

GRADUATE SCHOOL

Doctoral Research Highlights 2020



WELCOME



**PROFESSOR
DIANNE BERRY**
DEAN OF
POSTGRADUATE
RESEARCH STUDIES

Welcome to our 2020 Research Highlights. As I am writing this, we are emerging from our third national lockdown in England, but our amazing doctoral students have continued to produce outstanding work despite the challenging circumstances of the last year. As you will see from the pages that follow, they have been carrying out some really interesting research.

We have around 1,700 doctoral students, coming from over 100 countries, and working across a breadth of disciplines. This edition highlights just some of the wide-ranging topics they are working on – from soilless potatoes to learning in prison, and extreme weather such as killer heatwaves. You can also read about the origin of Stonehenge's giant stones, as well as an interview with one of our PhD alumni, who is a former Olympic rower and now a business coach and consultant.

I very much hope that you enjoy it.

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LOCKDOWN

During lockdown in England many of our researchers found ingenious ways

Memories of Mining

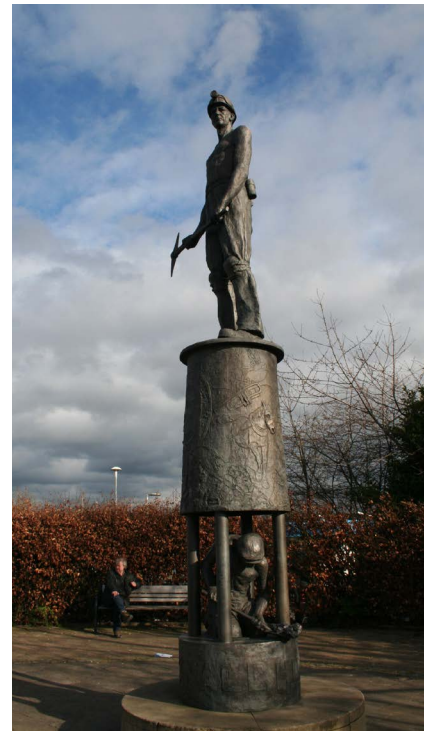
Emily Peirson-Webber's doctoral research is an exploration of masculinity and underground coal mining. Her PhD focuses on the experiences of men working in the British mining industry from circa 1947 until pit closures at the end of the century. She aims to understand why deindustrialisation was not just economically, but also psychologically challenging for many miners. Her methodology combines oral histories, archival research and material culture from mining communities.

Emily provided an insight into her lockdown experience in spring 2020:

Emily Peirson-Webber is a doctoral researcher in the Department of History and her research is supported by the South, West and Wales Doctoral Training Partnership.

"As a result of the pandemic I had to cancel a number of trips around the UK to collect oral histories. In response to this I circulated a call for stories via social media and regional press outlets, to ask if former miners would share their mining memories with me. I have been overwhelmed by the response. So many miners have offered to help, and I am gaining a rich archive of varied perspectives.

The closure of schools and nurseries meant I was juggling my research alongside caring for my two small children. I spent my days doing craft, board games, phonics and numeracy, and my evenings speaking to miners via Skype!"



Human rights and collective interests

The introduction of the UK government's contact tracing programme during the pandemic raised concerns about data protection. The need for collection, processing and even retention of data is vital for the control of COVID-19, but must be linked to key concepts of lawfulness, fairness, accountability, and probably most challengingly, transparency.

Patsy Kirkwood, a doctoral researcher in the School of Law, highlights the many facets of data protection as part of her research, which focuses on the "right to be forgotten" and the use of personal data. She broadly asks the question "should individuals be given more choice over how much of their personal information remains available, particularly online?"

Enforcing the human right to privacy as well as the key principles of data protection have been some of the most contested areas to arise in the pandemic. Many individuals now have a greater desire to be in control of their own data and to protect their privacy, however the state has to balance individuals' rights with the wellbeing of society as a whole. The implementation of the contact tracing programme can easily be undermined by a lack of transparency. Once mistrust arises as to how an individual's privacy or data protection rights are being safeguarded, the ability to obtain the data required to control the pandemic can be compromised.

Patsy Kirkwood is a doctoral researcher in the School of Law.

RESEARCH

to carry on with their doctoral research at home

Soup flask microbiology

Laboratory incubators provide a controlled environment for work with cell and tissue cultures by regulating conditions such as temperature, humidity and CO₂. Incubators are used for many aspects of public health microbiology testing, including the growth, storage and identification of bacterial cultures.

