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# Travel Award & Research Project Reports

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# Travel Awards

# Dissertation trip to Mauritius in order to gather data about the affects of the global financial crisis on development projects

by Barnaby Joseph Dye

**Location:** Mauritius

**Award:** B H Farmer Fund

**Dates:** 28<sup>th</sup> August–24<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

I was in Mauritius for four weeks, primarily for my dissertation research. I was investigating the impact of the financial crisis on development projects in the country. The projects I chose to focus on were a newly-built flagship training centre for the government vocational training programme and a new charity project run by Aid Action. Both projects were created in part to deal with the effects of the international crisis on the Mauritian economy. In both cases I conducted questionnaires and interviews with staff, students at a local school and beneficiaries of the charity project. The charity project involved handing out chicks, in order to create micro-businesses in isolated and poor coastal villages. Looking at these projects allowed me to understand life in Mauritius and to talk to people on the ground about their lives



and the impacts the projects are having on them. As well as looking at these projects, I interviewed people in the various relevant government departments to give another, broader perspective.

What were some of the things you enjoyed most about working on the project?

I really enjoyed learning about people's lives and analysing the way in which the projects are helping people. It was also very interesting to understand the conflicts surrounding them and to see who was not being helped. I built up a strong relationship particularly with the charity organisers who were very helpful, kind and even took me out for dinner! In addition to the work aspects of the trip, I was able to explore much of Mauritius. Mauritius is a

very beautiful country with stunning beaches and dramatic mountainous backdrops, all surrounded by fields of sugar. It was therefore great to explore and enjoy these features by swimming, climbing and walking. Also, as it is a small island, it was relatively easy (with the indispensable help of those I was staying with), to see many of the beaches, mountains and wildlife reserves.

**What aspects of your travel project did you find most challenging?**

I found handling the Mauritian sense of time somewhat trying. There were many occasions when meetings were cancelled at the last minute, which required patience and a lot of re-organising! Still, any annoyance was often overcome with the generosity many showed me by assisting my project and giving up their time. I also found the level of inequality quite shocking. Much of the urban core is affluent and has all the usual amenities (eg supermarkets, televisions, cars) but isolated from this economic wealth are the poor rural villages. I think it is always challenging to be confronted with the inequality created by our society, but hopefully also motivating. For many of the interviews I had to



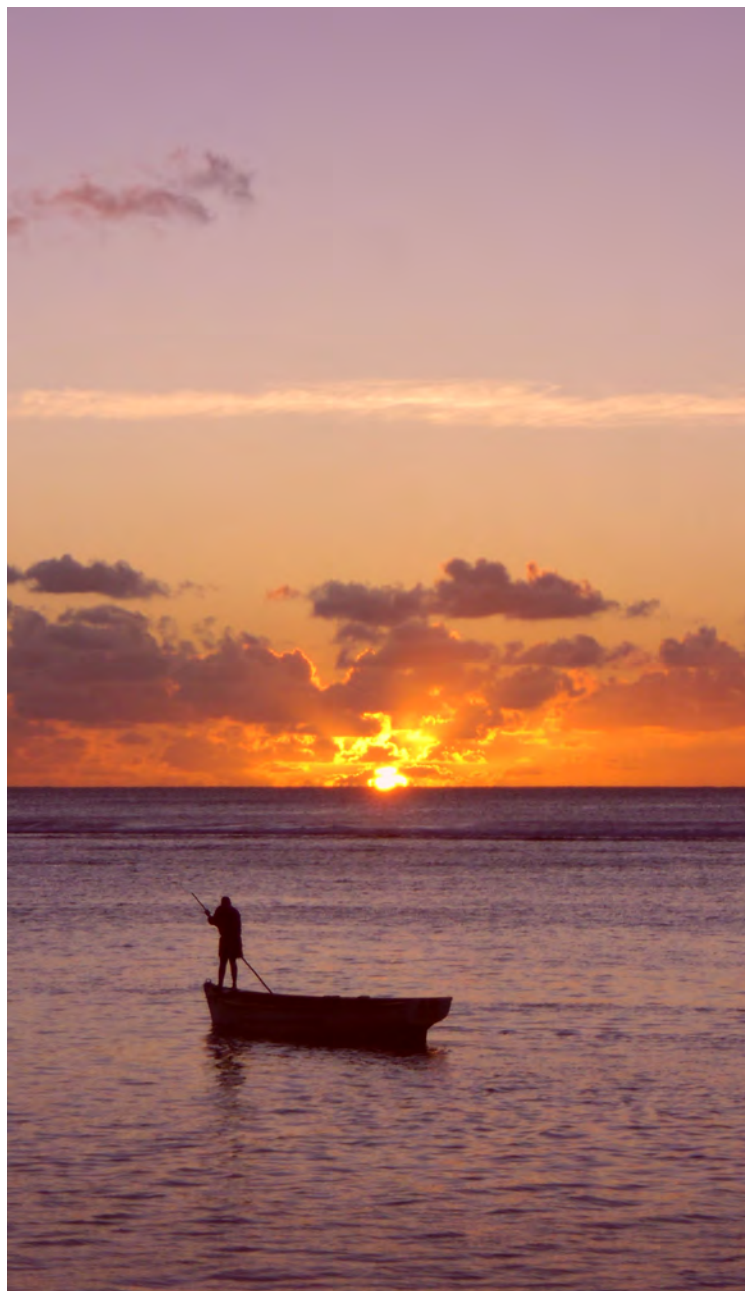
use an interpreter, which was a great experience as it allowed me to learn about otherwise inaccessible people. However, it was sometimes a challenge to get my message across and for the interpreter to fully communicate what my interviewee had said.

### How has this project assisted your studies and personal development?

I found the experience of the project very beneficial, and not only in terms of it providing the raw data needed for my dissertation. With respect to my academic progress, it has really helped develop my understanding. It makes a huge difference to see the ideas discussed in the course in reality and put into practice theories about how to 'do' development research. For example, many of my lecturers had talked about governmental and non-governmental projects, and the problems experienced in implementing them. In addition, I was told a lot about how to carry out development research and maintain awareness of hierarchy and power. By doing this research I was able to see these ideas in practice, which was extremely formative. Personally I was also able to develop my confidence, as I had to manage my life independently in a foreign country.

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Travelling to Mauritius for four weeks was enlightening, interesting and enjoyable. I had a thoroughly good time meeting Mauritians and exploring their island.



# Exploring Peruvian culture and landscape

by Hafsa Bell

**Location:** Peru

**Award:** C W Brasher Fund

**Dates:** 1<sup>st</sup>–28<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

This September, I immersed myself in Peru for one month. I travelled with a friend, aiming to learn about the culture of an area that neither of us had ever visited before, while also experiencing the adventure entailed in the country's spectacular landscape.

Starting in Lima, we travelled in an anti-clockwise loop passing through villages, towns and mountain ranges from the southern-most border at Lake Titicaca near Bolivia, to the northern-most border by Ecuador. We spanned the country from the western desert region across various high altitude mountain landscapes to the cloud forest and the jungle in the east.

In order to get a real flavour for Peru, we did all our travelling by local bus, which exposed us to many less well-known places

between those we intended to go to. It also meant that we had many adventures, ranging from buses completely breaking down to being raided by the police, and including sales speeches being given at the front of the bus. On one occasion, a whole sheep was cooked and divided between all those on the 10 hour bus journey!

During our trip we engaged in a range of activities. I was able to engage in the breathtaking landscape of the country, the architectural highlights, the archaeological sites and the exciting and vibrant living culture. We walked along the edge of the deepest canyon in the world, briefly decided to become nuns as we walked around the Arequipa monastery, stayed with a family in a mud hut on an island, wandered for





hours around vegetable markets, learnt the ropes in a Peruvian hospital, went white-water rafting and attempted to learn how to surf! The colours of Peru are astounding, and the warmth and friendliness of the people towards us made us feel very welcome, despite the way we stood out so starkly.

[What were some of the things you enjoyed most about working on the project?](#)

Our trip was so rich, and we saw and did so much that it would be difficult to describe all that was enjoyable. During every moment of our trip there was something to be learnt, and during difficult moments we learnt so much and were able to laugh at them afterwards in such a way that I think I would have to say that the whole trip was a highlight.

However, a few things really stood out as truly spectacular. One of my favourite moments was walking along the edge of the Colca Canyon, the deepest canyon in the world, and watching the condors soar both above and below us. The pattern of their movement became increasingly complex as more condors joined them and they entered into a sort of dance.

Our stay with a family on the island of Amantani on Lake Titicaca was another incredible moment. Someone we met





travelling in the opposite direction gave us the family's contact details and they very kindly invited us to their home. The island was spectacularly beautiful and the society seemed almost utopian from the way our host described it. We walked to the temple at the peak of the island where we watched the sun set over the entire expanse of the lake. The wife of the family cooked us delicious meals using fish and home-grown vegetables, and after dinner her husband told us local ghost stories about sirens, mermaids and mermen. The next day she let us try on all her beautiful, traditional, embroidered clothes, which was good fun!

[What aspects of your travel project did you find most challenging?](#)

The most obvious challenge was when we both got very ill and ended up in hospital with salmonella and, in my travelling companion's case, something we later learnt was actually amoebic dysentery! This meant that we had to spend some time in hospital and had to change all our plans afterwards. However, the nurses and doctors were very kind and caring – we greatly improved our medical Spanish and made some friends in the process.

Being constantly on the move also proved difficult at times, as it meant that we were never able to

truly unpack, rest and call a place home. Living out of backpacks that we always had to carry around and having only one change of clothes was also a trial – especially when our hostels were light on hot water!

[How has this project assisted your studies and personal development?](#)

As a lover of mountains and mountain hiking, I have always dreamed of walking through the Andes. It was an incredible opportunity to be able to finally realise this dream. I felt I learnt so much about the place I was in, but also about myself. Travelling like this required a lot of organisation and planning, but





also a very high level of flexibility as we needed to be able to change our plans at a moment's notice. We also met so many interesting people from such diverse backgrounds, who gave me a much wider insight into a variety of things, but most specifically the potential for my life after Cambridge to do some really exciting and interesting things.

The historical and archaeological elements of Peru are enticing, but something that especially drew me to Peru was my study of recent South American architecture last year. An area of particular interest in my course is traditional and vernacular architecture and its relationship with the environment, especially in less developed countries, and it was fascinating to see this manifested in an area so wholly different to any other I have seen. Sparking this interest and inspiring me to explore this area was a lecture series we had last year on 'Architecture in Other Places' and which I chose to base my coursework essay on. It was fascinating to see the reality of the sociological and architectural implications of what I read so much about during the year. Going to Peru gave me an opportunity to not only discover and explore the incredible variety of the natural environment, but also compound my understanding of the built environment in relation to my course.



# Rwanda Entrepreneurship Week

by Julia F Li

**Location:** Kigali, Rwanda

**Award:** C W Brasher Fund

**Dates:** 25<sup>th</sup>–30<sup>th</sup> July, 2011

Briefly describe the activities of the project in which you were involved.

Rwanda Entrepreneurship Week (REW) was a one-week-long entrepreneurship and life skills conference for more than 150 Rwandan university students from across the country. It was organised by five Cambridge students (including myself) and led by about 20 Rwandan entrepreneurs teaching the workshops. The training included idea brainstorming, product development, strategy, teamwork, market analysis, customer service, manufacturing quality control, budgeting, funding and public speaking/networking. We had the Governor of the National Bank of Rwanda to present the final awards at our closing ceremony (Ambassador Claver Gatete). We also presented awards to the 2011 winners of the African Innovation Prize business planning competition – students who won seed funding to start their own enterprising ventures in Rwanda.

Please see our website for more information and photos:

<http://africaninnovationprize.org/2011/08/08/an-amazing-rwanda-entrepreneurship-week-july-2011/>

What were some of the things you enjoyed most about working on the project?

I really enjoyed meeting and working with the students! The energy in the room was amazing every day. The event was oversubscribed for the whole week, and we kept trying to squeeze more chairs into the conference room. The students showed lots of enthusiasm, some even taking public transportation for two hours each way just to attend the conference. We are so blessed with extracurricular activities here at Cambridge, but the situation is very different in Rwanda and we were shown gratitude by the students who thanked us for organising an opportunity for them. I really enjoyed working on our opening day Marketplace Activity – an icebreaker for all 150 students to break into teams and make goods to sell to each other out of a set of core materials. Even though the materials were basic, the ideas behind the activity (product design, planning, manufacturing and marketing) are all normal practice for a business.

What aspects of your travel project did you find most challenging?

The most challenging aspect of the REW project was that we had to plan the conference from 5,000 miles away in Cambridge. We worked hard for nine months to sort out logistics with the Rwandan university, but when we arrived, there were still many details that were left (ie a supply of water (240

bottles needed each day), having internet access to communicate, etc.) The first day in Kigali was a challenging experience – our team ran around and tried to find resources that were missing. However, we were grateful for the cooperation of our host coordinators and finding local supermarkets that had lots of water in stock!

### How has this project assisted your studies and personal development?

African Innovation Prize and Rwanda Entrepreneurship Week have rounded-out my experience of studying at Cambridge University. I am happy to work with brilliant professors and smart students

every day in my department in beautiful Cambridge, but having the experience to put my studies into practice has been transforming. I study technology innovation and how to diffuse innovations to low- and middle-income countries. Organising a business plan competition and running an entrepreneurship training conference in Rwanda has helped me elucidate the challenges of development and find inspiration to continue working in this field.

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Thank you to St John's College and Travel Funds. I hope to become a benefactor alumnus one day and contribute to future generations of students to come.



# Exploring the anthropology and history of the Andaman Islands

by Rahul Rose

**Location:** Andaman Islands

**Award:** C W Brasher Fund

**Dates:** 18<sup>th</sup> July – 20<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

For the first period of the trip I was escorted around the Cellular Jail by a local historian named Dr Das. The jail was used by the British to imprison persons deemed subversive towards British imperial interests. In the 1930s, it was the site of a series of hunger strikes, of which Tagore, the Bengali poet, said: 'Death is the true touch-stone of genuine love. The only real test of such love is whether you are prepared to die for the sake of the object of your love.'

The other part of the trip involved working on a development project in collaboration with the Jarawa people. The Jarawa are the direct descendants of the first modern humans to reach Asia. Of late, the Jarawa have borne the brunt of the local government's aggressive planning policies. Construction of the Great Andaman Trunk Road and the illegal

encroachment of urban settlement have in part led the group's population to dwindle to 300 people. I worked with a local charity, Andamanist, constructing wells so that people living in local villages need not venture into areas reserved for the Jarawa to obtain water. Hopefully this will help prevent the Jarawa from being exposed to diseases to which they have no immunity (in 1997, the Jarawa experienced a deadly measles epidemic caused by contact with the local Andaman population).

What were some of the things you enjoyed most about working on the project?

Visiting the Cellular Jail was an informative experience, although as a site of suffering it would be difficult to describe it as enjoyable. The natural scenery and the people I met were probably the most enjoyable elements of the trip.

What aspects of your travel project did you find most challenging?

Getting numerous permits to visit parts of the archipelago was very difficult, and involved a great deal of bureaucracy. I was unable to meet or even see any of the Jarawa – although for good reason, as ethical and disease-related issues make contact problematic. Volunteering was also quite challenging, especially confronting the views of many of the other volunteers who saw the project as a one-way transmission of resources and ideas from the West to the indigenous groups.

## How has this project assisted your studies and personal development?

The project has given me first-hand experience of development projects, which will help in my future studies in anthropology, and I hope will set me in good stead for NGO work later. Personally, I felt humbled by the Andamanese that I met – all were adept linguists, commanding five or six different languages, and very sharp and cutting in their thought. They took me to task on many of my views, often winning debates quite comprehensively!

# Human trafficking prevention

by Charmaine Jelbert

**Location:** India

**Award:** Christopher Vincent Travel Exhibition

**Dates:** 20<sup>th</sup> September–15<sup>th</sup> October, 2011

Briefly describe the activities of the project in which you were involved.

The aim of the project was to examine human trafficking prevention in India, so many of the activities entailed interviewing various activists and individuals involved with abolitionist programmes, and visiting the sites where human trafficking prevention programmes were being implemented. This involved observing these programmes and meeting the individuals being directly impacted. There was a lot of networking with the various abolitionist groups and the groups back in the UK and the USA for future partnerships and work.

What were some of the things you enjoyed most about working on the project?

I loved seeing the theories that I have read about being implemented, such as the micro-lending system. The contrast between reading about the idea in academic papers and then seeing it in practice was vast. There were women clad in glittering saris, nose rings and jingling jewellery battling the stifling heat, which was being swirled around by a fan in the local



vet's operating room that was vacant for their meeting. It was amazing seeing the impact that micro-lending was having on this community – the option of buying medicine, buying machinery and trying to improve their quality of life was not going to be economically debilitating, but would bring real benefit and change. Another site we visited was teaching girls to sew and to use computers. These girls, whose mothers were prostitutes, would not have had any other option but prostitution, but now these programmes are offering them more choices. I enjoyed meeting the many activists, some of whom had been prostitutes whilst others were graduates, and there were foreigners from all continents, but all were passionate about tackling modern day slavery. It was so interesting to see the innovative prevention work being done and how the activists are continually attempting to overcome the challenges they face.

[What aspects of your travel project did you find most challenging?](#)

I found some of the stories I heard about these women and their lives, especially about how they were trafficked, very difficult. I also found that the magnitude of the problem made all these prevention measures seem like a drop in the ocean and it could almost feel like nothing would actually change. The overwhelming amount of issues and obstacles to overcome in order to help people was by far the most challenging thing. Issues like police corruption are particularly distressing

because if those who are paid to help people are not doing their job, then how will those who need help ever receive it?

