is of the utmost importance, especially accessibility that goes beyond just physical barriers. Therefore, this study explores the usefulness and value of disseminating once inaccessible 2-dimentional archival material of historical sites including past spatial layouts and landscapes through the inclusive medium of audio-tactile modelling. To promote accessibility to visually impaired visitor's and allow for a more engaging experience and immersion into physical heritage sites.

This study created a prototype 3D printed model of 1961 Avebury Henge, alongside a short audio sample was then presented and tested amongst a series of visually impaired and sighted participants to determine values, usefulness, and most importantly improvements. The results of the usability testing conducted in this study on primary participants (visually impaired users) and secondary participants (sighted users) demonstrated and determined a clear value and usefulness of these types of models to visually impaired users including navigation. In addition to providing a series of improvements to the audio-tactile experience for further implementation and research.

Bring the Past to Life: 3D Animation of Artefacts *Meng Meng*

This paper explores the potential of 3D model animation as a tool to revitalise artefacts and create new interpretative opportunities. While 3D models are increasingly used in museums and heritage institutions, the use of animation to visualise artefacts' context remains underdeveloped. This study proposes and

evaluates an interpretative framework to guide the animation creation process, and examines the feasibility of a conventional 3D-model-based workflow using Blender for low-cost production within heritage settings. The framework adopts a dual-context approach: one grounded in the artefact's original temporal setting, and one imaging how the object might behave or speak in the contemporary world.

To test this framework, three artefacts, a Neo-Assyrian attendant statue, a head of Socrates, and a boar-shaped vessel, were selected, and six animations were created. The results suggest that the interpretative framework provides a useful reference for animating artefacts, and that Blender is effective for individuals or institutions with limited access, to advanced digital resources, although factors such as the animator's creativity, technical skills, artefact types, audience preferences, and exhibition context may influence the outcomes.

The paper demonstrates that even with modest resources, 3D animation can enrich digital heritage practice beyond static models, offering engaging and thought-provoking experiences. It argues that creativity and interpretation are not opposed to authenticity, but essential to bridging the distance between past and present. Future work will involve audience evaluation, interdisciplinary collaboration, and exploration of AI-assisted workflows to expand efficiency and narrative scope.

Virtual Lightbox: Computer Generated Conservation of Stained Glass *Kasi Zoldoske*

This paper addresses the need for modern alternatives to preserve the knowledge and material of the endangered stained-glass craft. Due to the fragile nature of glass and dwindling resources for conservation, digital technologies like 3D modelling are presented as a complementary approach to physical preservation. While previous research has focused on static digital reconstructions, this project advances 3D modelling by creating more adaptable models of historic stained glass.

Using Blender, a simplified 3D model of a stained-glass panel was created to demonstrate how computer-generated models can create accurate visual representations (a digital twin) of real glass. This simplified model was proven to be more accessible than a photogrammetry model due to lower processing requirements, making it suitable as an educational tool. Models were successfully used to simulate light passing through the glass, replicating how light and shadows affect the material. The project also included a survey to gauge public opinion on the integration of these technologies.

The results challenge the "barrier of distrust" toward new technologies in the field, providing a practical demonstration of how 3D models can be used to experiment with and preserve stained glass. This project serves as a foundational step toward proving the potential and utility of digital preservation in the field of stained-glass conservation.

Reimagining Heritage: Using Game Jams to Disrupt the Archive *Matthew Morton*

This paper first discusses the role community archaeology, game jams, and archaeogaming play in mobilizing and disrupting the contents of a digital archaeological archive. It then introduces *The Heritage Jam* and *The Avebury Papers* digital archive, the subjects of this study. This is supplemented with an overview of the methodologies used to investigate *The Heritage Jam* in the context of the research questions and goals of this study. A review of previous literature is conducted which investigates the way in which archives, archaeogaming and game jams have been used in the past and how they may be weaved together effectively. Subsequently, a longitudinal study is presented which covers the observational data gathered at the Heritage Jam and the following survey and interview data. Subsequently, a longitudinal study is presented which covers the observational data gathered at *The Heritage Jam* and the following

survey and interview data. This study sought to determine how a game jam can facilitate the mobilising of the digital assets of *The Avebury Papers* digital archive, how community involvement can facilitate the utilization of these assets creatively, and what digital assets from the archive are most sought after in implementing these creative pursuits. The study illustrated that *The Heritage Jam* was successful in the creative mobilization and disruption of *The Avebury Papers* archive, and also highlights areas of the archive that have drawn the most interest to people, whilst offering insight on how interest can be built in unexplored areas of the archive. The findings highlight a necessity for contextual assets and information to be included when engaging creatively with archaeological archives.