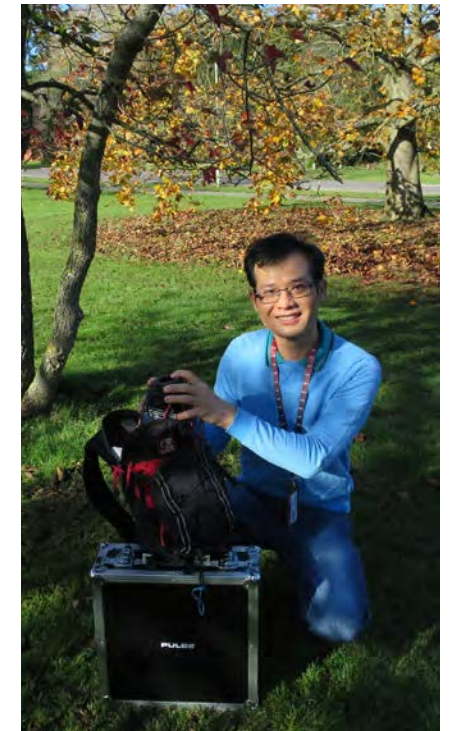
Tai Diep, a doctoral researcher in the Reading School of Pharmacy, is working on a project to develop simpler microbiology testing technology. Tai built a portable incubator at home, from a soup flask, during lockdown in spring 2020.

Tai ordered a soup flask, food jar, suitcase, insulation, heater fan, and some simple

electronic parts online, and along with some bespoke 3D printed components, built the incubator. Using an inexpensive battery pack, Tai showed that it stayed warm when unplugged. When campus re-opened following lockdown, Tai was able to go into the lab and demonstrate that the unplugged flask could stay warm for a sufficient period of time to allow the growth of bacterial cultures.

It is hoped that this portable incubator will be used for microbiology testing in the field. The incubator will allow bacterial growth to start immediately at the source of a public health emergency, resulting in a faster turnaround time in identifying harmful bacteria, therefore enabling a swifter outbreak response.

Tai Diep is funded through a University International Research Studentship



Soilless potatoes

During the first lockdown in England in spring 2020, Dominic Hill, a doctoral researcher in crop science studying drought tolerance in field-grown potatoes, started an experiment in his flat to grow potatoes without soil.

He first became interested in soilless potatoes while writing his literature review, when he discovered the work of a Californian scientist in the 1930s who had developed a method of growing potatoes in a soilless culture. As it became clear that the lockdown was going to put a stop to his work on campus, he decided to try to recreate the scientist's work in an experiment at home. Dominic explains his experiment:

Dominic Hill is doctoral researcher in the School of Agriculture, Policy and Development.

"I purchased parts to reproduce the 1930s model system, which took pride of place on my kitchen window sill where passers-by could revel in the glory of my experiment! Unfortunately, the light available to the plants was limited, and they grew unnaturally long and thin vines as they searched for the sun. So I was shocked to find a single new potato tuber had grown in the soilless substrate. It wasn't much, but it was all the proof I needed to warrant further investigation back in the Crop and Environment laboratory when lockdown was over. I now have 10 plants growing in two soilless substrates, with the aim of investigating the potential of harvesting potatoes in a fully optimised system."

REVEALED: THE ORIGIN OF STONEHENGE'S GIANT STONES

For many years, scientists and historians have speculated about where the large sarsen stones that form the world-famous monument at Stonehenge came from. During 2020, new research from a multidisciplinary team including Katy Whitaker, PhD researcher in the Department of Archaeology, has shown the likely origin of the large upright stones to be a location known as West Woods, which lies to the south-west of Marlborough, Wiltshire. The stones, which provide the supporting framework of the horizontal lintels, are thought to have been erected around 2,500 BC.

The discovery was made by analysing the geochemistry of the sarsens at Stonehenge to obtain their "geochemical fingerprint". This was done partly using portable x-ray fluorescence spectrometry, a non-destructive technology which confirmed that the chemical signatures of most of the stones were very similar, indicating a single main source. Further to this, the team were also able to analyse small samples that were taken from one of the stones in the 1950s and apply a method known as "inductively coupled plasma mass spectrometry".

These combined techniques provided a "fingerprint" that

was then compared with sarsen blocks found in 20 locations across southern Britain to look for a match. A single chemical match with samples found at West Woods confirmed it as the likely origin of most of the Stonehenge sarsens.

Katy, who also works for Historic England, describes her involvement in the discovery. "My role was to suggest new sampling locations in Wiltshire, which included West Woods where I had been surveying. I was part of the team taking rock samples from various sites and I provided historical and archaeological details for the published paper in Science Advances."

