The Postgraduate

Issue 9, Spring 2015

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BACK AND FORTH: GEOGRAPHIES OF THE PAST, PRESENT AND FUTURE

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EDITORIAL




Past Present Future

Given the theme of this, the ninth edition of the Postgraduate, it is perhaps appropriate to begin by mentioning the past, present and future of this publication itself. Once again the guard is changing, as we say a fond goodbye- or perhaps that should be adiós- to Cordy, who is passing on the baton of editorial responsibility as she approaches the end of her PhD. We would like to thank her for all her of hard work, especially as she has managed to contribute so much to The Postgraduate without being based in Nottingham for much of the time that she has been an editor, isolated as she has been in the wild borderlands of Chile and Suffolk. We welcome Liam onto the team as our new editor, and look forward to a bright future based upon the strong foundations we have inherited.

This issue is as ever jam-packed with articles, conference reports, fieldwork reports and recipes, with the topics varying from forestry, through international politics, biogeography and extreme weather to changes in algal communities over time. There really is something for everyone! Many thanks to all of those who took time out of their busy schedules to contribute, The Postgraduate would of course not exist without your contributions. If anybody has an idea for an article which they would like to write or even a theme for a future issue, then please do get in touch.

The editors,
Mark, Cordy and Tracey

Mark Lambert in Edinburgh

Fieldwork

In early February, I visited the National Records of Scotland in Edinburgh in order to view a selection of archival documents relating to my topic- railway heritage and preservation since the Second World War- which are not digitised or available elsewhere. The National Records of Scotland are based in the rather grand classical surroundings of General Register House at the east end of Princes Street, which as it turns out is one of the oldest purpose built archives that is still in use today. It was designed by Robert Adam and construction started back in 1774, although there was a six year gap in proceedings after the money run out, during which time the half-built structure was derided as the 'most magnificent pigeon house in Europe'. I had not anticipated such grandiose surroundings- the building even has a rotunda (which appeared to be a somewhat underused space) - and it certainly made a change from my two regular archival haunts, the National Archives in London and Search Engine at the National Railway Museum in York, both of which are more modern, airy spaces. Perhaps inevitably, there are plans to shut General Register House down and move the archives elsewhere in Edinburgh, seemingly into an inconvenient location and a soulless building.

Sigh

For five days I became acquainted not just with the correspondence which I had come to read but also with the archives themselves. The desks at which I worked were themselves located inside a wooden-walled room with an ornate ceiling, hidden behind a thick closed door which hardly encouraged entry the first time I encountered it. That most important of establishments, the cafe, was located in a separate building at the back- New Register House, which was completed in 1858. It sold an interesting range of pastries, including something called a bridie which I had never come across before. Goodness only knows what was in it, but it was rather nice. And of course, this being a cafe in Scotland it was well stocked with Irn-Bru. I also became acquainted re-with the city; I have had visited three times before) and my hotel was only a couple of buildings along the road from the former British Railways Scottish Region offices, a place which was thus referred to in many of the documents which I viewed. British Railways sold the building in the early 1970s and it is now the Apex Hotel. The city is unfortunately populated by perhaps the highest number of homeless people I have ever seen, who make an uncomfortable juxtaposition with the bright shop fronts of Apple, Barclays and the rest.

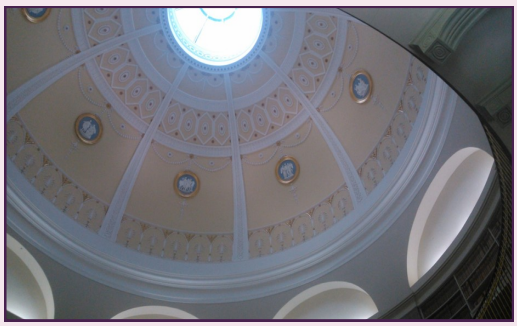
My time in Edinburgh was to some extent marred by niggly mistakes, failures and ill-advised decisions, most of which were on my part. I stupidly failed to place orders on the computers at first- I thought that I had done so, but it took until around the third day before I realised that my orders hadn't been completed as I had failed to press 'go'. Oops (at least I noticed before I left...). I read and photographed too quickly, thinking that I would run out of time, and in hindsight probably didn't look at some things in enough detail and ended up almost twiddling my thumbs towards the end of the five days. I ordered some things which weren't very useful, and failed to order something

Fieldwork

Mark Lambert in Edinburgh

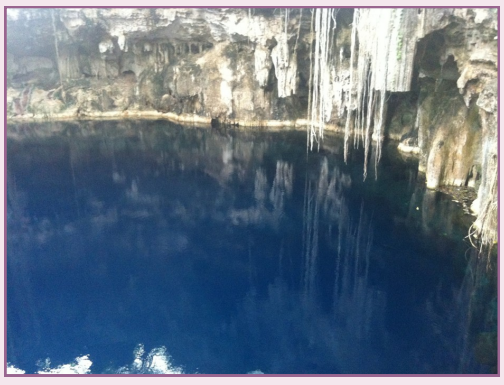
else which would probably have been much more relevant. I drank far too much coffee, yet twice failed to visit the Deacon's House café, through turning up too late or too early. And then there was that encounter with the worst blueberry muffin in history, though that at least was more of a mistake on the part of Cafe Nero than myself.

Nevertheless, the records I which I did view were useful not only in terms of extending the geographical purview of my research into Scotland- thus helping to fulfil the theses' brief of focussing on British railway heritage as a whole- but also in terms of documenting processes which must have taken place throughout the UK but which, for reasons now lost in the mists of time, survive in the material record only in Scotland. Correspondence from the late 1950s and early 1960s involving John Scholes, Curator of Historical Relics at the British Transport Commission and later the British Railways Board from 1951 until 1974, fell into this latter category. He corresponded with H.M. Hunter, the Public Relations and Publicity Officer for British Railways' Scottish Region- who was his 'point of contact' in Scotland- about the preservation, or the potential preservation, of a variety of different objects, from an illuminated sign at Edinburgh Waverley which, as it turned out, had long since been dismantled, through to ceremonial spades (used to cut the first sod of earth at the openings of particular lines)- one of which had to be brought back from a jeweller who had acquired it at auction- and items of rolling stock. Quite why it was deemed necessary to keep such minutiae is a mystery in itself, yet they provide a fascinating insight into the processes of railway preservation which played out at this time. And beyond these purely academic reasons, the adventure of visiting Edinburgh- getting up at silly o'clock on a Monday and hearing the Song Thrush's strident song as I walked to the bus stop, wheelie suitcase in hand; tasting the grapefruit flavoured San Pellegrino for the first time in the upstairs cafe of Jenner's, Edinburgh's major department store, whilst overlooking Princes Street gardens at sundown; visiting and working in such a beautiful building; and of course unwrapping and opening the archival documents which I had ordered, like the proverbial child on Christmas Day- was a reward in itself.



Betsa de la Barreda in the Yucatan Peninsula

My research topic endeavours to analyse droughts in the Yucatan Peninsula in Mexico (my home country). I went there as part of my fieldwork and I found it to be a very interesting experience getting to know an area of my own country which I thought I knew to some extent, but after 10 days travelling around the Peninsula, I realised that I actually knew very little and every day there was something new to surprise me. I realised that is a stunning area in Mexico due to the combination of extraordinary nature and culture. The Yucatan Peninsula is located in the southeast of Mexico and is a worldwide well-known tourist destination, the most renowned places are Cancun, Playa del Carmen and Tulum; these places are famous for being in the Caribbean and for their spectacular beaches, as well for the big resorts they have. Despite the beauty of the Caribbean in these places, the Yucatan Peninsula has so much more to offer, it was home for the Maya civilization and it is easy to find pre-Hispanic ruins along it. It also has very diverse ecosystems, from the tropical dry forest to tropical evergreen forest. The change in vegetation types was one of the things that impressed me the most during the trip. The main goal, besides getting to know the study area, was to measure vegetation spectral signatures following these changes in vegetation from North to South. On my way from one place to another, I found some natural wonders such as the cenotes. Cenotes are sinkholes resulting from the collapse of limestone bedrock that exposes groundwater underneath and they were the main source of water for the Mayans and remain the source of water for many villages. As a Mexican, the Peninsula has certain features that I find desirable: 1) biodiversity and landscapes; 2) culture; 3) food; 4) amazing weather; and no less important, especially in the country's security plight, 5) it is the safest place in the country.



Conferences

International Biogeography Society

Joseph J. Bailey

Earlier this year, between the 8th and 13th of January, I was in Bayreuth, Germany, attending the International Biogeography Society's (IBS) seventh biennial meeting. More than 600 people from over 50 countries attended, comfortably making it the largest conference I've been to so far.

I presented a poster with some preliminary results from my PhD. I was a little unsure about doing this 1 year and a bit in but I received some very helpful feedback and much appreciated support for the ideas and approach regarding incorporating geodiversity into biodiversity modelling. The poster — in combination with going to a talk by a chap from Amsterdam whose group have also started studying geodiversity in biodiversity modeling — resulted in some great contacts, and probable collaboration.

