

The University of Leicester's Postgraduate Research Magazine

# FRONTIER

Issue 3

Autumn 2016



## Immune system AT WAR

### **Baby Farming**

The social construction of multiple murder

### **History Unwrapped**

Egyptian Mummies: Human remains or museum objects?

### **White Dwarf Revelations**

Distant dead stars tell the future of our solar system

# Editorial

I am pleased to have been asked to write the editorial for the third issue of FRONTIER.

FRONTIER is an excellent initiative in journalism at the University of Leicester. Led entirely by postgraduate research students, it highlights the interesting and innovative research of our students across the University and provides a voice for the postgraduate research community. With its third issue, it is quickly establishing itself as a staple of this community and I look forward to reading many issues to come. I hope that, as postgraduate researchers read this issue, they become inspired to discuss their research with FRONTIER's readership and to contribute articles to future issues. This is a great way for students to develop their skill in communicating to non-specialist audiences – something that will continue to benefit them throughout their careers. If you want to get involved either as an author or an editor, please get in touch with the FRONTIER team by emailing [frontier@le.ac.uk](mailto:frontier@le.ac.uk). What you see before you is a finished piece, but there is a lot of work that went on behind the scenes to make this issue possible. The efforts of the editors, Felicity Easton, Jonathan Smith and Francisco Valente Gonçalves deserve particular praise for their organisation and extensive work in compiling, editing and designing this issue. These editors, along with the help of the sub editors you see below, have volunteered a lot of their spare time to bring you this magazine. I would like to thank Dr Sarah Bugby and Dr Jason Wickham for their help in ensuring that the magazine continues to be a platform for communicating postgraduate

research. Of course the magazine relies on the articles contributed by postgraduate researchers who have taken the time to share their research, for which we are all grateful. I hope you enjoy reading this issue and please contact the FRONTIER team with your feedback and articles for the next issue.



Professor Helen Atkinson  
Graduate Dean

## Acknowledgements

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Bugby, Dr Jason Wickham and Dr Sergio Gonzalez Sanchez, who were always available to help and guide us. We would also like to extend our thanks to staff across the University for supporting FRONTIER and helping us to spread the word, to Merv Stevenson for his immense efforts in composing the magazine layout, and to all the postgraduate students who have contacted us with feedback, articles and offers to get involved.

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## Editorial Team



Felicity Easton

### Editors-In-Chief



Jonathan Smith

Working in Respiratory Medicine Felicity is researching how ion channels regulate airway smooth muscle contraction. Programming and database architecture is an interest that she incorporates into her research at any opportunity. When not in the laboratory Felicity can be found buried in a book, or baking, both usually accompanied with a strong cup of tea.

Jonathan is a PhD student researching neurobiology and behaviour in desert locusts. His project explores how solitary grasshoppers group into swarms of locusts. When he is not chasing escaped insects around the laboratory, he is writing, playing music, reading science fiction/fantasy books or playing around with his computer.

### Sub Editors

#### Francisco Valente Gonçalves

Francisco is a Marie Curie Early Stage Researcher (INTREPID Forensics Programme, Department of Criminology), investigating experts' motivations and decision-making in forensic fields such as fingerprint comparisons. He enjoys music, art and cooking with red wine by the side!

#### Charlotte Jelleyman

From the Diabetes Research Centre, Charlotte studies the application of high-intensity interval training in the prevention and management of type 2 diabetes. Charlotte's interest in the area stems from her own love of physical activity; something she is keen to share with others.

#### Adam Smith

Working in the Department of Chemistry, Adam's research focuses on Molecularly Imprinted Polymer Nano-particles for the targeted drug delivery to cancer cells. Adam is also a Graduate Teaching Assistant (GTA) for 1st and 2nd year students.

#### Rachael Sycamore

Studying Roman archaeology, Rachael's research focuses on hoarding and spatial analysis. Rachael previously studied at Durham University where she developed research interests in Roman archaeology, GIS and landscape.

#### Lakmini Liyanage

Laki is part of the Cardiovascular Sciences department and works primarily on abdominal aortic aneurysms, investigating the fundamental differences in structure and biological activity that cause a predisposition for aortic aneurysmal disease at different sites.

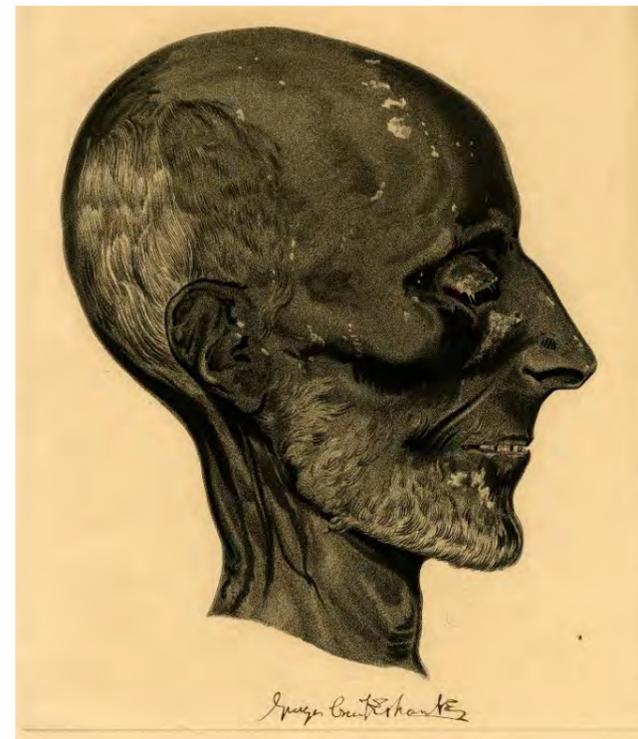
# MUMMIES UNWRAPPED

From medical dissections to public performances

Mummies are objects of wonder in museums worldwide, often made popular by films and books. Fascinated by the different perceptions of mummies in society, PhD student **Angela Stienne** investigates the multifaceted history of mummy collections, and their place in debates surrounding the exhibition of human remains in museums.



Examples of decorated coffins from the British Museum collection



Head of a mummy, in *A History of Egyptian Mummies* by T. G.A. Pettigrew (1834)

## The Egyptian mummy: An unusual museum object

Egyptian mummies are encountered in most museums with Egyptology collections around the world; in fact, the New Walk Museum in Leicester holds no less than four Egyptian mummies, currently on display. Mummies in museum collections attract considerable attention, triggering various responses in viewers such as curiosity, unease and sometimes even amusement. Despite this enduring popularity, they cannot be easily defined – are they collected objects or human remains? Popular culture and media have made the mummy strange, mysterious and exotic and it would be easy to condemn these for transforming the mummy into this strange and undefined specimen.

In fact, this stereotype does not satisfactorily represent the complexity and fluidity of the Egyptian mummy both as an object and a subject. Its mixed materiality and its various meanings and uses hark back to a few centuries ago, when ancient Egypt was still a rather mysterious and novel civilisation, and Egyptian material culture was brought to European museums and private collections. Can we map out the different engagements with Egyptian mummies in the mid-18<sup>th</sup> to mid-19<sup>th</sup> centuries? What can this tell us about the changing identity of the mummy and the role of groups of individuals in shaping the mummy's reception? Can these findings illuminate our present-day understandings and concerns about Egyptian human remains, and their place in museums?

## Mummies as bodies

For my thesis project, I use a combination of archival sources with a theoretical framework based in material culture studies and in cultural history to map out the various physical and intellectual engagements with Egyptian mummies between 1754 and 1855. My current research seeks to situate Egyptian mummies within knowledge communities associated with the medical and natural

sciences, thus removing the mummy from conventional spaces of exhibition and display – especially, the private collection and the museum – to frame these engagements with Egyptian mummies as *bodies*.

**“Mummies in museum collections attract considerable attention, triggering various responses in viewers such as curiosity, unease and sometimes even amusement”**

In 1764, mathematician John Hadley and surgeon John Hunter dissected an Egyptian mummy in Hadley's London house, in front of a small audience of medical practitioners. This produced the first detailed account of the dissection of an Egyptian mummy in a medical context. It raises the question: why did these individuals dissect mummies, and how did this affect the mediation and interpretation of the mummy?

One reason for dissections was an interest in the embalming techniques of the ancient Egyptians. Individuals attempted to reconstruct the mummification process: for example, Greek writer Herodotus (5<sup>th</sup> century BC) had attempted to recount the stages necessary to a successful mummification, and men of science used his account as a comparison. Guillaume-François Rouelle, a renowned French chemist who worked on the composition of salts, dissected mummies in order to apply his theories on salts to the use of natron, a substance used in the mummification process.

## Egyptian mummies and racial theories

Mummification, however, was not the only interest of the intellectual community. Experts also hoped that mummies would



Mummy foot dissected by John Hadley and John Hunter in *The Philosophical Transactions of the Royal Society* (1764)



Description de l'Égypte by Benoît de Maillet',  
Bibliothèque nationale de France

help them answer fundamental questions regarding the order of nature and the origins of mankind. Of particular interest was the existence and qualities of different racial groups, a developing field of discourse established in the mid-18<sup>th</sup> century in France and Britain. The provenance of Egyptian mummies in North Africa made them important subjects in this debate. In the 18<sup>th</sup> century, Johann Friedrich Blumenbach became the first to dissect mummies to identify their origins, driven by the taxonomic impulse to define mankind's 'races'. He located four, and then five, racial categories but he rejected any connection between racial origins and intellectual or physical abilities.

The origin of Egyptian mummies soon became the cause of great torment. In 1787, Volney wrote "This race of black men, today our slave and the object of our scorn, is the very race to which we owe our arts, sciences, and even the use of speech!" Evidently, the fascination with the ancient Egyptians did not fit developing theories which validated colonialism and inequality between racial categories. This contradiction to the racial stereotype was resolved in 1825, when Dr Augustus Bozzi Granville presented the proceedings of a dissection he performed on a mummy, providing the most thorough medical examination of an Egyptian mummy, using his expertise to establish comprehensive reports and proposing a medical prognostic on the cause of death. In addition, Granville proposed that "the pelvis of our female mummy will be found to come nearer to the beau idéal of the Caucasian structure than does that of women of Europe in general".

## Performing the mummy: 19<sup>th</sup> century mummy unwrapping

In 1798, Napoleon led a French expedition to Egypt. This expedition, made up of a military force accompanied by a cultural enterprise of scholars and scientists searching Egyptian history,

**“The fascination with the ancient Egyptians did not fit developing theories which validated colonialism and inequality between racial categories”**

triggered the emergence of a more defined field of Egyptology that would eventually transform the reception of Egyptian material culture in the mid-19<sup>th</sup> century. French and British military, intellectual and collecting activity in the Middle East resulted in burgeoning public interest in ancient Egypt and the expansion of the Egyptian collection at the British Museum from 1801 and the creation of the first collection of Egyptian material culture at the Louvre in Paris in 1827. Egyptian mummies were to be found in these public collections but also entered the realm of popular entertainment with the introduction of the public unrolling and dissection of mummies.