"It was exciting to get the results from the geochemical analysis. The area around West Woods has been far less well studied, but it has a rich archaeology and history and is a lovely area to visit. I'm really pleased to have been able to bring a little more attention to that part of Wiltshire, and there's so much more work to do..."

"I'll have a publication on the post-medieval and modern sarsen quarry coming out hopefully in 2021 and I plan to do some wider mapping using Lidar and aerial photographs."

Now the origin of the Stonehenge sarsens is known, the debate about the route of transport to the Stonehenge site can be more specific. What a task – moving 30-tonne boulders across 25km of Salisbury Plain!

The project has been shortlisted for Research Project of the Year Current Archaeology Awards 2021.

[Read the published paper](#) | [Read the associated piece in The Conversation](#)

Katy Whitaker is a doctoral researcher in the Department of Archaeology. Her PhD project is examining the uses of sarsen stone in Britain from prehistory to the present, focusing specifically on sarsen extraction, quarrying, and working. She uses archaeological surveying methods, aerial photography and Lidar, and archive research to investigate quarry sites, sarsen buildings, and the people who worked in the industry. Katy is also interested in art-archaeology and visual communication methods, and draws archaeological comics.



We don't have just ONE IDENTITY

Doctoral researchers and Black History Month

Following the global response to the killing of George Floyd in Minneapolis in May 2020, October 2020 saw an unprecedented programme of events organised across the University to mark Black History Month.

At a staff briefing session in December, Pro-Vice Chancellor Professor Parveen Yaqoob described "an outstanding series of events" which covered "a broad range of topics, high quality discussion and participation from across the University." Doctoral researchers were integral to many of these events, playing a full part in driving discussion of the University's relationship with race.

In a live event that the Pro-Vice Chancellor described as particularly memorable, doctoral researcher Alice Mpfu-Coles joined a live panel debate (*If not now, then when?* 26 October) led by external speaker Rob Neil OBE from the Ministry of Justice. The panel, which also featured PhD alumnus Adeyinka Adewale, debated key areas where the University performs well on race equity and areas where improvement is needed. Panellists recounted personal experiences connected to race and the barriers faced by Black academics. Suggestions for concrete actions included anonymised recruitment, improved support for those reporting grievances and measuring

the impact of race initiatives. Alice, who proposed strengthening the local community's presence on campus, said: "The University is surrounded by a very rich, diverse community. I think it should invest in that community and really encourage people onto campus more. I'd like to see young children, who might never dream of going to university, using the campus and engaged with their local university."

In a series convened by the Gender History Cluster in the Department of History, doctoral researcher Shepherd Mutswiri discussed his doctoral research on women and anti-colonial nationalism in Zimbabwe. His research uses a lens of belonging and social cohesion to

explore how religion, nationalism, and music became intertwined and enabled women to participate in the anti-colonial struggle. Where much of history focuses on political elites and how they mobilise nationalist movements from above, Shepherd stresses "women were not passive observers – they were very instrumental in creating that nationalist message from below." On his own feelings of belonging and identity, Shepherd prefers not to think in single dimensions. "We don't have one identity, so that I am just this one person... we have layers. As a researcher I feel like every time I am in the UK I am exploring something different."

Elsewhere in the University, doctoral researcher Chichi Okagbue co-organised #blackincardioweek, a programme of events and tweets highlighting the work of Black cardiovascular researchers and raising awareness about the risks of cardiovascular diseases in Black communities.



Alice Mpfu-Coles speaking at *If not now, then when?* live panel debate

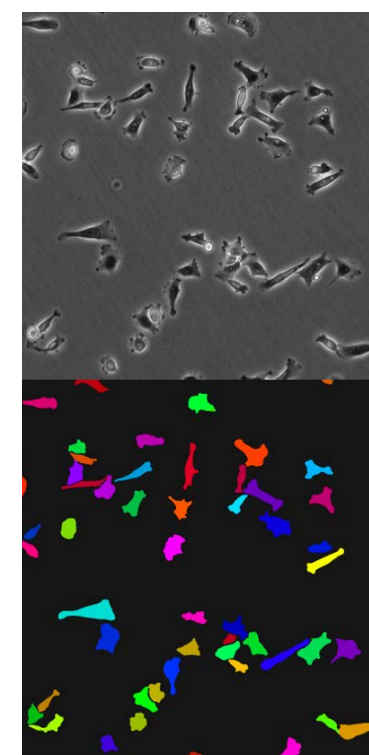


Shepherd Mutswiri discussing his research on women and anti-colonial nationalism



THE AWARENESS SWITCH: a new understanding of how cancer spreads

George Butler, PhD researcher in the School of Biological Sciences



(TOP) A phase contrast time-lapse image of breast cancer cells during migration. (BOTTOM) The output from our computer vision algorithm that we use to quantify the shape of each cell during migration.