Archaeological gameplay: using Roguelite Videogames as a Pedagogical Tool to Teach Archaeological Methods *Katrine Haydock*

Videogames are one of the most popular forms of modern media and have a long history of linking to archaeology. This paper seeks to aid discussions surrounding the utilisation of videogames by archaeologists by assessing the impact of the inclusion of archaeological methods into videogames. This concept is explored through the creation of an archaeological game involving Harris Matrix diagrams in which players have to travel through archive floors to gather artefacts for a museum exhibition, completing Harris Matrix puzzles as a game mechanic to unlock new archive floors. The game follows a Roguelite format, building on research by Lemoine et al. (2024), which identified the potential for Roguelites to be used for declarative knowledge training.

After the development of the game, subsequent playthrough experiments were conducted. Player experience was measured via a survey of 33 participants, the majority belonging to the 18-24 age range. Further data was collected through interviews with a game developer, two archaeologists, and a gamer within the 18-24 age demographic to provide a holistic understanding of the creation and reception of pedagogical archaeological games. In this paper I will discuss the development, creation and application of the archaeological game, alongside the study results and how these reflect on the ability for games to be used for teaching.

Session 3: Modelling the Past

Settlement Hierarchy, Coalescence, and Centrality in Iron Age Societies of North-Western Iberia *Santiago Tuñas-Corzón*

Over the last decades, research on Iron Age societies in north-western Iberia, as well as Europe, has produced an intense academic debate about the level of social complexity within these communities. A characteristic of this period in Galicia is that *castros* (hillforts) were the only type of settlement, meaning no open Iron Age sites existed. In this context, size variation has often been interpreted as evidence of hierarchical settlement patterns, with the largest *castros* fulfilling central-place functions. This interpretation aligns with a traditional paradigm that views these societies as kin-based chiefdoms ruled by warrior elites. In contrast, other researchers advocate for a quite different view, proposing an anthropological model of egalitarian segmentary societies.

The aim of this paper is to study size variation using a quantitative methodology. The research follows four main analytical approaches. The first is a multi-scalar analysis to characterise settlement structures through rank-size plots and Gini coefficients. The second approach uses a Bayesian regression model with a Weibull distribution to identify key factors correlated with settlement size. The third is the use of spatial interaction simulations to test three main theories for the emergence of large *castros* by external contacts: the endogenous, Phoenician, and Roman hypotheses. Finally, the fourth approach measures centrality around the largest sites to evaluate their supposed function as central places.

The results show a consistent pattern of uniformly dispersed sizes across multiple scales. In addition, the arrival of Rome appears to be the most significant factor in the coalescent dynamics that occurred from the 2nd century BC onwards. Consequently, extremely large sites appeared in NW Iberia for the first time, but these settlements do not conform to the traditional idea of central places. Instead, they were the result of collective agency to deal with a situation of scalar stress caused by Roman influence.

Simulating Late Muisca Geopolitical Patterns *Eduardo Herrera Malatesta*, Andrew Bevan, Pedro M. Argüello García, Aranka Kriekaart, Alexander Geurds*

This paper presents a spatial interaction modelling approach to explore and compare Muisca geopolitical landscapes as described in early colonial chronicles and as reconstructed from archaeological data. Focusing on the Late Muisca period, we integrated archaeological spatial datasets from seven regional surveys with environmental covariates to simulate plausible settlement distributions using inhomogeneous point process models (IPP). These simulations generated statistically robust predictions of settlement likelihood across the landscape, accounting for first-order spatial effects. To investigate emergent hierarchies, we applied spatial interaction models to the simulated points, modelling how flows between settlements might produce central places based on minimal assumptions. A sensitivity analysis over 1,400 simulations revealed that specific parameter combinations yield stable spatial structures with strong predictive capacity. We validated the results against two early colonial datasets describing Muisca settlement distribution, using proximity thresholds to assess spatial correspondence. The results show that simulated terminal sites align moderately well with historically documented centres, especially at larger spatial scales, suggesting that our model captures aspects of the macro-scale organization described by early Spanish observers. At smaller scales, discrepancies between modelled and documented sites highlight both the fragmentary nature of colonial records and the challenges of reconstructing Indigenous spatial systems from partial evidence.