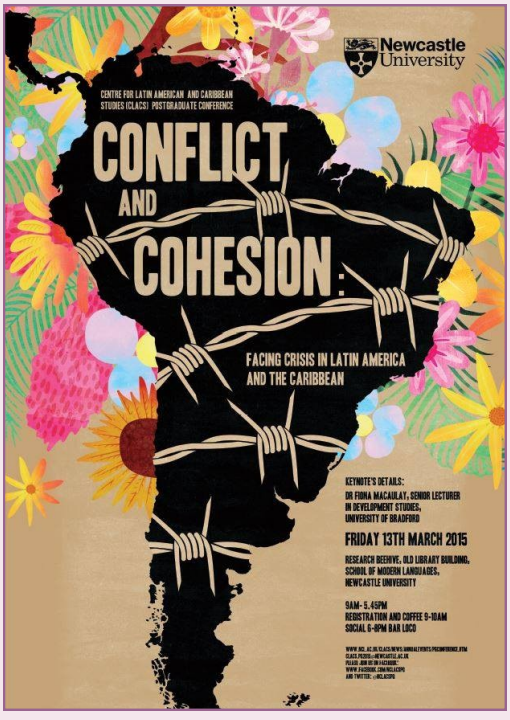
As well as the talks and other formal elements, the conference's organisers also offered the chance to go on pre- and post-conference excursions around Franconia. I did not pass up on these! Before the main conference started on the 8th, I went on a tour of some of Alexander von Humboldt's historic field sites: he developed much of his work whilst in Franconia in the late 18th century. It was pretty chilly and there was a lot of snow on the ground but the excursion and conference organiser, Carl Beierkuhnlein, had some of his students set up a table with coffee in a cave up in the hills! It was a very memorable experience and a much appreciated gesture amidst the cold and snow. The trip after the conference saw us visit some sites of special biological and geological interest in the region. These excursions were more useful than I had expected in terms of meeting new people, alongside exploring beyond the confines of the host city.

An abandoned bike (?) in a nature reserve visited as part of the pre-conference excursion on Jan 8th

Essentially, I would completely recommend to anyone to go to conferences (of any size; small UK-based ones are incredibly useful, too, from experience) as early as possible because, even though I had very little in the way of results (and interpretation!), potentially life-long links were established and comments received by many will no doubt add positively to my PhD research over the next couple of years.

CLACS Postgraduate Conference

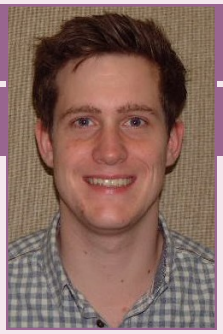
Cordy Freeman



On the 13th February I attended the Centre for Latin American and Caribbean Studies (CLACS) Postgraduate Conference at Newcastle University with the theme 'conflict and cohesion'. It was a fascinating day-long conference covering a vast number of topics from male lovesickness in Dominica, to uses of social media in protesting the disappearance of 43 students in Mexico, to understanding graffiti about violence in Colombia, to framing teenage motherhood in Brazil. My paper was the only explicitly historical perspective, telling the story of the almost-war between Chile and Peru in the 1970s.

I enjoyed this conference so much due to it being small, for postgraduates, and interdisciplinary. It created a really welcoming and friendly atmosphere with supportive comments and engaging discussions. I found it helpful to be around other Latin Americanists who understood the challenges and rewards of conducting fieldwork on the continent and who were bilingual or multilingual. We even had a Latin themed lunch and went to a Latin bar afterwards to socialise and unwind which were great touches. The fact that it was an interdisciplinary conference gave an interesting and rewarding blend with papers about literature next to one from a business student, alongside sociologists, with of course quite a few of us geographers thrown in. I think we all benefited from seeing things from different academic viewpoints and widening our own perspectives. For all of these reasons I would strongly recommend other postgraduates to attend these smaller, interdisciplinary conferences where you can meet and share knowledge with other students from so many different backgrounds.

Conferences



Developing a MOOC

Wil Knight

The potential development of shale gas through the process of hydraulic fracturing, more commonly known as 'fracking' has become one of the most controversial energy topics of recent years and has divided opinion.

The United States has been developing shale gas at an enormous rate for the past decade and in 2013 produced 11.4 trillion cubic feet of shale gas, equivalent to four times the total annual consumption of natural gas in the UK. This huge upturn in development has brought economic benefits to the US, landowners who lease their land to shale gas developers have become very wealthy and the US is expected to become a net exporter of natural gas by 2018 providing energy security and bringing further economic gains.

This development has, however, come with evidence of environmental impacts. In the US a small number of the shale gas wells drilled in Pennsylvania have been shown to leak impacting on air quality and causing ground water contamination. In the UK shale gas development got off to a shaky start with the well hydraulic fractured in Lancashire, 2011 causing two earth tremors.

As part of the public perceptions of shale gas research team I helped to build a Massive Open Online Course (MOOC) – Shale Gas and Fracking: the Politics and Science. The course ran over four weeks in February and incorporated a range of learning material from videos and animations to discussion forums and lectures. The research team provided a balanced introduction to the key themes of shale gas development including geology, energy security, regulation and environmental considerations, with stakeholders and external experts providing viewpoints on the debates.

We had excellent engagement and discussions with the students taking the course. Over 9100 people have signed up and we've had over 27,000 comments on the course material which was a brilliant level of engagement. The range of views and experiences from students has also been very diverse with many combinations of how shale gas may, or may not, fit into global and national energy mixes.

Building and running a MOOC was an amazing and enjoyable experience in teaching, engaging and learning with students on the course, and in considering the complexities of this contentious energy source.

Aquatic Sciences Meeting in Spain

Sarah Roberts

In late February several of us palaeolimnologists and palaeooceanographers (including George Swann, Suzanne McGowan, Heather Moorhouse and Mark Stevenson) attended a conference held in Granada, Spain. This was the international meeting of the Association for the Sciences of Limnology and Oceanography (ASLO), which attracted over 2,500 aquatic and marine scientists this year and provided over 100 sessions.

George Swann was one of the convenors for a very interesting and apt session for me on "Recent Ecological Change in Ancient Lakes". Here I had the opportunity to present some of my limnological work from Lake Baikal, alongside both George and Suzanne who presented Ginnie's silicon isotope work and the sedimentary pigment profiles respectively. Heather and Mark also presented their PhD research, and this was a fantastic conference for us all to attend together.

One other thing, which made this ASLO meeting so great, was that so many of the organised sessions and talks each day were relevant to our research interests. I definitely got a lot out of this conference, and enjoyed discussing my work with other lake scientists.

Some of the highlights of this conference for me, alongside the "Recent Ecological Change in Ancient Lakes" session, were visiting the Alhambra (a palace built in the 9th century with incredibly ornate Islamic architecture, which is now a UNESCO World Heritage Site), eating tapas during the siesta breaks and attending the closing Banquet at La Mamunia with Heather and Mark. I really enjoyed this conference and the overall experience of staying in Granada was wonderful!

Comment & Opinion

This edition's theme is 'Back and Forth: Geographies of the Past, Present and Future', and although the title caused a bit of a headache for the editors (who knew what they meant, but were worried no one else would!) we were delighted when some wonderful and interesting articles started rolling in that were right on theme. Joe Bailey kicks us off with his insights on a fascinating book he is reading; that I am sure will have many of asking to borrow it when he is done. Jeremy Rison reminds us of our close relationship with forests, and our responsibilities towards them, both now and in the future. Heather Moorhouse reflects on her three and a half year relationship with algae, and how much it can tell us about climate change – ending with a cautionary note for all! An eely interesting article about the Fens is provided by Tracey Mooney, while Lucy Veale explains how research in our very own department is generating new understandings of the relationship between the past, present and future. Ibrahim Gumel takes us on a journey through space and time to witness the birth of a city, and Liam Clark discusses historical flooding and future risk. Finally, Ben Thorpe gives us a peek at an entirely different future altogether... Hopefully something for everyone...enjoy!

Natural Historians Through Time

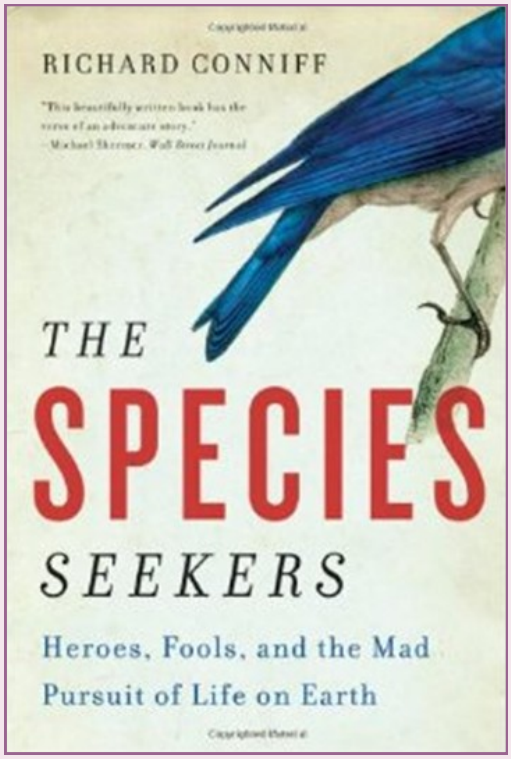
Joseph J. Bailey

"... these naturalists were often caught up in the business of conquest and colonisation, using natural history as a tool both to advance their own careers and to remake the world on European lines" (p. 56, The Species Seekers).

I'm currently mid-way through reading a fantastic book (1) called The Species Seekers, by Richard Conniff. It's all about people who, for hundreds of years, have found themselves in extraordinary (and often fatal) situations in the pursuit of new species. One of my favourite examples of such commitment to this cause comes at the very start of the book where Conniff discusses a Napoleonic French colonel who, in 1809, just before a cavalry charge into the Spanish lines, dismounted his horse to collect an unknown beetle (he was a coleopterist). He stowed the mysterious species in his helmet for study after the battle. Despite his helmet being badly damaged and many of his men being killed, he and his new beetle species, which he named *Cebrio ustulatus*, miraculously survived.