Metastasis – the spread of cancer to new sites in the body – is an incurable stage of cancer progression and as a result it is the leading cause of cancer-related deaths. Only a small proportion of cancer cells that try to metastasise eventually form a secondary tumour at a distant site. Identifying what enables these specific cells to successfully mobilise away from the main tumour is an essential first step in trying to combat the spread of cancer.

In contrast to healthy tissue cells, cancer cells are known to lose a sense of contact, they are indifferent to the presence of physically adjacent neighbouring cells. In turn this allows the cancer cells to rapidly grow resulting in the formation of cellular mass known as a tumour.

By applying a combination of evolutionary biology and computer vision technology, we have investigated how the shape of experimentally evolved cancer cells changes during their migration. For the

first time, our research has shown that cells selected for the final stage of metastasis appear to be able to switch on an "awareness" that gives them a unique sensitivity to the location of neighbouring cells. This ability to respond to their environment means that these cancer cells may be able to adapt their shape to navigate barriers like blood vessel walls or other competing cells far more efficiently than other cancer cells in order to form secondary tumours elsewhere.

The findings, **published in the journal Proceedings of the Royal Society B**, may help to explain why some cancers prove more aggressive than others, and could in the future allow doctors to target these "super cells" before they spread. As well as improving our understanding of the spread of cancer, the new methods of computer vision analysis developed by our team could also be used in other contexts, for example to measure the formation of blood clots or track the movements of sperm cells.



THE SOCIAL NETWORK

Theresa Robinson

If you're a female Mauritius fody, the size of your social network can determine how many offspring you have.

Our understanding of extinction began with Mauritius and the dodo. The last sighting of a dodo *Raphus cucullatus* was in 1662, little more than 50 years after the species was first recorded. Despite this inauspicious history, Mauritius is now home to some of the most inspirational conservation success stories of recent decades, and biodiversity there is increasing, bucking the global trend.

The Mauritius fody was one such conservation success story, until the ecological catastrophe of the MV Wakashio oil spill in August 2020.

Fodies are small birds in the Weaver family. Formerly critically endangered, their numbers have increased to around 350 adult individuals due to a species recovery programme implemented by the Mauritian Wildlife Foundation (MWF) and the Government of Mauritius National Parks and Conservation Service. This programme included the reintroduction of fodies onto a tiny islet, Île aux Aigrettes, off the south-east coast of Mauritius. Since 2016, I have been attempting to quantify and explain the reproductive behaviour of the reintroduced population in my doctoral

Theresa Robinson is a part-time doctoral researcher, funded by a Regional PhD Bursary, in the School of Agriculture, Policy and Development. Her research is in collaboration with the Institute of Zoology and the Natural History Museum, and in partnership with MWF.

research, with the goal of making management recommendations to further increase their numbers.

Quantifying the reproductive behaviour of these birds has not been an easy task; the first thing we noted is that, basically, anything goes. Breeding happens almost year-round and some fodies make 8 or 10 nesting attempts each year. Others overlap nesting attempts with multiple partners. Some pairs remain together but overlap multiple nesting attempts. This complex picture of varied and constantly changing reproductive behaviour presented a challenge in how to analyse the impact of these behaviours on the reproductive success of the population – some birds have a lot of fledglings, others have fewer, or none at all.

To unify these behaviours, we developed a new metric: non-breeding time. This is the number of days' difference between the total time available

for breeding within each season, and the amount of time an individual fody is involved in any stage of reproduction. Quite simply, it is a measure of how much time each fody spends not breeding. We have shown that this measure very accurately predicts how many offspring each fody has; birds that waste no time have more fledglings than their peers who waste more time.

Modelling has also shown that environmental factors like droughts and storms, and ecological measures such as territory quality and population density, all influence non-breeding time. Female fodies who are surrounded by a large pool of birds they are familiar with have a shorter time between nesting attempts, therefore increasing the number of attempts per season, resulting in more offspring.

These analyses were in progress on 25 July 2020, when the bulk carrier MV Wakashio ran aground on a reef close to Point d'Esny, about 2km south of Île aux Aigrettes. The ship began leaking fuel oil, and by

16 August, when her hull finally split in two, more than 1,000 tonnes of oil had spilled, and almost all of Île aux Aigrettes' shore was eventually coated in oil.