In 1821, Giovanni Battista Belzoni, a circus strongman turned archaeologist, used the unrolling of a mummy to market his exhibition at the Egyptian Hall in London. For the first time, the opening of a mummy was treated as a public, rather than as a scientific, event. Thomas Joseph Pettigrew, a renowned surgeon and avid Egyptophile, inspired by his attendance at Belzoni's event, took the practice of mummy unrolling to the next level offering much publicised and sought-after, ticketed events to a wider public audience. Interestingly, Pettigrew managed to combine a serious level of medical inquiry with high-standard Egyptological research and with a sense of theatrical performance which included props, and the passing along of mummy parts. Thus, simultaneously, the mummy was a displayed object, a medical corpse, a geographical and racial representation of a civilisation, and subject of a performance.

**“The mummy was simultaneously a museum object, a medical corpse, a subject of fantasy – often dreamed of as a beautiful woman – and all of these combined in unwrapping spectacles”**

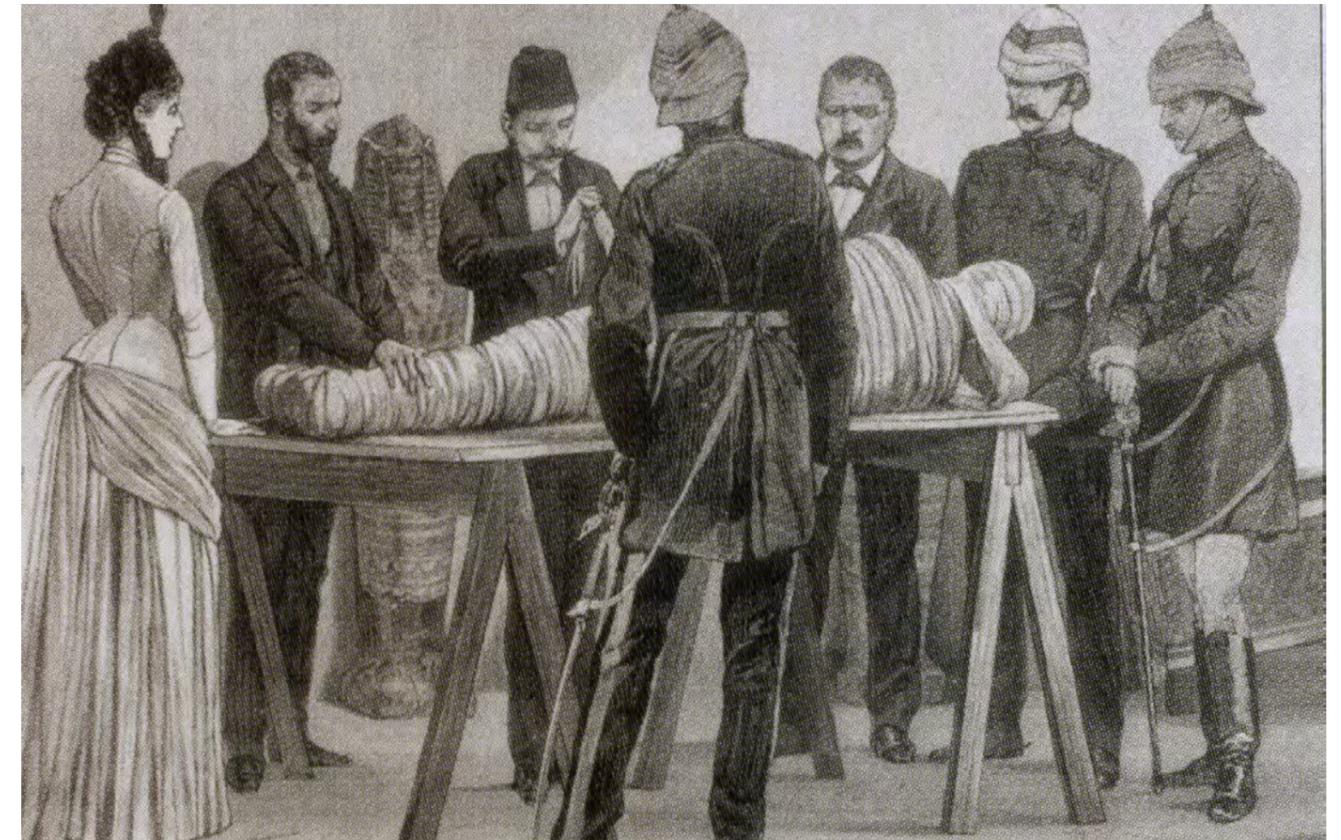
## Understanding engagements with Egyptian mummies between 1754 and 1855

The reception of the Egyptian mummy was shaped and defined in the mid-18<sup>th</sup> to mid-19<sup>th</sup> century by groups of individuals in the medical and natural sciences who shared questions concerning the preservation of the body and the nature of race. The reframing of Egyptian mummies within knowledge communities and disciplinary cultures which extended beyond collecting spaces in the 18<sup>th</sup> and 19<sup>th</sup> centuries reveals relationships between individuals, and groups of individuals, who interacted with, and shaped the reception of Egyptian mummies.

The engagement with Egyptian mummies as collected objects in exhibition spaces was challenged by investigations into the mummy as a medical specimen – a corpse – which fitted in developing epistemological discourses. In particular, the conceptual underpinning of racial differentiation exacerbated the physicality of the mummy as a body which supposedly contained scientific evidences of racial origins of humankind. If there was a clear desire to fit the Egyptian mummy within a racial category, there was however no attempt to fit the mummy into a material category: the mummy was simultaneously a museum object, a medical corpse,

a subject of fantasy – often dreamed of as a beautiful woman – and, all of these combined in unwrapping spectacles. My project seeks to re-orientate the research on human remains looking at one specific type of human remains, the Egyptian mummy. It demonstrates that Egyptian mummies were – and remain – multi-layered museum objects which remain to be explored in museum collections and displays.

**“Giovanni Battista Belzoni, a circus strongman turned archaeologist, used the unrolling of a mummy to market his exhibition at the Egyptian Hall in London”**



Engraving from 1886 showcasing the impending unwrapping of an Egyptian mummy by French archaeologist Gaston Maspero – the unwrapping of Egyptian mummies in front of an audience became very popular in the mid-19<sup>th</sup> century, and demonstrates the transformation of engagements with mummies, from medical dissections to public performances.

# Redefining our immune response

Our immune system is at war with the microorganisms attempting to invade our body and cause us harm. However, the fight is not quite black and white, with our own “good guys” able to do us ill. **Jamie McCarthy** is a PhD student in the Department of Infection, Immunity and Inflammation and will talk through both sides of the story for one particular immune cell type.

## Setting the scene

Our scientific understanding is constantly evolving over time; manifested in this article by observing the immune system. The vast majority of the cells which characterise our immune response have been identified within the last 50 years, making this a relatively young subject—in scientific terms! Cultivated by research, the way we describe immune cell interactions is constantly progressing.

Several research groups will often have the same focus; this results in a rush to publish the best data in the most prestigious journals. This competitive landscape results in a fast paced rewriting of once central dogma.

“The vast majority of the cells which characterise our immune response have been identified within the last 50 years”

## New kid on the block

In 2002 it was known that messenger proteins such as Interleukin-13, were required to combat parasitic worms. Current theory placed the source of these proteins as white blood cells called T cells. These are well characterised white blood cells responsible for many aspects of our immune response. One of the first studies to test this was conducted on mice genetically modified to be unable to produce both T and B cells. Unexpectedly however, Interleukin-13; the messenger protein utilised by the body to fight against parasitic worms was still produced in an infection indicating that messenger proteins were also produced elsewhere.

The cells responsible were identified and characterised in 2010 as a new type of immune cell. Different research groups assigned various names to this cell and it wasn't until 2013 that the current name, Group 2 Innate Lymphoid Cells (ILC2s), and the characteristics used to define these cells were widely agreed upon.

## Knowing their place

It is worth noting that in this instance it does not appear to be the ILC2s who are getting their hands dirty and directly dealing with the parasite. The ILC2s appear to be aiding the recruitment

of other cells, acting as a “conductor” of the immune response; shown by these cells taking in information from the surrounding environment and producing signals to tailor the correct response from the body. These signals are proteins that would act to recruit specific immune cells to the scene. In this way it would appear they are part of our rapid response team of immune cells, whereas other lymphoid cells will come in afterwards to cover this role long term.

“The ILC2s appear to be aiding the recruitment of other cells, acting as a “conductor” of the immune response”

The messenger proteins produced by ILC2s are certainly not unique. They are produced by a wide range of cells within the body, often cells which are much more populous and whose biology is more widely understood. Deciphering whether ILC2s are indeed the source of high concentrations of messenger proteins in a particular scenario is one of the barriers for wide acceptance for this cell's role. Researchers must justify why such a rare cell has such a significant effect within the body; much in the same way a small vocal group of people may have their opinions heard over a silent majority.

## They've got a dark side too...

So far ILC2s appear to be a force for good within our immune response. But our immune system is not that simple. ILC2s have also been implicated in several instances of allergic disease, namely those of the lung, the skin and within our digestive tract. This is when an over active immune response actually starts to cause damage to our own body.

“ILC2s have also been implicated in several instances of allergic disease, namely those of the lung, the skin and within our digestive tract”

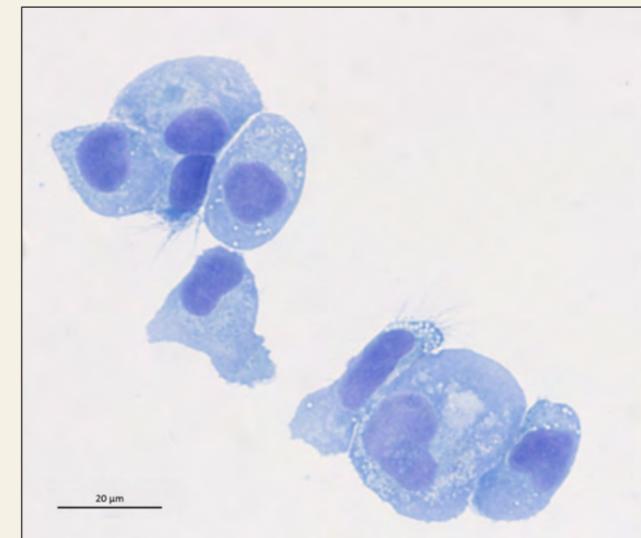
ILC2s have been shown as a cell that produces messenger proteins. ILC2s are a very rare cell type. This is perhaps why they remained undiscovered for so many years. Despite this they are messenger protein factories producing a larger amount of protein when compared to other similar cell types. This fact is one of the key reasons they are implicated in allergic disease; the over production of messenger proteins can cause inappropriate activation of our immune system. To this end, ILC2 derived proteins have been implicated in the diseases: asthma, atopic dermatitis (a skin condition similar to eczema) and ulcerative colitis (an inflammatory disease of the intestines).