Whilst most naturalists were in the process of discovering new species for the sheer excitement of discovery and/or financial gains (many benefitted from the sale and exhibition countless species, including holding events in Victorian times where everyone stood in a ring to be electrocuted by an electric eel!), these natural historians paved the way for the science that we now often take for granted. They gave way to the theory of evolution and, especially as more and more fossils were uncovered, they formulated a popular appreciation for the sheer timescales involved in the development of the life that we see on Earth today. It also forced people to come to terms with the idea of 'extinction', rethink the notion of 'progress' and the possibility of life on Earth before humans, and consider how extinction fitted into God's design. Therefore, whilst many of these early 'species seekers' used their newly -discovered specimens (extinct and extant) "to glorify God by celebrating his Creation" (p. 4), for many it undoubtedly brought into question the very origins of our own species in a world where we were becoming ever decreasingly unique. Indeed, as species' skeletons and physiologies were compared to humans, many began to doubt our exclusive place in the order of life, thus guiding society to its present beliefs and understandings.

The Species Seekers is full of fascinating stories of exploration, discovery, and debate, ranging from tales surrounding Carl Linnaeus when he was trying to establish his now ubiquitous taxonomic system of binomial nomenclature, to Thomas Jefferson's use of gigantic fossils against Georges-Louis Buffon's "theory of American degeneracy" in the 18th century. Indeed, natural history has played a huge role in the lives of many people and nations; the very discovery of those large fossils in America helped to solidify the new country's place in the world. As we also see by the quote at the top of this article, naturalists were regularly people invested (at all levels) in colonialist and militaristic ideals. Conniff discusses how John Stedman, one of many naturalists in the military in the 18th century, writes of a horrific beating of slave on the one hand, whilst offering exquisite descriptions of nature on the other.



It seems that exploration and conquest operated in parallel with the discovery of new species in exotic realms.

To bring this article in-line with this issue's theme of past, present and future, we should consider what the relevance of this topic is today. And how might the naturalists of the future continue to contribute to our knowledge of life on earth to the mutual benefit (hopefully) of humans and nature? Clearly the days of colonialism are long gone but naturalists still travel extensively and new species are frequently discovered. In fact, despite the continual cataloguing and classification of species for centuries, some approximations (2) suggest that 80% of the estimated 8.7 million (eukaryotic) species await discovery! Indeed, there is a gigantic knowledge shortfall in several areas, including: how many species there are; the extent of where these are able to live; the physiology of species (traits), and; the genetics of these species.

Natural Historians Through Time

Joseph J. Bailey

Present-day and future naturalists still have as much to do as those in the times of empire, it would seem. Of course, scientists will continue to record and catalogue new species across taxa, but there is a greater need than ever before for amateur naturalists to contribute to volunteer surveys and 'citizen science' projects. With threats to nature from climate change and land use conversion, and threats to people from zoonotic diseases, and to both humans and nature from invasive species, the world is changing in a way never before experienced by most of the species inhabiting the planet today (including our own). With this in mind, we cannot but continue the work of the species seekers of old, who strove to understand nature's processes and interactions centuries ago.

FOOTNOTES
(1) My thanks to Adam Algar for the recommendation.
(2)http://www.nature.com/news/2011/110823/full/news.2011.498.html

Forests of Future Past

Jeremy Rison

Since the appearance of man, the history of forests has been delicately intertwined with human history. In large part, this is due to the great range of products that we have derived from forests which has required us to learn how to manage them in particular ways to suit our needs. Forests have provided us with timber to build houses, with diverse habitats in which we have foraged and hunted for food and with fuel to keep ourselves warm. Forest culture has deep roots in human history with most societies creating forest folklores and stories. Forests have been a continual source of fear associated with darkness and mystery at the same time as providing us with an acute sense of nature and peacefulness. Human and forest history are very much related. Indeed, it is now widely believed that we evolved in the forests of Central Africa some 3.5 million years ago and emerged onto the savannah around half a million years ago. From there, it seems we moved to the Middle East before migrating along the Mediterranean's coastline.

Following the retreat of the glaciers, forests spread into areas where they had previously been unable to grow. Equally, the disappearance of the glaciers meant humans were able to move more freely, build settlements and grow crops. This caused the human population to increase markedly which led to an increasing need for forest resources as well as the land on which they grew. The destruction of forests in Europe became more pronounced approximately 6,000 years ago when Greek and Roman accounts were written detailing the widespread cutting down of forests for fuel and shipbuilding. The Roman Empire had a particularly great effect on Europe's forests. At its peak, the Empire consisted of 60 million people and had a vast shipbuilding programme, requiring huge volumes of timber and therefore forest clearance. There was also a great amount of overgrazing of forests by goats which led to soil erosion and a gradual loss of agricultural productivity which some believe contributed to the decline of some ancient civilisations.

Moving east to China, the city of Kaifeng along the Yellow River witnessed a sixfold increase in iron production between AD 800 and 1100 which was made possible with the burning of vast amounts of wood to smelt ores into iron. It is thought that Kaifeng was reaching an ecological bottleneck whereby the forest ecosystem surrounding it was on

Forests of Future Past Continued...

Jeremy Rison

the verge of collapse. During China's 'Great Leap Forward', Mao Zedong encouraged his citizens to construct steel furnaces and turn their scrap metal pots and pans into steel. Evidently this led to little usable steel being made but to widespread forest clearance for fuel with the result being greater soil erosion.

According to the Millennium Ecosystem Assessment (2005), the global area of forests has been halved during the last 300 years and so far, it may seem as though humans have inexorably cut down forests. However, there have been periods of human history when forests were able to spread. Notable occasions include the collapse of the Roman Empire and a prolonged period of war and during times of famine. The arrival of more stable political systems then led to more forest clearance as the human population increased and by the fourteenth century, it is thought that around half of Western Europe's forests had been cleared for cropland. Nonetheless, the arrival of the Black Death in the mid-fourteenth century caused the deaths of up to 200 million people, one impact of which was the reappearance of forests in areas ploughed up for agriculture.

Both humans and forests are resilient; most forests will recover even after all its trees have been cut down. If land is left to its own devices, in most cases forests will regenerate. Initially, its species composition may not be the same because pioneer species will appear first but under a stable climate, the species of the original natural forest will normally return. If forests are to be managed sustainably, a balance therefore needs to exist between harvesting timber and leaving a sufficient number of trees in the ground to ensure the forest ecosystem is not degraded. The science behind sustainable forest management originated mostly in Germany during the fourteenth century.

Today, the difficulty of managing forests sustainably is because we rely on them for a great range of products and we have a great demand for land to grow food, to build houses and to produce energy. This has led to the appearance of multi-purpose forestry in which the goal is for forests to serve a variety of purposes. In most cases, humans have not cleared forested land deliberately but because they have felt the need to so. This fact underlines both the changing and complex relationship between humans and forests through time. Prior to the development of remote sensing and advanced communication systems, forests would have appeared seemingly endless in the eyes of our ancestors. We now know how much forest there is on the planet, how fast it grows and the extent to which we are cutting it down. Despite knowing this though, there remain many threats to forests: vast swathes of the Amazon continue to be cut down to provide land for soybean production, most of which is exported to the USA. The last School Seminar demonstrated the threat that oil palm plantations pose to Malaysian and Indonesian rainforests. And forests are constantly faced with the emergence of diseases such as Chalara fraxinea, or ash dieback, in Europe.

Looking into the future, many of the threats to forests will be associated with a warming climate. It is expected that forests will be faced with more droughts which itself could kill trees or it could cause more forest fires. Although forest fires have always occurred, their intensity is increasing in places like California, Spain and Australia. The concept of ecosystem resilience may be important in such situations as forests may revert to alternative stable states if they are unable to recover. It is also likely that changing global temperatures will lead to the spread of insects and diseases into new areas which can decimate a landscape's trees.

There are therefore many threats to forests and decisions to be made about how they should be used to continue to provide us with the products and services we rely on. Because it is unlikely that forests will be "locked up" with humans banned from entering them, we need to continue learning how forests can be managed in such a way that they are not degraded further. Indeed, it would be even better if we can learn how already degraded forests can be improved and apply this knowledge to future forest management decisions. As is often the case, looking to the past is one way by which we can learn from our mistakes.

Time Travel Using Remote Sensing:

A Journey into a Planned City's Past, Present and

Ibrahim Gumel

Time travel is normally heard or seen in science fiction movies. Some of the first thoughts that come into a person's mind will be, star trek, worm hole or Dr Who travelling through time inside his sophisticated time machine. In its most literal meaning time travel is a concept that involves one moving through time as he/she wishes without any regard to the laws of physics, which states that time always move forward. As fictional as it sounds, physicists are to be unable to disprove that someday humans may have the ability to manipulate the fourth dimension which will make time travel a reality.

While humans are still struggling to figure out how to make a time machine that will allow them to travel years or even decades back to the past and also have a peep into the future, remote sensing has achieved that a long time ago. With remote sensing it is now possible to look back decades into how cities develop and how land cover and land use has transformed over the years. Looking back at how a city develops, seeing when new neighbourhoods' are constructed or how new roads are built and seeing when a famous train station comes to existence is no doubt an interesting prospect. But what is even more interesting is to see a whole city unravel in your eyes and as you watch it grows from scratch! This is exactly the promise held by a planned city like Abuja through the worm hole of remote sensing.