The MWF trapped and removed some of the adult fodies on the islet; those that remained were breathing air polluted with fumes for several weeks. Some of the birds removed were breeding, and those nests were disrupted; survival of those that remained on the islet may well be reduced. It will be several more months before we can quantify these impacts, and the full picture may not be known for years.

The management recommendations that we now make, based on the results of my research, may be even more vital as we support the Île aux Aigrettes fody population to recover from this ecological disaster. It is hoped that my research will also inform the reintroduction of fodies on more of Mauritius' islets to help ensure that these populations establish successfully.

An article about her research and the MV Wakashio oil spill was featured as the cover story of the British Ecological Society's magazine, *The Niche*, in December 2020.

A PAINT POT IN THE SKY:

meeting points between science and the arts

Doctoral researchers in flood forecasting at Reading stepped across the divide between the arts and science in October in an attempt to bring their subject matter vividly to life, performing a poem dedicated to communicating the wonders of water and forecasting science.

The poem, *Beware: Floods Ahead*, which was commissioned by the University and authored by Dan Simpson, compares the nature of water to paint spilling from the sky over the landscape and colouring the lives of those below, constantly moving and difficult to contain. The fiendishly difficult task of the flood forecaster is likened to that of an artist. Like creative artists, flood forecasters must “find eloquence” to present their science. The poem also tackles the difficulties for science communication of presenting the uncertainty inherent in science, or describing changes in understanding without suggesting that scientists are simply changing their minds.

Professor Hannah Cloke, supervisor of several of the performers, is enthusiastic about the capacity for the arts to broaden public understanding of science. “Art and poetry and music trigger emotional responses and fire up the imagination, and so can really help us understand important scientific ideas, such as flood risk or the climate emergency.” Alongside other creative forms useful for communicating science, poetry has its place, she feels. “Poetry can wrap you up in familiar words and then spin you round, forcing you to consider a topic from a fresh point of view.”

Three of the poetry performers, Maureen Wanzala, Siobhan Dolan and Chloe Brimicombe, spoke about their experiences of using poetry to convey a complex scientific picture and the benefits for both researcher and audience.

Do you feel communicating science to non-specialists is important and why?

Maureen Wanzala: There are technicalities associated with each field and science is no exception. Making science relevant to wider audiences, including non-specialists, is important.

Chloe Brimicombe: Communicating science to the public and to policy makers allows us to make a positive impact on people’s lives, either by providing evidence for policy change or by educating people.

Siobhan Dolan: There is power in knowledge, as well as passion and beauty. Imparting the knowledge produced by our research to non-experts can show them the beauty of the field, or help them find their own passion for the subject.

Did the experience teach you anything about how to communicate science to non-specialists?

Maureen Wanzala: I learned how to connect with my audience through expressions and emotions, how to use concrete illustrations that link science to day-to-day life. This was quite useful.

Chloe Brimicombe: It’s important to have a few clear messages to effectively communicate your research area. This is especially true for really complicated methods like forecasting.

Siobhan Dolan: I thought that science communication, though it can be creative like poetry, should still be disseminated through writing and reading. I didn’t really give live performance a thought.

Do you think the arts benefit from a direct engagement with the complexities and wonders of science?

Maureen Wanzala: In so many ways. The complexity of a scientific process can be expressed well in a work of art.

Chloe Brimicombe: There’s mutual benefit. Science opens up creative avenues while art engages a wider audience with science.

Siobhan Dolan: There’s been a long period of tribalism between different subjects, leading to a view that some are more valuable than others. When we work together the value of both can be seen.

Is poetry performance difficult?

Maureen Wanzala: (Laughing)... You ought to have seen my face whilst performing the first time! It was not easy. It requires confidence and you settle in only after you connect with your emotions.

Chloe Brimicombe: It’s hard to project your voice and sound convincing and enthusiastic. This is especially true on a cloudy day in autumn, when you are pretty sure it’s about to rain on you! The weather really reflected the themes of the poem.

Siobhan Dolan: You need to find a rhythm and connect with your feelings in order to perform – and this is difficult when you’re feeling nervous.

What do you personally feel is the most beautiful thing about water or flood forecasting?

Maureen Wanzala: Water, and particularly water in motion, is breathtaking. But it can also be stressful if we don’t understand its nature. Flood forecasting can save lives and help people understand that while we may not have control over nature, we can live with its changing course.

Chloe Brimicombe: I find most beauty in the passion people bring. They are dedicated to sharing the complexities of water and flood forecasting in the most informative and engaging ways.