Spatial Models to Reconstruct the Regional Geographic Variations in the Arrival Times of Cultural Traits *Alexes Mes*

Behind all large-scale human dispersals lies a body of literature seeking to categorise the movement as demic migration vs. acculturation. Maps with one large arrow representing a single speed drawn across a continent have been an historically popular way to visualise past migrations. The reality in any human movement is far more complex: the units of migration (individuals, families, communities), as well as the localised tempo and direction of dispersal shifted frequently.

Cultural traits and subsistence strategies evolved through multiple interactions and shifting ecological environments. Despite this, some past archaeological studies have implicitly understood human migrations and expansions as a single, sustained event; although whether the population spread continuously, in waves, or following a process of jumps remains an underlying question.

This paper explores – through a series of archaeological simulations – the arrival times of cultural traits in geographic sub-regions using a Bayesian ICAR model, where a hierarchical structure is introduced to account for the bias introduced by sample interdependence. The use of an ICAR structure allows the model to capture the underlying spatial autocorrelation in the data and provide broad arrival estimates in regions where we have no prior information. This framework is then built on by considering if and how ecological factors – such as temperature, rainfall, geography and river-networks – resulted in varied frictions to the dispersal. Bayesian wombling methods are used to quantify to what extent these potential drivers explain the observed differences in the dispersal process.

The effect of sampling intensity, number of sites, and the calibration plateau on the accuracy and precision of the method are systematically explored. The improvements this method offers over existing archaeological methodologies is quantified. Throughout, biases which influence the data – such as uneven spatial and temporal sampling density – are acknowledged and measurement uncertainty (calibration curve error and the sample's C14 age error) is accounted for.

Exploring Change in Inequality During Environmental Instability Using Computational Modelling *Adrian Timpson, Simon Carrignon*, Stephen Shennan, Mark Thomas*

Empirical estimates of past inequality have been derived from the archaeological record using proxies such as burial finds and house sizes, and statistics such as the Gini Index (Bogaard et al. 2025). Meanwhile, theoretical approaches to understanding inequality in human societies are numerous and intricate, and integrating complex economic and behavioural theories with a level of precision that cannot be matched with the sparse archaeological record. To avoid getting lost in the vast parameter space of such complex models, we present here a highly simplistic agent-based model designed to explore emergent behaviours, and stress-test a hypothesis that inequality may be an adaptive strategy providing an evolutionary advantage during episodes of famine, by insulating the wealthy with accumulated resources at the cost of sacrificing the poor.

Our work, extending some of Malthus' ideas and Alan Rogers concepts of Scramble vs Contest competition, simulates interactions between a) resource accumulation; b) population growth; c) basic rules of resource distribution within a group, and explores emergent behaviour when applying random stresses to carrying capacity. In this presentation, we will examine some of the peculiar emergent properties such as conditions that can lead to population booms and busts; conditions in which moderate levels of inequality are advantageous; and discuss how archaeological data may allow us to leverage this model to draw inferences about changes in inequality during the Neolithic transition in Europe.

Tracking Spatial and Temporal Variation in Body Size and Proportions Across Ancient Chinese Groups

Doudou Cao, Enrico R Crema, Emma Pomeroy*

Human body size and proportions reflect a complex interplay of biological, environmental, and cultural factors, offering key insights into health, development, and adaptation across time and space. Yet despite China's vast ecological diversity and deep history, large-scale patterns of body form variation remain comparatively underexplored.

This study compiles direct skeletal measurements from 2,969 individuals (1,583 males, 1,386 females), spanning 71 groups from 64 sites across Holocene China (9,000–38 BP). Variables include direct measurements of maximum lengths of the femur, tibia, humerus, and radius, as well as femoral head diameter, to avoid inter-population bias from predictive equations. Bayesian Generalised Additive Mixed Models were used to assess the roles of climate, altitude, chronology, and spatial structure, with temporal uncertainty handled through multiple imputation and spatial autocorrelation through tensor-product splines.

Results reveal a gradual decline in long bone length, particularly femur length as a proxy for stature, from the Early Neolithic to the Late Iron Age, most pronounced among females and likely reflecting the combined impacts of agricultural intensification, dietary stress, and social inequality. By contrast, femoral head diameter, a proxy for body mass and lateral dimensions, remained relatively elevated over time, likely reflecting canalisation or continued gene flow from northern, cold-adapted populations. Climatic predictors, especially minimum precipitation, were positively associated with limb length, while structured spatial residuals point to additional genetic or cultural influences beyond environment alone.