[How has this project assisted your studies and personal development?](#)

My research is focused on human trafficking prevention so it was interesting to see how it is done in different countries of origin/destination/transit





and how there are specific cultural practices that facilitate the crime. Human trafficking prevention needs to be specific to the country but this trip also highlighted that there are broader structural issues, such as gender inequality and poverty, which are universal. It also showed that the more direct and indirect measures of human trafficking prevention there are, then the more likely it will be to eradicate this vile trade in human beings and the exploitation of human vulnerability. My trip to India was excellent

for personal development as it has resolved my desire to create an NGO that attempts to eradicate human trafficking through removing obstacles to girls getting an education and providing more options for women. It was a brilliant learning experience and I felt that India was a gracious and humble teacher, as it showed me that beyond the overwhelming obstacles and challenges there still exists a sense of hope and change.

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It was a fantastic trip and it has made me realise how enormously privileged I am, and how a few pounds can really make a difference in someone's life. I want to be able to use this privilege for good!



# Human trafficking prevention

by Cameron Taylor

**Location:** India

**Award:** Christopher Vincent Travel Exhibition

**Dates:** 20<sup>th</sup> September–15<sup>th</sup> October, 2011

Briefly describe the activities of the project in which you were involved.

We interviewed several human trafficking prevention activists, experts in education policy and visited sites where human trafficking prevention programmes were being directly implemented.

What were some of the things you enjoyed most about working on the project?

I enjoyed meeting people in high-level positions who were developing strategies to help as many people as possible, and as directly as possible. It was truly inspiring to have discussions with people with a significant amount of influence who were seeking to implement the most effective strategies to get women out of situations of abuse and powerlessness. I really enjoyed a conversation that I had with Arun Kapur, a leading figure in India in the education sector, who feels that the most effective way to eradicate the trafficking of women is to provide them with an education. He is working with the Indian government to increase access to education in rural settings. I was surprised to find out that many schools in rural

settings do not have toilets, and one small project that Arun is working on is to increase the number of toilets in rural schools. This directly impacts the attendance of older girls in schools by increasing their level of comfort, as they are not usually as willing as older boys are to use the outdoors or public spaces.

What aspects of your travel project did you find most challenging?

Learning some of the details about the extent to which so many women suffer as a result of human trafficking was very challenging for me. Seeing the poor conditions under which so many people live and the level of desperation that those conditions can cause was also disturbing.

How has this project assisted your studies and personal development?

There have been few times in my life where I have learned so much about the world in such a short period as I did during this project. It has strengthened my resolve to ensure that whatever career path I choose, it will in some way seek to improve the lives of others. My travel partner and I plan to create an NGO aimed at ending the trafficking of women, in large part by increasing their access to education.

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I am very grateful to the College for having provided this opportunity.

# The geology from Duckpool to Widemouth Bay

by Rose Hall

**Location:** Bude, Cornwall

**Award:** Cooper Fund

**Dates:** August–October, 2011

Briefly describe the activities of the project in which you were involved.

My project was to make a geological map of the coastline north and south of Bude. I started at Duckpool in the north and gradually made my way south to Widemouth Bay.

What were some of the things you enjoyed most about working on the project?

The scenery was varied and beautiful – some of the coves were very hard to get to and had an isolated and wild feel, whereas other parts of the coastline were popular sandy beaches filled with tourists (at least on sunny days).

What aspects of your travel project did you find most challenging?

The weather was often very challenging, with winds of up to 40km per hour on some days. The terrain was also difficult and dangerous in some places (especially south of Bude), and I had to

carefully plan my routes and timings so as to not get cut off by the tide.

How has this project assisted your studies and personal development?

This project was vital to my studies as it constitutes 20% of my marks for my final year.

# The Venice Biennale and architecture of the Veneto

by Max Bryant

**Location:** Venice, Italy

**Award:** Frank Hollick & Scullard Funds

My travel proposal was to visit Venice and Vicenza to discover their architectural masterpieces, as well as to visit the biannual contemporary art exhibition held in Venice. Regarding the former, the focus was to be on the works of Andrea Palladio (1508–80), and I think I succeeded in having a fairly comprehensive experience of these. In Venice itself were the two great churches of San Giorgio Maggiore and Il Redentore. Experienced together (being both on the Giudecca island), they created strikingly different moods – the former grand, comprehensive and triumphant, the latter darker, solemn and subdued. Snatching the open hours of other churches gave the opportunity to see how Palladio’s works inspired Venetian architecture generally, such as at Longhena’s Santa Maria della Salute (1631–87) – a spectacular Mannerist revision of motifs of Il Redentore. It was also possible to see Palladio’s less canonical works such as San Francesco della Vigna, which revealed an early attempt at the San Giorgio facade, and thus the more impressive success in superimposing two pediments in the later work.

However, the major part of the visit was to Vicenza where Palladio did most of his building. The canonical masterpieces were the basis of the trip: the Basilica Palladiana, the Villa Capra ‘La Rotonda’, and the Palazzo Chiericati. Seeing such well-known works in reality completely reinvested them with the originality and genius that overfamiliarity can deaden: the delicate detailing, for example, inside the Villa Capra was completely new to me. But the real revelations were the less canonical works, especially the Palazzo Barbaran da Porto and the Casa Cogollo. Palladio is presented in British architectural history essentially as a master of classical forms and perfect proportion, but seeing these other works, especially outside the flattening medium of engraving, revealed how often Palladio built on ad hoc sites full of irregularity, but nevertheless completely satisfying in plan. Their spatial effects can be full of a surprise we associate with the Baroque, such as the flight on steps in the Casa Cogollo. At the Teatro Olimpico, this love of illusionism was even clearer, mixing statues with trompe l’oeil paintings of statues, as well as the famous set design itself with forced perspective and a painted evening light.

One could simply see a fragment like the Palazzo Porto in Piazza Castello as one goes from one highlight to the next. And motifs became more apparent, such as the circular holes that appear in arches and walls. Only the villas remain for me to see, although now I have a vastly improved grounding in experiencing his work to bring to them.

I have never been to a Venice Biennale, and aside from the art itself, it was a fascinating form of the international artistic exhibition of which Britain has no major examples. At its centre was curator Bice Curiger's two-part display, with hundreds of pavilions dedicated to particular countries scattered around the city. Regarding the former, the display had been criticised for lacking a sophisticated and totalising argument about the state of contemporary art.

However, for me the policy of presenting vaguely related works mostly from a generation of artists in their 30s effectively provided a beginner's guide to the future establishment figures of the art world. It was especially useful to see which of the younger British artists were of international status, such as Haroon Mirza, Emily Wardill and Nathaniel Mellors. Outside the official biennale, there was Jan Fabre's installation 'Pietas' in the Nuova Scuola Grande di Santa Maria della Misericordia, which revealed to me a depth of thought and emotion that I did not know existed in contemporary art. The Palazzo Grassi provided a necessary contrast – a gallery devoted to the collection of one man, Francois Pinault: here could be seen the more commercial and saleable face of contemporary art, as well as an exhibition founded on personal taste rather than curatorial principles.

Many thanks to the college for facilitating these unforgettable few days; I hope I have shown above how much a direct experience of Palladio's works is an absolute necessity in recognising his achievement, and of the Biennale in comprehending the contemporary art world.

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Many thanks also to my supervisor Frank Salmon for architectural recommendations and advice on how to survive Italy in mid-July.

# Great Gothic cathedrals of France

by Aaron Matheson Helfand

**Location:** France: Amiens, Beauvais, Chartres, Laon, Paris and Reims

**Award:** Frank Hollick & Scullard Funds

**Dates:** 26<sup>th</sup>–30<sup>th</sup> July, 2011

Briefly describe the activities of the project in which you were involved.

The object of my trip was to visit as many French Gothic cathedrals as possible in four days and, by using the cathedrals as destinations, to explore a variety of cities and towns in northern France. I stayed in Paris and travelled to each city by train. My first visit was to Chartres, where I spent the entire day studying the cathedral and exploring this

well-preserved medieval city. The following day I travelled first to Amiens, then to Beauvais, and on the third day, I visited Reims and Laon. This last cathedral was particularly stunning, both because of the unique five-towered design (the most complete of the French cathedrals in that regard) and because of its spectacular hilltop setting. Each evening of my trip was spent exploring Paris on foot from my hotel in Montmartre. I documented each city and cathedral that I visited with photographs and sketches.





What were some of the things you enjoyed most about working on the project?

Although I have done a lot of travelling, I have rarely had the opportunity to travel alone, and having the freedom to plan and follow my own itinerary was very enjoyable. I also enjoyed the sense of discovery that accompanied each visit. Having encountered all of these cathedrals repeatedly through the course of my undergraduate and graduate studies, I had a general idea of the format and composition of each church, but little sense for the way in which they related to their context, and I found that this relationship varied greatly from one cathedral to the next.

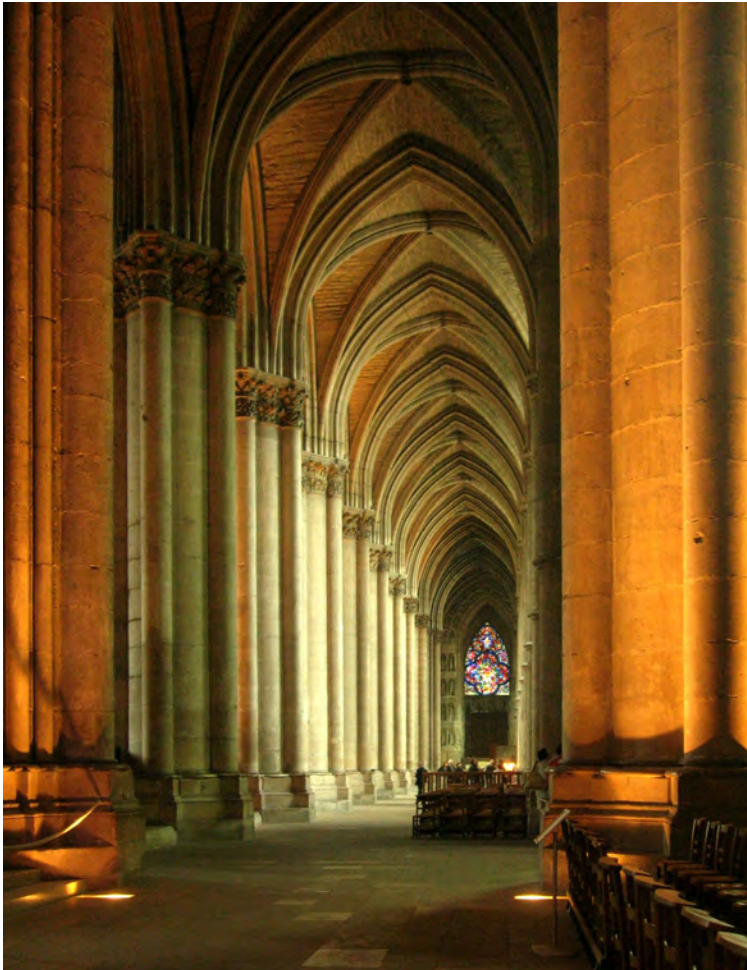
What aspects of your travel project did you find most challenging?

Since I don't speak French, everyday tasks such as purchasing train tickets and ordering meals were slightly more challenging than they might otherwise have been, but I found that most of the people I encountered were accommodating and accustomed to dealing with visitors who don't speak the language.

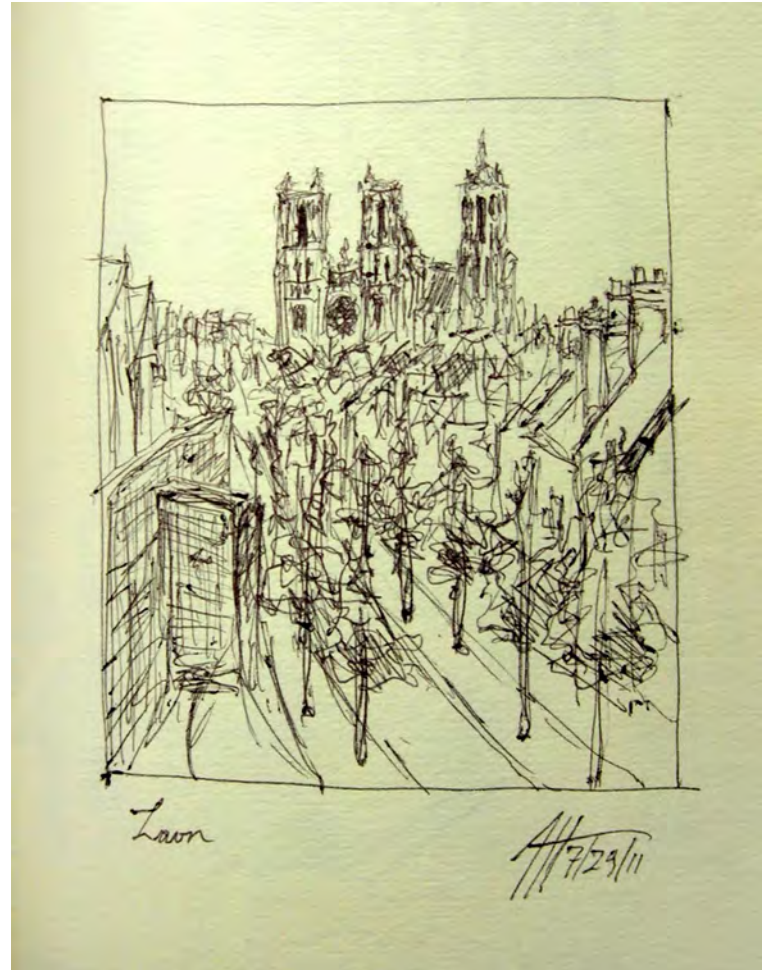
How has this project assisted your studies and personal development?

As a student of architectural history, I feel that a first-hand experience of these monuments and their surroundings is essential to my understanding of the development of the Gothic style,

one of the central strands of Western architecture. This is particularly valuable to me in light of my MPhil research. Two of my essays dealt with the English Victorian architect Alfred Waterhouse, who was strongly influenced by the French Gothic, and my dissertation focused on Gothic revival architecture in America in



the 20<sup>th</sup> century. Furthermore, as a practising architect, I will benefit enormously from the buildings I encountered on this trip, as they will provide a wealth of inspiration for my own designs. I am grateful to St John's College for allowing me this opportunity.





# The jubés (rood screens) of Brittany

by Lucy Jane Wrapson

**Location:** Brittany, France

**Award:** Frank Hollick & Scullard Funds

**Dates:** 6<sup>th</sup>–13<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

I went to Brittany to explore the wealth of medieval and Renaissance screens surviving in churches, and to compare what I found there with the medieval screens of England, both art historically and in terms of conservation. Although numerically more rood screens survive in England, those in Brittany retain their rood lofts, sculptures and crucifixes, so this was a great opportunity to envisage how England's damaged, part-dismantled screens might once have appeared, to see the full iconographic package.

In the course of a week I visited 29 screens, almost all those extant in the region. I was able to use my training as a paintings conservator to look at the condition of the wood and paint, and to understand the amount of restoration these screens have had over the years. As well as seeing the jubés, I was also extremely interested in the rich wooden sculptures found in so many of Brittany's churches and in the extraordinary granite-Gothic churches themselves.

What were some of the things you enjoyed most about working on the project?

The making of painted screens in England broadly ceased with the Reformation, until a time of revival in the 19<sup>th</sup> century; whereas a number of Breton screens were built up to the 18<sup>th</sup> century. The 17<sup>th</sup> century screens such as at Priziac were especially delightful, as they gave me the opportunity to climb the rood stair and walk on the loft – something I have never been able to do in visiting more than 400 English screens!

What aspects of your travel project did you find most challenging?

It has been 17 years since I last studied French, so it was a thoroughly enjoyable challenge to remember what I could of the language and speak to people!





On the whole, this was a success and I was usually able to find a key for locked churches at the local commune!

How has this project assisted your studies and personal development?

Seeing Brittany's rood screens has been inspirational for my research. I am very keen to find out more and do some documentary research on the

subject after I have completed my PhD.

In terms of work for my thesis, I was fascinated by the changes from Gothic to Renaissance design visible in Breton screens c. 1490–1500. While some of the Renaissance style detailing is found in screenwork in England at a similar date, it is surprisingly absent from East Anglia, which was very traditional in its screen design (though not painting). This discovery has given me useful direction for a specific chapter of my thesis.



# The archaeology of the pre-classical Mediterranean: Israel to Italy

by Charles Draper

**Location:** Israel, Palestine and Italy

**Award:** Glyn and Ruth Daniel Fund

**Dates:** 1<sup>st</sup> July–23<sup>rd</sup> July (Israel/Palestine) and 28<sup>th</sup> July–25<sup>th</sup> August (Italy), 2011

Briefly describe the activities of the project in which you were involved.

Over the 2011 Long Vacation, I travelled to Israel and Italy in order to serve as an excavator on two separate archaeological projects. The first was conducted at the site of Tell es-Safi in Philistia (roughly equidistant from Jerusalem and Ashkelon), while the second took place at the hilltop site of Col de Marzo in Umbria (close to the cities of Perugia, Gubbio and Assisi).

