Research Experience Placement (REP) Scheme

Project Title:
The Roman Siege of Burnswark: Remote Sensing an Ancient Battlefield

Project Supervisors:
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Host Organization and Department (if applicable):
University of Glasgow

Project Description:

This project offers a hands-on research placement focused on mapping the internal organisation of Burnswark hillfort using a suite of non-invasive remote-sensing techniques. Burnswark in southern Scotland is the only site in Britain that has upstanding evidence for a Roman siege, where two unusual Roman camps surround a large indigenous hillfort. While we know about the Roman element of the site and how they set up and enacted their assault, we know strikingly little about the indigenous people who lived on the hill, their character and layout of the settlement and activity within. Recent surveys over a small section of the hillfort have identified up to 146 possible house platforms, suggesting a densely inhabited Iron Age community, yes much of the interior remains unexplored.

The student will contribute directly to filling this gap by collecting and analysing new remote-sensing data. Drone-based photogrammetry will produce high-resolution 3D models to identify surface structures, enclosure systems and pathways. Earth-resistance survey will target areas with suitable soils to detect sub-surface roundhouses, hearths and ditches, while controlled metal-detecting will help identify activity zones such as domestic, craft or depositional areas, along with mapping the spread of Roman laed sling ballistics used in the attack on this settlement.

Objectives:

1. Acquire high-quality remote-sensing datasets focused on the hillfort interior.
2. Produce an integrated spatial map of settlement structures, platforms and activity areas.
3. Contribute new evidence for understanding the density, layout and organisation of the Burnswark Iron Age community.
4. Develop practical and analytical skills in cutting-edge digital archaeological survey methods.

Skills and Career-Development Opportunities:

During this placement, the student will gain professional skills in archaeological remote sensing and geospatial analysis. They will learn to plan and conduct field surveys, operate drone-based photogrammetry systems, and collect earth-resistance and metal-detector datasets. They will help to process this raw spatial data, generate 3D models, integrate multi-sensor outputs within GIS, and create high-quality visualisations for research dissemination.

By the end of the placement, the student will have produced a coherent analytical dataset and a written research report - experience directly applicable to careers in archaeology, heritage management, geospatial science and environmental surveying.

Wider context of research:

The project situates the student within a major programme investigating one of Scotland's most important archaeological landscapes. Understanding the hillfort's internal organisation is central to wider debates about Iron Age settlement structure, early forms of nucleated communities, and the nature of Roman–Indigenous interaction in southern Scotland. Participating in fieldwork at Burnswark gives the student first-hand exposure to how multi-sensor survey data are generated, how environmental factors affect their quality and how such datasets feed into national research priorities, landscape interpretation and heritage-management decisions.

Project Timeframe:

The placement must take place during the summer vacation period when fieldwork will be facilitated by the removal of vegetation on the hill by the landowner. Within this timeframe, the exact dates are flexible and can be agreed with the appointed student. Part-time or flexible scheduling is welcomed.

The project will follow this structure:

- **Weeks 1–2: Fieldwork**
  Drone photogrammetry, earth-resistance survey, metal-detecting.
- **Weeks 3–4: Data Processing & Interpretation**
  Photogrammetry modelling, geophysical survey data processing, GIS integration, production of spatial visualisations and interpretive layers.
- **Weeks 5–6: Report Writing & Output Preparation**
  Compilation of findings, production of final maps and imagery and completion of a research report summarising the hillfort survey results.