Siobhan Dolan: The most beautiful thing about flood forecasting is its impact on communities. There is so much trauma surrounding flooding and any relief to that is wondrous. Water is a powerful entity and deserves our respect and awe.

The performance can be seen here or read the full poem on the following page

PhD poetry performers: Maureen Wanzala, Siobhan Dolan, Chloe Brimicombe, Sazzad Hossain, Fatima Pillosu, Ervin Zsoter (Department of Geography and Environmental Science), Gwyneth Matthews and Sifan Koriche (Department of Meteorology).

BEWARE: Floods Ahead

Dan Simpson is the author of the poem *Beware: Floods Ahead* and two collections of poetry, *Applied Mathematics* and *Totally Cultured* (Burning Eye Books).

*If you've ever had to carry a full bucket
balancing the sloshy forcefulness of its contents
or poured out a bowl after doing the dishes
only for it to leap up and splash down your front
or accidentally displaced waves over the edge
after what you thought was gently slipping into a hot bath:
then you know how easy it is to lose control
of water –
as if we ever had any ownership
of that fundamental element.*

*The natural state of water is movement
a constant cycle from earth to air
and back:*

*it flows, fills up as much space as it can
and does not like to be confined
contained into convenient shapes.*

*We live with a paint pot suspended in the sky
ready to empty itself onto the canvas of the land
and change the colour of our lives.*

*Flood researchers are more like artists than you might think
and they find eloquence to describe their science
here, look at this ever-changing picture:*

*fluid dynamics
atmospheric systems
air currents*

*we have robust mathematics to describe it
but like an abstract painting
we can't understand the whole picture at once.*

*There are known details:
that red cluster of discrete points
which we might, hesitantly, call
facts*

*giving way to a wild spattering of green
which we definitely name
possibilities
brush strokes by the hand of an algorithm
each fine hair a modulating strand of data.*

*Churning lines of information
in vivid colours moving across a screen
modern art exhibited in a contemporary gallery
declining pressure
the spin of cyclone
wedge of stormfront
catches and holds the eye*

*destroying the ordered edges of
buildings, roads, fields, lives
paint bleeding over the borders
a picture not contained
by a frame.*

*Science is a best-fit model of complexity
an artwork of interpretation
used to challenge and change the viewer
a scientist's audience is, ultimately, us:
the public and the policy-makers who decide what to do
seeing the bigger picture they present.*

*There isn't one way to interpret art.
There are many ways to live with floods.*

*We, creative beings that we are, invent new words
to name the things we wish to understand:*

*'floodiness'
for example
which is ungainly
beginning with a fling of limbs
before landing with a dull thud
picking itself up immediately
then sliding forwards
making awkward progress.*

*The word breaks the barricades of existing language
disrupting the rhythm of speaking
easy to slip over it
bloody your tongue
washing away entrenched ideas:
artificial barriers may not be the best technique
to hold back the volume of water
we have to live with.*

*We can change the course of our set-in-our-ways approach
as we can change the courses of our rivers' flow
create a more natural response to flood management
as we can create saltmarshes to protect our coasts
we can make space in ourselves for displaced ideas
as we can make space in the soil for displaced water.*

*We love to get our hands dirty:
we are both scientists and artists
able to interpret and influence
the landscape cannot be fixed with solutions
flooding is not a static picture to be hung up and ignored
but rather one to paint ourselves.*

LEARNING IN PRISON

UNLOCKING
POTENTIAL

In late 2019 Xander Ryan, a sessional lecturer studying for a doctorate in English Literature, began a three-month voluntary placement with the Prisoners' Education Trust (PET) to create two short distance learning (DL) courses focusing on study skills for prisoner learners. PET is the UK's leading prison education charity and enrolls thousands of prisoners on DL courses every year. The placement was made possible by Arts and Humanities Research Council support and administered via the South, West & Wales Doctoral Training Partnership.

This placement was Xander's first insight into prison education, and he devised the project in collaboration with PET's Welsh Prison Project Team. One of the objectives of the placement was to allow Xander to expand his doctoral, professional and personal transferable skills away from his day-to-day thesis research at the University.

Xander shadowed PET staff on visits to Her Majesty's Prisons (HMP) Cardiff and Prescoed to meet with prisoner learners, consult them on what learning in prison is like and find out what they would want to gain from DL courses. These visits gave insight into the organisational and personal challenges of studying in prison,

and also illuminated the excellent work done by prison staff in underfunded education departments.