In Israel, I joined a team led by Professor Aren Maeir of the University of Bar-Ilan, excavating a ruined settlement that preserved evidence of some seven millennia of human habitation. The site, Tell es-Safi (identified as Biblical Gath, the home of Goliath), is one of the largest pre-classical sites in the Levant, and is particularly important for its well preserved Philistine levels. The Philistines

migrated to the Levant from Mycenae, Cyprus and other Greek islands after the Bronze Age collapse, bringing with them many practices and wares alien to the Levant – they cooked using jugs, ate pork and were highly militaristic. Previous excavations at Tell es-Safi had revealed remains of the world's earliest siege system, the oldest decipherable Philistine inscription (one of which bore the name 'Goliath'), and some of the first donkey burials in the Near East. The 2011 excavations were no less dramatic, and uncovered well-preserved Philistine destruction levels, hundreds of intact or fully restorable vessels, an inscribed Egyptian scarab of the New Kingdom, and an extraordinary horned stone altar. I worked alongside a team of archaeologists from the University of Manitoba, assisting with excavation, laser-assisted surveying, plan-drawing, indexing and the preliminary translation of a hieroglyphic inscription. While in the Levant, I was fortunate to have time to visit other sites of archaeological importance in both Israel and the Palestinian Territories, most memorably Masada, Jericho, Herodion and Megiddo.

In Italy, I assisted Dr Simon Stoddart's team at the site of Col de Marzo, a previously unexcavated provincial hilltop settlement dating to the Late Bronze and Early Iron Ages. The site was located between the Eugubian and Tiber Valleys, and thus lay close to the traditional border of the Etruscans, Umbrians, Sabines and Latins. Dr Stoddart's excavation formed part of a long-term effort to unravel the complex interplay of cultures, languages and identities in this fascinating but under-examined region of Umbria. Of particular interest to me were the frequent

and tantalising similarities between the Etruscan culture and those of the Ancient Near East – which included the use of liver divination, the construction of ritual calendars, the frequent depiction of lion hunts and parasol-shaded chariots, and a number of intriguing connections between the Etruscan language (usually believed to be a linguistic isolate), and those of the Anatolian Indo-European group. While at Col de Marzo, I assisted with trench set-up, excavation, recording, find-washing, wet-sieving and sample flotation. I also assisted with tasks at the excavation house, such as cooking and cleaning. On three occasions, I travelled with Dr Stoddart and other excavators to the city of Gubbio to transport and catalogue finds from earlier Cambridge-led excavations. In our short but intensive season of digging, we uncovered remnants of several rectilinear buildings containing fragmentary storage vessels indicative of trade and commerce, along with hundreds of collapsed clay roof-tiles. Evidence of smelting was corroborated by Dr Malone's discovery of a bedrock-cut gulley, which was interpreted as the remnant of an Iron Age tuyère furnace. Arguably the most significant finds of the season were two small bronze devotional 'Esquiline' figurines dating to the Bronze Age, which suggest the site accrued its initial importance for religious reasons, a finding that ties into notions of the importance of 'sacred landscape' during the Umbrian Archaic Age. Before and after the project began, I used my time to travel through northern Italy. I visited the Turin Egyptological Museum, home to the largest collection of Egyptian antiquities outside Cairo, and stopped off in Milan,

Modena and Bologna to visit museums and churches of personal interest.

[What were some of the things you enjoyed most about working on the project?](#)

Travelling in Italy and the Levant took me to some of the most striking and fascinating places I have ever had the fortune to visit. While in Israel and Palestine, I journeyed to desert fortresses hewn from solid rock, found Herod the Great's crumbling tomb, and navigated mounds of pottery, bone and mudbrick at the ancient city of Jericho. In Italy, I descended into a subterranean Mithraeum at the Basilica of San Clemente, had long and fascinating conversations with Montelabate's resident ecclesiastical historian, and found ancient crypts with chandeliers made of human skulls. Travelling and working in the Levant was particularly special because it brought the two subjects to which I have devoted time at Cambridge – medieval history and Ancient Near Eastern archaeology – into close union. At Tell es-Safi, the remains of a crusader castle sat atop the destroyed remains of a Philistine palace, while at the site of Jaffa near Tel Aviv, abandoned mosques and buildings from the Ottoman Sultanate lay alongside the newly-excavated remains of an Egyptian mudbrick fort. Sites such as these shed fascinating light on questions of archaeological heritage, ownership, conservation and presentation, revealing how the archaeological record could be emphasised, or even subverted, to support a specific political agenda. Above all however, it was the people who made the projects so special – from the charming luthier who took me around the

lesser-known parts of Bologna, to the indefatigable Americans who dragged me up to the top of Masada in the blazing midday heat, and the students from Cambridge and Queen's University with whom I worked in Italy.

What aspects of your travel project did you find most challenging?

Working in foreign environments with unfamiliar people was challenging but consistently rewarding. I had the opportunity to work at two remarkable archaeological sites, conversed with world-class academics, and developed archaeological skills that will set me in good stead for the future. Travel in Israel and Palestine took me to regions charged with religious and political tension, but the vast majority of the people I encountered were kind, hospitable and keen to share their stories. Though I travelled solo, I was seldom alone, as I met friendly and interesting people wherever I went.

How has this project assisted your studies and personal development?

Working in the Levant convinced me that I want to pursue a career in Near Eastern archaeology, and also greatly improved my understanding and appreciation for the archaeology of ancient Israel and Palestine. Working in Italy furnished me with my first experience of the 'single context recording' method used in most British excavations, and also enabled me to undertake extensive travel in a region with surprisingly rich Near Eastern museum collections. Both excavations

strengthened my skills as an independent traveller and archaeologist, abilities that I sincerely hope to deploy over the coming years.

# Rome: history in stone

by Fergus Hamilton

**Location:** Rome

**Award:** Glyn and Ruth Daniel Fund

**Dates:** September, 2011

Briefly describe the activities of the project in which you were involved.

In September, I visited a must-see city for any student of history: Rome. This involved touring across the major sites of the city; the Vatican, the Colosseum, The Forum, the Baroque sites of the centre of the city in Piazza Navona and Piazza Trevi, and the sleepy medieval quarter of Trastevere. We also went a little further afield to Ponte Milvio to see where Romans go to escape tourists (like us), which was great as it had a very different atmosphere.

What were some of the things you enjoyed most about working on the project?

To see art and buildings I have spent my whole life reading about and seeing in books, and not to be at all disappointed was an extremely pleasant surprise! 'Seeing it for real' really was incredible. Seeing the cellars at the Colosseum, from where the animals were sprung, was a highlight, as was the overwhelming scale and beauty of the interior of St Peter's. As with any trip to Italy, the food was to die for and would be worth the trip even without the inimitable art and architecture.

What aspects of your travel project did you find most challenging?

To be perfectly honest it was all very straightforward. It was rather hot and the buses weren't brilliantly well signposted but I can hardly claim this was an ordeal. The hardest thing in Rome is choosing what to see without rushing around or overloading oneself.

How has this project assisted your studies and personal development?

It was very valuable. In the first week of term, I have been studying the Renaissance and was able to use analysis of the Sistine Chapel in my essay – analysis I would be unlikely to remember were it not to have been received seeing the images in front of me. I feel I am a more well-rounded student and have a better understanding of art and culture from periods from the Romans to the medieval to the Baroque, which will be useful academically and, more importantly, very enriching personally.

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I would like to thank the generosity of the college and the Glyn and Ruth Daniel fund. Though a conventional trip to a fairly 'easy' destination, it was as enriching and enjoyable as some of my travels in much more exotic destinations. It's made my studies more enjoyable already and without the grant I could not have gone on the trip this summer so I am extremely grateful.

# Capo Mannu Project

by Jennifer Diane Moore

**Location:** Sardinia, Italy

**Award:** Glyn and Ruth Daniel Fund

**Dates:** 1<sup>st</sup>–22<sup>nd</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

I joined a team of archaeology students conducting a systematic field survey of the Capo Mannu region. This essentially involved collecting surface material remains, recording these finds by plotting them on a map according to their GPS position, and later washing and sorting the objects based on region and materiality. We were also given the opportunity to visit a number of archaeological sites in the area, including one of only seven ancient obsidian sources in the Mediterranean, the Phoenecian/Roman city of Tharros and a number of nuraghis. These extra trips were fascinating, and really helped to put our finds into the context of the region – as well as giving us a break from the fields!

What were some of the things you enjoyed most about working on the project?

I really enjoyed the group aspects of the walking. Though we were walking in distinct lines 10 metres apart (according to proper scientific method), it was exciting to come together at the end and compare

finds. I loved having the opportunity to interact with and touch objects usually inaccessible, behind museum glass. This was especially rewarding with particular finds, including a prettily-decorated nuraghic pottery sherd I picked up and some extremely delicate obsidian and flint tools.

What aspects of your travel project did you find most challenging?

As an international project, it was quite daunting working alongside a large group of Italian students who spoke limited English! However, the initial shock of this wore off quickly and it was fun to find different ways of communicating. And I know for my next project to attempt to learn more than basic pleasantries in the local language...

How has this project assisted your studies and personal development?

I definitely feel more comfortable handling archaeological pieces following my experiences in Sardinia. I think that taking part in a field survey has also widened my understanding of archaeological investigation in general: it's useful to know how excavation sites have been chosen, based on the findings of such surveys. It's an aspect of practical work that has so far been silent in our lectures and so I didn't really know what to expect from the project, but it was definitely a worthwhile experience!



# SEALNet Project Philippines 2011: empowering Filipinos to take ownership of their health

by Michael Garner-Jones

**Location:** Cebu City, Cebu, Philippines

**Award:** Hanley Fund

**Dates:** 13<sup>th</sup> August–6<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

For the duration of the project the team was divided into three separate subcommittees: Adults, Leadership (high school) and Children. I opted to be part of the Adults subcommittee. Although the subcommittees dealt with the behind-the-scenes preparatory work, everyone was involved in the implementation of everything.

Our work involved several local partners. We worked closely with professors, dieticians and students from Cebu Institute of Medicine (CIM) to: ensure our campaign events and educational material was factually correct; to bring medical expertise to the communities; to help conduct our community events; and to train our team about hypertension and learn how to take blood pressure readings.

Throughout the three weeks we also held leadership empowerment workshops at two of the best local high schools: UP Cebu High School and Cebu City National Science High School (CCNSHS). This ensured that the students were equipped with the skills necessary to help communicate our health campaign to the local communities, who couldn't speak English, and to enhance their abilities as future service leaders. In total, we ran about six workshops in each of the high schools covering topics such as: public speaking, fundraising and budgeting, time management, communication and interview skills, goal-setting, and self-evaluation as a leader. Each SEALNet team member was allocated two high school mentees per school. Throughout the project we focused on forming a dynamic personal relationship with each of our mentees to help them get the most out of each session and to foster confidence. At the end of each workshop, we also had time with the high school students to develop the educational material that we'd be using throughout the project.





In the last week of the project, together with our high school mentees, we went to our local elementary school partners – Lahug Elementary School and Labangon Elementary School, to hold our in-classroom presentations to grades five and six. Each grade consisted of about 10 classes, each with around 50 students. It was really rewarding and I felt proud to see how our mentees had blossomed as they conducted their innovative presentations. These often involved skits based on the local popular children’s TV show Mara Clara and songs based around Jessie J’s ‘Price Tag’ and Bruno Mars’ ‘Just the Way You Are’ to teach about healthy living and hypertension in a fun interactive way. We also produced a book called My Life Log Book and gave one to each of the children so they could write in their personal health information (eg weight, BMI) and keep track of their diet and exercise regime. Furthermore, we produced a hypertension information booklet that had examples of games, puzzles and activities the teachers could do with the classes to reinforce our message after we’d left.

Our last leadership workshop had the two high schools come together and carry out the workshop tasks collaboratively. We hoped this would form a relationship between the two schools and encourage them to work together on service projects in the future. One of the workshop stations had the schools brainstorming ideas together for community projects they wanted to do over the coming year, and set definitive plans in order to accomplish these goals. Hopefully this will help create a network between the schools so that they can continue our work. The leadership team also developed a manual of all the

workshops we’d conducted. We left copies with the teachers at each school so that they could refer back to them and build upon our sessions.

The Adults subcommittee was mainly focused on preparing campaign events that were to be held in a rural mountain community run by the non-profit organisation – Gawad Kalinga (GK). GK Cebu is a village created to provide housing for families that were left homeless after a fire destroyed a large area of the slums within the city. The village consists of 163 one-room (4m x 3m) houses with several family generations often living in a single house. Our first task as the Adults subcommittee was to construct an extensive survey to assess the health of the individual GK residents. With help from some of the high school students and local GK volunteers, our SEALNet team conducted door-to-door interviews; meanwhile the Adults subcommittee held focus group discussions with the community leaders. The feedback we received really helped us develop our campaign in a way that was culturally relevant and specifically targeted at helping that individual community. The focus group discussions provided invaluable insight into what the community wanted, needed and what interventions would be most effective and beneficial. Therefore, the Adults subcommittee decided that we were going to host a health fair day and develop a booklet called A Book for Life for the GK village. In hindsight, I don’t think we realised what a huge task we were undertaking.

In our second week, we went back to the GK village, and used our newly-acquired blood pressure

reading skills to, once again, go door-to-door and take residents' blood pressures. Although we were aware of the hypertension statistics for the Philippines, it was still surprising to discover how many people were actually suffering from high blood pressure and the extent of their hypertension. However, in a way, it was reassuring to know that our time here really could have a big impact on the health of the community.

In the third week, we hosted the GK Health Fair day, prepared by the Adults subcommittee. The health fair was divided into three main areas. The first was an information area containing videos, posters, stalls, medical advisors and free fruit and vegetable giveaways that residents could visit throughout the day. We had several stalls set up focusing on: health and hypertension information; BMI and blood pressure readings; Q&A with the medics from CIM; healthy eating; exercise and anti-stress; smoking; alcohol and drugs; and a teddy bear hospital to teach the kids basic first aid and medical practices. We also had a wall where residents could write their ideas and changes they wanted for their community, and we ran a stall where people were encouraged to sign-up to specific roles, eg someone to run a regular volleyball team. Furthermore, we had a second wall that showed residents how much money they could save by stopping smoking for a week, a month, six months, etc, and the residents could write what they would buy with the saved money. The second area of the fair was a sports arena, where we had different sports tournaments running throughout the day to excite people about the various sports that had frequently been suggested in the surveys and focus group discussions.

The third area of the fair involved aerobics and dancing; everyone was encouraged to get involved, but in particular the older women from the community. Later, we held a healthy cooking competition in that area. Several teams, who had already been briefed and given a specific budget, had a one-hour cook-off, which was then judged by taste and healthiness (ie salt, fat and vegetable content). The winner and runner-up had their recipe put in A Book for Life for everyone in the community to try.

A Book for Life turned out to be a mammoth task with chapters on: personal health information, hypertension information, diet, exercise, smoking, alcohol and drugs, smoking, stress, recipes, ideas for the community, first aid, local contacts and partners. The whole book had to be translated into the local dialect; to do this we involved the GK community leaders, a SEALNet team member's relatives that once lived in



Cebu and even the hotel staff! Thankfully the people in my subcommittee were brilliant – really hard-working and dedicated – so the book was completed, printed and delivered to the village in time.

We also ran a separate Children’s Health Fiesta day in the GK community, prepared by the Children subcommittee, with help from local GK volunteers as translators. The day consisted of lots of different lessons, skits, games, activities, songs and competitions to make learning about healthy living fun and memorable for the 80–100 young children who attended. By reviewing and recapping throughout the day it was clear to see that they really had learnt and retained the knowledge.

[What were some of the things you enjoyed most about working on the project?](#)

Project Philippines 2011 was an amazing experience. It was so satisfying to turn our ideas into reality and see first-hand the impact the project had; it really made all our hard work worthwhile. It was such a fantastic opportunity to experience an entirely different culture and interact with local people on a very personal level – an opportunity I will probably never get again. You can read about Third World countries such as the Philippines and gain an insight into what it is like, but you never truly know and appreciate the culture until you are immersed in it yourself. One of the things I enjoyed most was how hospitable and welcoming the local people were, and how happy, excited and grateful they were for us just being there. I also really enjoyed the process of teaching and

imparting knowledge to others. It was great to be given a small number of mentees that we were able to get to know and really help them develop as individuals. However, my two best experiences of the project must be the Children’s Health Fiesta and working with the incredible SEALNet team. The kids were adorable, and despite being absolutely exhausting, it was fantastic to interact and play with them for the day. They were so happy and excited, and it was inspiring to see what a positive outlook they had on life despite their living conditions. Secondly, the project consisted of 15 of some of the best people I’ve ever met. The friendships I made in those three weeks were some of the best I have ever made, and I am sure we will keep in contact for a very long time, despite coming from different countries around the world. It was also great to learn about the lives and different cultures of each of the SEALNet team members. Everyone was so dedicated and passionate towards our cause; each person played to their own strengths and was open to new ideas.

[What aspects of your travel project did you find most challenging?](#)

In general, I found the issue of safety and security the most challenging. Despite the project leaders being very conscious of potential dangers and risks, I never quite felt safe and comfortable. Many of the local people had seldom seen a white person so, at times, we attracted a lot of unwanted attention.

Also, when I applied for the project I was definitely naïve about the amount of work that it would

involve. After conducting workshops, events and meetings during the day we would come back to the hotel and continue with all the subcommittee preparatory work. We would be up at 7am each morning and often not go to bed any earlier than 2am each night. It was thoroughly exhausting, but I wouldn't have had it any other way. It meant we really maximised our time there and accomplished as much as was possible. At times I found it challenging to be energetic and upbeat, but knowing that our attitude and level of enthusiasm would rub off on our audience, it was important that I didn't let this show.