“ILC2s provide a mechanistic link between the virus and the symptoms of exacerbations it will illuminate potential avenues for treatments”

## A therapeutic target?

Understanding the role of ILC2s in Asthma is of particular interest, as they may hold the answer to long-standing mystery within the disease. Asthma exacerbations can be very serious and lead to severe illness and hospitalisation. The most common cause of an exacerbation is through a viral infection. How the virus causes such an impact is not fully understood. It is possible that ILC2s are responding inappropriately to one of the many damage signals put out following an infection (such as interleukin-25 or interleukin-33) resulting in an imbalance of messenger proteins, which can cause damage to the body.

Once the biology of asthma exacerbations is fully understood it may provide opportunities for therapeutic targets and potential new treatments could be trialled. Specifically, nullifying the effects of various messenger proteins has already been the subject of several pharmaceutical clinical trials, resulting in several licensed drugs available for use.



Light Microscope image of isolated ILC2s

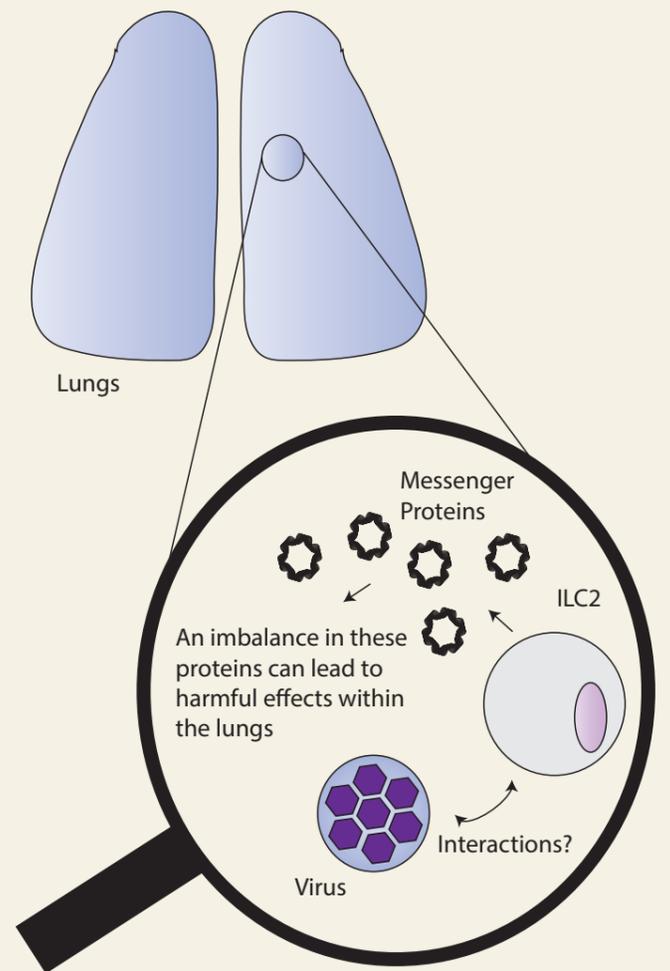


Illustration to represent potential interactions between ILC2s and viruses and the consequences.

My research focuses on adding to our understanding of ILC2s within the context of Asthma. I am studying the interactions between a virus and the cells within our lungs, focusing on the environment within our body which occurs during an Asthma exacerbation. If it is found that ILC2s provide a mechanistic link between the virus and the symptoms of exacerbations it will illuminate potential avenues for treatments. Most likely to be the messenger proteins to which ILC2s respond (interleukin-25 and interleukin-33). It remains to be seen whether ILC2s play a crucial role in facilitating the suffering an individual experiences within an exacerbation and the subsequent burden on the healthcare system this results in.

Jamie McCarthy is a PhD student in the Department of Infection, Immunity and Inflammation

# Unforgotten Story of Terrorism

Poverty is one of the many factors that may lead individuals to become radicalised and commit terrorist acts. After a massacre in a Pakistani school **Mudassir Farooqi** was struck by the impact this had on his own students and colleagues. He is now undertaking a PhD investigating whether social entrepreneurship programs could counter terrorism in vulnerable communities.

## The Aftermath

On December 16<sup>th</sup>, 2014, I sat in my office preparing for a lecture on sociology when a fellow faculty member knocked on my door and entered. She had tears in her eyes and was shaking. I asked her what had happened and she passed me her mobile phone. It was a live broadcast of six gunmen allied with the Tehrik-i-Taliban (TTP) attacking the Army Public School (APS) in Peshawar, the capital city of the north-western province of Pakistan.

The foreign militants entered from the border with Afghanistan, including one Chechen, three Arabs and two Afghans. Their main targets were the children attending a training session on first aid in the main auditorium of the school, which served children aged between 14 and 17 years old. The militants killed 141 people, including 132 schoolchildren. A rescue operation was launched by Pakistan Army's Special Forces wing, the SSG. The SSG neutralised all six terrorists and rescued 960 people. On the 2<sup>nd</sup> of December 2015, Pakistan security officials hanged four additional militants involved in the Peshawar massacre by order of the court. On the 9<sup>th</sup> of July 2016, the mastermind behind the attack; Omar Khorasani was killed by a US Special Forces drone strike in eastern Afghanistan.

**“With grinding poverty and a lack of access to knowledge and skills training, a society can neither work towards nor achieve any of its defined objectives for development”**

## Motivation for Change

Since that deadly attack, my life as an academic in Pakistan transformed and my role as a teacher has evolved. Following the attacks, I began to spend a proportion of class time convincing the students that we were safe and that such a tragedy would not happen again. I also took time to reflect on the lives lost in the attack – knowing we will never forget. The trauma of the children taken at the APS School in Peshawar has left a haunting mark on my students and colleagues. Within two days of the massacre, I took leave and travelled straight to Peshawar to meet the families that had suffered on that day. With a Master's degree in Management Sciences and aspiring to start a PhD on counter terrorism, I altered

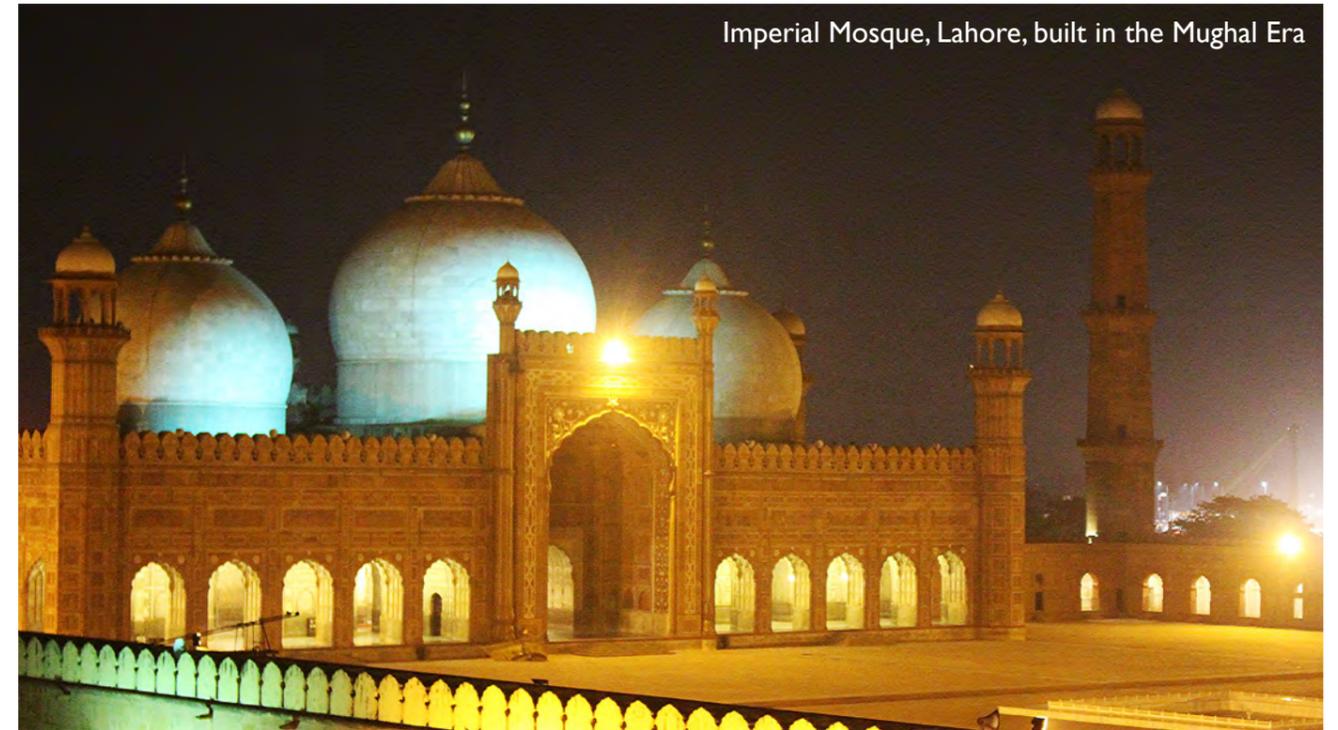


First year Art and Design student exhibition

Imperial College of Business Studies (ICBS) logo



ICBS Academy building



Imperial Mosque, Lahore, built in the Mughal Era

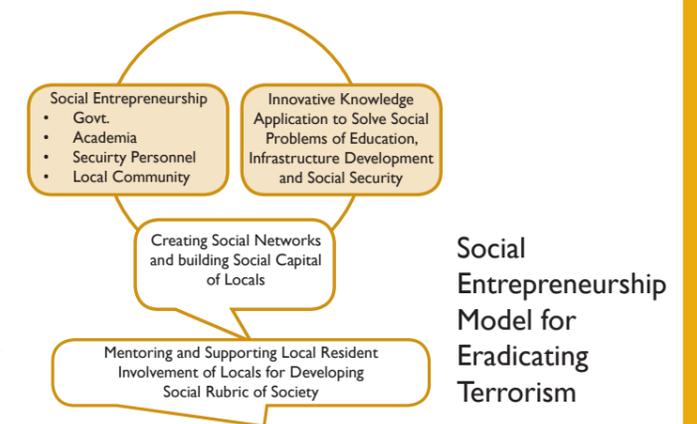
my focus to investigate the cause of the scourge of terrorism. After meeting the concerned families, school administration and security personnel, I came to the realisation that it is the social rubric of a community that safeguards the lives of people. With grinding poverty and a lack of access to knowledge and skills training, a society can neither work towards nor achieve any of its defined objectives for development.

