During the last year, our Department has seen significant changes in staff, infrastructure (notably the renovation of our laboratories), and vision, with the launch of our new research clusters. This report outlines these changes and highlights our many and varied achievements in research over this 12-month period.

As a team, we have captured over £1.3 million in research income (see Stats Appendix) constituting 16% of the Faculty's research income, while representing only 3.7% of staff FTE.

Our Department has grown, with the arrival of three new post-doctoral researchers (Lee Perry-Gal, Ophelie Lebrasseur and Kris Poole), 11 research students, and four Honorary Research Fellows – Rachael Hall (National Trust), Fay Worley and Ruth Pelling (Historic England), and David Wilkinson (University of Lincoln).

Our staff have generated 28 publications, the majority in high-profile journals (see Stats Appendix). Amongst these is an edited volume by our new Head of School: J. Collis, M. Pearce & F. Nicolis (eds), 2016. Summer Farms: seasonal exploitation of the uplands from prehistory to the present. Sheffield Archaeological Monographs 16.

We have organised five conferences, including our PG conference, all in addition to our research seminar and debate series.
With investment from the School of Humanities, summer 2016 saw our old laboratories reconfigured into the ‘Archaeology Collaboratories’, which are now at the heart of our research and teaching.

This new suite contains dedicated research labs for isotope preparation, osteoarchaeology (bones), archaeobotany (plants), materials and imaging.

Our largest lab, the Collaboratory, is open every day for staff and students to come together, share knowledge and ideas, and conduct their research so that it becomes greater than the sum of its parts.

The Collaboratories represent our Department’s research ethos, of interdisciplinarity and collegiality, but the work undertaken within them also underpins our five research clusters.

Department of Archaeology Research Themes

- Science in Culture
- Origins and Exchange
- Empire and Identity
- One Health – Deep Time
- Heritage from Local to Global
'Science' is often set in opposition to 'culture' (eg, BSc versus BA) but this artificial divide reduces the power of all researchers on the Science-Arts continuum. We believe collaboration is the only way to understand humanity’s dynamics, complexities and impacts.

Our department leads the field in culturally informed science. Our staff work closely with geochemists, geneticists, biologists, climate scientists and imaging specialists, to address questions that could not be answered without hard science, but would never have been asked in the absence of cultural knowledge.

We have a unique relationship with the British Geological Survey’s Centre for Environmental Geochemistry (CEG), undertaking isotope analysis to explore the chemical composition of objects (eg, glass and metals) but also soils/sediments and the remains of plants, animals and people. When viewed through a cultural lens, the results tell us about issues of pollution, how and where things were made, or how plants and animals were raised and traded. They also reveal how human and animal relationships, diets and migration patterns have changed through time and, more importantly, why.

This year’s highlights

The University’s Cascade Fund supported 10 students from the UK, USA, Estonia, Israel and Australia to participate in a week-long training course that we ran in collaboration with BGS. We analysed human and animal bones from the world-renowned site of Fishbourne Roman Palace.

Chrysanthi Gallou’s ‘My name is Imperial Purple’ project is undertaking scientific experiments to recreate and highlight the importance of colours in the past. The project is run in collaboration with colleagues from Classics and the Byzantine Museum of Thessaloniki

Feature publication

Mushrooms are eaten worldwide but are almost invisible archaeologically. In collaboration with CEG, we explored whether mushrooms can be identified in past diet through isotope analysis.

From the earliest humans to modern globalisation, a defining characteristic of ‘being human’ is our capacity to travel. People are the most widely distributed species on the planet and we have transformed every part of it by translocating plants, animals, material cultures and technologies. These bio-cultural vestiges of past societies are a direct record of human migration, trade, behaviour and ideology. Our department specialises in researching these issues to understand and highlight the many routes and influences by which cultures are created, blended and mutually reshaped.

We are exploring the geographical origins and physical mechanisms by which people moved; be it in terms of how our species initially evolved and spread from Africa, the impact of maritime contacts and seafaring or how the medieval Silk Roads enabled the overland exchange of goods and ideas across Eurasia. Our research also focuses on the dynamics of innovation: notably the spread and circulation of metallurgy in prehistoric Europe and the Mediterranean; the origins, development and exchange of glass from the Middle East; the transition to agriculture; and the origins and spread of horticulture and arboriculture in northwestern Europe. We are also researching origins and exchange in terms of beliefs and behaviour, such as the development of funerary traditions in Late Bronze Age Greece and in the origins and spread of Easter.

Our work within this theme not only provides high-quality information about past cultures but also has implications for modern policy, for instance, supplying evidence to underpin policy for the International Union for the Conservation of Nature.

This year’s highlights

Our new AHRC-funded project on Easter launched with a public panel discussion.

**Feature publication**

For better and worse, modern global culture has been irrevocably transformed by the empires that have risen and fallen over millennia. They have left legacies that endure in our politics, socio-economics, landscapes, environments and ideologies. All too often, different empires are considered in isolation from each other, even though successive powers drew upon those that went before them. Our Department is examining empires collectively, to unpick how they evolved, influenced each other and impacted upon the world in which we live today.