In particular, I found it difficult to balance the group dynamics in my mentee pairs. For example, one of my high school mentee pairs consisted of a student who was very confident and great at public speaking, while the other was quiet, shy and struggled. It was difficult having to criticise and highlight the weaknesses of one mentee whilst praising the other. However, as the project progressed I definitely felt I became more competent.

### How has this project assisted your studies and personal development?

Firstly, I have definitely gained a better understanding of hypertension as a medical condition, and have acquired the skills needed to read somebody's blood pressure.

Also, I have further developed my ability to work within a small and a large team. I have learnt to voice my opinion, especially if it approaches the problem

from a different angle and even if it conflicts with the general consensus. I have learnt to take other people's suggestions on board, develop them and produce a better final product as a result. Moreover, I have learnt how best to delegate tasks in order to play to people's different strengths, but also not be too rigid and controlling, allowing people the opportunity to overcome their weaknesses. I really enjoyed having to brainstorm ideas and come up with innovative and sometimes abstract suggestions or ideas. I also came to understand the importance of being flexible and I was able to appreciate that things may not go exactly as planned, but it is more important to use your initiative and utilise what resources are available to make the best of the situation.

In addition, this project emphasised the importance of dedication, meticulous preparation and forward planning. I learnt to assess my work and myself, and not to be afraid to be critical or admit weakness.

I really have learnt so much from this experience and I can definitely appreciate how the skills I have developed will be directly transferable to my future medical career. I only hope that we were able to give to the communities and the mentees half as much of what we learnt ourselves.

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I want to sincerely and thoroughly thank each of my sponsors who gave me this wonderful once-in-a-lifetime opportunity.

# Reforestation in Haiti

by Leo Isaac-Dognin

**Location:** Anse-a-Pitres, Haiti

**Award:** Hanley Fund

**Dates:** 4<sup>th</sup> September–2<sup>nd</sup> October, 2011

Briefly describe the activities of the project in which you were involved.

Sadhana Forest is an environmental project originally launched in 2001 in India. Its main objectives are to reforest the land and to refill the water table in order to allow locals to cultivate the land in a sustainable manner. After its successes in India, a new sister project was launched in a very remote area of Haiti, named Anse-a-Pitres, where the aims are the same. In order to achieve these aims, the project relies entirely on volunteers to complete any tasks that might come up!

Hence, my activities were quite varied. As expected, I spent a large part of the time watering, taking care of and monitoring the 50,000 trees that were planted six months ago (a species that Sadhana is trying to reintroduce in Haiti after its extinction several decades ago). I also worked on building and expanding the irrigation network, in order to transport water across the several hectares of land without letting it evaporate. The bulk of this task was to assist in the building of a large concrete platform with a tank containing our water.

However, to my surprise, I did not assist this work as much with my hands as I did with my tongue: my friend (with whom I travelled to Haiti) and I were the only ones who could speak Spanish and French, and we therefore served as translators for the project managers. Anse-a-Pitres is close to the border with the Dominican Republic, and because it is completely cut off from the rest of Haiti by the mountains and sea, most materials and technical workers come from the Dominican Republic. As a result, I did not spend a single day, and rarely more than one hour, without translating between French, English and Spanish, even helping Dominicans and Haitians communicate with each other. The best moment was when I translated between the head of two Haitian community associations, a Dominican state official and a captain of the United Nations task force!

Another key activity was to plant the trees with local people, explaining how to take care of them once planted and detailing the numerous uses that locals could make of the trees.

Finally, my friend and I did our best to reach out to the community and try to learn two things from them: 1) what were the social and economic reasons for deforestation, and 2) generally, how they thought Sadhana Forest could benefit their community most. After several discussions, in the street and in classrooms, we witnessed how the inefficiency of local cooking systems was a major contributor to deforestation. Using the work of an engineering PhD student who had volunteered several months earlier in Sadhana, we started replicating the 'rocket stove'

that he had built. We built our first rocket stove right before leaving.

What were some of the things you enjoyed most about working on the project?

I really enjoyed the extremely simplistic lifestyle at Sadhana. We slept in tents, spending any other relaxing time in a large wooden hut. We had a solar panel to charge flashlights for the night, but otherwise, we were cut off from any electric devices, including phones and the internet.

Every aspect of our daily life was extremely respectful of our environment, and it was good to see how living environmentally does not present any constraints, at least in a country where the temperature rarely drops below 26°C (including the ocean!).

Other memorable moments involved conversations with locals, attending a voodoo ceremony, and resting on the deserted kilometres of paradisiacal beaches.

Finally, Haiti surprised me by the fact that for once, I did not feel like a (white) alien in a developing country, despite being among the few Westerners in the region, not to say country. Haitians would talk to and work with us as equals, and I would say that the professional relationships I built with locals were the most valuable part of the experience I gained in Haiti.



# Kenya: a country full of potential

by Rachel McGalliard

**Location:** Kenya: Kisumu, Nairobi, Maasai Mara, Lamu and Watamu

**Award:** Hanley Fund

**Dates:** 27<sup>th</sup> August–21<sup>st</sup> September, 2011

*Briefly describe the activities of the project in which you were involved.*

For the first two weeks, I was working with the Kenyan Orphan Project (KOP), which is a charity founded 10 years ago by medical students in Nottingham and works in Kisumu to help orphans and vulnerable children. I went with seven other students from Cambridge and 13 from King's College London to see the projects where our fundraising money was being used. As we spent four days in each place, we were able to get to know the staff and children, help in the projects, experience the culture and understand the challenges faced in each project.

Our first project was in a district secondary school called Oasis of Hope. We were building a laboratory and classroom for the school, which although was tough physical work, it was something that would last and serve the needs of the school well. It was during the summer holidays, yet around 80% of the children were in school, to continue studying. We were

able to talk to them about the education system and their background, as well as cultural issues including polygamy, the influence of tribes and the power of the police. The children were so eager to learn and interested in discussions. We also took part in a school debate entitled "The sociopolitical environment has contributed to the misery of Kenyan citizens", which was organised like a parliamentary debate and the students' knowledge and passion was impressive.

We also worked in a community project called VIMA, which provides food, education, medication and health care to orphans and HIV/AIDS families in the slum in Kisumu (the third largest slum in Africa). We helped with administration during the day in preparation for the new school year and also ran kids' camps in the afternoons. We were able to see children who were happy, safe and well cared for and also interact with them, see their homes and see the transformation that VIMA had made to their futures.

We spent time in a very rural community at Kochogo Feeding Centre, which provides two meals a day for children up to the age of 18 who are most in need. The centre supports over 250 children but the need greatly surpasses the means to do this, so there is a strict selection criteria and it was shocking how little these children had. We were able to paint the centre and add educational murals, as well as prepare the meals and play with the children. Despite their deprived environment, these children were extraordinarily loving and grateful, and it was a joy to get to know them.

PHAN PROJECT CHILDREN'S CENTRE OMEGA F



Our final project with KOP was a rehabilitation centre for street children in Kisumu, called HOVIC (Hope for Victoria Children). Street children are a large problem in Kisumu; they run away from home due to poverty, an abusive family or even to prevent one of their siblings being sold for money. Life for street children is extremely difficult as they are beaten by the police, and drugs are much cheaper and more accessible than food. The girls are often taken into child labour or prostitution, whereas the boys remain on the streets, homeless. HOVIC has an outreach session every night in the city and the boys that come get food, clothing and training in soapstone making, as well as medical care and counselling. There is a night shelter that is used to house boys before they are reunited with their families or a safe relative, and it is also used to train the girls in tailoring during the day. Many of the boys are funded to go to school or into an apprenticeship. We were able to help in the day centre, which is a converted bus station. We painted the centre and also got to know the staff and boys, and visited the girls. At HOVIC they are taught about health and life skills, and the nurses help the boys to stop using drugs, which we helped with by teaching them first aid.

After the project, I travelled in Kenya with four others from the team. We visited Nairobi, where we explored the city and went to the National Kenyan Museum, as well as visiting an alumnus from Cambridge who became Financial Advisor to the Kenyan government. It was very interesting to hear about his work and to learn about the changes he has seen in Kenya from the 1950s, through the country's inde-

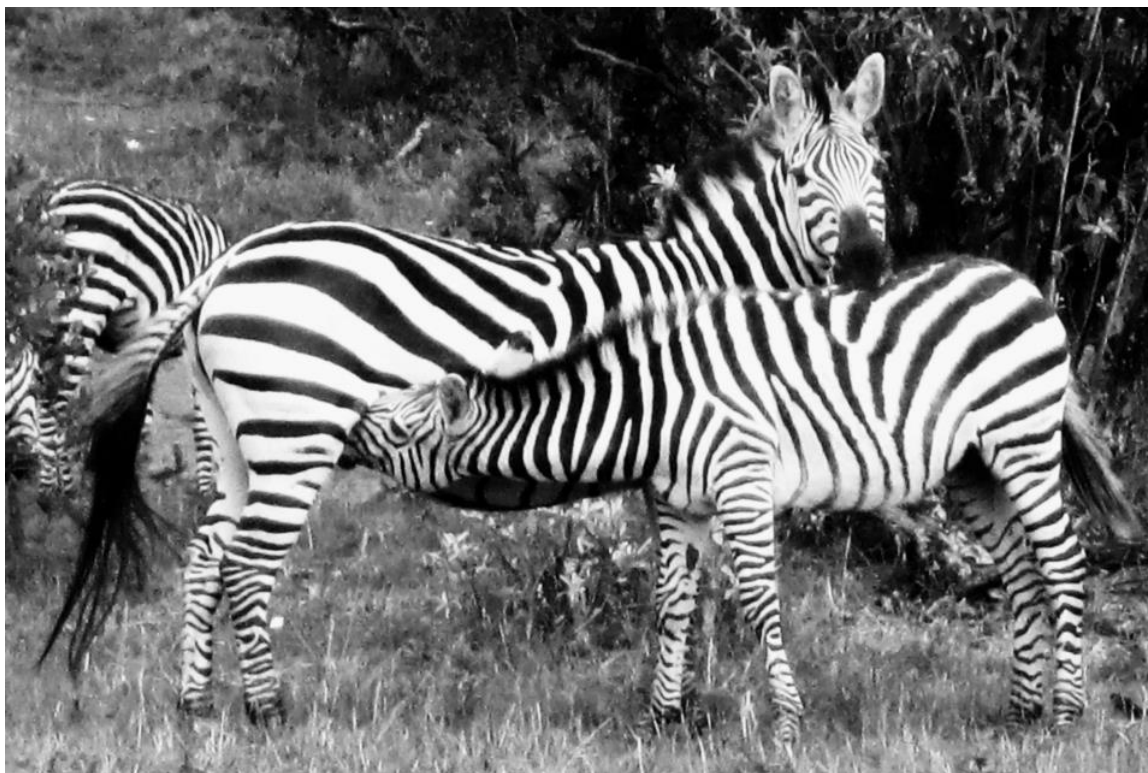


pendence in 1963 and up until today. We went on a three day safari to the Maasai Mara National Reserve and were really fortunate to travel through the Rift Valley and see so many animals, including prides of lions, herds of elephants, zebra, hippopotami, wildebeest, buffalo, cheetahs hunting, leopards resting in

the shade, rhinoceros in the mud and ostriches. It is an area of absolutely breathtaking natural beauty, which just borders the Serengeti in Tanzania. We were also able to visit a village of the Maasai tribe and enter their houses, learn some of their customs such as welcoming dances, lighting fires and their husbandry of the land. It was a brilliant opportunity to learn more about their culture and ask questions, especially about their tribal dress and practices, which unlike most of the other tribes, they have kept despite the influence of the Western world. We then travelled

to Lamu Island, off the East coast of Kenya, which was very interesting to visit, as Western Kenya has a large Christian influence and Lamu is a very Islamic island. Lamu Island is the antithesis of Nairobi – a big impersonal capital, bustling and hectic. Lamu has only two cars; it is a close community and everything is relaxed. The abundance of donkeys, beach boys and dhow rides were each in turn quite overwhelming, but it is a very friendly and safe town, which is perfect to wander around and talk to the locals, and discover more Swahili culture. Although it is a stunning

natural island, there is a substantial problem with waste disposal, which has tarnished the beautiful Shela beach. Also, the recent arrival of drug trade to Lamu has apparently changed the dynamic of the island. In Lamu we visited the fort, saw the intricately-carved doors, went to the museum and a traditional Swahili house, as well as going to the beaches, enjoying the juices and fresh seafood, and a trip to Manda Island. Our final destination, before the 30-hour journey home was Watamu, which is



a marine nature reserve in Malindi, further down the East Coast. Here we were able to explore the beaches, spotting sea turtles, moray eels and other protected marine creatures in the coral reef.

[What were some of the things you enjoyed most about working on the project?](#)

I had previously been to Romania to work in the orphanages, where there were lots of problems, especially developmental and mental health due to the institutionalisation of the children. However, it was more uplifting in Kenya where orphaned children were supported by organisations like VIMA and kept as families, either being looked after by a relative or by someone else in the village. The pupils of the Oasis of Hope School were so determined and motivated to achieve their potential that I have realised how privileged I am to study at Cambridge. I loved engaging them in conversation about their cultural views and the differences between our countries and also taking part in their school debate. At Kochogo Feed-

ing Centre, I was really astounded at how dedicated the staff of five were; how they cared for the children, knew them all personally and would visit their homes if they didn't turn up after more than three days. I loved playing with the children and seeing what an effect it had on them over the four days that we spent there. In HOVIC, the boys ranged from 7 to 18 years of age, and it was a fantastic opportunity to make friends with them and teach them. Their English was good, so we could have deep conversations and it was lovely to spend time with such an engaged group



who were so caring towards each other and so talented. Their thirst for learning was also evident and they were truly grateful for the opportunity to meet us and the funding that we provided. I really enjoyed making friends with them and it was a privilege to hear their stories and how they had turned their lives around. I loved talking to the staff at HOVIC, as well, about the challenges of their work. It was a fantastic opportunity to be able to travel around Kenya and see more of this beautiful and varied country. I enjoyed each place I visited as there was such a range of nature and activities in each. I especially enjoyed the safari as we came very close to such a number of magnificent animals.

**What aspects of your travel project did you find most challenging?**

Dealing with extreme levels of poverty each day was difficult, especially when I compare this to the UK, as these people are no different to us. I also found it personally challenging when they were so grateful for everything that they had and for the money that was helping them to be fed, access medication or go to school, when so often we complain when we have so much. The children were happy and loved to play or talk, yet it was shocking later on when we found out that they were so much older than we expected due to malnutrition or polio stunting their growth. In Kochogo there were a few children who had little energy and who you would sometimes find crying from the pain of their symptoms of malaria. I also found it challenging to deal with the barriers towards education, which can be the key to helping them improve

their circumstances. Primary education is free but books and uniforms must be provided by the family, which prevents a large proportion of children being able to attend. It was hard, especially in HOVIC, where boys in their late teens had dedicated dreams of becoming professionals, which requires a Kenyan Certificate of Secondary Education (four years), but had not finished their primary education (eight years, usually until age 14). After getting to know the children in HOVIC, they would often open up to us and tell us their life story of why they left home, their life on the streets, where they were living now and their hopes for the future. These were truly inspirational stories of real challenges that had been overcome, such as addiction, stigma and reconciliation at home, but at the same time they were full of horrific details; which are still true for so many street children in Kisumu. When we took the boys to play football one afternoon, it was shocking to walk through the slums to get to the park and to see some of their old friends, constantly resting glue bottles on their bottom lip, under their noses and the effect it was having on their ability to think and reason. I found that particularly challenging. It was exigent in HOVIC because the boys, who had such a thirst for learning, often did not have the money to attend so would ask us for sponsorship. It was very difficult to explain that we were trying to help all the children through HOVIC so we did not want to single anyone out. They saw this as a direct refusal of them to be sent to school.

## How has this project assisted your studies and personal development?

We were able to spend a day in Maseno University and Hospital, which was fascinating to compare the differences in entering university, and its accessibility despite a very similar course structure for medicine. The district hospital had far fewer facilities than even some general practitioner surgeries but the staff were committed and worked diligently for each patient. This was especially evident in the maternity ward, which was not able to provide Caesarean sections for HIV/AIDS mothers or any pain relief during childbirth, but they had managed to provide specific anti-retroviral treatment (ART) for HIV/AIDS mothers and their neonates, as well as being highly skilled in assisting natural birth. However, even the toilets did not have sinks and the X-ray machine had been broken for over two years. It was interesting to talk to the doctors about the health problems faced in Kenya, especially those of access to health care and medication. There are many small remote villages and giving a patient a course of medication can be difficult, as tablets are often seen as a cure, rather than something ongoing to manage symptoms and progress of the disease. There is also a divide between infectious diseases, which are more prevalent in poorer communities but the treatment is supported by foreign aid and is available to all, and the rising trend of 'lifestyle' diseases in Kenya such as diabetes or high blood pressure, as there are far fewer facilities to treat the latter. It was fascinating to compare the health systems and care (such as procedures and medication) between Kenya and the UK, as well as the demographics of diseases. It has

given me a good insight into searching for a location for my medical elective.

In HOVIC, it was a brilliant opportunity to talk to the nurses about the difficulties regarding children's health and those of the street children. I found it fascinating to learn about the management of malaria and HIV/AIDS, as well as parasites and infections, especially as they are in such a close community. I learnt a lot about the management of drug abuse and weaning the boys, extremely effectively, from their addictions as well as the social problems and stigma of being labelled a street child, not to mention the impact of this on their own childhood and wellbeing. However it was very uplifting to see how caring the staff were and how effective these programmes are.