Utilising support from the local community, notably an Afghan national worker, the terrorists entered the school. This worker in particular gave the terrorists specific information about the training session in the auditorium that enabled the attack. The worker was the sole source of income for a family of ten people. Similar to many terrorist attacks, poverty and hardship are clear environmental factors that lead to complicity. In this case, the extra money the national worker earned by providing information about the school led to the deaths of approximately 150 people. Social entrepreneurship may prevent such terrible tragedies in the future by creating economic opportunity and positive change towards the outlook of deprived communities where extremist views often take root.

## An Educational Action Plan

I began research into this issue in 2014, and have enrolled this year at the University of Leicester; I am currently working towards a PhD in the use of social entrepreneurship as a way to understand and counter terrorism in south Asia. Social enterprises are the modern day tools to provide solutions to social problems by involving the local community. In cases where society has become radicalised; social entrepreneurship will lay the foundation of building a tolerant society of local people, aided by an established education system that is equipped to counter radicalised views within the society. An extensive portfolio of field work interviewing local people, security officials, rescue and social workers following the Peshawar attack has led to many interested parties investing in

this solution as stakeholders. In my research model I aim to test the extent to which the modern tool of social entrepreneurship can counter violent extremism.



A national action plan is underway in Pakistan to reduce the threat of terrorism by expelling radical jihadists from within poorer segments of the community. The initial field work carried out in my research into the application of social entrepreneurship will help the local community to build role models for a peaceful society (Operation Rah-E-Nijat conducted in 2009 within the SWAT valley expelled radicals and in the post operation period empowered the local community to build a society of tolerance, by providing educational awareness and employment opportunities). The study will also help policy makers to strategize future counter terrorism by implementing measures to create positive role models (e.g. Young Leaders, Educationists and Entrepreneurs), and encourage alternative pursuits for those who would otherwise be sympathetic or attracted to jihadist terrorism. Terrorism itself has no religion, and no national identity, therefore we need to apply modern techniques utilising knowledge-based frameworks within societies to reduce the effect of terrorism across the globe.

**Mudassir Farooqi is a first year PhD student in the Department of Politics and International Relations, researching the phenomenon of Islamic Jihad and political violence exploring its causes from history and is also looking to propose counter violence strategy with the help of social entrepreneurship.**

# Understanding 19<sup>th</sup> century 'baby-farming' women who killed: aberration or 'rational' act?

Writing for Frontier, PhD student **Joshua Stuart-Bennett** explains his research into the child killing activity associated with Victorian 'baby-farming'. In contrast to understandings that have been based upon cases of individual women and their nature, he hopes to place the phenomenon within the wider social, cultural and historical context to reframe our perception of these women and their crimes.

The term 'baby-farming' was coined in the 19<sup>th</sup> century to describe a largely unregulated business practice where certain working women provided, either temporary or permanent, paid child-care services for parents (predominantly single mothers) with children who either could not be cared for or were unwanted due to social and economic pressures. Particularly for unwed women at the time, childbearing often brought with it a high level of stigmatisation, social hardship and exclusion. Without sufficient resources and support, this stigma led to exceptional adversity for both mother and child. Insufficient structures surrounding child care services encouraged the 'farming' of children, a scheme that afforded little incentive to keep the children alive. Investigations by authorities were believed to have uncovered a pervasive and clandestine 'baby-farming' enterprise where considerable motive and opportunity resulted, either by act or by omission, in the child's death. By providing insufficient care and sustenance, or by straightforward infanticide, some 'baby-farmers' were therefore thought to have established a maximum profit venture.

**“Insufficient structures surrounding child care services encouraged the 'farming' of children, a scheme that afforded little incentive to keep the children alive”**

## Media perception of baby-farming killers

Being interested in how society comes to understand those (especially women) who kill, my research critiques the notion of 'aberrant individuals' as well as the approaches often taken within the human sciences that predominantly seek an explanation for such behaviours on the level of the individual. In making sense of acts that are deemed socially objectionable, such as instances of unlawful killing, there is a common tendency to infer that some inherent factor, a distinctive and innate causal characteristic, corresponds to such behaviours. This approach results in a fixation



The case of Amelia Dyer (1837-1896), often referred to as 'the Ogress of Reading', became a cause célèbre with many speculating that she had killed hundreds of children during her career as a baby-farmer. Amelia was hanged in 1896 with six confirmed murders attributed to her. This image of Amelia Dyer, like the iconic photo of Myra Hindley, has become symbolic of 'evil' and 'monstrous women'. The image adorns several 'true crime' texts where Amelia has been spotlighted as a 19<sup>th</sup> century serial killer with little attention paid to the context of these crimes or the number of other similar cases.



A nuanced understanding of 'baby-farming' women who killed requires the phenomenon to be viewed through the eyes of the past, not the present. Hardships that affected those social groupings most prone to denigration as well as issues surrounding illegitimacy and child bearing are just some elements that shaped the wider context in which these acts occurred.

upon the individual and, in doing so, deflects attention away from the context and circumstances that may have generated, shaped and facilitated such acts. Moreover, this approach tends to focus upon specific cases whilst others remain unknown, unconsidered and undiscussed. Accounts seeking to understand the behaviour of 19<sup>th</sup> century 'baby-farming' women who killed have overwhelmingly considered only a very small number of the most sensational and 'newsworthy' cases. Most notable is the fixation upon Amelia Dyer (1837-1896) whose case became a cause célèbre, attracting much speculation that she may have killed hundreds of children during her career as a 'baby-farmer'.

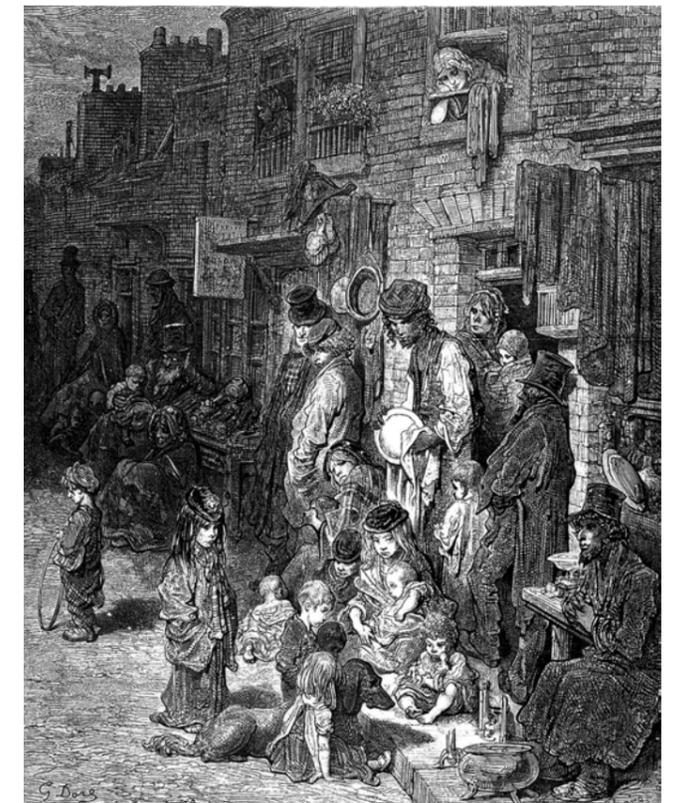
The way these women have been represented parallels the limited number of ways we tend to understand criminally transgressive women more generally; namely, that there is something inherently wrong or defective that caused the behaviour. 'Baby-farming' women who killed have frequently been depicted as being psychologically unstable, naturally weak and helpless, or intrinsically bad. Whether represented as mentally deranged, as serial killers, monsters or even as victims of sorts, the focus is always principally upon the individual woman and her nature. For instance, understandings of Amelia Dyer are predominantly built upon notions of mental illness, serial killing and 'evilness'.

**“Explanations of mental illness, serial killing and evilness become overly simplistic and inadequate for making sense of this phenomenon”**

## 'Rational' within its context?

In seeking to address this concern, the wider social, cultural and historical context in which this child killing activity occurred may instead be considered. In this sense, a re-understanding of this phenomenon may first recognise that, at its core, such behaviour

was a response, or solution, to the universal and omnipresent problem of women being faced with pregnancies and children that they could not support, or did not want. In such circumstances, options or provisions to deal with this problem (legal or otherwise) manifest, and will be shaped by the surrounding social, cultural, and historical circumstances. Economic, moral, political and class based factors that framed and underpinned these acts may therefore be examined. Similarly, consideration should be given to the social construction of victim groups as unprotected, undervalued and 'problematic' individuals, as well as to the opportune circumstances that facilitated the killings. The phenomenon should also be examined in relation to other associated behaviours and practices, such as procuring abortion drugs (abortifacients), the use of 'backstreet' abortionists, and child abandonment 'baby dropping,' that comprised an array of 'solutions' which allowed those in need to deal with their 'problem'. Unknown and undiscussed cases from the United Kingdom and other parts of the Western world should also be spotlighted in order to highlight how baby-farming, rather than being the result of individual pathological weakness or 'evilness', was the product of social and cultural pressures and therefore 'rational' and comprehensible within its historical context. In doing so, explanations of mental illness, serial killing and evilness become overly simplistic and inadequate for making sense of this phenomenon. Thus, rather than fixing the causes and responses (treatment or punishment) at the level of the individual, this research brings to light the wider social involvement, construction, and complicity in such acts.



Victorian child rearing, whether of one's own or of other peoples' offspring, was predominantly assigned to women. This undertaking took place within the domestic sphere and could therefore be placed quite 'out-of-sight and out-of-mind' for the rest of society. The circumstances surrounding the care of babies, especially illegitimates, may have created certain incentives and opportunity structures for abuse.

Joshua Stuart-Bennett is a 3rd Year PhD student in the Department of Criminology

# White Dwarfs and Revelations

When a star runs out of fuel, it can collapse into an extremely hot and dense body known as a white dwarf. **Simon Joyce** explains how these distant dead stars have led us to a new understanding of the universe.

## Men willingly believe what they wish

Over 400 years ago Shakespeare wrote Julius Caesar, which includes the famous line “I am constant as the Northern Star.” This was based on the fact that Polaris, the Northern Star, does not appear to move during the course of a night due to it being directly above the Earth’s axis of rotation. All the other stars appear to move in a circle as the Earth rotates. However, since the time of the ancient Greeks it had been thought that the Earth stayed still and the stars rotated as they were attached to the great celestial sphere. From before the time of Julius Caesar right up to the time of Shakespeare, the stars were considered permanent and unchanging entities. This was a logical assumption as the stars do not appear to change from one night to the next. Applying this theory and measuring the relative positions of all the stars would mean that we could produce a complete map of the universe which would be correct for all time.



Time lapse photo. Only Polaris at the centre appears not to move.