The prisoner learners he met in HMP Cardiff and Prescoed ranged widely in age and background, but they all shared a desire to learn, make the most of their time inside, and increase their ability to build a new life after release.

Xander decided to develop courses in two subject areas popular with prisoner learners: construction, and sport and nutrition. After some time familiarising himself with existing course materials and textbooks in these subject areas, and drawing on his study skills built up over successive degrees, Xander produced two 60-page short course textbooks. The courses were piloted in a handful of prisons and then rolled out to prisoner learners during the COVID-19 pandemic.

Each course was designed to take five hours and provide learners with a short burst of mental stimulation. The DL study skills and entry-level information covered in the courses should help prisoner learners clarify their future educational

aspirations and prepare them for further study. Importantly, during the ongoing pandemic and the resulting 23-hour-a-day cell lockdowns, the courses helped prisoner learners widen their horizons and find a sense of achievement in challenging circumstances.

Xander says, "It was a challenging and fulfilling placement, and I think it was a really valuable part of what I achieved during my PhD. I was inspired by the prisoner learners' commitment to improving themselves and using education to transform the most difficult of circumstances. It was a privilege to participate in the excellent work being done by PET. I hope these courses will help prisoner learners to develop their study skills and gain confidence, and act as a stepping stone to further qualifications in the future, especially when many have had negative experiences of education previously."

Xander has recently been awarded a Centre for Book Cultures & Publishing Early Career Researcher Fellowship for his project on the publishing history of Dorothy Richardson's *Pilgrimage*.

This article is an adapted and edited extract of "**A taste of distance learning: writing short courses for PET**" published online on the Prisoners' Education Trust Blog in July 2020

The UK has a MORAL RESPONSIBILITY to PROTECT REFUGEES crossing the Channel



The UK's alarmist response to refugees arriving across the Channel is unjustified and the country instead has strong moral duties to protect such refugees, argues Bradley Hillier-Smith, doctoral researcher in the Department of Philosophy. In an article published in *The Independent* this year (*The UK has a moral responsibility to protect refugees making the dangerous journey across the channel*, 10 August 2020), Bradley outlined the problematic nature of the UK's reaction to the situation.

Financial support from the UK has contributed to a hostile and dangerous environment

He argues that the UK government over-inflates perceptions of the refugee

flow in a way that fails to reflect the real proportion of global refugees arriving in the country. Bradley references the fact that 85% of the world's refugees are hosted in developing countries, and Lebanon in particular, which hosts nearly one million refugees, despite being a similar size to Wales.

A key ethical issue in the UK response, he writes, is that the UK has invested millions in funding a section of the French riot police in the region surrounding Calais: the *Compagnies républicaines de sécurité* (CRS). Reports show that the CRS uses intimidation and **violence** against refugees in the area, and has "**engaged in prolonged beatings**" involving rubber and water cannon on adults and even children. This financial support from the UK

has contributed to a hostile and dangerous environment in northern France, and coincides with the failure of the UK to provide a safe route for claiming asylum in the UK: "This situation compels people to make dangerous journeys to seek adequate safety, and also leaves refugees with no reasonable alternatives but to risk their lives on perilous journeys across the channel." A more ethical response, Bradley argues, would require the UK to provide a way for refugees to access asylum in the UK in safety.

"My PhD research concerns understanding ethical responses to refugees," Bradley commented. "This article enabled me to put my research into action by arguing for a change in UK policy towards a more ethical standard."



REDEFINING SUCCESS: an interview with Dr Cath Bishop

Former Olympic rower, senior diplomat and now business coach, consultant and author.

Unlike many professional athletes, Cath wasn't set on becoming an Olympian from a young age. It wasn't until she was at the University of Cambridge that some friends invited her out onto the water when one of their team members was injured. After that, she fell in love with rowing.

Studying at Cambridge around the time the Berlin Wall came down, Cath became passionate about German studies. She then chose the University of Reading for her PhD because of its Centre for East German Studies, and also because the national rowing squad was based near Reading.

"My PhD was about German authors who had written about the Berlin Wall coming down in their literature. I was so delighted that I had found lecturers and a dedicated centre that was looking at how literature, sociology and politics are all combined, and how this political event and very personal experience for so many people was expressed through fiction. I absolutely loved it."

While at Reading, Cath was selected to represent the Great Britain Rowing Team. "I did my PhD part-time over five years. During that time I went to the Atlanta Olympics in 1996, and just after I finished my PhD I went to the Sydney Olympics in 2000."

After winning an Olympic medal for Team GB, Cath went on to work as a diplomat for the Foreign Office for 12 years.