Concerning personal development, I learnt a lot more about Swahili culture and therefore to be respectful of other cultures, as well as different styles of communication depending on their level of Swahili or English (I learnt Swahili in preparation for my trip). It was a fantastic opportunity to build up my confidence in teaching others about medicine, and also in working as part of a group and supporting others when situations were very difficult to deal with. I was also able to improve my listening, organisational and leadership skills.

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I am extremely grateful for the funding that gave me this opportunity to visit Kenya and support such a worthwhile charity.

# An investigation into the prevalence, effects and economics of Tuberculosis in the Greater Accra region of Ghana

by Francesca Scott

**Location:** Greater Accra, Ghana

**Award:** Hanley Fund

**Dates:** 11<sup>th</sup> July–28<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

I spent my time working with local herdsmen and district vets in the Greater Accra region in Ghana, collecting data about individual cows' state of health and testing each cow for bovine tuberculosis, with the aim of exploring any correlation between tuberculosis-positive cows and their productivity. Along with considerable Ghanaian help, 360 cattle were tested and individually scored for fertility, body condition and milk production in a way that could be replicated on any farm, without veterinary input.

What were some of the things you enjoyed most about working on the project?

I enjoyed learning that I was more resourceful than I had thought. I arrived without too many problems, but my luggage remained in London for four days at the start of the project. Travelling to Ghana and learning to live without Western comforts is a challenge; travelling and finding you do not even have a toothbrush or malaria tablets was an unexpected twist of events!

I was also surprised by how much I enjoyed the research itself. Learning facts by discovering them rather than reading them was a new experience for me and one that has made me see research as an





exciting, productive and creative activity; all my unfounded reservations evaporated rather quickly.

What aspects of your travel project did you find most challenging?

I found it difficult not to get frustrated with the apparent lack of organisation in Ghana. Coming from a high input, caffeinated and often highly ambitious society, Ghanaian perspectives seemed to be lacking a certain urgency. Managing to conduct research whilst trying to understand a cultural difference, the likes of which I had not encountered before, was the most difficult and the best element of my trip.

How has this project assisted your studies and personal development?

It is important for me to relay the results to the vet services and consequently the farmers in Ghana, as well as continuing to work on a way for herdsman in developing countries to assess their cattle objectively – reducing their costs and increasing their animals' overall health. In addition to this, I am hoping to write the project up as my final year elective, with an aim to getting it published in the next few months. The trip was one of the best opportunities I have ever had, and it has really encouraged me to think about how vets can affect animal welfare in a way that ultimately benefits human communities. I think this is



particularly important in developing countries where the economics are so fragile that, understandably, veterinary work often takes a back seat. Recognising the correlation between animal and human health is an important element of a vet's job, whether it be in the small animal clinics of the UK or the kraals of Ghana.

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I am very grateful for the Hanley fund, without which this project would have been almost impossible. I hope that the fund continues to provide students with the opportunity for exciting and important travel in the same way that St John's itself has opened doors in my life I could not have imagined existed. I cannot thank you enough.

# Three weeks working in the Lagomaggiore Hospital in Mendoza, Argentina

by Maria Burova

**Location:** Mendoza, Argentina

**Award:** Johnian Society Travel Exhibitions

**Dates:** 16<sup>th</sup> July–6<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

The hospital in which I was situated during my stay was Lagomaggiore, which was a public hospital and thus accepted all sectors of the community, and even – to my surprise – visitors from Bolivia and Chile who, I am told, make the journey across the border into Argentina to benefit from its excellent healthcare provision.

I chose to spend my entire three weeks in the department of General Medicine, as I wanted to become accustomed to the environment and really get to know the people I would be working with for this time. The department of General Medicine served to take in all recent cases, refer them to specialist wards if needed, or to prescribe, treat and discharge patients as soon as possible.

Having witnessed the daily issues that crop up within this busy workplace, I developed a huge respect for the young doctors who work within this environment. Speaking to them (in as much Spanish as I could manage), I understood the difficulties of a job in which you can only do so much. Many of the young doctors expressed concern and regret for the social situation of many of their patients; those coming from poorer backgrounds, the physically and socially disadvantaged, those who will return to their home (or lack thereof) and be exposed to the same conditions and problems that led to their stay in hospital. It is heartbreaking to see a patient discharged with the knowledge that they will almost certainly be back again within the next year, especially when this patient is a child or young adult.

It is situations like these that made me realise how crucial personal relationships are between a doctor and patient. As the hospital is government-funded and free to all its visitors, the extent of its care is limited to how well it distributes its funding. Sadly, it is unable to provide the extended range of pharmaceuticals available to patients within any British hospital, as well as being limited by the number of beds and range of medical equipment (a large proportion of patients are still given oxygen through large cylinders, which must be carried and placed next to their bed by the maintenance staff). Many of the staff make use of the pharmaceutical reps that regularly visit the hospital, deliver speeches and hand out trial packs of drugs – these are used to treat patients at least for a short period of time because Lagomaggiore cannot yet afford to purchase the drug via conventional means.

During my stay, I was introduced to the daily routine of a young trainee doctor and accompanied them on ward rounds, meetings, training sessions and any little task they had to chase up. It was a brilliant experience to be thrust right into the heart of proceedings and to see events first-hand as they unfolded.

Every morning, the day would begin with a group meeting, in which the interns gathered around several senior doctors and described the more difficult cases, discussed them with colleagues and sought advice. At first, two hours of sitting in a stiflingly warm room with Mendozian Spanish being thrown from all sides (which, I'm told, has an even thicker accent than the rest of Argentina) was no easy task. Mercifully, most of the medical terminology was almost identical to English, however the accent made it difficult to understand even this, and it required 110% concentration to keep listening and understand where the discussion was leading. Thankfully, many of the younger doctors spoke at least some level of English, and were always on hand to explain certain clinical confusions – especially when one of the more senior doctors chose to make light-hearted entertainment of my poor Spanish and ask me a question about the patient in front of the whole room! Needless to say, the 'deer-caught-in-headlights' expression became my look of choice.

The morning meeting was punctuated by copious amounts of biscuits and 'Mate' – the traditional Argentinean tea, which is made in a communal pot and passed around, with everyone drinking from the

same straw. After this, the young residents did their individual ward rounds and inspected their patients. The first thing that surprised me on my arrival was how few patients each doctor seemed to have. For every young resident, there were about two or three patients of whom they were in charge (five patients was a nightmare and prompted tragic looks of exhaustion and sympathy from colleagues) and they spent several hours visiting not only their own, but other patients in order to have a good idea of what was happening around the whole ward, in case of being on a night-shift. Residents spend these several hours every morning shuffling around from bed to bed in groups ranging from 4 to 10 doctors and discussing each patient one by one. How the patients must feel, surrounded by 10 white coats staring down at them, I do not know!

Again, it took all my concentration to focus on what was being said during these discussions, as their rapid, quick-fire of words was incredibly difficult to follow at times. Often, the discussion was accompanied by simple physical examinations, such as listening to a patient's lungs, which I was thankful to partake in.

After several hours of ward rounds, the residents separated into smaller groups to attend to their individual patients. During my three weeks, I spent each week with a different resident, and thus got to see a wide variety of cases but still develop a personal relationship with each resident who introduced me to their daily work.

It is difficult to describe in this brief report the many extraordinary things I got a chance to see during my time in Lagomaggiore. Most of the patients within the ward came from disadvantaged backgrounds, and thus the range of problems and conditions encountered was nothing like I had seen in any British hospital I have visited. Very often, the source of the problem was poor living conditions. Many of the patients were poorly educated and several had very severe communication difficulties, which made the role of the doctor that much harder and showed how important developing a non-verbal relationship is. What I found so inspiring was the limitless patience of the doctors working on the wards, for which such difficult patients were an everyday occurrence.

Other surprises that I would not have imagined before spending time in Mendoza include the unusual doctor to nurse ratio. There was a team of about 25 doctors for 90 or so beds, whilst the nurses were in short supply. This meant that much of the maintenance which should have been carried out by nurses was lacking, whilst doctors were always on hand if needed. Furthermore, I noticed a much larger proportion of female doctors than I have previously seen in British hospitals. For example, in the team of residents I was with, around 15 of the 25 were female. However the vast majority of senior doctors were male, which leads me to conclude that this influx of women is a more recent phenomenon; although I was told by the resident I was with (a woman) that women have always been fairly well represented in the workplace in Latin America.

During my stay I helped out the residents as much as I could, such as being on hand to help examine any patients, as well as applying gauze and bandages, assisting with taking blood and even getting a chance to visit the laboratories on the other side of the hospital in which the testing and sampling takes place. Absolutely everyone I met during my stay was nothing but lovely and all were thrilled to hear the words 'England' and 'Cambridge', especially the nurses who delighted in my attempts at making some poor jokes in Spanish and offered me Mate tea whenever possible.

[What were some of the things you enjoyed most about working on the project?](#)

What I remember most about my three weeks in Argentina is the incredible generosity and friendliness of the people I met. I was genuinely overwhelmed by how welcoming and eager to accommodate people were, even if they had their regular jobs to be doing and my awkward Spanish to contend with. It is a different culture to adapt to, and the sense of humour and social interaction is, of course, rather different and took some getting used to, but I had settled in so comfortably during my stay that it was a great, great shame to leave just as I had begun to feel truly at home.

What aspects of your travel project did you find most challenging?

The language barrier proved to be quite a challenge at the start, but I enjoyed seeing my own improvement over the course of my stay.

How has this project assisted your studies and personal development?

This project has helped me understand so much more about how healthcare works in other parts of the world, especially the poorer communities. I will never forget the brilliance of the staff, who work under such difficult and pressured conditions. And the trip also helped my Spanish a lot!

# Helping the Tibetan cause in Dharamshala

by Alice Carr

**Location:** Dharamshala, India

**Award:** Johnian Society Travel Exhibitions

**Dates:** 1<sup>st</sup>–22<sup>nd</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

Whilst in Dharamshala, I was primarily involved with teaching English to Tibetan ex-political prisoners of war. Every day, a two-hour English class was held at an ex-political prisoner dormitory that I helped teach at. The students saw English as a way into the wider world, away from the country they were forced to flee. Further to this, I also attended and helped out at demonstrations and awareness nights. I became particularly interested in the plight of the Panchen Lama, who was taken hostage when he was just a child. There is a wide campaign to find him, and I helped organise film nights to raise awareness of this issue.

What were some of the things you enjoyed most about working on the project?

The students were all incredibly friendly and very eager to learn, so teaching them was a pleasure. As I spent so much time with them, I formed many close

relationships outside the confines of class, and I still keep in touch with many of the people I taught. By forming these relationships with Tibetan people, I was able to learn more about their culture and language, and I started taking Tibetan language lessons with one of the students, which I am continuing via the internet. The Tibetan friends I met showed me the true Tibetan lifestyle, which, they said, most tourists missed, and took me to the Tibetan library, where I attended Tibetan philosophy classes with a high-ranking member of the Tibetan Buddhist faith. I plan to visit Tibet next summer, so I can gain a deeper understanding of what the people who I grew to know suffered.

What aspects of your travel project did you find most challenging?

Although some of the students had a very poor grasp of English and teaching them was difficult, the challenge was nonetheless enjoyable. The most difficult aspect of dealing with ex-prisoners of war was that they all had harrowing stories to tell. They had all walked to India through Nepal after they were released from prison; their stories were interesting and informative, but very hard to ingest. Many had physical scars from their torturers, and all had emotional scars. One man wanted to show his family back home (his wife and two young children) that he was learning English and asked me to help him write a letter. The letter was heartbreaking because, although he is making the most of his time in India, he has no idea when he will next see his family. The Tibetans I worked with were all optimistic, even

though they had gone through great hardships, which I cannot begin to imagine. This is an amazing quality to have; however, there is something quite poignant in their unwavering hope that they will one day return to the country they were forced to flee from, when realistically, they may never be able to return.

### How has this project assisted your studies and personal development?

This project has been incredibly enriching and I'm so glad I had the opportunity to go. As it was the first time that I have travelled alone, I feel that it has taught me to be much more independent and strong. While I found being in such a different culture alone daunting at first, I soon learned to adapt. I truly believe that this has been integral to my personal development, and, although it seems horrifically clichéd, I feel like a different person. I made so many good friends in Dharamshala that I'm hoping to continue studying the Tibetan language and return next summer, after visiting Tibet. I have become truly engrossed in the Tibetan cause and I am continuing to raise awareness in the UK.

# A voyage of discovery, the Indonesian Archipelago

by Hans Trivedi

**Location:** Indonesia

**Award:** Johnian Society Travel Exhibitions

**Dates:** 11<sup>th</sup> July–13<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

The main goal of the trip was to travel across the archipelago of Indonesia, and immerse myself in Indonesia's culture, as well as undertaking a variety of adventurous activities throughout the region. Island hopping between Java, Bali, Lombok and the Gili Islands, travelling by public night buses, slow boats and at times overcrowded canoes was a fantastic way to experience the essence of travel and the 'real' Indonesia.

Visiting the top of Sukarno's Monas towering over Jakarta gave a visual sense of how far the booming city has spread, while the small mountain village of Kaliurang, where ancient traditions are practiced, offered a sharp contrast. Such cultural contrasts were attenuated as we arrived in Bali, where the community practises an unorthodox form of Hinduism filled with colourful morning offerings to the spirits. It was refreshing to experience cultural practices like the Barong dance, and visit the Antonio Blanco museum



Above: 'Bali Offering'  
Opposite: 'Barong Dance'





of creative art. Equally mesmerising were the vast temples of Borobodur and Prambanan, testaments to the synergy of ancient civilisations by incorporating a fusion of Buddhist and Hindu architecture into these protected world heritage sites.

Alongside the cultural aspects of the trip, our travels were filled with more active exploits. I particularly enjoyed surfing off Kuta's white sand beaches, as well as tree top climbing 40 metres above the ground. We moved across landscapes, from hiking in the danger zone of the active volcano Mount Merapi and white-water rafting along a 10km stretch of rapids near Ubud, to sea kayaking off the coast of Sanur in Bali. We undertook many adventurous activities that pushed us both physically and mentally. But, as tiresome as a break of dawn hike may be, the captivating view of Bromo National Park's Caldera spanning across your view amidst sunrise was truly a rare sight and immensely satisfying. Mountains and volcanoes, however, were not the only things on our minds: coming face-to-face with olive green turtles on a scuba dive off the coast of Gili Air and snorkelling by Shipwreck Bay were breathtaking experiences. It was truly fantastic to see nature's beauty first-hand and appreciate the importance of preserving such environments. An exciting encounter on a jungle trek with a wild Balinese monkey with long majestic fur, or gently holding endangered baby sea turtles as part of a small island's local project, are perfect examples.

[What were some of the things you enjoyed most about working on the project?](#)

I greatly enjoyed both the cultural and adventure parts of this project. To be able to understand some of the historical and cultural traditions of the region and appreciate how, and sometimes even why, they are so different to my own was very fulfilling. I found that one of the best ways to immerse myself in the country's culture was through its food. I greatly enjoyed tasting a diverse and unorthodox range of foods, yet I quickly came to adore the local market stall staple, Nasi Goreng, with the rather addictive Ketap Manis sauce. In fact, as a passionate cook, it has dramatically expanded my collection of ingredients and has inspired me to experiment with Indonesian styles, flavours and fusions.

Some individual moments do stand out from the trip, one of which is walking along the crater ridge of Mount Bromo and past active volcano with a smoking sulphur dioxide vent. On riding motorcycles across the vast flat caldera towards the base, followed by an arduous climb up ash piled ridges, we were faced finally by 100 steps. Counting our way to the top, we were left to gaze down into the deep crater, once filled with rock and now only a smoke plume with the slight glint of yellow sulphur at the bottom. As we walked around the crater's rim, trying carefully not to fall to our demise, we could admire and photograph the mesmerising landscapes. We then scaled down the mountain.

Almost every painstaking climb became more tolerable, and each moment of physical exertion was followed by a fulfilling sense of achievement and a beautiful landscape to sit and admire.



There was also plenty of opportunity for me to develop my recent interest in photography. I was able to experiment with capturing vibrant colours and scenic sunsets, but more importantly, record many of the memorable moments of my travels in digital media.

### What aspects of your travel project did you find most challenging?

Due to the language barrier, I found communicating quite difficult. Even attempts to familiarise myself with the basics were thwarted as we travelled across an island with stark language differences intertwined with cultures. I was surprised to find that using non-verbal communication was actually very effective; however I think the biggest difference was made by the fact that the locals were both friendly and not entirely alien to English.



One of the biggest challenges for me personally, was dealing with experiencing poverty. Areas of poverty were clearly visible throughout our travels, in particular at bus stations and ports, which was very shocking. I was also able to see high levels of pollution, sometimes at arm's reach away from homes, schools and usually coinciding with regions of poverty, but alarmingly at times in areas surrounded by modern or affluent buildings.

### How has this project assisted your studies and personal development?

At first it may be hard to see how this could complement my academic study of physics, but I think that it does: my experiences have made me think about where my education is taking me and what sort of work I could do in the future. Many of the problems I saw could have science-based solutions.

Also, in addition to my personal development and leap in confidence, I have developed a sense of responsibility to do something that might make a meaningful difference in the world.

On the whole, my travels were a fantastic opportunity to broaden my horizons. I feel that I have become more culturally enriched, less ignorant and inspired to explore the world even more. I now aspire to undertake more travel projects, to contribute in some way to far and distant parts of the world. I am very grateful to the travel award scheme that made this trip possible. Thank you.