“From before the time of Julius Caesar right up to the time of Shakespeare, the stars were considered to be permanent and unchanging entities”

One of the strangest things about science is that the more we understand about a subject, the more striking the small details that don’t quite fit our interpretation become. At a similar time as Shakespeare was writing, the astronomer Tycho Brahe was performing the most accurate measurements of the relative positions of the stars that had ever been made. In 1577 he observed that a new star had appeared in the sky which had never been seen before. This was the first evidence that stars actually change. However, we now know that Tycho observed the death of a star as opposed to the birth of a new star. Importantly, this one new point of light was evidence that the universe does not work in the way that we had believed for thousands of years. Rather than being permanent, stars undergo various stages of development as they follow a life cycle. We now know that stars are formed from collapsing gas clouds, live a long lifetime of stable nuclear burning, and then die when they run out of fuel.



Comparison of the size of a white dwarf (Sirius B) and the Earth



Artists’ impression of Sirius A and its much smaller companion Sirius B

## “That’s no moon”

In the case of Sirius, a few years after Bessel died, the star that Bessel had predicted was finally directly observed. The star is too faint to be seen without a powerful telescope. The bright star we can see is called Sirius A and the companion star predicted by Bessel is Sirius B – a white dwarf, so called due to its small size and white hot glow. The existence of this star was a great puzzle because it was measured to be a similar size to Earth, yet it contained as much mass as the Sun. No one had theorized that an object of this nature could exist, especially since the star is composed of material 3000 times denser than anything found on Earth. It would be impossible to lift up even a pin head composed of this material. This strange material turned out to be the answer to what is left over after a star has died. A tiny point of light had evolved our understanding of the nature of the universe.

“Bessel proposed that an unseen star was orbiting Sirius and causing this strange movement”

## Sirius New Developments

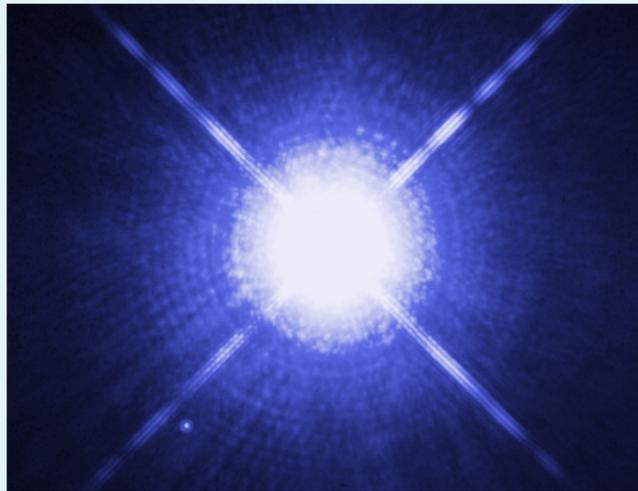
This poses the question; what is left behind after the death of a star? A clue came from observations of Sirius, the brightest star in the night sky. In 1844, the astronomer Friedrich Bessel was making very precise measurements of stars. By this time, it was known that the stars are not fixed points in a giant celestial sphere as was imagined by Aristotle. Instead, stars travel through space, although this movement is very difficult to detect due to the vast distances involved. Imagine watching an ant from several miles away and trying to determine how far it has walked. Astronomers had been observing Sirius for over 100 years trying to detect this movement. What Bessel noticed was that Sirius did not move in a straight line as predicted. It wobbled back and forth over a period of about 50 years. Only extremely accurate measurements over a period of decades allowed the detection of this movement. Based on these observations, Bessel proposed that an unseen star was orbiting Sirius and causing this strange movement.

“The existence of numberless visible stars can prove nothing against the existence of numberless invisible ones.” (Bessel 1844).

This has parallels with the modern theories of dark matter and dark energy. We can observe and predict the effects, but we don’t know exactly what the cause of those effects is.

“[Stars] live a long lifetime of stable nuclear burning, and then die when they run out of fuel”

White dwarfs are a glimpse into our solar system’s future. They are what is left behind after stars have used all of their fuel and collapsed under the force of gravity. We have progressed from thinking we live in an eternal and unchanging universe to one where even the stars themselves will one day fade away. Unlike most of the stars we can see with the naked eye, white dwarfs no longer generate heat via nuclear fusion. These stars still give off light as the cooling process takes billions of years. It is the fate of our galaxy to eventually be populated only by stellar remnants like these fading white dwarfs. Until relatively recently (only 124 million years ago), Sirius B was a star brighter than our Sun. To dinosaurs on Earth, the star would have appeared brighter than Venus in the sky. The death of this star created the nearest white dwarf to Earth.



## “White dwarfs are a glimpse into our solar system’s future”

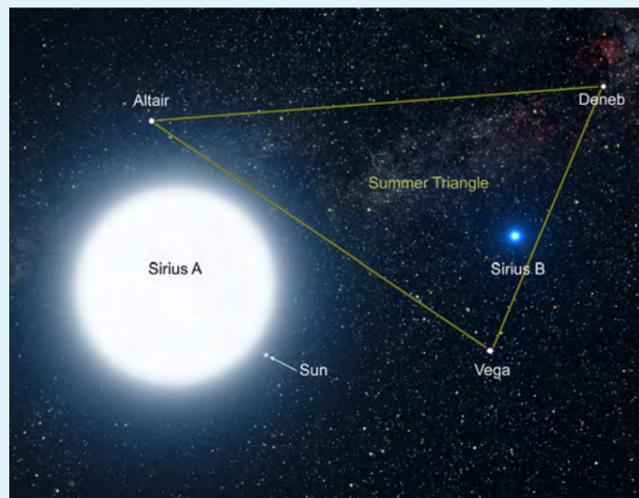
Despite the vast improvement in telescopes since the time of Bessel, observations of white dwarfs remain a challenge. I am using observations of Sirius B and other white dwarfs taken with the Hubble Space Telescope. The HST is a huge improvement over the instruments available to Bessel. Nevertheless, a large part of my work is focused on understanding the systematic problems which can affect the results. For example, the motion of the HST as it orbits the Earth introduces a shift in the wavelength of the measured light and I had to develop a method for removing this shift from the data. I was then able to calculate the mass of Sirius B using the spectroscopic or the gravitational red-shift method (see box). Our collaborators are using a third method called astrometry to measure the orbit and then derive the mass. We have found that our measurements of the mass of Sirius B made using the three different methods do not exactly match. This may indicate another missing piece in our understanding of physics, or in our understanding of the methods involved in making the measurements. Either way, finding the solution could prove to have important implications for the way we study stars and may even alter our view of the universe once again.

Sirius B is the small dot on the bottom left. It is dwarfed by its massive companion Sirius A (Bond H.E. Journal of Physics conference series, 2009)

### Shifting focus

Sirius B now provides an excellent opportunity for scientific study. A key part of our work is the measurement of the mass of Sirius B along with several other white dwarfs. They provide an opportunity to test theories such as general relativity and quantum mechanics. The best method to test these theories is to determine if they can provide correct predictions in extreme conditions – such as the high density environment of a white dwarf. For example, quantum mechanics predicts that white dwarfs should have some very strange behaviour. Normal stars and planets are bigger the more matter they have. But with white dwarfs, the more matter they have, the smaller they are. This is exactly what we see. Sirius B is a high-mass white dwarf, but it is actually much smaller than low mass white dwarfs.

“A key part of our work is the measurement of the mass of Sirius B... to test theories such as general relativity and quantum mechanics”



Artist impression of how the Sun would appear to an observer in the Sirius system

## Three ways to weigh a star

### Spectroscopic

When we observe the spectrum of a white dwarf we see dark lines caused by the absorption of certain wavelengths of light in the atmosphere of the star. It's a bit like shining a torch through a cloud. The shape and depth of these dark lines depends on the mass of the white dwarf.

### Gravitational red-shift

The same absorption lines used in the spectroscopic method also get shifted to longer wavelengths by the gravity of the white dwarf. This is equivalent to the Doppler effect where soundwaves change to lower pitch as an ambulance drives away from us. The stronger the gravity, the more the lines are shifted. So if we measure how much the lines are shifted, we can calculate what mass and radius the white dwarf must have to cause that shift.

### Astrometric

Sirius A and B are in a binary and they orbit around each other once every 50 years. Careful observations over the last 150 years have allowed us to calculate what mass the two stars must have to produce the observed orbit.

Simon Joyce is a 2nd year PhD student in the Department of Physics & Astronomy. His work on white dwarfs is done in collaboration with Martin Barstow and Sarah Casewell (University of Leicester), Jay Holberg (University of Arizona) and Howard Bond (Pennsylvania State University).

# My life as a part-time PhD researcher in Law

Undertaking a PhD is tough work. Now imagine studying part-time whilst living across the Atlantic Ocean and running your own legal firm. Law PhD student **Marcelo Henrique Lapolla Andrade** writes how he handles these conditions and how his research can improve the legal system in Brazil.

I started my PhD in Leicester back in 2015. After a thorough search for schools that allow part-time distance learning, I found that the University of Leicester had it all: a programme designed for distance learners; a great reputation in law with highly respected academic staff, the pleasant environment of the city; the courteous citizens, and not to mention the best football team in the country! These aspects all convinced me that I had made the right decision.

### Climbing the academic ladder

Prior to starting this PhD, I had recently finished my Masters at Mackenzie Presbyterian University in Brazil, which focused on antitrust law – regulations on the conduct of companies regarding fair competition for consumers – and earned a separate postgraduate Master of Laws (LLM) degree on U.S. Law at Washington University in St. Louis, United States. Thus, aiming for a higher degree in the United Kingdom – with its old and widely respected legal system – was not only my dream, but also a natural step in terms of my educational development.

Since I started the program, I have visited the campus twice; to attend the graduate conference and to take part in training sessions. Being on campus is always a great opportunity to use the library facilities and to meet my supervisors in person – though our online meetings have proven to be quite productive and made me confident that the distance will not be an issue that will affect my research.

### A working knowledge

Alongside the difficulty of studying for my PhD at a distance, my professional life is very busy here in Brazil. I own a law firm with over 100 employees. As such, finding a practical research topic would make my efforts in taking on a PhD twice as useful; for myself and for Brazilian legislation. It was in handling my clients' interests and problems that I identified what I believed to be a gap in our legal system; the absence of a specific provision in current Brazilian legislation regulating one's duty to mitigate another party's losses, known worldwide as the 'mitigation doctrine'.

The basic idea of the mitigation doctrine is simple; you must take reasonable steps to limit your losses even if they were caused by another. For example, if a supplier of bricks fails to deliver the bricks

to a construction company on the date agreed in their contract, the construction company must take reasonable steps to limit the losses caused by the late delivery – by perhaps obtaining bricks from a different supplier and/or assigning other tasks to its employees so that they do not sit idly while being paid. The practical effect of this is that a court will refuse to order the brick supplier to compensate any loss that the construction company could have avoided through taking reasonable steps. The doctrine is usually supported by reference to notions of good faith and economic efficiency in the use of resources.