Together, these findings demonstrate that widely cited ecogeographic models, while useful, cannot fully account for observed variation, and developmental plasticity, cultural buffering, and historical processes play larger roles in shaping human variation. By combining Bayesian modelling with spatial decomposition, this study also offers a reproducible framework for disentangling ecological and historical drivers of human morphology, refining our understanding of long-term adaptation and variability in East Asia.

Agricultural Production in the Mediterranean Throughout the First Millennium CE: Agent-Based Model Beyond Time and Space

Anastasia Nikulina, Helen Foxhall Forbes, Vicky Manolopoulou, Massimiliano Borroni, Jakub Sypiański, Michele Abballe, Ismini Lypiridou, Dan Lawrence*

The Mediterranean is one of the regions of the world most heavily impacted by human activity. It has a long history of human–environment interaction including important historical, cultural, and socio-economic developments throughout the first millennium CE. These processes resulted in a rich body of written records and archaeological data, while palaeoenvironmental evidence has been extensively collected across the region over the past decades. Numerous scholars have examined these archives and identified climate change as a causal factor in societal transformations, operating under the assumption that climatic fluctuations affected agricultural production, and consequently, societal capacity and stability. However, establishing clear causal links between agricultural production and societal changes, rather than mere correlations, remains challenging. To address this, we develop a generic agent-based model (ABM) to quantify potential rural agricultural production in the Mediterranean throughout the first millennium CE and to evaluate the factors that shape it. A key methodological challenge lies in translating qualitative information derived from historical sources into formal modelling assumptions, for which no standardized approach yet exists. The expected modelling outcomes are quantifications of potential

agricultural outputs under varying environmental and socio-economic contexts. Built on a wide range of primary and secondary sources, this generic ABM can serve as a foundation for future studies. This research is supported by the European Research Council for the project "SSE1K: Science, Society and Environmental Change in the First Millennium CE" (Grant Number 101044437, award holder Helen Foxhall Forbes).

From Motifs to Networks: Digital Spatial Analysis of Mesolithic Rock Art in the Betwa Source Region, India *Shriya Gautam*

India contains the third largest corpus of rock art worldwide, yet most studies emphasise motif cataloguing rather than spatial or archaeological analysis. This paper re-examines Mesolithic rock art in the Betwa Source Region, Madhya Pradesh, including Bhimbetka, through digital and computational methods.

Twelve sites were analysed using non-invasive recording and GIS-based visibility and intervisibility modelling. These quantitative approaches reveal patterns of site connectivity, motif placement, and human –landscape interaction. The results suggest that motifs functioned as active elements shaping movement, perception, and communal practice rather than static graphic expressions.

Integrating GIS analysis with Actor-Network Theory demonstrates the potential of combining computational modelling with theoretical frameworks to produce richer archaeological interpretations. The study highlights how digital methods can move beyond motif typologies to reveal the relational and cultural significance of rock art, contributing to broader debates on landscape, visual culture, and digital archaeology.

Session 4: New Digital Horizons

Beyond The Ruins at Fountains Abbey: Interactive Storytelling with Geophysics

Dushyant Naresh

How do you create an engaging, innovative digital experience that showcases and effectively communicates complex geophysics and archaeology?

Every year, hundreds of thousands of visitors flock to Fountains Abbey to walk among the ruins of what was once the largest monastery in England. Above the ground, the structures that remain are exceptional. However, beneath the seemingly untouched East Green lies a trove of archaeology that is neither seen nor heard in the broader narrative of Fountains Abbey - yet fundamentally changes the story of the site.

Visualising Heritage, an archaeological research group at the University of Bradford, partnered with the National Trust to deliver a digital interactive pilot project at the UNESCO World Heritage Site of Fountains Abbey. The goal of the project was to create a user-led digital experience that communicated the archaeology of the site to the public using data collected through Ground Penetrating Radar and Magnetometry. Onsite evaluations with the public during the 2025 CBA Festival of Archaeology provided data on how impactful the overall experience was.

For the project, the team conducted high-resolution geophysical surveys on the East Green, confirming previously discovered features and uncovering new ones. The identification of a huge tannery complex 200 metres from the prominent East Window establishes Fountains Abbey as not only a religious landmark, but also as a significant hub of industry in Medieval England.