A Brief History of Remote Sensing

So what is remote sensing that gives us such power to manipulate time and space? Remote sensing is basically the science and art

Time Travel Using Remote Sensing Continued...

Ibrahim Gumel

of acquiring information about an object or phenomena without direct contact with the object or phenomena using sensors that operate within the electromagnetic spectrum. In other words, it can be defined as the acquisition of information which is usually in image form about the land masses and oceans and also the atmosphere above it, by space borne sensors. The latter definition is what is sometimes referred to as satellite remote sensing.

It is important for one to understand how remote sensing technology comes into existence and how it works, because only then will one be able to appreciate what it does and how it changes our lives in ways that we are not even aware of.

A Satellite in Space

Remote Sensing technology has been around for quite along time. The earliest device for recording images from electromagnetic radiation was the black and white photograph. Not until around 1946, Remote sensing data is collected only from aeroplanes and balloons as photographs. Satellite Remote Sensing kick-started in the 1960s with the launch of a satellite called TIROS 1. But for environmental Remote Sensing, the breakthrough came in 1972 when the first Earth resources satellite (ERTS-1) later called Landsat-1 was launched by NASA. This was a turning in history as one author states: "In the entire history of science, there has never been an event equal to the advent of Landsat-1 for the peaceful sharing of scientific data". This is so because, for the first time, satellite data of any place on earth can be available to anyone that wishes to have it. The advent of Landsat-1 opens the door for effective environmental Remote Sensing. This was aided with fact that for the first time multi spectral images are a reality.

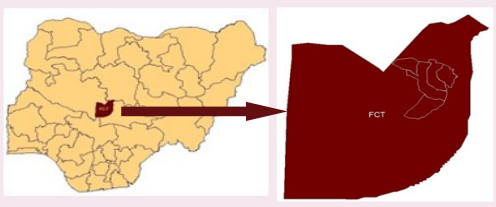
Later, Landsat thematic mapper (TM) 4 and 5 were launched in 1982 and 1984. This offered a significant improvement in data acquisition capability over Landsat-1(MSS). The Landsat TM has seven spectral bands, six in the visible and infrared region and one in the thermal (for measuring temperature data) region of the electromagnetic spectrum. Over the years, a number of other satellites have been launched which includes hyperspectral and high spatial resolution satellites e.g. Ikonos, Spot, Quickbird, GeoEye and Worldview. All these have contributed immensely to the development of Remote Sensing technology. The advancement in Satellite Remote Sensing technology, especially with the development of more powerful multi spectral and hyperspectral sensors on satellites has helped in better understanding of urban areas and the intricacies and complexities of cities around the world.

The Birth of a City

Over the last century the world as a whole has witnessed rapid urbanization. Now over 50% of the world's population are said to be living in cities. This rapid growth comes with major problems especially to developing countries. Policy makers and urban planners struggle to manage such growth that they resolve that the only solution is to undertake the daunting task of constructing new cities which will be planned from scratch and that means such cities will be better and easier managed.

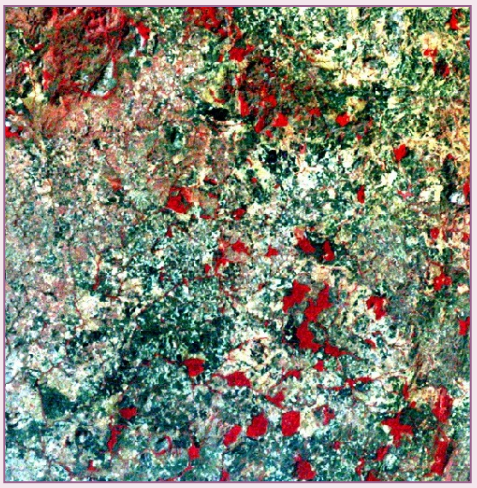
Abuja is a member of the exclusive club of such planned cities in the world. A club shared by cities like Brasilia, Canberra, Naypyidaw, Islamabad and Dodoma. Abuja was established in 1976 by the Nigerian government with the intention of moving the federal capital from Lagos to a more central location in the country.

Abuja city is the first pre-planned city in Nigeria. The city design and development was strictly based on a master plan designed by a US-based consortium, International Planning Associates in 1979. The master plan produced, defined the structure and overview which was supposed to be the basis for the progressive development of the city in four phases. The master plan carved out an area of about 8000km^2 as an area to be termed as Federal Capital Territory (FCT), and the actual Federal Capital City will cover an area of 250 km^2. The master plan proposed that 49% of the territory development should be residential, 32.5% for recreational areas including green and open space, 16.5% for light industries, commercial activities and other related services and 2% for government usage.



Nigeria Abuja

Actual construction of the city started in 1981 with the intention of finishing the development of phase one area of the city (about 7000 hectares) and moving in by 1986. The whole four phases were expected to be completely developed with a population of about 3.2 million by the year 2000. All these recommendations by the master plan are things we can critique and verify using remote sensing.



Abuja Satellite Imagery: Landsat MSS, 1976

Photograph, Abuja, 1976

Moreover, using remote sensing to go back in time, we were able see that as at 1976 when Abuja was declared as the new capital of Nigeria, there is no evidence of impervious surface whatsoever (which is an indication of urban area). By 1986 we are able to see that about 2673 hectares of land has been developed, even though this is far short of

Time Travel Using Remote Sensing Continued...

Ibrahim Gumel

the 7400 hectares recommended by the master plan. This is obviously one of the reasons why the capital was only moved in 1992 when about 5000 hectares of construction has been completed. By 2014 a total of about 15, 500 hectares of land have been developed. This doesn't include parks and open space; it is only the area of impervious surface constructed. Using remote sensing we are also able to model the pattern of how the city will grow 10-15 years into the future.

Only remote sensing can give us the ability to time travel back into the past to see with high level of precision how a city like Abuja started its life, form its most humble of beginnings (having no single paved road), to its position of strength and prestige not just in Nigeria but also across the world, as it is seen as one of the most beautiful planned and organized city in the world.

Photograph, Abuja 2014

The Catcher in the Fens

Tracey Mooney

Eels and their catchers have been an integral part of fenland economies for centuries. Before the extensive drainage of the fens, every village and hamlet had its own eel-catchers; today there is only one left working in the traditional methods in the whole of Cambridge.

Peter Carter is something of a local legend. He's an eel catcher, his father was an eel catcher and his father's father was an eel catcher, in-fact his family have been eel catchers in the fens since the 1400's. He and his ancestors have borne witness to and experienced firsthand, the changing face of the Fens and he still uses the same traditional methods passed down through the generations, continuing his family's way of life. Meeting him and hearing the eel catcher's lore and tales of his life as an eel catcher, and the lives of his ancestors before him, makes you feel like you have come face-to-face with living history. He's a voice of a traditional fenland way of life that to most of us is a mystery.

The European Eel (Anguilla Anguilla)

The Fenland region is now a broadly homogenous agricultural landscape, but it was once a rich and varied wetland abundant in aquatic life; in 1125 the monk William of Malesbury declared '*here is such a quantity of fish as to cause astonishment in strangers, while the natives laugh at their surprise*', with the most plentiful fish being eels. As such, in the Fens for hundreds of years they have been a staple and rich source of food and their skins have been an alternative to leather, but their role as a trading commodity cannot be underestimated either. Eels were almost a currency in the Fens, with rents, debts and tithes often being 'paid' in eels; the Doomsday Survey listed and valued many Fenland towns and villages by how many eels per annum they could provide, with the largest being the lands held by the Abbot of Ely (yielding 27,150 eels p/a), while the builders of Ely Cathedral and Ramsey Abbey paid Peterborough Cathedral in eels for access to their Barnack limestone quarries.

Eels have several stages to their life cycle, living part of it in the ocean, and part in fresh water. They breed in the Sargasso Sea, a region in the middle of the North Atlantic Ocean, the larvae that hatch look like little flat leaves and drift on the Gulf Stream to Europe, by which time they are 'Glass eels' – a completely transparent immature eel. The glass eel enter estuaries and begin migrating into freshwater, travelling upstream into rivers and water courses. Once established in the freshwater habitat they change into elvers and start to look more like baby eels. As they grow bigger, they turn colour taking on a yellow or brown pigmentation. At this stage they are called yellow eels, and they can stay at this stage for years (10-40 years). Eventually the yellow eel will transform into a silver eel, stop eating and the female's bodies will become heavy and swollen with eggs. It will then begin to travel back to the sea and migrate to the spawning grounds in the Sargasso Sea. Once there, the eels will spawn and soon afterwards die.

Eels are exploited by humans at every stage of their life; however the Silver eel is listed as critically endangered by the IUCN, meaning they are at imminent risk of extinction. It is believed that numbers in Britain are down 65% since 1980, with the global decline likely to be around 95%. In 2010 bans on fishing silver eels were introduced; all anglers are now legally compelled to return caught silver eels, those ignoring the ban face hefty fines.

The Catcher in the Fens Continued...

Tracey Mooney

Catching eels

Before the fyke net was introduced from Holland in the 19th century, there were three main methods for catching eel in the Fens: willow traps (commonly known as Hives or Griggs in the Fens), Spears (known as Glaives and Stangs) and 'Eel bobbing' or 'babbing' – a no hook method where worms were threaded on yarn and tied into a bunch (known as a 'bab' or 'bob) on the end of a line. When an eel bit at the worms its teeth got caught in the yarn and it was hoisted out of the water straight in to a tub.