"My PhD helped me to connect with culture at a deeper level, and to understand how politics and cultural behaviours are part of the complex picture that people bring to a political negotiation."

Cath is now a renowned and respected leadership speaker, business coach and consultant. She supports organisations who want to build effective teams, enable cultural transformation and develop effective leaders. With the importance of winning being so engrained in today's society, Cath believes we need to make changes.

"In the twenty-first century we are facing complex issues of climate change, inequality and global health. These aren't things that you win or lose – they are ongoing things for us to manage and to think about in a different way."

Cath believes that we should start by looking at the educational and political systems, and the underpinning purpose of business.

"Team-working skills, creativity, innovation and resilience should all be incorporated into education, to ensure we're developing citizens capable of contributing to society."

Dr Cath Bishop completed her PhD in 1999, and in October 2020 she delivered an online Alumni lecture at Reading around the themes of her new book *The Long Win: the search for a better way to succeed*.

Read her full interview with our Alumni and Supporter Engagement Team

EXTREME WEATHER

2020 will no doubt go down in history for the COVID-19 pandemic. However, another killer struck as a result of our changing climate – deadly extreme weather.

Heatwaves: an invisible killer

Chloe Brimicombe, a doctoral researcher in the Department of Geography and Environmental Science, studies heatwaves.

In August 2020, the UK saw the longest stretch of daytime temperatures above 30°C since 1976, as well as the hottest August day (36.4°C). One of the biggest impacts of heatwaves is overheating. Overheating currently occurs in 20% of UK homes in a normal summer, the same number at risk of flooding, and can lead to potentially fatal heatstroke. However, there is currently no building legislation for adaptations to prevent overheating in homes. Heatwaves also affect infrastructure: railway tracks buckle and bridges sag – the Hammersmith Bridge in London was closed to pedestrians after cracks in the structure worsened following the 2020 heatwave.

Since heatwaves are not something we can see or touch, they are an invisible killer. Approximately 2,500 people died as a result of the heat during the 2020 heatwaves. Many of these deaths occurred amongst

the most vulnerable, such as the elderly and those with pre-existing health conditions. For every 1°C above a daily average temperature in the summer months, the UK currently sees a 2% rise in the annual death rate in the overall population. Climate change is projected to raise average temperatures in the UK by 5°C by 2070, making heatwaves the norm for future summers, which will have public health implications. However, heatwaves do not currently carry a Met Office weather warning like rain, thunderstorms, wind, snow, lightning, ice and fog do.

Heatwaves killed around 80% more people in the UK than floods during 2019. Despite this, the amount of attention and funding into heatwave research and policy making is low in comparison to flood and coastal defence funding. As extreme heat becomes routine, we must adapt our homes and infrastructure to cope better with high temperatures and expand heatwave research and policy making to reduce the death toll.

Chloe Brimicombe was lead author on an [Environmental Science & Policy research paper](#). Her findings were reproduced in [The Conversation](#).

Flood forecasting: early warnings in Bangladesh

Flooding is a phenomenon that can cause severe loss of life, livelihood, and damage to property. Early warning plays a key role in reducing flood risk if forecasts are properly communicated to flood vulnerable communities well in advance.

Flood forecasters consider three important questions: when will flooding commence, how long will it last and will there only be one flood or many flood waves? The Global Flood Awareness System (GloFAS) team from the University of Reading and the European Centre for Medium-Range Weather (ECMWF) are working with the Bangladesh Flood Forecasting and Warning Centre (FFWC) and humanitarian partners to improve flood early warning by answering these questions. As part of this research, Sazzad Hossain, an international doctoral researcher in the Department of Geography and Environmental Science, is investigating the ability of GloFAS to produce accurate forecasts to identify the onset of flood events and their probable duration.

You can read more at [“Monsoon flooding in Bangladesh: how forecasting can help protect lives and livelihoods”](#) in the University of Reading press release, November 2020

During the 2020 monsoon, Bangladesh experienced two devastating flood waves with more than 5 million people affected, 41 deaths and tens of thousands of people, along with their cattle, evacuated from low-lying areas to flood shelters. These two flood waves were correctly predicted by GloFAS in terms of onset and duration 10 to 15 days ahead of the actual floods. The predicted forecasts were communicated to the Cabinet of Bangladesh and community stakeholders, with national media broadcasting early flood warnings to residents.

In-depth investigation of the GloFAS's forecast skills on previous flood events is currently underway using historical reforecast data for the river basins in Bangladesh. It is hoped that this research will result in improved flood forecasting that will benefit millions of people in Bangladesh.



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