This paper discusses how we formed our narrative approach, the methodology we developed to visualise the geophysics, challenges we encountered during the process, delivery and impact, and the potential future of digital engagement and storytelling using archaeological data.

Archaeological Digital Twins and the ARTEMIS Project: The Story So Far

Sarah Middle, Julian Richards, Holly Wright*

Having originated in the engineering domain, the concept of the 'digital twin' has recently started to be applied in archaeology and heritage, particularly in response to the development of the European Collaborative Cloud for Cultural Heritage (ECCCH). A digital twin is an exact digital replica of a physical object, accompanied by sufficient information to allow simulations and make predictions about how it might respond to certain stimuli. In an archaeology and/or heritage context, such digital twins might incorporate data from sources such as historical documents, physical measurements, environmental observations, and scientific analyses.

Digital twins also lie at the heart of the EU-funded Applying Reactive Twins to Enhance Monument Information Systems (ARTEMIS) project, which started in January 2025. In ARTEMIS, the UK's Archaeology Data Service (ADS) is leading development of the necessary infrastructure to support a series of pilots that will showcase Reactive Heritage Digital Twins (RHDTs) in action. These pilots will demonstrate, at the object, building and site level, how RHDTs might be applied in archaeology and heritage to respond to environmental conditions, simulate conservation interventions, and make predictions about future scenarios.

In this presentation, we will start by introducing the concept of the digital twin and its application in archaeology and heritage, providing a brief overview of the ontology used for its effective representation. We will then discuss work conducted so far on the ARTEMIS project to practically apply this specification,

particularly in relation to ADS' role in infrastructure setup. We will close with a preview of selected pilots with an archaeological focus, and highlight opportunities to get involved with ARTEMIS during the remaining two years of the project.

Sinumorph. A R-Package to Simulate Diachronic Shape Evolution

Alfredo Cortell-Nicolau, Anne Kandler*

Understanding how artefacts evolve through space and time is one of the key epistemological tools that archaeologists use to interpret the past. Within this framework, properly addressing artefact shape variation is logically one of the primary goals of material culture studies in Archaeology. To do this, practitioners have traditionally adopted very different approaches, which usually imply some sort of more or less analytical typological classification.

Within the last 10 years, however, the adoption of Geometric Morphometrics (GMM) — a specific methodological tool imported from Biology, which allows the quantification of artefact shape — has brought a different perspective to shape analysis, providing archaeologists with new tools and insights to analyse and interpret both biological and artefactual remains.

The technique has spread very significantly within the discipline during the past years, and its applications have by now covered not only lithics or pottery, but have also rock-art, ornamental figurines, ship hulls, spatial features or, of course, biological remains (e.g. human and animal remains, seeds, etc.). The technique continues to expand to cover basically everything where shape variation matters.

However, and despite its ubiquity, its potential is currently under-explored and constrained by a strict methodological definition of its standard protocol. We believe that much more can be extracted from this specific approach by (1) integrating it into broader more complex models and (2) using it as a tool within a heuristic modelling approach to quantify and understand object variation in space and time. In this presentation we will focus on this second point. In particular, we present a recent development: The Simumorph R-package, which allows us to simulate continuous shapes through discrete partitions of time and space. We will explain its main rational and internal details, as well as will showcase some of its capabilities for potentially interested users.

Computer-Vision Software for Automating and Enhancing Data Capture and Analysis of Lithics: Principles and Applications of PyLithics

Robert A. Foley, Jason J. Gellis*

For two centuries, lithic artefacts have formed the cornerstone of archaeological insight into deep human history. Despite their abundance and interpretative richness, lithics remain under-quantified and analytically constrained. From early attempts to apply typologies to more recent technological and quantitative approaches, methods changed and advanced, but laborious manual measurements, qualitative classification schemes, and inconsistent documentation conventions have limited lithic analysis. Adjacent fields such as genomics have been transformed by adopting data science approaches. Lithic archaeology, however, has yet to see such a transformation.

We introduce an open-source software that uses computer-vision algorithms to standardise, accelerate and enhance data acquisition from lithics. Central to its design is the automated extraction of high-dimensional quantitative data from 2D line drawings. This focus allows the software to leverage vast, underutilized historical archives. Scans of line drawings can be processed at a rate of 50 lithics per minute.