Above: 'Temples of Prambanan'  
Left: 'Mount Merapi'

# A documentary expedition: an ethno-linguistic investigation of the Phuthai in South-east Asia

by Jeng Kanchit Rongchai

**Location:** Thailand, Laos and  
Vietnam

**Award:** Johnian Society Travel Ex-  
hibitions (Neil Thomason Award)

**Dates:** 13<sup>th</sup>–30<sup>th</sup> September, 2011

Briefly describe the activities  
of the project in which you were  
involved.

Phuthai is the language spoken  
by some communities in Thailand,  
Laos, Vietnam and possibly China.  
It is under the umbrella of the  
Tai-Kadai language family. The  
Phuthai culture is distinguished by  
its unique language, traditions, arts,  
social values and way of life.

Born and bred in a small  
Phuthai town, I learnt our history  
by listening to my grandfather, who  
was an important Phuthai poet

and artist. Phuthai history was formerly passed down  
through the generations only as an oral history. In  
brief, the story suggested that the Phuthai civilisation  
originated in the southern part of China. They later  
moved south to settle in Vietnam, Laos and later in  
Thailand. However, there has not been much formal  
investigation to verify this story. I travelled to south-  
east Asia in search of first-hand evidence to support  
my grandfather's story and to conduct a comparative  
study of the Phuthai communities in those three  
countries.

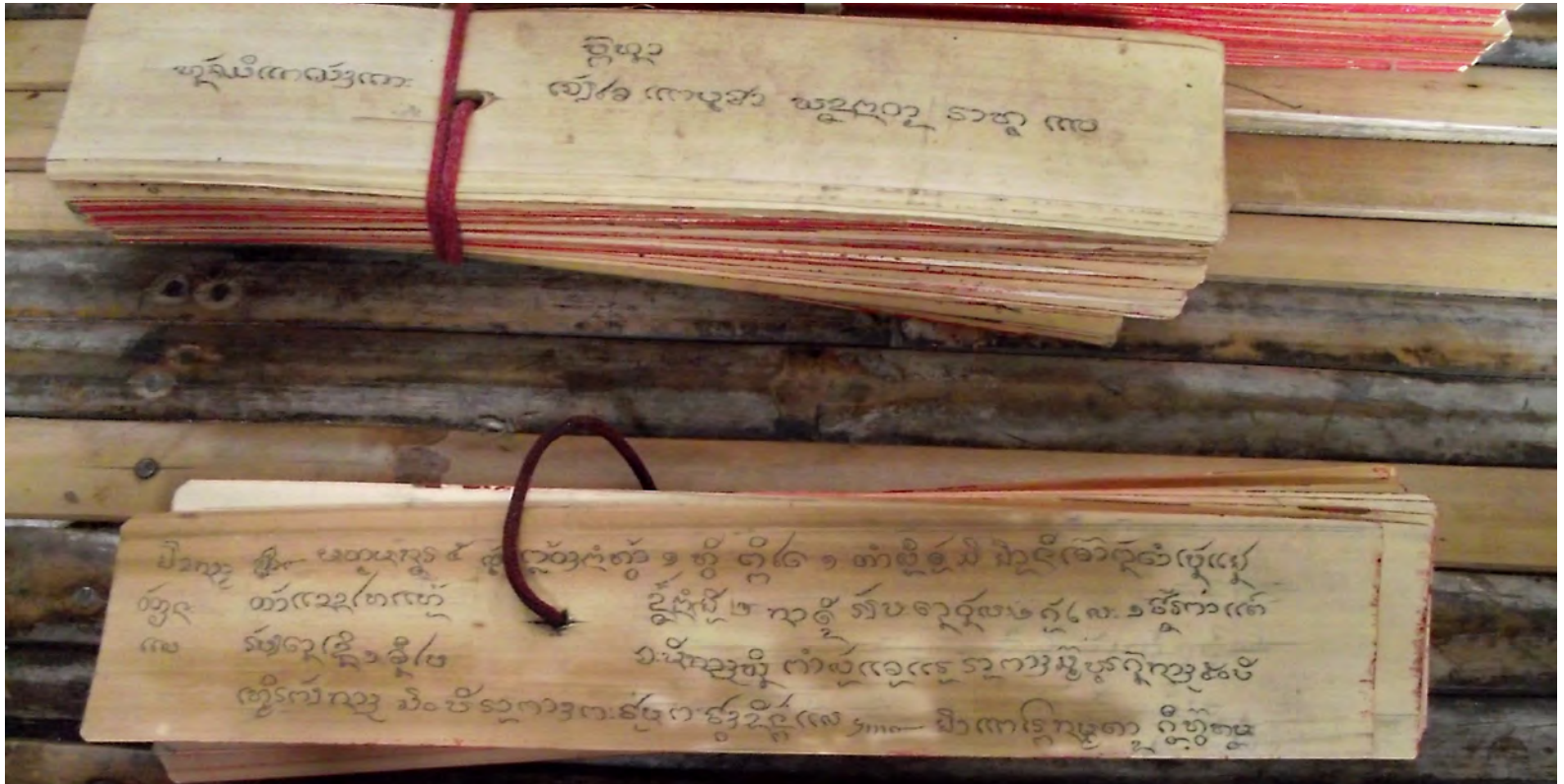


## Thailand

First, I travelled to a Phuthai district in north-eastern Thailand named Kutwa where this project was based. Kutwa is one of the best-preserved and most culturally active Phuthai towns in Thailand. There I discovered an original poem by my grandfather documenting the history of the Phuthai. It was written in Phuthai but used the Thai script. This is one of his few surviving original works; many others were unfortunately destroyed after his death. I have digitally

preserved this precious document.

I then visited Mr Tongpen, a local expert in an ancient script called 'Tham'. I found out that the script was used by monks, who in the past were the only literate Phuthai people. Nowadays, Tham is an endangered script because only a few older people know how to use it. I learnt how to write Tham from Mr Tongpen in the hope that further work can be done to digitise and preserve the script.





Together with my family, we travelled to Renunakorn, another interesting Phuthai region in Thailand, about 80 miles north-east of Kutwa, to interview a member of the World Phuthai Committee, Mr Chaibordin. He gave me some information about the Phuthai people in Renunakorn and told me what he knows about his ancestry.

### Vietnam

Next, my sister and I travelled to Hanoi in Vietnam. During our time there, we visited the Vietnam Institute of Anthropology to meet with Professor Tinh and his team, whose research focused on ethnic minorities in Vietnam. We gave a presentation about the Phuthai Project and collected some useful data from their archives.



We then visited the Vietnam Museum of Ethnology, where we met our most interesting interviewee – Dr An, who is the Head of South-east Asian Department. He has been researching the Tai ethnic group in Vietnam for more than 30 years. He is from an ethnic group called 'Tai Khaow', which is closely related to Phuthai. We had a long, enjoyable and informative conversation about how different and similar the Phuthai in Thailand are to the Tai in Vietnam. Some interesting conclusions were drawn after the meeting, regarding the history of the Phuthai.



## Laos

Next, my family and I travelled by car to Sawannaket Province in Laos. We were joined by a guide, Mr Tongrien, who had visited the region before. We aimed to go to a town called Ban Na Yom, where the people in Kutwa are believed to have originated. From time to time, we stopped to talk to people to check which language they spoke. Not until we had driven about 100 miles away from Sawannaket city did we find people speaking Phuthai to us. We drove further into the mountains to visit the region and to interview more people. Unfortunately, we were unable to reach Ban Na Yom by car and were forced to turn back due to severe road conditions in the rainy season.

We visited a very small primary school with under 200 students and five teachers. There we interviewed the teachers about the education, culture and history of Phuthai people living in the region. We also interacted with the children by asking them questions and giving them prizes. Finally, we participated in a ceremony called 'Wai Ku' where the children paid respect and gave some flowers to their teachers.





## Thailand

Finally, I spent the rest of my time in Kutwa analysing and documenting the data from my expeditions. The oral histories recorded from Thailand, Laos and Vietnam were brought together. The results led to some interesting conclusions and also hypotheses and questions, paving the way for further research.

I have decided that the Phuthai Project should be ongoing. I have also created a website where more details, photos, videos and a documentary can be found, at <http://phuthaiproject.wordpress.com>

**What were some of the things you enjoyed most about working on the project?**

I enjoyed every part of the project from the beginning, because it has been different from my engineering research. Some of the most rewarding parts were in Laos and Vietnam. The interview with Dr An in Hanoi, with only minimal translation, was highly enjoyable and inspiring. Discovering how very similar the Phuthai in Thailand were to the Tai in Vietnam was a very insightful moment.

It was highly satisfying to discover that I could use my mother tongue to communicate with the people living in the mountains in Laos. Visiting the primary school there and seeing the enthusiastic smiles on the children's faces made me want to go back to do more activities with them.

It was sensational to learn how to write the ancient and endangered Tham script. I felt like I was close to revealing the secret of my ancestry.

**What aspects of your travel project did you find most challenging?**

As my project required me to interview many people in three different countries within three weeks, scheduling my timetable was not very easy.

The discomfort of sitting in a car for many hours was challenging. Travelling by bus from Bangkok to the Phuthai regions took at least eight hours. Driving from Thailand to the Phuthai regions in Laos took at least 12 hours. Some roads in Laos were small and muddy in the rainy season, but I very much enjoyed seeing the people living their lives peacefully on both sides of the roads too.

Filming at the same time as actively engaging in an interview was not easy. With an overwhelming amount of information collected in such a short period of time, it would have been more efficient if I had had someone to help me with documentation.

**How has this project assisted your studies and personal development?**

I have long discovered that I very much enjoy being interdisciplinary in my learning life. The project, being ethno-linguistic in nature, has given me an opportunity to work in a completely different field of research to my PhD. It allowed me to explore my potential and exercise my leadership skills. Meeting

with different people, from less-privileged children to high-calibre academics, also reinforced my communication and interpersonal skills.

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I would like to thank my linguist friend, Mr Ross Cullen, who not only inspired me to create this project but also helped me with editing. My family was very supportive and helpful to the project. Our Vietnamese expedition would not have been successful without the help of a former Cambridge student, Ms Thi Vuong, a student of Dr Michael Rice in the Department of Sociology. She was our interpreter and had made the meetings with the important academics possible. Lastly, I would like to thank St John's College for supporting my project.

# Summer placement at the German Aerospace Centre (DLR)

by Irene Constantina Dedoussi

**Location:** Berlin, Germany

**Award:** Parsons Fund

**Dates:** 24<sup>th</sup> July–24<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

The project undertaken at DLR was on Aeroacoustics. Having just finished Part IIA in Mechanical Engineering, my knowledge on acoustics was very basic. Therefore, during the two first weeks of my placement I was engaged with reading a lecture script entitled 'Aircraft Noise Course', written by Prof. U. Michel and Dr H. Siller, who were also my supervisors for these two months. Using Matlab, the 3D plots of the directivities of the fundamental sound sources (monopole, dipole, longitudinal and lateral quadrupole) were produced, as well as the derivations of the directivity formulas, along with some considerations of how the wavefronts look in the near-field. All these were included in DLR internal report.

In this way I gained some background knowledge in aeroacoustics and was ready to continue with more

practical matters regarding acoustic measurements using microphone arrays, which is one of the main objectives of DLR Berlin.

I firstly worked on some data format conversion that needs to be done when DLR obtains experimental data from other institutes/companies before these can be further analysed by the various DLR softwares. I prepared two Matlab routines for two different acoustic data formats.

In preparation for some acoustic measurements on a full-scale engine that took place in October, a visit was made to the manufacturer in Berlin to decide and discuss the details about the acoustic measurement. After the number of microphones was decided, I was engaged with checking the microphones used in a previous measurement to detect and replace the defected microphone capsules or pre-amps – a procedure which is typical for the preparation of acoustic measurements using microphone arrays.

Finally, towards the end of my placement I started using one of DLR's commercial programs for sound source localisation using the beamforming technique in preparation for my fourth year type b project. As part of the project, the work done over the summer will be developed by analysing the sound sources of a Boeing 747-400 using acoustic data of fly-over measurements recorded by DLR using a spiral array.

What were some of the things you enjoyed most about working on the project?

The thing I probably enjoyed the most during the two months was the problem solving that researchers working in such institutes face every day. This may sometimes be daunting but eventually when the solution is found, the feeling of satisfaction is invaluable.

What aspects of your travel project did you find most challenging?

The most challenging part of the travel was understanding the typical Berlin dialect, which I had not heard before. Some people were using it in everyday conversation at the office.

How has this project assisted your studies and personal development?

I found the experience of working in a research institute very exciting and I am therefore considering possibly following a similar career in the future.

Apart from the obvious engineering-related knowledge on aeroacoustics, as well as the practical experience related to aeroacoustic experiments and measurements, spending these two summer months in Berlin had other major advantages. It was a great opportunity to practice and improve my German, as well as to experience first-hand the German way of living and thinking. I am now considering Germany as a place to begin my career.

As far as my studies are concerned, my fourth year project is going to be on aeroacoustics, and I am going to use data obtained through a co-operation with DLR.

# An insight into Eastern Mediterranean classical history and culture

by Felicity Jones

**Location:** Greece and Turkey

**Award:** Parsons Fund

**Dates:** 1<sup>st</sup> July–2<sup>nd</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

This summer, I undertook a 35-day trip to Greece and Turkey. I began my trip in Athens, along with three peers from St John's, before travelling independently to Rhodes, and then travelling up the south-western coastline of Turkey to Istanbul.

During this trip I had the opportunity to explore some of the key archaeological sites of the Byzantine and Hellenistic eras, as well as finding out more about the culture and history of the eastern Mediterranean. Having lived in Italy for a period of my childhood I found it very interesting to compare and contrast the way of life in the eastern Mediterranean countries, and also to consider the ways in which both Greece and Turkey creatively assimilate different influences of Eastern and Western culture. Visiting both Greece and Turkey at the same time was fascinating, as they share a common history, and I felt the trip gave me

a valuable insight into the empires that colonised this region; enabling me to build a more complete understanding of the history and culture of the eastern Mediterranean.





What were some of the things you enjoyed most about working on the project?

For me, the highlights of the trip included the chance to explore some of the Graeco-Roman sites of Ancient Lycia such as Ephesus (the largest collection of Roman ruins in the eastern Mediterranean), featuring the Temple of Artemis, one of the seven wonders of the Ancient World. I was also awestruck by the splendour of the Acropolis of Athens, and really enjoyed assimilating the knowledge I gained from these sites with my previous understanding, built from visiting sites in Italy such as Pompeii.

One particular day stands out in my mind, in which I spent the morning at the site of one of the six principal cities of Lycia (and one of the most powerful), Tlos, which once bore the title under the Roman empire of 'the very brilliant metropolis of the Lycian nation'. I was fascinated by the characteristic rock tombs and Lycian sarcophagi that scattered the hillside, and enjoyed learning more about the culture that had inspired them. After this, I visited a typical local fish farm for lunch and enjoyed fresh trout with Ottoman-style seating,



before exploring the second-longest gorge in Europe – Saklikent, which was magnificent.

### What aspects of your travel project did you find most challenging?

Independent travelling always presents challenges, whether in the form of difficult travel connections, tough decisions about expenditure or safety, or experiences that challenge established viewpoints. I experienced all of these, as well as interpersonal friction whilst travelling with others. I believe that dealing with these sorts of problems, and pushing yourself to your boundaries is often a key way to develop personally and build self-confidence, which can be used in many different spheres of life in the future. I also gained an overwhelming sense of achievement when I accomplished new things or overcame my fears – whether that was by paragliding, speaking to and learning from someone very different from myself, or by developing new skills.

### How has this project assisted your studies and personal development?

As a medical student with broad interests, I have become increasingly interested in the social and cultural roots of contemporary medical and psychological thought, both of which were founded and developed in Greece. I feel that the trip built upon the psychology and social science modules I have been studying, and enhanced my appreciation of the historical and cultural context of Western medicine.

In addition, travelling and engaging in a very different country from one's own is a broadening life-experience enabling one to envisage the world from other viewpoints, and gain a better understanding of the issues that affect that part of the world. This wider perspective on life may enable me to think more clearly about problems in the future, or to consider them from different angles. Experiencing some of the challenges that others face on a daily basis can also highlight the triviality of problems back in the UK and really make you appreciate the importance of the essentials of life.

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I am very grateful for the support of this travel award from St John's, as it allowed me to broaden my understanding of an area of the world I was relatively unfamiliar with.



# Research project and travel to explore tropical diversity in Panama

by Katherine Cope

**Location:** Panama

**Award:** Perret Fund

**Dates:** 3<sup>rd</sup> July–7<sup>th</sup> September, 2011

**Briefly describe the activities of the project in which you were involved.**

I travelled to Panama this summer to carry out a research project and to take the opportunity to explore some of Panama's tropical biodiversity and culture.

The research project was part of an internship at the Smithsonian Tropical Research Institute (STRI) but supervised from Cambridge by Dr Chris Jiggins. The aim of the project was to investigate whether butterflies can learn from each other about food resources. The research involved training groups of butterflies to a particular colour feeder and then adding naive butterflies to the trained group. The time taken by these naive butterflies to learn the correct colour was then recorded. In addition to this, we also had to look after the butterfly stock and rear butterflies, as well as maintain the plants that the caterpillars feed on. The collection of data took

approximately eight weeks, during which we lived and worked in a town called Gamboa.

Gamboa lies on the edge of the Panama Canal and is surrounded by a National Park. During our time in Gamboa we had the opportunity to explore the surrounding forest and visit nearby Panama City. We also travelled to Bocas del Toro in the west of Panama to explore this very biodiverse region.

**What were some of the things you enjoyed most about working on the project?**

I really enjoyed the opportunity to carry out a more field-based research project; it was a really valuable experience giving me a better idea of scientific research.