“Finding a practical research topic would make my efforts in taking on a PhD twice as useful: for myself and for Brazilian legislation”

### Shedding light on Brazilian law

Building on this background, the first goal of my thesis is to compare the mitigation doctrine to various existing principles of Brazilian law which can affect the compensation of losses. Here I aim to demonstrate that the existing principles leave significant gaps in the law. The second goal is to research how other jurisdictions have filled these gaps by developing a mitigation doctrine and to investigate how they apply this doctrine to law. Finally, as the conclusion, I will come up with a proposal for the most adequate provision to be added to the Brazilian legal framework.

So far, I am very happy with the support I am getting from the University. This includes the IT team, various staff across the university and – of course – my supervisors. I am doing my best to enjoy every single moment of it and working really hard to achieve something I will be very proud of.

**Marcelo Henrique Lapolla Andrade** is a PhD student studying Commercial Law at the Leicester Law School in the University of Leicester.



The offices of Andrade's law firm

# Iron Age mortuary rites in southern Britain: Familiar ancestors, foreign ideas

Coming from a family which is Scottish on one side and English on the other, **Andrew Lamb** has been curious about cultural differences between closely related groups from a young age. Combined with a long lasting interest in the European Iron Age (due in no small part to Asterix comics), his current research focuses on the southern counties of England between c.500 BC and AD 70, examining the variation in human remains across this area.

My current research focuses on the southern counties of England between c.500 BC and AD 70, examining how human remains and their associated variables from the area. In terms of broader research impact, I hope to demonstrate that links between Britain and the continent were closer than is often thought for this period.

**“Britons of the Iron Age lived in roundhouses, adorned precious objects with swirling, interlaced patterns, and spoke a Celtic dialect”**

Iron Age Britain can be both ancestrally familiar and disturbingly alien to us. It was during the Iron Age that the inhabitants of these islands first identified themselves, and were identified by outsiders, as Britons. Likewise, place names such as Kent, Dorset, Devon, Colchester and London trace their etymological roots to this period. Whilst these place names conjure familiarity, there were numerous aspects of the Iron Age which would be unfamiliar, if not unintelligible, to modern eyes. Britons of the Iron Age lived in roundhouses, adorned precious objects with swirling, interlaced patterns, and spoke a Celtic dialect. Perhaps the most peculiar feature of this age, and most alien to modern practices, is the way in which Iron Age peoples in Britain dealt with death.

## The elusive dead, fractured bodies and murdered folk

The population of Iron Age Britain likely numbered a few million, yet despite this we can account for only a tiny fraction of the population in the archaeological record; when people died they were typically disposed of in a way which left little to no physical trace. For those few we do have evidence for, the evidence is highly varied. In addition to more familiar practices such as inhumation and cremation burials, we also find parts of bodies, ranging from near complete corpses to individual body parts such as limbs or skulls. Finally, there are the famous “Bog Bodies”, individuals who ultimately ended up being preserved in peat bogs. Although accidental death may account for some “Bog Bodies”, it is clear that many were subjected to high levels of violence, most likely as part of a human sacrifice. Similar levels of violence have also been observed on individual bones and some inhumed persons, particularly those found within ditches which enclosed settlements and grain storage pits.

**“When people died they were disposed of in a way which left little to no physical trace”**

My research focuses on human remains dated from the late Iron Age to the first decades of the Roman conquest (c.500BC–AD70), specifically those recovered from the English counties of the south coast extending from the Isles of Scilly to Kent. With the exception of bog bodies, this region has produced all of the forms of human remains noted above. This region is not uniform in terms of the data available, and shows a variety of sub-regional trends. These



Lindow Man, a bog body from Cheshire, c.100 BC–AD100. Lindow Man was killed by a combination of blunt force and strangulation. Many human remains from Iron Age Britain and Ireland and the continent display high levels of violence. Although many injuries observed on human remains were the result of common accidents, in several instances the evidence points to acts of human sacrifice.

include burials in stone-lined cists in the western part of the region, a focus on hill-forts as locations for the disposal of human remains in the centre, and the adoption of cremation burials in the east similar to those found on the continent. My research seeks to better understand the role burial practices played in the construction of

society in Iron Age Communities, through an analysis of human remains. Specifically, what meanings were ascribed to them, how these meanings changed, and what relationships existed between British rites associated with death and those of the near continent.

## Manipulating the dead to control the living

There has been a tendency to consider changes in burial practices as further social change in society, rather than catalysing it. Such a view fails to acknowledge the power that death can have over individuals who witness it; forcing them to restructure their social relations to account for the death of an individual. Violence, as is attested on many bones from this region, may also have played a part in reinforcing bonds between people, with human sacrifice being a powerful means of doing so. Certainly by the final centuries of the Iron Age we find individuals buried with an assortment of objects ranging from ornate headdresses, decorated weapons and tools which appear to denote a distinct role within their communities. The approaches which Iron Age communities in the British Isles and those of the continent employed towards death show many commonalities, such as the ways of disposing of the dead, comparable choices in burial locations, and similar, if not nearly identical, grave goods. In an age when death was common – famine was only a failed harvest away and child mortality high – the ability to manipulate the cosmological and

**“By the final centuries of the Iron Age we find individuals buried with an assortment of objects ranging from ornate headdresses, decorated weapons and tools which appear to denote a distinct role within their communities”**

spiritual world which governed life would have provided those who could do so with power. To do so, however, required one to have access to a medium through which to communicate with the otherworld; the dead.

Crown from Grave 112 Mill Hill, Deal, Kent c.250BC. During the final centuries of the British Iron Age a variety of ornate objects, including headdresses, mirrors and so called “divination spoons”, were included in graves. In addition to this crown, the individual from Grave 112 was buried with an ornate shield, sword and coral decorated brooches. Based on similarities with later Roman priestly headdresses, it is generally thought that individuals like this belonged to some sort of religious class.



Bronze clad bucket from a cremation burial at Aylesford, Kent, c.75–50BC. The use of cremation in southern England is observable in the archaeological record from the 2nd century BC onward, and appears to have been introduced from northern France, where it was common beginning in the 3rd century BC. The use of buckets in graves is attested in southern Britain, France and western Germany, with the Aylesford bucket showing strong stylistic links with examples from the Ardennes and Lower Rhine.



Andrew Lamb is a 3rd Year PhD student in Archaeology, who has specialised in mortuary archaeology in his undergraduate degree. In terms of broader research impact, he hopes to demonstrate that links between Britain and the continent were closer than is often thought for this period.

# To fit or not to fit – that is the question

Wherever they are based, academics have a complex and often solitary work environment. Citing her work in Cyprus, **Dr Irina Lokhtina**, a DSocSci graduate from the **School of Management**, explains why encouraging engagement within academic communities could improve academic careers in Cypriot higher education

Each one of us is involved in professional communities crucial to our learning and development, such as colleagues at conferences and in the workplace. In a similar way, academics need multiple and often overlapping communities to develop their own identities, as well as to form a better mutual understanding of common practices. However, there are cases where academics are restricted from these communities, depriving the academic of feedback and impacting their development.

Higher education has seen big changes in recent times, such as a rapid growth in temporary contracts. This means that budding academics have to learn how to tackle heaps of paperwork, balance their research with teaching responsibilities, cope with the uncertainty in getting funding and progressing their career as well as with externally imposed accountability requirements. Hamlet's famous dilemma, ‘borrowed’ for this article's title, aptly summarises the torments that academics often experience in their workplaces, such as a lack of support. It is as if many do not properly ‘fit’ in their academic work environment.

## ‘Learning the ropes’ in academia

As an academic myself in a private university in Cyprus with a professional background in social psychology, my personal interest was always about the learning processes embedded in academic workplaces and how they affect academic career development. With this DSocSci project, I aimed to address the issue of academics feeling isolated and unsupported in their jobs, how this affects their learning and career progression, and how policymakers can facilitate the community participation of these academics to improve higher education as a sector. Based on interviews with academics and other sources, my research essentially acts as an intermediary between academics and policymakers, with a strong interest in academics' learning experiences in light of the existing attempts to modernise higher education.

**“My research essentially acts as an intermediary between academics and policymakers”**

The role of academics worldwide has undergone significant changes over the last decade and the Cypriot public higher education, where my research is based, is no exception. I chose public higher education in Cyprus as a case study firstly due to my personal interest in the subject, and secondly because it began comparatively recently; the first public university was established just 27 years ago in 1989. This short history means that there is a research gap in understanding the influence of the working environment on academic career development.



The coast of the Mediterranean Sea, Cyprus

## The role of the community in academic learning

In my study I draw on the theory of learning as participation in a community of practice. This has implications for the way in which academics develop their career by being more actively engaged in social relations with others and thus moving from novice to full practitioners in the relevant community. Academics engage in different types of activities in everyday situations, whether formally or informally. As a result, they come together in communities where they share a common concern about a topic, mutually talk and learn about the shared practices through active co-participation. The relational nature of participation amends the way they behave and speak about the practice and how they perceive themselves.

To provide a context of the discussion on academics' career development, I argue that we need to acknowledge the complexity of community relations, especially the aspect of unequal access to resources and differences in status. Poorly funded and inexperienced academics are likely to be at risk of becoming marginalised or excluded from co-participation and negotiation of meaning, restricting their development within the community. Ignoring the nuances of academics' participation within academic communities of practice leads to assumptions about their development that can result in an inadequate support of their career progress.



The metaphor of an academic "spiral staircase" career path

**“Embarking on an academic career means a constant struggle in finding the way through inflexible and isolated working practices”**



Academic communities: isolation or 'being thrown in at the deep end'

## Cypriot academics under stress

To gauge the opinions of academics in this project, I interviewed twenty Cypriot academics about their participatory practices in the workplace and how the 2012–2013 financial crisis affected their professional lives. I list here a selection of quotes from the interviewed academics:

*“By the end of the third year you have an evaluation and you have to have research and publications; and then what you only do is just work. You forget about private life, your family life.” (Lecturer – R10)*

*“I found out how to survive in Cyprus as an academic just by trial and error.” (Lecturer – R2)*

*“What they would have liked me to do is to shut my mouth, become a ‘good girl’ and do what they want me to do and then move on as a slave in academia.” (Lecturer – R17).*

*“I think mentoring will definitely speed up both the advancement of research and the ground-breaking ideas coming about; you will get a more friendly and welcoming environment.” (Lecturer – R12)*

As the debate continues on how higher education can help societies meet the challenges they face today, these quotes signal that the academy neither considers the problems academics experience in workplaces nor listens to their voices. In truth there is a distinct difference between the perception of academics within public universities and the reality of being an academic. Embarking on an academic career means a constant struggle in finding a way through inflexible and isolated working practices and living with the uncertainty of career progress. We need to reconsider the support systems in place for academics' development.

## Views of the officials

Having seen academics' experiences up close, it's also important to consider policymakers' attitudes towards higher education. Mr Costas Kadis – the Minister of Education and Culture of the Republic of Cyprus – has expressed his view on the current state of higher education in the country by emphasising that: “Cyprus's active participation in the Bologna Process since 2001 (designed to ensure that higher education standards are comparable across European countries) has helped our country to modernise its higher education system.”