PyLithics employs a range of computer vision techniques—edge detection, contour mapping, arrow vector analysis, and shape quantification—to transform static illustrations into rich, structured datasets. Crucially, it automates feature extraction such as the identification and quantification of key technological attributes,

including surface identification, flake scar dimensions, scar orientation, and lithic symmetry. In addition to replicating standard lithic metrics, PyLithics generates novel analytical features such as Voronoi polygon distributions and Convex Hull parameters—providing quantitative access to aspects of lithic morphology that were previously difficult or impossible to measure manually.

In addition to showing the nature of PyLithics, we also present applications that analyse dorsal flake scars – size, distribution, shape and spatial patterning in relation to Clark's technological modes, and show how these traits that are difficult to obtain manually can be used as signals of technological diversity. These results illustrate the immediate benefits and long-term research potential of a fully computational, data-rich approach to lithic analysis.

Partitioning Archaeological Data in Space and Time: A Multi-Objective Clustering Algorithm for Regional Time Series Analysis *Victor Yan Kin Lee*, Adrian Timpson, Simon Carrignon, Stephen Shennan, Mark G. Thomas, and Fernando Racimo*

The human past is characterised by intertwined biological, social, cultural and ecological processes. To understand these processes, it is often necessary to partition data a priori in space while balancing temporal coverage to analyse changes through time and across geographical regions. However, the criteria and decisions by which this a priori data partitioning is performed are rarely explicitly stated in the literature. Instead, partitions are presented as "a given", invisibilising the subjectivities from which they emerge and precluding interdisciplinary work across fields where these subjectivities might differ. To address this issue, we develop a multi-objective clustering algorithm that partitions data in a spatio-temporally-explicit but process-agnostic manner. The algorithm optimises within-cluster spatial proximity and temporal coverage simultaneously within a multi-objective optimisation framework, returning Pareto optimal partitions for users. We demonstrate its utility by applying it to various archaeological datasets and envision it as widely applicable to archaeo-scientists seeking to model regional time series in a statistically explicit manner, facilitating more rigorous interdisciplinary studies of the past.

Fusing Text and Terrain: An LLM-Powered Pipeline for Preparing Archaeological Datasets from Literature and Remote Sensing Imagery *Linduo Li, Yifan Wu*, Zifeng Wang*

Artificial intelligence (AI), paired with LiDAR and multispectral remote sensing data, is revolutionising archaeological site detection. However, success is hampered by limited ground-truthing data, dense vegetation, and persistent challenges in model generalisability across diverse global landscapes. To address these challenges, this work develops an automated pipeline that parses literature and processes remote sensing data to construct datasets for subsequent analysis and model training.

Specifically, a Large Language Model (LLM) is integrated at the front end of the pipeline to analyse literature at a large scale and extract the coordinates of known archaeological sites. Given these coordinates, remote sensing data for the corresponding locations is then downloaded from multiple sources. For demonstration purposes, this work uses two primary sources: Sentinel-2 for satellite imagery and FABDEM for elevation data, though more sources can be integrated as needed. Using the Sentinel-2 data, the Normalized Difference Vegetation Index (NDVI) is computed, and geometric features such as circular, rectangular, and linear patterns are identified. Subsequently, topological features are extracted from the FABDEM elevation data. We applied this pipeline to detect pre-Columbian sites in the Amazon rainforest, constructing a dedicated dataset for future studies. Both labelled and unlabelled data are

provided in the dataset to support model training and new potential sites discovery.

In summary, this work significantly enhances data preparation efficiency for archaeological research by providing an LLM-powered automated pipeline that leverages remote sensing data and AI. By automating complex data workflows, this pipeline lowers the barrier for conducting data-intensive research, empowering more archaeologists to leverage AI for their inquiries.

From Paper to Data: Exploring AI for Archaeological Record Digitisation *Alphaeus Lien-Talks*

Archaeological paper records, including handwritten site notebooks, typewritten reports, maps, photographs, and drawings, remain central to the discipline's documentary heritage. Their unstructured formats, inconsistent scanning quality, and multilingual content often make them difficult to access and reuse. Digitisation on its own does not ensure usability. The central challenge is to transform these archives into structured, searchable, and reusable data.

This paper explores the potential of artificial intelligence to support that process. Optical Character Recognition, combined with preprocessing techniques such as binarisation and noise reduction, allows text extraction from degraded sources. Natural language processing, including entity recognition and large language models, can refine outputs and identify key archaeological information such as site names, contexts, artefacts, and dates. Image classification methods, particularly those using models like CLIP, can separate textual and visual content, helping to organise mixed collections more effectively.