A Glaives or Stang, this would be attached to along pole and used to catch eels in the mud.

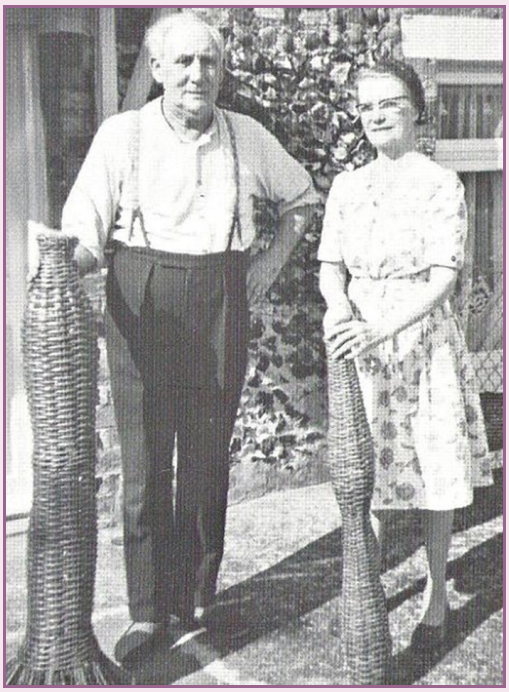
Peter catches yellow eel (or as he calls them '*barley eels*' because of their colour) using willow traps. The methods and techniques for weaving the willow traps are closely guarded family secrets. Peter was taught by his father and grandfather, explaining that there are no written records, no plans or drawings, detailing how they are made. The basic shape remains the same as it did in medieval times, recently an archaeological excavation near Whittlesea revealed traps dating back to the Bronze Age, that were almost identical in size and shape to the ones Peter still uses today.

He catches eels during the summer, from May to September '*coz eels hibernate in the winter, they go right down to the bottom of the river and won't feed, so we can't catch them, so we wait until spring. We say that when the willow is in bud, the eels come out of the mud*'. In the winter he prepares for the next eel season. When the willow is dormant, between the end of November and the start of March, Peter cuts and stores it, explaining '*and then I sit when it's too cold to go out, or too wet I sit in the living room in front of the fire. I sit and weave the willow eel trap – and we use a little tool and split the willow into three, and then we can weave it.*'

Hives are smaller that Griggs, and are baited with chicken guts, worms and even road kill! A hive takes about three hours to weave, a Grigg takes a couple of hours longer; there's more work involved in them and they are bigger. The traps are baited and set at night, and collected first thing in the morning. On a good day Peter will catch up to a dozen eels per trap, which he sells to local people, smokeries and markets for over £20 a kilo, but eel stocks have dramatically decreased since the 1980's, and Peter has turned to other things to supplement his income.

Fenland people have always supplemented their income doing other things, such as peat cutting, fowling and trapping. So Peter feels he is no different to his forbearers in the respect. Like his family before him, he traps, lays and repairs hedging, weaves willow – but his traditional skills have definitely got a 21st century twist. He traps Chinese Mitten Crab (*Eriocheir sinensis*) and mink (*Neovison vison*), which have a devastating impact on our native fauna through predation and habitat destruction, and conducts water vole (*Arvicola amphibius*) surveys part of a wider habitat management and conservation scheme. His willow weaving skills have even been put to use in the funeral industry, making willow coffins and he weaves extra traps to sell as ornaments and as educational tools, and is often commissioned to give history and heritage talks to local schools and groups. His reputation as an entertaining after-dinner speaker is growing and he's been called on by the National Trust and The Great Fen project to give advice on heritage projects, and has been a consultant on several local archaeological digs and television and radio programmes – he's even met the Queen.

Peter's past, present and future is firmly rooted in the traditions, attitudes and methods of the Fen, and the fen men of the past – but it is those very attitudes and traditions that are ensuring his future too. He has adapted and changed in responses to the changing face of the Fen, just like fenland generations before him. He loves his life on the fen, and is passionate about his heritage, summarising the his feelings one sentence: *it's the only life I know, and the only one I want – it was the fenland way, and it's my way and it's bootiful.*'



Above Peter Carter's great uncle Elijah Wells holding a Grigg and his wife (name unknown) holding a Hive. Circa 1950.

Left Peter Carter with a willow Hive

'Space of Experience and Horizons of Expectation': Extreme Weather in the UK, Past, Present and Future

Lucy Veale

Thinking Forward through the Past?

The theme of this issue mirrors those of the project I'm currently working on: '*Spaces of Experience and Horizons of Expectation': Extreme Weather in the UK, Past, Present and Future*. Led by Prof. Georgina Endfield, the project is funded under the AHRC's Care for the Future: Thinking Forward through the Past theme. The aim of the theme is to generate new understandings of the relationship between the past, present and future, encouraging critical reflection on concepts including memory, legacy, heritage and progress, as well as exploring emotional responses to the past including; denial, forgetting, trauma, and celebration.

Extreme Weather

Current predictions indicate that the UK is likely to experience more 'extreme' weather in the future, with respect to both the frequency of events and the scale of impact. Although recognising that our relationship with the weather is constantly changing (most of us now spend the majority of our time indoors and therefore have a level of detachment from it), we think that it is important to look at past events in order to understand cultural responses to extreme weather. Experience or awareness of extreme weather events can thus inform future action and understanding by conditioning how people comprehend or respond to the problems of risk and uncertainty associated with the timing and impact of future extreme events. We hope that our work will also act to engage people with their weather history and heritage and for this reason all of the accounts that we find will eventually be available through our freely accessible online database TEMPEST (Tracking Extremes of Meteorological Phenomena Experienced in Space and Time). There you'll be able to search by date, place, event type, or author to explore the UK's weather history.

Our project (also involving team members at Aberystwyth, Glasgow and Liverpool) explores historical extremes through archival research in a number of case study regions. Focusing our search in county record offices we're slowly building up a chronology of extreme weather events in different case study areas. Our search is source led, so rather than searching for known events we're simply using terms like 'weather' 'flood' 'storm' and 'drought' to guide us through the record. The majority of our sources are narratives, documenting an extreme event either as it was experienced, or at a later time, as a recollection, perhaps in a letter summarising recent events, or in a family memorandum book or parish register of notable events. Sometimes the weather is foreground - the primary reason for the document's creation, but in many other cases it is background to other information – this means that our source material is huge! As well as describing the events, many of our accounts note the impacts that the extreme weather had on people, animals, the built and natural environments, at the individual, community, or national level, as well as responses to them, be they emotional reactions or practical actions to relieve suffering or to try to prevent such an event from happening again.

Certain extreme weather events or episodes live long in the cultural memory, the 'Great Storm' of 1703, or the winters of 1947 and 1962 -63 for example, whilst other events, often comparable in meteorological character or in the scale of impact, are forgotten. Our work is also exploring why this might be so. Which weather events do you remember? Why do you think you remember them? And are you confident of when they happened?

Past Futures and Future Pasts

As well as building up a chronology of extreme weather events, we're looking out for materials that indicate how people in the past thought about future weather (perhaps influenced by the timing of natural processes like tree blossoming, or the appearance of celestial phenomena like comets), dealt with uncertainty, and reflected back on, or represented past weather events, often to place contemporary events in context, in order to make a judgment of relative severity (there are many references to events being the worst remembered within personal memory or that of the oldest person living in a particular community), or to seek guidance on overcoming challenging times. Our work may create new interpretations of past weather (particularly as it relates to people) or of specific events, both through uncovering forgotten events, making source materials more accessible, and through our geographical focus on particular places, rather than dominant narratives which rely on the national and increasingly the international scale. In the final year the plan is to conduct some oral history work to allow us to further explore events within living memory.

Back and Forth to the Archives

The narratives themselves provide the best illustration of our work so I thought I would conclude by sharing some stories from one extreme weather event in Nottingham's weather history:

1795 floods

I chose this example, as there are some particularly nice references to the memory of past events within the extracts, as well as evidence of the event entering popular memory, and detail on impacts as the event unfolded.

Extreme Weather Continued...

Lucy Veale

Mansfield, Feb'y 12 1795
Sir,
I should have ans'd yours before but we have had such a flood as was never seen in Mansf'd by the oldest man living. The Mills have all escap'd but do assure you they were in great danger […] (Letter from Charles and George Stanton to William Gould, Nottinghamshire Archives, DD/4P/62/18/13-14)

Holme Lane, Feb 14th 1795
Sir, We have had a most dreadful flood upon the River Trent; it was 3 feet one inch higher that the Midsummer flood, which happened between 50&60 years ago; this was ascertained from a mark then made, and which still remains. The water came into every house at Holmepierrepont, except the Hall and Wm Richards' […] There are great numbers of both beast & sheep swept away in many places […] It is said many people have lost their lives at Fiskerton, or somewhere thereabouts, some say 20, others 40, and some say 60; if any of these reports to be true, it is dreadful indeed. As there has been no communication before this morning, the truth of the latter part is not yet known. The new road between the Trent Bridge & Nottingham is greatly damaged; 7 out of 10 of the new arches, between the China pools & the Leen Bridge, are blown up, so that it is impassable for carriages, and the only conveyance to or from Nottingham is for foot people and horses by boats, notwithstanding the waters are subsided. The mail is obliged to stop at Bridgeford and the Guard carries the letter bags on foot to and from Nottingham. Nor has there been any post from Nottingham to Newark, from Tuesday morning until this day… (Copy of letter sent by William Sanday to Lord Manvers, Nottinghamshire Archives, DD/TS/6/2/2).