**“The results of my research challenge ideological stances held in Cypriot society about academics who work in the public sector, by heightening awareness of the possible problems that they face regarding their career development”**

Dr Irina Lokhtina has received her DSocSci from the School of Management (Centre for Labour Market Studies) at the University of Leicester and is now an associate lecturer in business and management at the University of Central Lancashire, Cyprus

**“[Mr Kadis] seldom acknowledged the role of active academics and their efforts to place Cypriot higher education on the international map”**

This vision by Mr Kadis acknowledges that the strategy to develop a knowledge society for Europe's future prosperity goes hand-in-hand with constructive dialogue among the relevant stakeholders of higher education in Cyprus. Interestingly though, in line with my findings, he seldom acknowledges the role of active academics and their efforts to place Cypriot higher education on the international map. Instead Mr Kadis cites the development of new academic programmes, investments in high-calibre, ambitious graduates and increasing contributions to the resolution of economic, educational and health problems through research as the main areas for growth in Cypriot higher education. However, who is likely to make such a desirable future materialise? – Obviously academics!



One of the university buildings, Cyprus

## Changing policies

The testimonies from academic staff collected in my study highlight the importance of ongoing support to both novice and experienced academics by responding to their learning needs and preventing isolation at workplaces. This investment is likely to make all stakeholders, including academics, commit to the real implementation of the reforms that have been agreed by all members of the European Higher Education Area. Moreover, the results of my research challenge ideological stances held in Cypriot society about academics who work in the public sector, by heightening awareness of the possible problems that they face regarding their career development. Thus, researchers and institutional leaders need seriously to consider nurturing collaborative academic communities. Knowledge development is a key aspect of higher education, and this is best achieved through the participation and mutual negotiation of old principles of communities through new perceptions and practices.

# The University of Leicester Postgraduate Research Society (PGR Soc.)



**Did you know that nearly half of University of Leicester students are postgraduates, with many undertaking a research degree like a PhD?**

A PhD is a great opportunity to work on research that interests YOU and develop a whole host of new skills for your future career. But they're also difficult endeavours, requiring dedication and long hours that can leave you feeling isolated and stressed.

The UoL Postgraduate Research Society was founded in June 2016 to combat this, and improve the social and academic experiences of research students across the University. The society is run entirely by Postgraduate Research (PGR) students, for PGR students.

We are planning monthly socials to enable PGRs from across the University to come together, relax and foster a community of PGRs beyond the boundaries of academic college or department. These will range from meals, to screenings of TED talks, to careers talks and topical debates. We are also working with the University to promote and raise awareness of University-run events like Café Research, Thesis Forum and the Festival of Postgraduate Research.

In addition to this, we are also working with committees throughout the University to ensure PGRs' concerns are heard. We are establishing regular forums to enable PGRs to discuss any issues or concerns they might have. Where appropriate, these can then be referred or passed to relevant University representatives or committees.

We will be sending regular updates regarding events & other updates.

## Our contact details:

**Email address:** [su-pgr@le.ac.uk](mailto:su-pgr@le.ac.uk)

**Website:** <http://www.leicesterunion.com/groups/postgraduate-research-society>

## The Constitution

### President

The president will organise and oversee the running of the PGR society, chair committee meetings and produce an annual report which will be submitted to the student Union.

### Vice president

The vice president will support the president in creation of the society's overall vision, mission, values and strategic goals. The VP will lead, guide, direct and evaluate the work of other executive members (College reps and course reps).

### Secretary

The Secretary will maintain membership records of all PGR society members and produce agenda documents for all meetings. The secretary will also maintain a written record/minutes of all meetings and keep an up-to-date copy of the society's constitution. If amendments are made, these must be sent to Union Activities to be ratified by the Student Development Officer.

### Treasurer

The Treasurer will be responsible for the finances of the PGR society and maintain an up-to-date record of the society's accounts in addition to the record kept by the SU Finance Office. All funds should be held and processed through the group's Students' Union bank account. No money should be held in personal bank accounts. The Treasurer will submit grant funding applications to Union Activities, produce a termly report and yearly budget and also should submit a detailed statement of accounts for the year to the society's Annual General Meeting.

### The Board (college reps)

The college reps will remit to the PGR committee meetings and feedback the committee (departmental reps) and the student union. They will also organise meetings with their respective PGR departmental reps prior to the PGR committee meetings to receive students concerns that need to be channelled to the higher authorities.

### The committee (Departmental reps)

The departmental reps will remit to the board (college reps). They will attend meetings organised by the college reps to discuss any issues raised from their respective departments and share strengths and weakness each department is experiencing. They will be responsible for organising and promoting socials organised by the society.



**Name:** Richard Mbasu  
**Department:** Cardiovascular Sciences  
**Year of study:** 3<sup>rd</sup> year PhD  
**Position:** Founder and President of the Postgraduate Research Society



**Name:** Ben Richards  
**Department:** Cardiovascular Sciences  
**Year of study:** 2<sup>nd</sup> year PhD  
**Position:** Vice President



**Name:** Ane Martin Anduaga  
**Department:** Genetics  
**Year of study:** 3<sup>rd</sup> year PhD  
**Position:** Secretary



**Name:** Eva Krockow  
**Department:** Neuroscience, Psychology and Behaviour  
**Year of study:** 3<sup>rd</sup> year PhD  
**Position:** Treasurer

# Battle-Scarred: Surgery, Medicine and Military Welfare during the British Civil Wars

The British Civil Wars of the mid-17th Century are often overlooked in history classrooms and television channels, yet they represent one of the most traumatic periods in the history of Britain, killing proportionally far more British than the World Wars of the 20th Century. In an effort to communicate the human cost of the Civil Wars, **Dr Andrew Hopper** and history PhD students **Stewart Beale** and **Hannah Worthen** write about their recent exhibition 'Battle-Scarred', which displays medical instruments and aspects of 17th Century welfare systems.

The British Civil Wars (1638–1652) are considered by many historians to be the most unsettling experience undergone by the British and Irish peoples. Homes were destroyed, property stolen, and women forced to watch as their sons and husbands marched off to war with no guarantee of return. These bloody conflicts marked a change from previous wars as Parliament's concern for the 'commonweal' led to centralised care for the welfare of sick and injured soldiers who had 'suffered in the State's service'. These innovative measures were immensely significant as, for some, they led to improved medical treatment, permanent military hospitals, and a national pension scheme. For the very first time, Parliament publicly assumed responsibility for such matters, signifying an acceptance of the State's duty of care to its servicemen and their families.

Exploring these themes, an exhibition, titled 'Battle-Scarred', has been curated by our team from Leicester's Centre for English Local History led by Dr Andrew Hopper and Visiting Fellow, and Dr Eric Gruber von Arni, at the National Civil War Centre at Newark Museum. It showcases the human aspects of the Civil Wars, reminding us that real people suffered, and that successive governments had to pick up the pieces of shattered livelihoods across the country.

## The civilian cost

It has been estimated that between 180,000 and 190,000 people, including civilians, died from combat and war-related diseases in England and Wales alone between 1642 and 1651, equating to a population loss of about 3% – though the loss in Scotland and



Replica bullet extractor, as used by civil-war surgeons.



The 'welfare' room: one of the four exhibition rooms in the exhibition, Battle-Scarred

Ireland was certainly higher. To put these losses into context, the First World War is generally regarded as the conflict which resulted in the greatest loss of British lives, and the Second World War as the one that had the greatest impact on the civilian population. Yet if the above estimate is even approximately correct, then a far larger percentage of the British Isles' population died as a direct result of the Civil Wars than in the World Wars. The impact of the World Wars was immense, and has continued to resonate through British and Irish society right to the present day. How much greater must the impact of the Civil Wars have been upon the far smaller seventeenth-century populations? Some of those who had suffered were still petitioning for relief forty years later. There are indications that thousands of veterans and civilians were afflicted with mental health problems as a result of the conflict. The impact of this is all too easy to imagine when we consider how British society was traumatised by the psychological legacy of the World Wars.

## Women in the Civil Wars

Not many people today are aware of this, but many women played an active role in the Civil Wars, defending their homes against opposing forces, digging trenches to defend their towns, or else serving as nurses, spies and couriers. Research into the experiences of women whose husbands did not return, reveals harrowing stories of grief and hardship inflicted by the war. Few of these petitions for relief were written by widows themselves, since many were illiterate. Instead, they were often written for them by clergymen, scribes, schoolmasters and members of the parish elite. However, since petitioners had to appear before magistrates in person to corroborate the details of their

**“For the very first time, Parliament publicly assumed responsibility for such matters, signifying acceptance of the State's duty of care to its servicemen and their families”**

petitions, the personal stories within them certainly contain more than an element of truth.

These petitions offer the closest access to the voices of plebeian widows during the mid-seventeenth century. By analysing the language and rhetoric utilised by petitioners, we are better able to assess not only female experiences of war, but also the ways in which women fashioned themselves to appear deserving of relief. This method constitutes what some might call 'history from below', in which those who occupied the lower rungs of society form the subject of research. This is not to suggest that noble women did not find themselves widowed, since men from all levels of society – both rich and poor alike – served and died in the wars.

## Lessons for today

Several thousand petitions survive across England and Wales written on behalf of maimed soldiers detailing how they had survived their injuries but now needed financial support owing to their incapacitation from work. These petitions provide a powerful reminder that the consequences and human costs of war do not end with treaties and peace settlements, but linger on for generations. They also tell us much about how the common people remembered the wars, and articulated their losses and sufferings in the subsequent decades.



Seal of the Committee for Maimed Soldiers, from the collection of Dr Eric Gruber von Arni



Curators Dr Andrew Hopper (left) and Dr Eric Gruber von Arni (right) with the wheelchair of 'Black Tom' Fairfax, the parliamentary commander-in-chief.

Parliament's efforts to provide pensions to the widows and orphans of its servicemen was revolutionary; for the first time the government considered a group of women to be part of the political nation, having shared in the sacrifices made for the 'Good Old Cause'.

Although the Civil Wars were fought over three hundred years ago, many of the questions we are researching still bear relevance to today. Following recent British conflicts in Afghanistan and Iraq, questions concerning the government's treatment of war widows remain just as pertinent in the twenty first century as they were during the seventeenth. People might be surprised to discover that it was only last year that the British government passed legislation entitling the widows of slain soldiers to remarry and still retain their military pensions.