A prototype pipeline shows how scanned documents can be converted into images, classified into textual or visual types, processed through OCR or handwriting recognition, and enriched with entity extraction before being grouped into coherent records. The results indicate significant potential, though challenges remain with handwriting recognition, map interpretation, and the grouping of heterogeneous documents. These limitations highlight the continued importance of human expertise working alongside AI.

By reflecting on experimental applications of AI to archaeological archives, this paper highlights both the opportunities and the obstacles. It argues that AI-assisted digitisation offers a pathway towards greater preservation, accessibility, and long-term reusability of archaeological records, provided that the methods are developed in collaboration with robust archival practice and domain knowledge.

Poster Abstracts

Coasts In Mind: Empowering Communities and Learning About Coastal Change Through the Value of Local People *Lawrence Northall, Kit Ackland, John Layt*

Museum of London Archaeology's new citizen science project Coasts in Mind (CiM) has been awarded three years of Delivery Phase funding by the National Lottery Heritage Fund. This is to facilitate engagement in four English coastal regions between 2024-2027: Poole Harbour (East Dorset), the Swale Estuary (North Kent), Sefton Coast (Merseyside) and Taw-Torridge-Estuary (North Devon).

The methodology applied by CiM has been developed to empower communities, by co-curating "community archives". These can be used to evidence the effects of climate and coastal change over one hundred years, through the provision of local insight and measurable data relating to environmental, social and economic changes. Generated collaboratively through a series of data gathering events, community archives will feature local knowledge, stories and memories in the form of oral histories, as well as scanned images and documents shared from personal or local collections.

By enabling communities to map this evidence geo-spatially on a co-designed digital-mapping platform built by HUMAP, CiM is giving greater voice to the local expertise of community members, through their personal understandings, observations and experiences. This is both highlighting the value of wider community narratives around coastal change (such as perceptions of factors driving it and processes by which it is taking place), as well as providing a dataset that offers local policymakers the opportunity to better interact with the voices of coastal communities.

The Creation of a Digital Collection of Carved Stone Heads of Dean Hall Temple as an Educational Resource for Key Stage 2 Pupils *Eloise Bryans*

Currently, there are missed opportunities to include archaeological sources in historical Key Stage 2 (KS2) education. In an attempt to address this gap and simultaneously introduce children to upcoming technologies, this project has collaborated with the 'Cults of the Head?' Project (PI Ian Armit, Co-I Colleen Morgan). The project aims to analyse and create 2D and 3D visual records of the unparalleled assemblage of 150 carved stone heads of Dean Hall Temple, located in Littledean near the River Severn. This project collaborated with the post-doc, Dr. Rebecca Ellis-Haken on the 'Cults of the Head?' Project to scan 75 heads using an Artec Space Spider to create high quality 3D models for further analysis and for deposition into the Archaeological Data Service. To facilitate the 3D models' potential use in a KS2 classroom, an associated lesson plan was developed, together with a creative learning activity in Blender that would allow students to create their own carved stone head. As a result, a multimodal educational resource was developed; one that holds the potential to create a more inclusive learning environment, allowing the absorption of information in innovating and different ways, all while directing much-needed attention to the significant assemblage of carved stone heads of Dean Hall Temple.

Farming, Fragments, and Fertilisation: Analysing Geological Influences on Early Roman Manuring Practice in Britain Using Potsherd Proxies *Benjamin Allen*

From Cato the Elder's writings to the mosaics of the Saint-Romain-en-Gal domus, it is evident manuring occupied a place of critical importance in the rural Roman mind. Yet, the practice of manuring leaves little trace in the archaeological record beyond scatters of inorganic material, such as potsherds, which were

mixed into the midden heap. Analysing data from the Rural Settlement of Roman Britain project in the R statistical environment, this study assesses whether underlying geologies influenced manuring practice through utilising a potsherd proxy for fertiliser. The results contribute to ongoing debates around agrarian strategies in Early Roman Britain. Previous analyses of potsherd scatters have supported an intensifying regime of increased labour input, wherein a greater crop yield was sought from a singular plot of land. However, through demonstrating manuring occurred similarly across a range of differently fertile geologies, this study has joined a growing corpus of environmental analysis in supporting the argument for the expansion of agricultural land during the Roman period.