Thrumpton March 5th 1795
I am happy to hear by your last favour that Mrs W and the children are so well. I should have wrote to you immediately after the flood had your situation been such as to have given me apprehension on that account […] upon the banks of the Trent they have suffered very much by loss of cattle, damage of hay and corn and the […] of roads and bridges. My flood banks have suffered very much and a great quantity of sand and gravel is thrown over the meadows in different places. At Barton the water was in every house in the town and in the church. On the 11th in the morning they were all confined above stairs and not able to assist their pigs and beasts which were drowning in their yards […] This flood was about a yard higher than the great midsummer flood; and as it had been superseded that by one so much beyond it has, as it were, in contempt thrown down the memorial of it and the wall in which it was placed from one end to the other; it flowed over the top of that wall… (Letter from J. Wescomb Emmerton to his brother, Nottinghamshire Archives, DD/SY /169/1-55)

1809 - I begin this year with the account of a great flood that happened in January it was at the hite the 28 and it did a great deal of mischief in a many places people say that it was the biggest flood that hath been since the year '95 they had a deal to doe to keep it out of Barton and Wilford but it drained thro the banks and did make the town of Wilford all of a soss and filled the farm yards with water (Joseph Woolley's book of memorandums for this year, 1809, Nottinghamshire Archives, DD/311/4)

As ever, the documentary record is at best fragmentary, and privileges certain voices. Part of our task is to find out more about our authors, in order to understand a little more about their records, and their personal networks particularly relating to weather knowledge. Our work does at least successfully add human voices to the historic meteorological record, enabling us to build up a picture of what certain temperatures, wind speeds, or rainfall amounts meant to certain people living through them, something which is very difficult to picture from a table of numbers or line graph.

Care for the Future is going from strength to strength so do look out for details of future events and funding opportunities on the theme website. I'll be continuing to go back and forth to archives around the UK to look for more accounts of extreme weather in the UK...

Project website: www.nottingham.ac.uk/weatherextremes

Blog: blogs.nottingham.ac.uk/weatherextremes

Facebook: facebook/weatherextremes
Twitter: @Weather_Extreme

Past environmental change in the Windermere catchment

Heather Moorhouse

I have been pondering the past a lot recently as I spend my days writing up my thesis. Apart from trying to understand why didn't I start writing my thesis earlier? (answer: I was in the staff club), I have been mainly focussing on my thesis questions: how, when and what has caused algal communities to change in the Windermere catchment over the last 200 years? Why is this important you may ask? Well I am glad you asked. Not only do water managers want to understand baseline conditions or the extent of ecological change in the lakes to assess future changes. It is hoped that by looking at past ecological communities, beyond the individual site-scale, it becomes easier to extricate the relative importance of what has caused lake ecosystems to deteriorate and this ultimately helps focus future management strategies. Thus, I have spent the last 3.5 years look at algal pigments the biomarkers of algal community change from sediment cores from the lakes of the Windermere catchment, Lake District National Park. Algal pigments are compounds from photosynthesising phytoplankton, benthic algae, macrophytes (think seaweed) and terrestrial plants. As algae are often the first indicators of environmental perturbations they can tell us a lot about what has happened in a lake and its surrounding landscape.

In the Windermere catchment, nutrient enrichment has played the most important role over climate in modifying algal community change. Lowland lakes that have received point sewage treated and untreated effluent, have longer retention times, and overly productive geology, have experienced the greatest amount of algal community change and the most positive increases in cyanobacterial trends. Cyanobacteria also known as blue-green algae can produce toxins that can lead to acute health effects and have knock-on effects to the wider lake ecosystem. Diffuse agricultural pollutants have played an important and underlying role in the fertilisation of catchment lakes too. These results support a study of cyanobacterial trends across the northern hemisphere that show long-term increases are attributed to nutrient enrichment (Taranu *et al.*, 2015). Myself, Mark Stevenson and Suzanne McGowan all added data to this meta-analysis, grab a copy, it's a great read!!!

Little Langdale Tarn – one of the upland tarns which boasts a lovely extensive reed bed area.

The upland tarns (small mountain lake) important in the provision of drinking water (uplands supply us with 68% of our potable water!!) have also shown changes of algal communities associated with global drivers of change including acidification, climate change and atmospheric Nitrogen deposition. The results of this study are comparable with many lakes globally. Post World War II we have altered our freshwaters and biogeochemical cycles at an unprecedented rate and have entered an era many are calling the "Anthropocene".

You are now probably thinking well what is it to do with me? Or I hope - what can I do to reverse such change? Reducing greenhouse gas emissions by using public transport, buying phosphate free detergents and supporting local organic food production are all things we can do to help. If you go to the Lake District this summer, why not try and use public transport or get on yer bike, make sure you clean and dry your wellies to stop the spread of invasive species and lookout for events by Windermere Reflections which try and get people out and about conserving our lakes. Above all enjoy and be aware of where your poop ends up!!

Managing Future Flood Risk in the UK

Liam Clark

The devastating floods of January 2014 are now yesterday's news, but vital lessons must be learned now in order to inform flood management strategies for the future.

The flooding resulted from the wettest December and January period since 1876, according to the Met Office, with the southwest and Thames Valley particularly affected. The UK experienced a wide range of flooding – tidal, flash, fluvial and groundwater – as the ground became saturated by consistently heavy rainfall. Those that were most severely affected turned their attention towards the policymakers and public bodies charged with defending people from such events, questioning why current approaches had been so ineffective. The reality is that defences were never intended to defend against an event of this severity, as flood management strategies are designed from the outset to provide a specified level of protection for the future based on records of past events. However, with the difficulty in projecting the magnitude and spatial pattern of future rainfall, a strategy designed to protect against an event that has historically been a 1 in 50 magnitude event (in layman's terms, a severity of flood that happens on average once every fifty years) could fall short. Given that averages are moving targets, what is now a relatively rare event could become far more frequent in the fu-

Managing Future Flood Risk in the UK

Liam Clark

future. While this can be interpreted as an advantage, as any flood prevention measures would be called into action more often than foreseen, thereby providing better value for money, they would also fail more frequently, putting infrastructure and people at risk.

The variable nature of the weather in the UK – the most politically correct way I could think of to summarise our weather – means that it is not possible to definitively attribute the floods of early 2014 to climate change. However, the extreme consequences of the floods can be reasonably expected to represent the type of challenges that the UK will face more frequently over the coming decades. Happily, there seems to be a growing recognition that changes must be made in the present in order to safeguard the future, with 20% of the European Union's budget now dedicated to managing the impacts of climate change.

However, it could be argued that this growing awareness of the needs of the future does not apply so strongly in the case of flood defence policy. This is understandable, as the population of the UK is both high density and highly urbanised, so the effects of flooding are all the more immediate and news-worthy. Combine this with the reality that the primary drivers of flood management policy – MPs – rely on popular opinion to keep their jobs, and the need to be seen to be doing something meaningful in the immediate aftermath often outweighs any desire to prepare for a future that another government will be responsible for.

This can be seen in the policy to resume dredging in the Somerset Levels, which is ultimately a knee-jerk reaction to an admittedly emotive problem. The main issue is that while dredging does increase the capacity of the channel, maintaining this is a lifelong commitment that is both an expensive – hence why it was stopped in the first place – and incomplete solution. Dredging fundamentally alters the sediment balance of the river channel, resulting in changing trends in both erosion and deposition, the consequences of which must be managed themselves if dredging is to be effective. This disparity between the desires of the public and the knowledge held by academics and the EA can also be seen in the case of the Jubilee River diversion channel. Interviews conducted during a third-year undergraduate fieldtrip found that residents in Wraysbury and Datchet, which suffered from some of the most severe flooding in 2014, believed that flow in the region had been increased. In reality, the flow that was previously held by the Thames alone was now being split between the two channels. However, in light of the emotional turmoil that results from the destruction of possessions and any attached memories, it would take an incredibly brave person to tell victims of flooding that the primary strategy was to think of a new theory or develop a model so that the physical processes at work could be better understood.

Ultimately, sustainable management must integrate multiple catchment-scale responses, such as river engineering, urban rainwater storage, land use management, and improved forecasting. The real controversy, and the greatest source of contention when attempting to balance both present and future needs, is the possibility that strategies such as managed retreat may have to be considered. We simply cannot defend every inch of coast and floodplain. So, while the concept of managed retreat is both uncomfortable and contrary to current approaches, strategically allowing nature to reclaim lower priority areas is a cost-effective and perhaps necessary step towards a more complete and efficient catchment-scale strategy, designed to protect the areas that we truly cannot afford to cede to nature.

The real uncertainty lies in that even when it is assumed that current flood management practices and expenditure remain unchanged, the financial cost of flooding is projected to increase by between £1bn and £27bn by 2050. Introducing as yet untested solutions only adds to the uncertainty of any projections, yet attempting to address such an uncertain future with past strategies that have had only limited success is in itself nonsensical.

New challenges in the future demand that new strategies be formulated, particularly those that strike a balance between present needs and the challenges posed by a climate that will become increasingly more unpredictable over the coming decades. Before this can happen, two key changes must be made. The first is that communication between policymakers, academics and the public must be improved so that it is better understood that big engineering projects are not the only meaningful response to flooding. Secondly, and related to the former point, is the need for discussion around the topic of uncomfortable concepts such as managed retreat. The sooner these two aims can be achieved, the sooner we can move away from unsustainable past practices and towards integrated approaches capable of meeting the demands of the future.