## “Research into the experiences of women whose husbands did not return reveal harrowing stories of grief and hardship inflicted by the war”

### Aim of the exhibition

The 'Battle-Scarred' exhibition builds on a grant from the Wolfson Foundation and dwells on the themes of civil-war medicine, surgery, aftercare and welfare. The exhibition's aims are threefold. Firstly, it hopes to change the public's perception of medical care during the civil-war period. Secondly, it seeks to provide visitors with a small window into the human cost of the British Civil Wars



Speakers from an inaugural conference of the National Civil War Centre on 7-8 August 2015. This conference was organised by the authors. Entitled 'Mortality, Care and Military Welfare during the British Civil Wars' it provided the inspiration for the Battle-Scarred exhibition that followed.

and to consider how the consequences of such wars persisted well beyond the peace treaties and settlements that concluded them. Finally, in the wake of more recent wars in Iraq and Afghanistan, it seeks to encourage visitors to reflect on what we can learn today about medical and welfare practices from our seventeenth-century forebears.

The exhibition highlights the human costs of the catastrophe of Civil War. It focuses on the practitioners and patients, the servicemen and their families, by highlighting the efforts to save human lives during this disaster. It endeavours to challenge a popular misconception that seventeenth-century medical treatments were incompetent and ineffective, that medical practice was riddled with charlatans and quack doctors, and that in an age lacking modern antibiotics, those suffering from infection were doomed. Instead it points to some medical and surgical treatments that were effective, along with the establishment of the first permanent military hospitals by the Long Parliament at the Savoy and Ely House in London, where the patients enjoyed decent diets, laundered clean bedding and the administrations of a professional staff.

## “The exhibition highlights the human costs of the catastrophe of Civil War”

### An interactive experience

If you get the chance, the exhibition includes numerous interactive displays and opportunities to provide feedback, so pay it a visit sometime in the next year. You can remove a musket ball from a model arm, wear a plague doctor's mask, and practise your skills in amputating a soldier's leg! The exhibition includes some stellar items on loan from the Fairfax family, such as the wheelchair that the creator of the New Model Army, Sir Thomas Fairfax used, riddled with his old war wounds, in later life. There are even his boots and cavalry gauntlet, along with a present given him by his deputy, Oliver Cromwell – a water bottle made from the hide of Cromwell's dead horse, and a case which displays civil-war surgical equipment alongside a modern day military kit (demonstrating that, in fact, not that much has changed!)

Within the exhibition there is an interactive display which asks 'Who should take responsibility for the welfare and maintenance of wounded armed service personnel and their dependents?'. Visitors are asked to provide their answer by placing a plastic chip in one of a range of boxes which provide some possibilities. Overwhelmingly, people have chosen to place their chip in the 'Government' box. We hope that, as a result of coming to this exhibition, visitors have understood the significance of military care and welfare as an issue for society in the civil war period as well as in the modern day.



Important items on display in the exhibition related to Sir Thomas Fairfax, Commander in Chief of the Parliamentary New Model Army.

### PhD students Stewart and Hannah's experiences of Battle-scarred

Working on the 'Battle-Scarred' exhibition at the National Civil War Centre provided us PhD students with a unique opportunity to present our research to a wider, public audience. Working within a team of academic advisors and museum staff was a stimulating experience; we were able to see first-hand the various processes of designing and constructing an exhibition.

We both attended meetings at the Centre in Newark over the course of several months as the exhibition went through its various planning stages. This team of academics and museum staff worked together to discuss the initial ideas, themes and aims for the exhibition, where there was a strong emphasis on engaging visitors by linking themes to the modern day. Many of the people in the room had contributed new and exciting academic scholarship to the field of military care in the Civil Wars which in turn informed the content and structure of the exhibition.

The team decided to include a range of panels and objects which would be initially taken on by various members of the team. Therefore, we both had the opportunity to write panel text for the exhibition and to select objects to display. It was an interesting, as well as challenging, experience to construct text that was appropriate for the large range of visitors who attend the museum and to condense all of our ideas into short 200 word pieces.

We were also part of discussions about exhibition planning, and it was fascinating to learn from this very practical aspect; to begin to visualise how the spaces would look once they were filled. On opening night we finally saw everything in its place and were able to share with other guests the first experience of the exhibition in reality.

The exhibition has been supported by one of the University of Leicester's Research Impact Development Fund awards, with evaluation and public engagement co-ordinated by MA students from the Centre for Museum Studies. The curatorial team based at the Centre for English Local History are:

Dr Andrew Hopper, Senior Lecturer in English Local History

Dr Eric Gruber von Arni, Honorary Visiting Fellow

Dr Maureen Harris, Honorary Visiting Fellow

Dr Mandy de Belin, Honorary Visiting Fellow

Stewart Beale AHRC-Funded Midlands Three Cities Doctoral Student

Hannah Worthen AHRC-Funded Collaborative Doctoral Partnership Student (with the National Archives)

# Biotechnology YES:

## Dragon's Den for PhD students

For many PhD students, a PhD is a time to train your scientific skills and build a research base in academia. But, as FRONTIER author **Abisola Sanusi** writes, this is also a good time to discover your entrepreneurial skills with a nationwide competition called the Biotechnology Young Entrepreneur Scheme (YES).

Pursuing a career in academia was something that I largely did not consider. Although I possessed a passionate love of science, I had one large question looming over me. 'Do I want to devote my entire life to this area of study?' The simplest answer was no.

### Careers insight

Upon deciding that a lifelong career in science was not suitable for me, I began researching the graduate schemes listed in the Times Top 100 Graduate Employers list. I took part in a wide range of extracurricular activities during the course of my PhD, in particular the Biotechnology YES competition offered me an excellent insight into alternative career paths. In addition to further developing my transferable skills and how to apply them in a business type environment, it gave me, someone who came from a background in science, an insight into what a career outside research and academia might be.

Because all the participants in my group came from my department, it was very easy and simple for us to regularly discuss our ideas. The University aided us in simplifying our highly complex idea into a more publicly orientated product idea. The product we designed was a fictional novel strain of yeast that allowed bread produced from traditional wheat strains to be safe for consumption by people who are gluten-sensitive. We prepared our presentation and practiced our sales pitch until we were good to go!

### Training up business skills

The three-day Biotechnology YES competition was a fantastic experience. We were given a tour of the Unilever site, observed where ice creams were made, visited greenhouses that housed various teas from across the globe and heard from different employees about their careers in transitioning from an academic background into industry.

What Biotechnology YES did for me went beyond a simple addition to my CV and a short visit to a manufacturing site. In my group, I was the Chief Executive Officer, tasked with the development of a viable financial strategy. This needed to include a balance sheet, a cash flow forecast, and a calculation of the company's Net Present Value. This would enable an equity offer to be made for the company. As the project was unexplored territory, we were presented with a massive challenge.



This experience has proved invaluable, as in every interview I have undergone, there was always a question of my competency asked that linked back to my experience of taking part in Biotechnology YES.

The competencies I developed included 'teamwork', 'communication', 'leadership', 'problem-solving', and importantly persuading others to go with my idea. Discussing the experience became very natural and it eased the pressure of every interview.

After the interviews, I was offered positions within three companies that I applied to, of which I decided to accept a procurement role within a multinational company that sold some of the ingredients we used in our sales pitch at the competition.

### A recommendable time

Reflecting on the experience, I feel that the Biotechnology YES competition played a significant part in the success of my job applications. Whilst certain skills utilised in my new position have been acquired during the years I carried out research, the competition gave me insight into alternative career paths, and also provided me with another set of skills that I hadn't previously had an opportunity to develop.

I would certainly recommend others to take part in the competition, regardless of whether a career in academia is your ideal career path or not, the experience this opportunity provides is invaluable.

**Biotechnology YES**  
UNLEASH YOUR INGENUITY

If you would like to get involved with Biotechnology YES next year please contact Martin Coffey –mgc5@le.ac.uk.

Abisola Sanusi graduated from her PhD in Cardiovascular Sciences in July 2016 from the Department of Cardiovascular Sciences.

# Events

## Upcoming events on the Postgraduate Research Scene in Leicester!



### 3-Minute Thesis Competition

Three Minute Thesis (3MT®) is an academic competition developed by The University of Queensland, Australia. Now used by universities around the world, the University of Leicester is hosting its own 3-Minute Thesis competition for the fourth time in 2017.

Calling research students from ALL disciplines who can deliver a compelling talk on their research and its significance in just three minutes...

**When:**

Spring 2017.

**Where:**

TBC

**For more information see:**

[www2.le.ac.uk/research/festival-2016/3mt](http://www2.le.ac.uk/research/festival-2016/3mt)

### Café Research



Formerly known as Café Scientifique, this event isn't just for scientists, but for all postgraduate researchers! The evening will typically feature three or four researchers from across the University, who describe their research in a manner accessible to all research disciplines. Research student spectators can meet, network and share ideas, over a glass of wine or orange juice. This event is always from 6–8pm on the 1st floor restaurant of Charles Wilson building.

**When (2016–2017):**

November 22<sup>nd</sup>, February 7<sup>th</sup>  
April 20<sup>th</sup> and July 20<sup>th</sup>

**Where:**

1<sup>st</sup> Floor Restaurant  
of Charles Wilson Building

**For More Information:**

[www2.le.ac.uk/departments/gradschool/current/caferesearch/suggestions](http://www2.le.ac.uk/departments/gradschool/current/caferesearch/suggestions)

Jason Wickham [jw646@le.ac.uk](mailto:jw646@le.ac.uk)  
or Chantal Biemann [cb450@le.ac.uk](mailto:cb450@le.ac.uk)

### Thesis Forum

A friendly and welcoming space where doctoral researchers from all disciplines and all stages of the PhD can come together and share their experiences. The forum aims to provide an opportunity for PGRs to troubleshoot and share ideas.

**When:**

The dates for the next Thesis Forum will be communicated.

**For more information:**

William Farrell [wjbf1@le.ac.uk](mailto:wjbf1@le.ac.uk)  
or Chantal Biemann [cb450@le.ac.uk](mailto:cb450@le.ac.uk)



### PubHD Leicester

#### PubHD

Can you explain your PhD in the pub? Once a month three researchers talk about their work in exchange for a free pint. No PowerPoints allowed; only a whiteboard and pens. Come along to learn about local Leicester research or get in touch to take up the challenge!

**When:**

October 11<sup>th</sup>, November 8<sup>th</sup>  
and December 13<sup>th</sup>

**Where:**

Duffy's Bar (Leicester city centre).

**For more information**

please contact Katie and Irene:

Email: [pubhd.leicester@gmail.com](mailto:pubhd.leicester@gmail.com)

Website: <http://pubhdleicester.wix.com/pubhd>

Twitter: [@PubHDLeicester](https://twitter.com/PubHDLeicester)

Facebook: [PubHDLeicester](https://www.facebook.com/PubHDLeicester)

### PhDepiction-Photography Competition

A photography competition for University of Leicester research students, the competition requires entrants to create an image that communicates their research, their findings, and their passion for their subject.

**When:**

20<sup>th</sup> January 2017

**Where:**

Attenborough Arts Centre.

**A call for participants will be coming soon! Watch this space!**



# FRONTIER

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If you want to be part of the team

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