It was also a great opportunity to learn about other research projects taking place at STRI and speak to researchers working there. We were able to visit Barro Colorado Island, which is a major site of tropical studies, and attend seminars there.

In addition to the research project, we also visited Panama City many times. This was not only the nearest place to buy food, but also a very varied and interesting city. We visited the old town (Casco Viejo) and the ruins from the first settlement (Panama Viejo), as well as Miraflores, the Panama Canal locks. Travelling to and from the city on ex-American school buses gave me a real feel for Panamanian life and I really enjoyed seeing the different people and cultures that exist in the city.



The most enjoyable part of the trip for me was seeing some of the local wildlife and exploring the surrounding tropical forest. It was really fantastic to actually see some of the things I've read about. Highlights included climbing up the Canopy Tower in Gamboa and snorkelling in Bocas del Toro, as well as seeing an armadillo, iguanas, sloths and the giant Blue Morpho butterfly.

**What aspects of your travel project did you find most challenging?**

I found planning the whole trip quite challenging, but it has been a really useful experience. The research project was also quite challenging at times, for example, when we were learning about how to care for the butterflies. We also had to carry out a few trial experiments before starting the research project and adapt our original plan.

**How has this project assisted your studies and personal development?**

My trip to Panama has increased my confidence both through planning the trip and completing the research. The research project has given me really valuable work experience and has helped shape my career choices. The opportunity to see local wildlife and tropical rainforests has really inspired me to get involved in wildlife projects back in the UK, and has made me even more passionate about the environment and conservation.

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This has been a fantastic experience, which would not have been possible without the generous funding from St John's College and the Perret fund. I would also like to thank Dr Chris Jiggins and the members of the Heliconius group in Gamboa for providing us with the opportunity to carry out this research project and supporting us throughout.



# Research project and tropical biodiversity exploration in Panama

by Emma Marsden

**Location:** Gamboa, Panama

**Award:** Perret Fund

**Dates:** 2<sup>nd</sup> July–7<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

We carried out a two-month project at the Heliconius Insectaries of the Smithsonian Tropical Research Institute, under the supervision of Dr Chris Jiggins, investigating whether or not butterflies can learn from one another about food resources. This involved training a group of butterflies against their innate colour preference for feeding (red) by putting sugar solution in green feeders and water in red, before adding in untrained individuals. We then recorded whether the untrained butterflies learnt to visit the green feeders faster when in the presence of the trained ones.

We also travelled around our local area and further north in the country to explore the culture and biodiversity of Panama.

What were some of the things you enjoyed most about working on the project?

A particularly amusing part of the project was running around in wellies, wielding a huge net and swinging wildly in an attempt to catch native butterflies. While our success rate improved over the course of the project, I suspect we looked no more elegant at the finish than we did when we started.

Other highlights included the surrounding wildlife; the largest individuals we saw were iguanas, agoutis, sloths, an opossum and my personal favourite, an armadillo. We also travelled to the Bocas del



Toro archipelago where we were lucky enough to enjoy snorkelling around mangroves and coral reefs, swimming in the aptly-named Starfish Bay and visiting an indigenous community to learn about how they grow and make organic chocolate sustainably.

What aspects of your travel project did you find most challenging?

The biggest challenge of the project turned out to be making sure all the butterflies survived. It was somewhat heartbreaking to return to the insectaries in the morning to find one or more of the butterflies



hadn't made it and this was a big concern at the start of the project. However, by putting fake petals around the feeders, feeding newly-added butterflies by hand and getting the misting system fixed to keep them cool, we ended up with so many butterflies that it took two of us to record their feeding.

How has this project assisted your studies and personal development?

This project exposed me to the realities of carrying out an extended research project and my experience should stand me in very good stead for projects I will carry out as part of my MSc and further into the future. Unfortunately we found no evidence of butterflies learning from one another, but, thinking positively, a negative result is still a result and we're hoping our data may be publishable.

My time in Panama also further inspired my passion for conservation. Living on the edge of the rainforest, seeing with my own eyes the indescribable diversity of tropical coral reefs, and meeting countless crazy insects, brightly coloured birds, big, furry mammals, marsupials and lizards, all helped me to visualise the ecology I'd been studying. This reinforced my belief in the urgent need to protect the unique beauty of these environments before it's too late.

# A month travelling in China, covering both urban and rural areas

by Emily Ann Farbrace

**Location:** China

**Award:** Peter Allan Travel Award

**Dates:** July 2011

Briefly describe the activities of the project in which you were involved.

Unfortunately quite a few of my planned activities had to be changed (mostly those in more rural southern China due to transport issues) due to the fact that I was still recovering from a broken pelvis. However, I did still manage the trip and covered a vast area of China in doing so. The trip covered roughly 4,000 miles and went from Beijing to Xi'an/Zhengzhou, Chengdu, Guilin and Shanghai with some stops at smaller towns along the way. The main activities undertaken involved conservation work in Beijing botanical gardens and Chengdu's giant panda facility.

What were some of the things you enjoyed most about working on the project?

I enjoyed the independence of travelling and the conservation work that I can relate to my course this year, as well as my future career goals. I also loved the experience of a culture so utterly different to my own.



What aspects of your travel project did you find most challenging?

I found the language barrier most challenging as even though I had completed a short course in Mandarin Chinese, this certainly did not prepare me for the real thing; each province in China had a completely different accent and way of speaking. I also found organising travel quite challenging as there is no advance booking and so a lot of my travel dates had to be moved around as and when I could get tickets.

How has this project assisted your studies and personal development?

This travel has allowed me to experience the sort of work I am interested in doing in the future and also relates to the conservation module in my part II course. It also gave me a chance to absorb a completely different culture. During the volunteer placements, I experienced the culture on a more intimate level than if I had simply gone as a tourist.

Overall, this was a great way to experience cultural travel for the first time, while combining it with science-related projects.





# The role of horse domestication in food globalisation in prehistory

by Suzanne E Pilaar Birch

**Location:** Kazakhstan and China

**Award:** Robert Sloley Fund

**Dates:** August–September, 2011

Briefly describe the activities of the project in which you were involved.

The Food Globalisation in Prehistory project aims to investigate the spread of domestic plants and animals across Eurasia, focusing on Central Asia. As a member of the field team, I participated in excavations at the site of Botai, which is located in the steppe environment of northern Kazakhstan. The site dates to c. 3700-3100 BC and boasts the earliest known examples of domestic horses; it may also hold key information about the early transmission of grains. At the end of the field season, I visited several archaeological sites throughout north-eastern Kazakhstan as part of a smaller team. We then travelled to Gansu, China, where my role was to identify skeletal remains in curated collections from various sites in China that are also included in the larger project. Whilst in China, I travelled to the Buddhist caves at Maijishan and the Bingling Temple north of the Yellow River. Before returning to the



UK, I also spent some time in Beijing visiting the Forbidden City, the Temple of Heaven, the Great Wall and some of the traditional markets, and generally enjoyed soaking up the Chinese culture.

What were some of the things you enjoyed most about working on the project?

Working on the project was especially fascinating for me, as I specialise in human-animal-environmental



relationships in the archaeological record. I enjoyed meeting new people and trying out the local cuisine – we had horse, donkey, yak and I even tried duck brain whilst in China. For me, speaking with local people and eating the local food, learning their feelings about their history and what archaeology means to them, is one of the most interesting and rewarding parts of my travels.

What aspects of your travel project did you find most challenging?

We lived in a remote village in Kazakhstan with more geese than people for the first three weeks. In the middle of the season, the temperature dropped from daytime temperatures of around 20°C to 3°C and raining. Though I had come prepared, it was difficult to get through. I was analysing bone in a cold, dark wooden shed – but in the field you have to roll with



the punches. One of the good things about being part of a large team is that you know you're not the only one suffering, and everyone keeps each other going.

[How has this project assisted your studies and personal development?](#)

I had never travelled to Kazakhstan or China, so this trip introduced me to two new and very different cultures. My current research includes the diffusion of

domesticates westwards from the Near East, and this research trip provided the opportunity for me to think about this cultural exchange occurring eastwards. This region and time period are only just beginning to be studied in depth, so the results of this and future research trips will provide data that will have significant implications for our understanding of the processes that led to food globalisation in prehistory.

# Stones and sea: a journey through the prehistoric landscape of Minorca

by Giandaniele Castangia

**Location:** Minorca

**Award:** Robert Sloley Fund

**Dates:** 13<sup>th</sup>–19<sup>th</sup> July, 2011

**Briefly describe the activities of the project in which you were involved.**

I travelled across Minorca – definitely the most interesting of the Balearic Islands for an archaeologist whose PhD research is focused on landscape and monuments! It is rich in dry-stone megalithic monuments, mostly belonging to the so-called Torrean Civilisation, which were built and utilised during the Bronze Age (II millennium BC) and Iron Age (first part of the I millennium BC), .

At that time, Minorca represented a kind of ‘social architecture’ experiment. It hosted an indigenous community of people who built different types of monuments to express their collective identity and to fix it in their native territories. Some exist only on the island, but some of them can be found also on Majorca. Talayots (big towers), taulas (sacred spaces with a ‘T’ shaped altar in the middle) and navetas (collective tombs shaped like upturned ships) are the

names of the monuments that you can find in every one of the ancient villages on Minorca.

The aims of my journey, which was also a mini-project in the sense that I collected some useful data for my PhD research, were to experiment a physical engagement with the megalithic past of Minorca and to compare the archaeological evidence with that from Bronze Age Sardinia I am currently studying.

Several Sardinian archaeologists pointed out that comparisons between the two islands were possible, especially between the nuraghi of Sardinia and talayots of Minorca. Some of them even considered the idea of migrations or conquests from the bigger island to the little one! I have to say, I found that this is not the case because too many differences exist between the two, especially in terms of prehistoric monumental architecture, but it was good to have a look and confirm this through personal experience.

**What were some of the things you enjoyed most about working on the project?**

I really love archaeology for the possibility it offers of staying in the field and getting in contact with the evidence; being able to ‘experience it’ directly. This generates thoughts, emotions and ideas, and also helps find the true meaning of what archaeology is – or should be.

Touching, walking into and from one to another, ‘living’ the monuments and the places I visited on the island was a great experience; above all because of



their concentration in such a 'little' space. This gives you a real measure of what life for those people could have been like.

I visited a number of amazing archaeological sites, some officially managed by the local heritage, and some a bit difficult to find without the help of

GPS data I prepared before travelling. The main sites were Talati de Dalt, Trepuco, So Na Cacana, Torralba d'Ensalor, Torre d'en Galmes, Naveta des Tudons, Son Catlar, La Torreta, Navetas de Rafal Rubi, Torre Vella and Monte Toro. Other sites I visited had no names – I mean, I was not able to find any indication of them, I'm sure they had names!



I was also able to visit the museums in Mao and Ciutadella, which were quite tiny but well organised and very interesting.

I have to say I found my walks on Minorca very enjoyable because of the atmosphere, the climate and the people, who were very nice on almost every occasion, especially on archaeological sites and museums, but also in the little towns.

Sites are very well preserved in most of cases – a great thing – and you are allowed to enter private properties to visit them. The tickets are not expensive and students can often get in for free.

**What aspects of your travel project did you find most challenging?**

In the main, my travel has not been particularly challenging or demanding. Sometimes it was a bit hard to orientate myself in an unknown landscape, trying to find out how to experience it in the best way. As I only had six days on the island, I had to accomplish my aim to examine as much archaeological evidence as possible in that short time. Some of the locations I visited were quite difficult to reach, inside forests or on top of rocky hills, but as I said that is precisely the thing I enjoy the most about archaeology!



How has this project assisted your studies and personal development?

I believe it is extremely important, for the type of research I am involved in, to be aware of the existence of as many 'constructed' landscapes as possible. Cultural differences between human com-

munities through time generated such a great array of archaeological situations around the world! Only by considering their variety can we find a way of interpreting them.

In this particular case, visiting Minorca helped me and my research in a number of ways: in particular I



realised that there were very few similarities between Sardinian and Minorcan Bronze and Iron Age communities, and some of the differences are in all likelihood related to the different sizes of the islands.

I was able to understand how important regional differences are in nuragic Sardinia, compared to the Balearic island: in the latter, settlement patterns and monuments' shapes are so clearly standardised that sometimes it is not easy to say what part of Minorca

you are walking in! It is not the same in Sardinia, where variations between different areas are one of the most interesting traits of nuragic civilisation.

In summary, this journey helped me realise that the geographic scale I have to deal with in my landscape research on ancient monuments will affect my results in a relevant manner, and so I decided to be particularly careful in that direction in the future.



# Capo Mannu Project

by Tina Roushannafas

**Location:** Sardinia

**Award:** Robert Sloley Fund

**Dates:** September, 2011

**Briefly describe the activities of the project in which you were involved.**

I carried out archaeological surveying, which mainly involved field walks to look for signs of settlement on the ground, such as worked stone or fragments of pottery. If anything was found, it was then marked and later plotted on a GPS device. We sorted and washed the finds at the end of the day. The trip also involved visiting museums and other relevant sites of historical interest.

**What were some of the things you enjoyed most about working on the project?**

My course has a very specific geographical and chronological focus. It was therefore very interesting to be involved in a study that was different from anything I've done before. During the project, we were able to identify three possible settlement sites: one Neolithic and two Roman, with an additional possible fourth site. After many hours of uneventful walking, a cluster of finds that most likely signified a settlement that had been lost to the centuries was very exciting. Finding a fragment of a Neolithic blade was a highlight of

the trip. I also enjoyed learning about the Nuraghi, unusual Bronze Age structures that are found all over Sardinia. The remains of literally thousands of these structures are still visible today, in varying states of survival, and their purpose and usage in many respects still remains a mystery.

**What aspects of your travel project did you find most challenging?**

The walks, which were generally from 9am to 5pm and conducted in very hot and dry conditions, were physically challenging. We were also in the minority as English speakers and experienced some difficulties due to the language barrier, though our communication improved somewhat as the weeks went on.

**How has this project assisted your studies and personal development?**

As mentioned above, the project offered a window into a civilisation that was previously unknown to me, and has given me a greater appreciation of the breadth that historical and archaeological studies can offer. I am certainly inspired now to learn more about other cultures outside my own field of study. Furthermore, I gained valuable experience in how a modern archaeological survey is conducted, as well as practical experience in identifying often small, fragmented and obscure evidence such as small pieces of worked stone, or the smallest of pot shards, and I hope to be involved in more archaeological projects in the future. Adapting to the Sardinian/Italian way of doing things was also a valuable learning experience!

# Malaysian architecture: impact of culture and climate

by Rebecca Howe

**Location:** Malaysia and Singapore

**Award:** Roberts Fund

**Dates:** 21<sup>st</sup> August–19<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

The intention of my travels in Malaysia was to experience the country's rich architectural heritage first-hand and to find out how architects design buildings for a tropical climate. At the UNESCO World Heritage Site of Georgetown, I visited the Penang Heritage Trust office to learn about the history of the area. There I also discovered the problems faced in the conservation of heritage buildings in urban areas, such as the predominance of bird nest farming in historic shop houses. During a guided tour of the restored Cheong Fatt Tze Mansion, I learnt about the relationship between the ancient principles of feng shui and the basis of Chinese architecture. In the historical port of Melaka to the south, I saw the influence of Dutch and Portuguese colonial architecture and the painted steps of the traditional Malay Kampung stilt houses.

After being filled with the sights of historical Malaysia, from wooden Sultanate Palaces built



without nails to ornate Chinese temples and the breath-taking natural architecture of the Hindu Batu Caves (pictured above), I returned to the modern bustle of the capital city, Kuala Lumpur. For one week I interned at the firm T. R Hamzah & Yeang, where I gained a valuable insight into the process of designing large scale projects using bioclimatic principles. Then



I travelled to Singapore to visit the National Library and Solaris, two 'green' buildings by the architect Ken Yeang. In Singapore, I also experienced the height of the booming commercial sector – quite literally – by venturing out onto the cantilevered 'boat' atop the 57-storey Marina Bay Sands Resort. Back in Kuala Lumpur, I saw a curious blend of Moghul



architecture, Baroque pediments, Dutch Gables, Islamic domes, art deco facades, Hindu gopuram (temple structures) and Tudor half-timbering. Finally, I took a trip to the tallest buildings in Malaysia: the Petronas Twin Towers and the KL Tower, to watch videos about the design and construction of two amazing feats of engineering. Seeing the skyscrapers

was the grand finale to conclude my month-long tour.

What were some of the things you enjoyed most about working on the project?

I really enjoyed being immersed in the culture. During my stay in Malaysia, different national holidays were celebrated, such as Merdeka Day, Hari Raya and the Chinese Mooncake Festival. The diversity of communities within each area definitely enhanced my experience of the local built environment. I have never visited places like Melaka before: where one can cycle down a street; see mausoleums for legendary Malay warriors on the right; the oldest Chinese temple in the country on the left; stop for fresh juice right out of a coconut at a roadside stall and enter a shop full of tiny replica shoes from the era when affluent Chinese ladies would bind their feet.

Places were inhabited for brief moments – people dozed under the cradle of bridge arches to escape the harsh midday sun, and young girls in traditional dress skipped across the stepping stones of sculptured pools to dodge

the fountain. Later on, night markets sprang up in the street and urban squares blazed with the colour of the Lion Dance.

What aspects of your travel project did you find most challenging?