Moon or Cancer?

Ben Thorpe

In the course of my research, I recently came across a curious article under the title 'Moon or Cancer?'. It was introduced as 'An extract from The History of the 20th Century, published in 2001 by Europa Ltd., Vienna (Chapter VIII, para. 5)', and it contained confidential correspondence between the then-leaders of the USA and USSR, John F. Kennedy and Nikita Khrushchev, dating from late 1963, and later made public.

The first of these letters, from Kennedy to Khrushchev and dated 1st October 1963, began by referencing their recent joint-signature of the Partial Nuclear Test Ban Treaty, by which each state had agreed to ban nuclear weapon tests in the atmosphere, in outer space and underwater. By contrast, Kennedy proceeded, the Space Race had pitted the two world superpowers against one another, forcing each to invest huge sums into landing on the Moon; a project whose ultimate motives were 'prestige and propaganda'. Obviously, neither could afford to lose this race. Here, Kennedy made a sensational proposal to Khrushchev:

'I am considering the question, whether it is not possible to cut down our spacial budgets by co-operating in the field of spacial research instead of competing. After all, we are compatriots as soon as we go beyond the atmosphere. No Martian could ever distinguish a Russian from an American!'

A few weeks later, Khrushchev sent his reply: that Kennedy's proposal could be assured of his approval, but that *'we ought to go much further*'! Indeed, he cast doubt on the very utility of getting to the Moon, writing:

'The united efforts of our scientists and technicians could certainly, within a few years, make it possible to land a joint expedition on the moon. But what good would it do? Would our peoples be happier? Healthier? Better? Would a landing on the moon increase the security of our nations in any way?'

Instead, he made a counter-proposal: what about a bilateral treaty mutually suspending funding for space flight for ten years, so that the money saved could be put to *'productive and social purposes*'?

After another few weeks' deliberation, on 10th November Kennedy wrote back with a counter-offer of his own. He agreed that the probable benefits of research into space travel were outweighed by the costs, and so suggested instead *'a common campaign against cancer: this cruel enemy of all mankind; of all Russians, all Americans, and all other citizens of the earth.'*

On 30th November, Khrushchev pledged his support to this scheme, proposing that a *'World Institute against Cancer should be established in West Berlin*', under the technical direction of the International Health Organisation.

The correspondence ends with a cable from Kennedy dated 10th December that reads: *'Agree your proposition. My brother Robert will arrive Moscow two days from now to discuss all details. Compliments. John F. Kennedy.'*

Except, of course, Kennedy could not have sent any such telegram, because on 22nd November 1963 he had been assassinated. In fact, if you search for the history text that this correspondence was drawn from in the Hallward Library, you will not find it, not through any deficiency of the library's collection, but because it does not exist. The clue is in the name of the publisher: Europa Ltd., based in Vienna. This publisher, like the article itself, is a fiction; its true author, Richard Coudenhove-Kalergi, had based his own organisation (whose mission was to bring about a united Europe) in Vienna.

Though today we read this story as counterfactual history, when it was originally published in the 6th September 1963 edition of The Statist magazine, it would have been read as futurology. Coudenhove-Kalergi was not experimenting with the past in order to produce a different present (that is, exploring what-could-have-been); rather, he was experimenting with the present in order to produce a more hopeful future (exploring what-could-still-be).

There are two ways in which to read this kind of futurology. First, one may analyse it as an act of prophesy. This need not imply any sort of mysticism- rather, it recalls H.G. Wells' 1902 argument (in The Discovery of the Future) that just as the study of geology has allowed us to scientifically infer historical knowledge, so a scientific inquiry into the affairs of man should allow us to infer some knowledge of the future. Taken this way, we might note that although the US did succeed in sending men to the Moon, it is true that it eventually determined that the cost of these missions outweighed their potential benefits. Furthermore, the post-Space Race history of what Coudenhove-Kalergi called 'spacial research' has indeed been one of international cooperation, in many ways pioneeringly so. We might note too that international cooperation in the field of health has also been significant, and that the efforts of international health organizations to fight various diseases have resulted in some spectacular successes.

However, futurology may also be read in a second way: not as prophesy, but as politics. After all, Coudenhove-Kalergi was not looking at conditions in the present that might give insight into man's probable future (as Wells prescribed). Rather, he was describing the benefits of one possible future in order to change the conditions of the present. Like Wells, he believed that human society was not static, but changeable, and furthermore that in time a world-state would be inevitable. Thus, the prevailing view of oppositional Cold War geopolitics was not for Coudenhove-Kalergi a starting point, but the very thing that had to be changed in order to reach the best possible future. In this second reading, even his missteps become interesting: West Berlin as a neutral 'world-city'; the Vienna-based 'Europa Ltd' publishing house.

To look more generally at the work of Coudenhove-Kalergi, he is often described as a 'pioneer' or 'prophet' of European integration; someone whose ideas were 'ahead of their time'. As I continue my research, it is easy to see why these labels get applied- during the interwar period, Coudenhove-Kalergi suggested not just a European Union, but a European currency, flag and anthem; all ideas which have since been realised, along with (of course) many suggestions that have not (yet) come to pass. But how much more interesting if, instead of seeing his futurology as prophesy, we see it as politics: what was it about his present that made a future of European integration seem so appealing? How much more interesting to evaluate such futures-past not as hits and misses, but as the act of aiming?

VIVA SURVIVORS

ALEX BERLAND

interviewed by **Cordy Freeman**

Hi Alex, congratulations on completing your PhD! The last four Viva Survivor's have been Drs. Georgie Wood, Jonathan Dean, James Fenner and Jake Hodder, how do you feel being grouped alongside such illustrious academics?
Yeah great! Who wouldn't be proud to be part of a cohort that staged boozy house-crawls through Beeston in animal fancy dress, vandalised each other's notebooks with explicit doodles and published vaguely offensive recipes in earlier editions of the Postgrad?! ... Perhaps not our finest moments as budding scholars, but these will give you some idea of the astonishing 'work-banter balance' that my A25 colleagues managed to strike throughout their studies.

I've heard that part of your PhD involved inventing the 'Berland Wetness Scale'. Do you have anything to say about this?
Hmmm, nothing that you would actually publish! Let's just say things got a bit extra-curricular.

What were the best and worst parts of the PhD process for you?
Worst: sharing an office with James Fenner.
Best: sharing an office with James Fenner.
Obviously overseas fieldwork and postgrad socials were proper decent too.

Speaking of... James Fenner emphasized the role of socializing, including beer, in getting through the PhD, what helped you through the tougher times?
The three Gs: gym, girls and great supervisors.

What have you been doing since you finished/ what would you like to do next?
Alongside applying for fellowships and project funding, I've been doing a whole host of random gap-filling jobs to save up some cash. I worked for an organic wine importer for a few months around Christmas—which had its obvious perks—and I'm currently doing a temporary stint at an educational research organisation based near Reading. The long-term aim is to work in Latin America for a couple of years, either in academia or environmental policy. In fact, at the mo my ex-supervisors and I are trying to launch a new historical climate project that would focus on the Yucatan Peninsula in Mexico.

Do you have any advice for those of us still struggling through a PhD?
Just don't take it for granted—neither the huge workload it will entail, nor the opportunity it offers to really enjoy life. Work hard, but also make the most of the unique flexibility you currently have to travel, pursue your hobbies and party like its 1999!

And finally, how would you sum up the PhD in three words?
Pretty Huge... Degree.

DARREN BERIRO

interviewed by **Cordy Freeman**

Hi Dr. Darren Beriro! Congratulations! How does it feel to have finished?
It feels pretty darn good cheers. Finishing actually makes me feel like I'm not faking it. Strange, eh?

What were the highs and lows of the PhD process for you?
Highs: winning the studentship, studying in Parque Bustemante in Santiago, submission including taking receipt of a tiny scrap of paper acknowledging the moment, and the words "congratulations Dr. Beriro". Lows: the final furlong of writing up and nit picking your own work (over and over and over). The highs outweigh the lows by far!

What got you through the lows?
My wife, but don't tell her ;)

You got to do some traveling right?
Indeed. I lived in Santiago for my first year, which was pretty cool, cachaii! Of course, at weekends only, I had a good look around the region....including Patagonia's ice fields, Bolivia's salt flats, Peru's sacred valley...taking care to try each country's pisco sours, empanadas and ceviche. I also presented at EGU in Austria and a conference on bioavailability (which that year happened to be hosted by the BGS in Nottingham)!

And how did you find the viva?
I arrived at the right room at correct time... No really, I actually enjoyed it a lot. It was a great chance to offload, sorry I mean share, the technical challenge of my PhD with two inspirational scientists.

What have you been doing since you finished/ what would you like to do next?
I'm working at the British Geological Survey as an Environmental Geochemist. Great job!

Do you have any advice for those of us who can only dream of finishing the PhD?
The light at the end of the tunnel is bright and colorful BUT "it is the journey that matters, in the end."

And finally, how would you sum up the PhD in three words?
Congrats Dr B.

JONATHAN DEAN

ON LIFE AFTER THE PHD

Jonathan had his viva in March 2014 and is now a Postdoctoral research assistant/ HM Government Scientist

Since finishing my thesis at the end of 2013, I have worked at the British Geological Survey just south of Nottingham in Melanie Leng's lab. We look at variations in the ratio of one type of oxygen to another type of oxygen, or one type of carbon to another type of carbon, to help reconstruct how climate has changed in the past. For the first year I was an 'Isotope Apprentice', running samples for various people and also supervising Jack Lacey, Sarah Roberts and Mark Stevenson when they were visiting to analyse their samples.