Our staff research and teach on the Greco-Roman, Byzantine, Carolingian, Norman and British Empires. Excavations on settlements, such as Caistor Roman town, chart the manifestation of imperial control with the built environment, while analysis of material remains tracks the trade networks facilitated by imperial control. For instance, we study how the spread of spices can be used to reconstruct the trade networks of Roman, Medieval and early modern Empires.

Many of the plants and animals that we see around us today result from ancient imperial trade. For example, fallow deer were imported to Britain by the Normans but by the 17th century were translocated, along with African slaves, to stock British colonies in the Caribbean. Today the fallow deer is not an icon of oppression but the national symbol of Barbuda and Antigua, and our research is informing the management of this culturally important species. Our staff are examining the roles heritage can play in the management and ports of China, which were established by the British Empire. We are working in other countries that have felt or resisted the impact of colonialism, notably through our research supported by the Global Challenges Research Fund.

**This year’s highlights**

As part of Will Bowden’s British Academy Mid-career Fellowship, he held a one-day conference, attended by ~180 people, about the findings from his 10 year excavations at Caistor Roman Town. Will is in the process of bringing this site to publication but the outputs from a conference we hosted in 2014, about the Norman Conquest, are now published, including Alex Livarda’s paper.

**Feature publication**

The One Health Initiative, a global movement, is highlighting the necessity of a multidisciplinary, joined-up approach to the human-animal-environment health issues that are arising from an increasing human population and associated intensification of food production, urbanisation, globalisation, climate change and conflict. None of these issues are exclusively modern phenomena and not only can they be contextualised by an archaeological perspective, we can also inform current mitigation strategies. This is because we have access to large quantities of geo/bio-cultural material (human, animal and plant remains as well as soils and minerals) that can be analysed, using a variety of techniques, to unpick and model the dynamics of human-animal-environmental health over millennia.

To this end, our department’s research connects environmental evidence with settlement, human-animal life expectancy and disease data, as well as isotope studies of diet and migration. For instance, we are exploring the health implications of lead pollution in Europe, from Prehistory to the present, by combining high-resolution ice core analysis, landscape surveys of ancient lead mines, human remains analysis (examining lead concentrations within teeth and bones) and documentary research. We are also investigating how humans, plants, animals and their diseases, but also medicinal knowledge, travelled together along trade networks such as the Silk Roads.

Many of our staff and students research cultural attitudes to health and medicinal practices, particularly examining the significance of humoral medicine and elemental philosophy to pre-Enlightenment societies. These ancient philosophies argued that human well-being was intimately linked to the wider physical world. As such, they represent the original One Health agenda, to which we might consider returning.

This year’s highlights
Chris Loveluck has been examining lead pollution in an Alpine Ice core with a team of US and German researchers. This work links with that of Hannah O’Regan who has been investigating burials in the Peak District. Together they are studying lead mining in the Peak, including its effects on human health, and Hannah has just been awarded £12,171 from the University’s Research Priority Area funding stream to undertake a multidisciplinary pilot study on human migration – were people moving in search of lead?

Feature Publication
People use the past to define who they are. Heritage is also a major global industry, bringing tourists and revenue to many regions and forming a significant part of the ways in which places and countries present themselves to the world. In the UK, public involvement in archaeology is at an all-time high with more than 2000 community archaeology groups in existence, enabling more than 200,000 people to participate in practical research into the past.

Our Department is bringing the past to life for ever wider audiences and undertaking heritage work around the world. This includes virtual reality presentations of underwater heritage in Greece, Egypt, Jamaica, China and Africa, using our understanding of ancient use of chickens to empower women in present-day Ethiopia and bringing the story of the origins of metalworking to museums in Northern Italy.

In the UK, our staff and students work closely with the National Trust and Historic England on a range of projects to maximise the heritage assets of sites such as Tattershall Castle and caves in Dovedale, while at Southwell in Nottinghamshire and at Caistor Roman town in Norfolk we are working with community archaeology groups to engage people from all walks of life in practical archaeology.

This year’s highlights

Chris King’s AHRC-funded collaborative doctoral award with the National Trust has started, with James Wright appointed to re-write the ‘biography’ of the 15th-century castle at Tattershall. The project is integrating historical, landscape and buildings research and this summer the team will be completing a laser scan of the castle. It is these kinds of digital technologies that Jon Henderson is pioneering (when he’s not filming documentaries in the Caribbean for National Geographic).

Feature article

Appendix: Research Statistics

### Externally funded projects

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<tr>
<th>Project Description</th>
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<th>Amount</th>
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<td>Exploring the Easter E.g - shifting baselines and changing perceptions of cultural and biological 'aliens'</td>
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<td>Going Places: Empowering Women, Enhancing Heritage and Increasing Chicken Production in Ethiopia</td>
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<td>Forging a new approach to ancient metal studies</td>
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<td>Romano-British Burial Practice in Northern England: the case of Doghole Cave</td>
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<td>Visiting Fellowship</td>
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**Total external grant capture** | **1,332,299**

### Internally funded projects

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<td>Caves in the Peak</td>
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**Total internal grant capture** | **13,121**

**Total grant capture for May 2016 - May 2017 = £1,345,420**

### Publications

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<td>Molecular Biology and Evolution</td>
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<td>STAR</td>
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<tr>
<td>Alaa Alrawaibah</td>
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<td>Neil Hall</td>
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<td>Vassia Brouma</td>
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<td>Chris Ward</td>
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### Grant Panel Membership

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