Tracing Agricultural Patterns in the Deccan Plateau: A Spatial and Archaeobotanical Approach *Samhitha Prasannakumara*

The Southern Neolithic and Deccan Chalcolithic are contemporaneous cultures within the Deccan Plateau, India. They relied on hunting, fishing, pastoralism and agriculture. The relationship between these societies and environment is an important theme that is often addressed in the literature. With archaeobotanical evidence, there was more scope to address plant domestication and cropping systems. However, despite having similar environmental and cultural backdrops, these cultures have been studied as separately. This project attempts a computational approach to study the Deccan Plateau without differentiating based on modern distinctions. Through this approach, this project tries to move beyond the processual and ecologically deterministic approach that is used to study this region.

It quantitatively compares the ecological covariates through a point process model to understand of how environmental factors interact and how this might affect site placements. It examines archaeobotanical data within these sites to understand how difference in ecological factors may lead to diverse cropping systems. The analysis tells us that the people in Deccan followed a multi-season cropping system during the monsoon and winter. The crops were selected based on the distribution of soil, the availability of water and the caloric requirements necessary to sustain the population in these sites. These cultures interacted with one another with the local crop varieties such as wheat, barley, browntop millet and horsegram migrating through cultural diffusion. These sites did not always have the necessary ecological conditions for cultivation; however, people came up with strategies such as irrigation channels and tanks to ensure healthy yields. The cultivation of crops moved beyond just pure sustenance with fruit trees, cotton and oilseeds being grown in smaller quantities possibly for trade and flavouring. The cropping systems in the Deccan Plateau reflected both the ecological necessities as well as the cultural systems that were present in these regions.

Kilmallock – Derry – Bradford: Connecting Irish Walled Towns and UK Cities of Culture Through Digital Capture Technologies *Faye Corbett*

This poster summarises place-based research with the 'Kilmallock – Derry – Bradford: Twinning Irish Walled Towns and UK Cities of Culture' project as part of UK-Ireland collaboration in the digital humanities, building from a joint AHRC/IRC scheme. The project utilised digital twin technologies for comprehensive coverage of both Derry and Kilmallock historic walled towns. Digital documentation was undertaken using vehicle-mounted and handheld mobile mapping systems in combination with terrestrial laser scanning, airborne structure-from-motion photogrammetry and 360° imagery. Key properties in each town ranging from national monuments to locally important heritage assets were identified. The interior and exterior of these buildings were surveyed in more detail. Collectively these methods have helped enrich our understanding of the historic environment and placed key buildings in context.

The purpose of this detailed survey was to help to contextualise a programme of building biographies, collating narratives from documentary archives and community-focused research. These heritage assets are made freely available within an ESRI experience builder framework for public access. In combination, this rich dataset is beneficial for use-case scenarios including management of heritage assets, planning and regeneration, public engagement and interpretation – ultimately uniting fragmented elements of historic environment research and shining a light on built heritage for the wider community.

The project was made possible through strong collaborations between local authorities, heritage bodies, universities, community-based partners and other stakeholders.

It's Hip to Be There: Modelling Social Integration in the Postclassic City of Mayapan *Ethan Abbe*

This project aims to model social integration in the Maya Postclassic period, and compare it to social integration in the Maya Classic period. Social integration in an urban environment is directly comparable to the accessibility of a location within a system. To this end, the level of accessibility, measured in seconds of travel time to and from 62 sample housing groups of various social classes at Mayapan was determined. This found an increase in travel time of 5.5% between elite and common housing groups and an average value of 674.5 seconds between any sample location and another. These values were compared to the urban core of Classic period city of Copan, whose integration values were determined in a previous experiment. A 15% difference in the rate of change between the elite and common groups at Mayapan and Copan was found, indicating that common people at Mayapan were far more integrated into the social fabric than their Copan peers. This supports previously held theories of the Postclassic as a more egalitarian era, with more participation of commoners in urban life. More research is needed on if this egalitarianism is reflected in the urban fabric of other settlements of varying importance.

Credit & Acknowledgements

Conference Organisers: Stefania Merlo & Rebecca Roberts *with* Dana AlSalamin, Christiane-Marie Cantwell, Simon Carrignon, Enrico Crema, Dan Edwards, Michaela Heale, Afifa Khan, Amy Leung, Joseph Lewis, Alexes Mes, Mou Sarmah, Jack Tomaney

Poster by: Dan Edwards

Booklet by: Michaela Heale

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With special thanks to the Department of Archaeology, the McDonald Institute for Archaeological Research and our colleagues at the Henry Wellcome Building