Since March this year, I've been working as a post-doc on a NERC grant. Similarly to my PhD, I will be analysing lake sediments in order to reconstruct past climate change, but this time the lake sediments are from Ethiopia, close to where the oldest Homo sapiens remains have been discovered. I'm aiming to establish what the climate was like when our species, and our ancestor species, evolved, to help understand if climate change could have been a factor driving our evolution. I'm flying out to the University of Minnesota in a few weeks to sample our ½ kilometre-long core sequence, which should comprise sediment from the present day back to around 1 million years ago.

December 2014

Social Events

December not only saw the annual Beeston based department Christmas celebration, this year orgnaised and hosted by Jeremy Rison, there was also the staff and postgraduate Christmas lunch held at the Riverbank, the inter-office Christmas Decoration Competition (a newly created annual event spear headed by Kate Whiston) and trips to Nottingham's very own winter wonderland to keep us all suitably entertained and away from our desks throughout December!

For those of you who missed it, our winners of the Office Christmas Decoration Competition were Joseph Bailey, Shaun Maskrey, Sarah Roberts, Cordy Freeman, Caroline Servaes and Holly McCain from room A34. With decorations including a full size Christmas Tree complete with twinkling lights, I think everyone agreed it was a well deserved win! Highlights included a shrine to Andrew Leyshon (nice try Jeremy, Ben and Joe!), posh cookies to bribe the judges, an ingenious, lab themed Labora-Tree and pigeons in Santa hats! A big thanks you to Kate for organising it all, Andrew Leyshon for judging and a big Congratulations to everyone who took part.

Social Events continued

On Thursday 26th March ten of us PhD students attended GeogSoc's annual Globall event at the Albert Hall in the city centre. This year, the brave members of staff who took the plunge into the sea of excited, drunken undergraduates were Mike Heffernan, Jeremy Morley, Doreen Boyd, Francesa Fois, Andy Cook and Isla Forsyth. A special mention should go to Mark Stephenson, Kate, Liam, Joe, Andy Cook and Francesca Fois, who were all going to the First Year Lake District fieldtrip the morning after the event and were therefore combining a late, alcoholically infused evening with a relatively early start and a long coach or car trip, in some cases supervising 90 students *en route*. They were certainly committed to the 'work hard, play hard' cause!

After some post-School Seminar, pre-Globall drinks at the Staff Club, and a spot of waistcoat maintenance after one of our party suffered a minor wardrobe malfunction, we arrived fashionably late at the venue. This, it must be said, was more due to the lack of effort on the part of Nottingham Cars' drivers- several of whom it seemed to have given up on trying to find The Hemsley- than to any intention on our part.

Having seated ourselves upstairs in the main Hall at table 12, we enjoyed the upbeat, lively

music of the big brass band, who combined old classics with takes on contemporary hits (their version of Mark Ronson's Uptown Funk was particularly memorable). The wine flowed; a somewhat low grade beverage produced, according to the label, by a Paul Simon, which left sediment at the bottom of our glasses (not perhaps a sign of quality in this case). It was perhaps not quite the bridge over troubled waters one would have wanted it to be, but it was alcoholic and drinkable enough. The food consisted, for those who dined from the standard menu, of an avocado and mozzarella starter, a chicken main course and, perhaps most excitingly, profiteroles with chocolate and orange sauce for dessert. All rather yummy overall. After the meal came the announcements of who had got which role on the GeogSoc committee for next year, which made the author feel rather old it has to be said. It wasn't so long ago that I used to be vaguely familiar with who was elected as I was in the same year as those who were running- or just above or below it- and that 21 (the age of one of the committee members, whose birthday coincided with the event) didn't feel like a distant memory. But, alas, this is no longer the case.

Following the meal we all went downstairs where a disco proceeded to occur. It contained much of the usual as no doubt we have all experienced at a formal event at some point. Yet familiarity, as they say, breeds content and we all danced with varying degrees of skill to the old favourites- well apart from a certain member of our party, who circulated around what seemed like every group of undergraduates. By virtue of his demonstrating, he has truly become a BNOC (Big Name on Campus)! The party continued until just after midnight, and then afterwards transferred to the Gypsy Lounge at Weekday Cross (opposite Pitcher and Piano). By the time it came to leave, in the early hours in the morning, we were perhaps exhausted (with no prospect of a long night's sleep for those going on the fieldtrip) but happy. The event was, as ever, fantastic and congratulations are due to GeogSoc, and particularly outgoing Globall Sec Adam.

Recipes

Eels – they are a bit like chicken!

Tracey Mooney

Tracey has provided us with three recipes to reflect our 'Past, Present and Future' Theme

Elizabeth Cromwell's Eel Pie

A traditional Fenland from '*The Court and Kitchen of Elizabeth Cromwell*' published in 1654.
(Elizabeth was Oliver Cromwell's wife)

'Your eels being flayed, washed and cut in pieces as long as you think convenient, put to the a handful of sweet herbs, parsley minced with onion. Season them with pepper, salt, cloves, mace and nutmeg, and having your coffin made of good pastry put them in and strew over them two handfuls of currant and a lemon cut in slices, then put on butter and close the pie. When it is baked put in at the funnel a little sweet butter, white wine and vinegar beaten up with a couple of yolks.'

Peter Carter's Recipe

'It's like eating chicken off the bone. Texture's like chicken; very meaty with a slightly fishy taste.
Skin 'em, chop 'e, up, wrap 'em up in flour and fry 'em in butter. They're best when they're still wriggling when you get them in the pan!'

Garlic and Pepper Eel Stew

Ingredients:

- *1.2kg eel*
- *5 tsp extra virgin olive oil*
- *1 tsp paprika*
- *2 garlic gloves (chopped)*
- *50g ground almond*
- *Pinch cayenne pepper*
- *1 cup of grated tomato*
- *1.2 litre water (or fish stock)*
- *0.5kg potatoes (cubed)*
  (choose a waxy variety so they keep their shape)
- *Salt and pepper to taste*

Method

- *Skin (if not already), wash and clean eel*
- *Cut into bite size pieces*
- *Heat oil in saucepan, add paprika, garlic, almond and cayenne pepper to release the flavour of the spices*
- *After about 30 seconds add the grated tomatoes and water (any longer and the garlic will start to burn and turn bitter)*
- *Bring to the boil and add eel and potatoes*
- *Simmer for 15-20 minutes*
- *Season as needed*
- *Serve immediately with crust bread*

Paella: A Food fit for the Gods. A food fit for Mark Stevenson

Jeremy Rison and Mark Stevenson

Paella is one of the most popular rice dishes in the world. Although originating in Valencia, it is thought it only became a popular Spanish dish after rice cultivation along the Mediterranean coast had been improved by the Moors (the North African Muslims who settled across the Mediterranean). When the Moors invaded Spain, they brought with them rice and pasta. 15th Century agricultural labourers cooked mixtures of rice, snails and vegetables over open fires in the field, and in doing so, created paella. Today, the ingredients typically revolve around poultry or seafood with root or spring vegetable variations.

Our very own Mark Stevenson injected some Valencian history and culture into one of his weekday meals and reveals the art of cooking paella. Follow Mark's simple recipe and you too could experience the delicious Spanish delight that is paella.

Paella: Continued...

Jeremy Rison and Mark Stevenson

Mark's Easy Seafood Paella Recipe

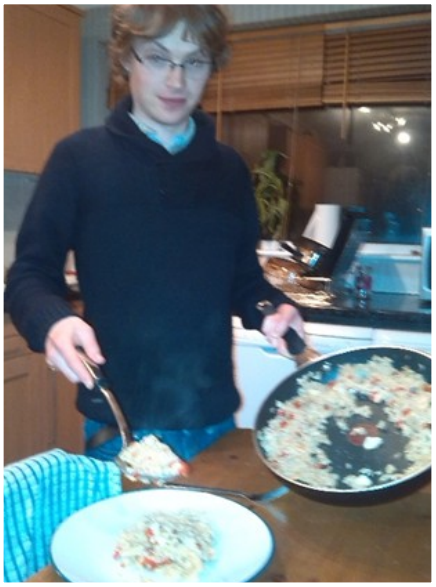
Prep time: 10 mins Cook time: 30 mins Serves: 3-4

Step 1

Heat some oil in a frying pan and throw in some chopped onion. Stir in some paprika, thyme and rice and stir continuously for 1 minute. Then add a splash white wine. If Mark's in the mood, he might use sherry here (different moods, different wines). Once evaporated, stir in 400g of chopped tomatoes and 900ml of chicken stock. Then season, turn on Radio 4 and let it cook uncovered for 15 minutes. Stir the dish occasionally until the rice is almost tender.

Step 2

Stir in whatever mixture of seafood you wish and cover. King prawns are Mark's favourite. Simmer for 5 minutes or until the prawns are cooked through. Lastly, squeeze over some lemon juice, scatter with parsley and serve with some extra lemon wedges.



"*For such as easy meal, this is quite simply delicious. I would go as fat as to say that paella has revolutionised my cooking habits and perhaps my life*"

Mark Stevenson, 2015

Note from the editors

The Postgraduate is a truly collaborative project and would have been impossible without the generous time and support of all the contributors. We are keen for everyone to get involved. If you would like to contribute to the next issue—a conference report, fieldwork diary, comment piece, or anything else—please do get in touch with Mark Lambert or Tracey Mooney