I found some aspects of my work experience at T. R Hamzah & Yeang challenging, not being familiar with the Malay language and the office environment there. Although the project I was assigned seemed hard to complete at first, the process was very



rewarding. I had to put together a presentation as part of the firm's proposal for an innovative office tower to win a future client. Working under the supervision of Dr Yeang was a great opportunity, and all the staff were friendly and accommodating. I also resolved to learn some basic Malay and the local dialect Hokkien to get past the language barrier.

How has this project assisted your studies and personal development?

The spontaneity of my travels has helped me to

gain more confidence in a foreign environment. I have learnt to trust the kindness of strangers – for instance, the renovator who took his lunch break to show me inside a Straits Chinese heritage shop house originally restored by the architect Jimmy Lim, and the Singaporean lady who snuck me up to the members club of the massive Marina Bay Sands Casino so I could see the interior design. There was also the smiling old housewife who showed me into her humble but immaculately-kept Kampung home.

I also had many opportunities to speak to architects from different firms, conservation officers, tour guides and local people who helped to paint a picture of life in Malaysia, their opinions on the architecture surrounding them and their aspirations for the nation's future developments.

Through these experiences, my research and work experience, I have come to appreciate the many facets of Malaysian architectural history, as well as the work of Malaysian contemporary architects. Thanks to the Roberts Fund for making this trip possible.



# Travelling to compare the social context of alternative medicine between China and the UK

by Jasmine Wall

**Location:** China

**Award:** Roberts Fund & Christopher Vincent Travel Exhibition

**Dates:** 15<sup>th</sup> July–17<sup>th</sup> September, 2011

**Briefly describe the activities of the project in which you were involved.**

In going to China for 64 days, I went looking for insight into Traditional Chinese Medicine (TCM): its history, its practice and its followers. But in China, the history of TCM is inseparable from the history of China's philosophy and religion. Through visits to apothecaries, pharmacies, hospitals and small roadside practitioners, I looked at the practice of traditional medicine, but I also looked at the underlying reasons that influenced the growth of Chinese medicine.

Following the Silk Road, I traced the ancient trade of goods and philosophy from Xi'an, in central China, back along the Yellow River through Luoyang and to Lanzhou, marking the Indian influence on philosophy

as it has been recorded in temples and sculpture and art. The notions brought from India with trade links have filtered through Chinese culture and find current form in the medical principles that are deeply rooted in the Chinese mindset.

Through interviews in Beijing, Lanzhou and Shanghai, I consistently found these very same principles invoked by both the older and younger generations. The effects of the Cultural Revolution have also left their mark on the practice of Chinese medicine and people talked of following Chinese medical traditions despite the teachings of General Mao.

Highlights of this trip include the TCM hospitals and affiliated museums of Beijing, Shanghai and Hangzhou; a two-day ascent of Emei Shan, one of China's five holy mountains; and visiting Shaolin Si, the birthplace of Chinese Confucianism and kung fu.

Finally, experiencing the Lunar Festival at the Jade Buddha Temple in Shanghai was an incredible culmination of what Chinese people today understand by religion and how Chinese traditions continue, even behind a Western, modernising front.

**What were some of the things you enjoyed most about working on the project?**

The most enjoyable aspects of this project involved interacting with people, mainly Chinese students, and delving into their personal belief systems on Chinese medicine. Because much of Chinese culture is superficially Westernised, I had

neglected to realise just how much of an assumption I was making in taking European medical norms for granted. Through working in a Beijing school, I developed a set of contacts that allowed me to visit medical hospitals and community drop-in centres around China. Students challenged my assumptions of why we put faith in our medical systems, and they articulated a surprising distrust of Western medicine. These debates, held in broken English and provoking a great deal of introspection, were for me the epitome of cultural exchange.

**What aspects of your travel project did you find most challenging?**

The most challenging parts of the trip were in some ways also the most fun. The basic level of English in China is very low, compared to, for example, India, which is a Commonwealth state. The Chinese language is also notoriously difficult for Westerners to learn.

This reached the height of frustration in Xingping, a very small village in south China, with a small monastery five miles' hike from the village. The only person present was a Buddhist monk. And the worst thing about not speaking a language is to try – and fail – in conveying respect. In broken Chinese: 'hello...can I... yes?' In complete silence, he led me through the altars, miming the

correct responses to the bells and gongs. One of the unique hallmarks of Chinese Buddhists is how willing they are to share their meditation, even with non-Buddhists. Behind the final altar, the priest took out a metal key to a wooden door into the hillside. The last and greatest altar was deep within the caves of the limestone mountain – a marble Buddha, a marvellous and incredible statue that required no words to appreciate. Buddha transcends translation.

All the hiccups and hassles of train-booking, ticket-buying and negotiation, really do come down to these moments that bridge the language barrier.



## How has this project assisted your studies and personal development?

Before I left for China, I had no idea how fundamentally different it would be from the UK. China is one of the few civilisations that arose completely separate from the British Empire or the shadow of its influence, until about 200–300 years ago. The entire philosophy of disease is underwritten by a yin/yang Confucian concept of equilibrium and the imbalance of elements, which is the cause of symptoms.

Chinese medicine is even older than Confucianism, and systems of acupuncture and herbology had been systematised under imperial decree for centuries before the West had even conceptualised the body as a subject for organised treatment.

I was also taken aback by the level of distrust of Western medicine; a distrust that drew force from the outdated practices of many hospitals and expensive 'sham' treatments by charlatan doctors. It struck me that the same reasons why we distrust and fear TCM in the UK, are the reasons why Chinese society distrusts and fears Western medicine.

In China, I developed respect for the belief systems that lead a person to place faith in their doctor, and the factors that have led Chinese society to backlash so strongly against biomedicine and to support TCM. I would like to thank the patrons of the grants from which I benefited, for such an incredible summer and I am sure that it will make a difference to my practice one day as a doctor.





# Exploring the Vedantic way of life

by Meera Ragma

**Location:** India

**Award:** Scullard Fund

**Dates:** 28<sup>th</sup> August–25<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

I lived within an ashram, which is a spiritual hermitage, for the first two weeks of my trip. Then I travelled around south India.

The ashram practises Advaita Vedanta, a philosophical school of thought within Hinduism. The days were very structured, beginning at 5am every morning for prayers, followed by breakfast. Then I would attend seminars and lectures in the morning, which took place either within the compound of the ashram, or at Banarus Hindu University.

Many of the monks who lived within the ashram were also doctors who worked in the hospital of the ashram to provide free or subsidised health care for local residents. Despite their very busy schedules, the monks were extremely hospitable and took the time to speak to me about Advaita Vedanta. Having studied Theology and Religious Studies for three years, this was particularly interesting for me, as I was able to

experience first-hand how Advaita Vedanta is a very practical way of life for those who practise it. Most of the monks I met were heavily involved in working with the local villages as part of social healthcare and educational initiatives, and this was informed by their spiritual and philosophical belief in Advaita.

I also spent two weeks travelling around the south of India. I travelled around Kerala and Tamil Nadu. This was a very relaxed part of my trip, in comparison to the stay in the ashram. I met many other travellers and visited many temples, in addition to tea plantations, spice factories, a national park and an elephant safari park.

What were some of the things you enjoyed most about working on the project?

I enjoyed visiting one of the villages that the ashram works with to run a health and education programme. I was with a group of 12 volunteers, and we drove for three hours on a medical bus to this isolated village.

I was working as part of a group to check that these people had actually received the medical treatment they were supposed to. It was disheartening to learn that many of these children suffered from severe skin diseases, mainly due to poor hygiene and sanitation practices.

However, the hospitality of some of the women in the village was incredible. They invited me into their homes, and offered me lumps of sugar as sweets to welcome me.



What aspects of your travel project did you find most challenging?

Living within the ashram required a lot of self-discipline. Each day started at 5am, I was not allowed to leave the compound unless I had prior permission and I had no access to internet or my phone.

Moreover, the food within the ashram was very plain. All guests and monks of the ashram had to maintain a strictly sattvic diet, which is vegetarian and free from salt, spice, tea and sugar. We ate our meals in silence, and during meal times males and females were seated separately. It was certainly a culture shock to experience this; however I was made aware of how much more productive I can be when I lived within such a structured environment. Moreover, everyone that I met at the ashram was extremely hospitable and kind, which made my time there immensely enjoyable, despite the challenges of the self-discipline required to live such a structured life.

How has this project assisted your studies and personal development?

It was interesting from an academic and personal point of view to further my studies of Advaita Vedanta in an environment where this philosophical school of thought has shaped the day-to-day lives of not only of the monks who practise it, but also the communities they interact with.

# Monasticism and modernism

by Paddi Alice Benson

**Location:** South of France

**Award:** Smith Fund

**Dates:** August–September, 2011

Briefly describe the activities of the project in which you were involved.

For three weeks in August and September I travelled in Provence and Lyon in the south of France – visiting three Cistercian abbeys: Senaque, Silvacane and Le Thoronet, built in the 12<sup>th</sup>/13<sup>th</sup> century and designed by the same architect/frère. These three embody the best examples of the spirit of the Cistercian order and are known as ‘the three sisters of Provence’ (‘les trois soeurs provençales’). I also visited and stayed in a 1950s Dominican monastery, built by Le Corbusier, famously an atheist. I was interested in the relationship between pragmatic ordering and the poetic embodiment of theological preoccupations.

I was interested to understand how a highly innovative contemporary architect can address historic programs that appear to be satisfied by evolved models using the example of a 20<sup>th</sup> century solution to a 12<sup>th</sup> century problem of a Dominican monastery. The question at the centre of this is even more complex in the 21<sup>st</sup> century, given the devaluation and fragmentation of cultural values.



The Department of Architecture facilitated an introduction to each abbey monastery so that I was able to take tripod photos and have access to areas not open to the public, eg libraries and sleeping accommodation. I was able to stay overnight in a



frère's cell in La Tourette, designed by Le Corbusier and during the stay, I had my meals with the 11 remaining frères and attended Vespers, Sunday Mass. Of the Cistercian Abbeys, only one is functioning as a working and religious order: Senanque, near Gordes,

about an hour due east of Avignon. Le Thoronet is still a place of worship for local people and I attended Sunday Mass there. Silvacane is a restored ruin, about 30 miles west of Aix en Provence, and is host to various classical music festivals in July and August; I

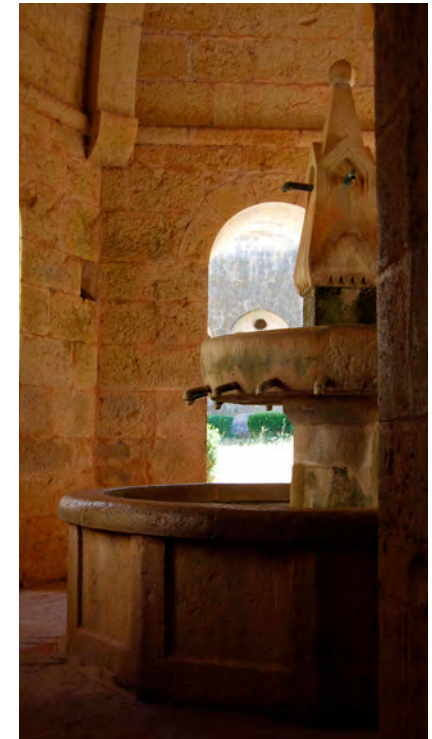
was lucky to attend an early evening concert there in the cloisters.

[What were some of the things you enjoyed most about working on the project?](#)

I enjoyed the opportunity to be able visit the 'three sisters' within the same three week period and experience how they were in early morning, midday and evening light. I was very interested in how the buildings dealt with the harsh heat (and cold in winter) and strong light, as well as the acoustics of prayer, song and silence. The acoustics in particular

force a certain discipline upon the monks because of the reverberation time created by the stone walls, roof and floors. The prayer and singing has to be slow and in perfect harmony, and choral singing was designed to cope with this in a precise and understood way.

Staying in La Tourette was very moving; seeing how the frères interacted, silently moving around the building attending to their chores and prayers, constantly putting their white garments on and taking them off as they went from one task to the next. Although they could not engage with me, they



made me feel very welcome and made sure I saw their library and archives, which apart from the usual religious texts seemed to have a very large collection of Marxist and left wing tomes. I presume this is so that the scholars can fully arm themselves with both sides of the debate, politically, historically and philosophically. I particularly enjoyed seeing one frère's white Converse sneakers peeping out from under his long robes whilst rushing to say mass!

I had the opportunity to spend a number of days at each site and experience the differences between

the 12<sup>th</sup> century religious buildings constructed from a single material (stone), and their 20<sup>th</sup> century equivalent in Lyon, La Tourette, which was very influenced by one of the three Cistercian Abbeys – Le Thoronet, near Brignoles in the Var region. By spending time at each site, I was able to appreciate and document how each is fundamentally connected to its site (whether in a marsh, a woodland or on a steep hillside), and how the architecture is defined by its austerity and pared-backness to reveal the spirituality and poetry of time and place.



### What aspects of your travel project did you find most challenging?

Not speaking good enough French was the biggest drawback. Many texts are in French, although I have been able to get translations of most. The temperature touched 40 degrees at times when travelling; however this was more than compensated for by the coolness of the interiors of the monasteries. Getting to grips with what I was looking at was not always clear; reading between all the lines of the complex negotiations of purpose–culture, client–society and future–past, ie that idea that ‘The difficulty with the past is that it is often in front of us’ (Wells Coates).

### How has this project assisted your studies and personal development?

The visits, detailed drawings and recordings will help me in my dissertation to assess how successful modernism’s aim, in respect of historical models, was realised by looking specifically at the monastery of La Tourette, and the ideas and historic architecture of the monastic tradition, with specific reference to the Three Cistercian Sisters of Provence: Senanque, Silvacane and Le Thoronet. The dissertation will examine: the ideas that informed monastic life and Cistercian architecture; 20<sup>th</sup> century modernism’s covert engagement with style, history and monasticism; the early writings and architecture of Le Corbusier, their internal paradoxes and his first encounter with monastic life; the reorientation of Le Corbusier’s ideas from 1945 to his death in 1965, and their relationship to the early work; and

a detailed examination of the design development of the monastery of La Tourette from inception to completion, based upon the evidence contained within the sketches, design drawings, construction drawings and biographical records.

I was able to conclude my travel and visits with a critical assessment of the ideas and feelings that were unlocked by the direct experience of staying in La Tourette and numerous visits to the Three Sisters. The visits have formed an emerging understanding of the forces that impact upon an individual work of architecture.



# How do Canadian beef cattle farmers deal with the extremes in temperature, and what are the implications for future farming in Britain in an era of climate change?

by Harry Cozens

**Location:** Herbert, Saskatchewan, Canada

**Award:** Student Travel Fund

**Dates:** 7<sup>th</sup> July–12<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

For this project I travelled to a small town called Herbert, situated in southern Saskatchewan, Canada. Having visited this town and spent some time on a cattle ranch in mid-winter 2010 during a Christian gap-year programme, one of the things that struck me regarding the ranching out there was the extreme and variable climate that the country, particularly Saskatchewan (being 900 miles from the coast) experiences on an annual basis. For my part, I found the extremely cold temperatures challenging and was particularly interested in the way cattle adapted to such extremes, so an opportunity to return in the

height of summer at the opposite extreme was gratefully received.

During the three weeks spent on the ranch in July, with temperatures regularly above 30 degrees, I was able to witness first-hand the challenges faced in welfare, disease and nutrition, as well as being involved in the husbandry of the herd from day to day.

During my first visit in the winter, the -40 degree temperatures similarly demanded specific husbandry methods to target the issues that arise from extreme temperatures. In terms of welfare, in the winter, the largest issues are hypothermia, frostbite and pneumonia, even more so to the younger stock as they are unable to maintain an adequate core body temperature. For this reason, the breeding programme of the farm is orientated around a spring-calving system. The idea being that calves are not born in the harsh winter, but as soon as possible afterwards, to enable the oldest possible calves going into the next winter, thus reducing the young stock facing such extreme circumstances. The practicalities of this system involve timing the release of the Angus bulls into the herd, not only with the cows' oestrus cycle but with the time of year, a management process I was also involved in during my stay.

Nutrition in such extreme cold is also a challenge, as the majority of grazing land is deep under snow and very poor quality even when exposed. This is similar to the risk of drought causing poor quality grazing in the summer months and is part of the reason why a low-input herd such as this one is far better

suited to the climate than high input herds required to rapidly gain weight. To combat this nutritional issue, and coupled with giving shelter, the cows are kept in a covered yard with access to grazing during the winter months, and being fed on grain daily enables adequate nutritional input, certainly for a maintenance ration. Heated water pipes and troughs maintain access to water and prevent dehydration, of which there is an especially high risk given the very dry climate.

Returning in the summer, the heat provided its own challenges. In welfare, perhaps the most noticeable issue, particularly prevalent on the bulls in the herd (as bulls are generally longer so tail flicks seem to leave a large area untouched), is that of flies. Due to the thick hide of these black Angus cattle, mosquitoes pose little threat, but in some cases huge numbers of flies seem to continually bother these animals. As Bluetongue has only been cited five times in the



past 30 years, and all cases in British Columbia, flies and mosquitoes remain largely a welfare issue in Canada (although other vector borne diseases such as Redwater fever are also a risk). Scratching posts and shelter such as trees offer some relief from the mild irritation. Although spraying is a preventative option, there are practical issues with administering it regularly to a herd spread over large fields, as well as cost and meat withhold periods making it largely unpractical for a low-input herd.

A further welfare issue is the heat itself – heat stress and dehydration must be overcome, especially for young calves and mothers lactating. As such, the fields in which the cows spend the summer provide shade in the form of rows of trees in a loose hedge-row arrangement, as well as small lakes to hydrate and cool the cattle in the heat of the day. Breeding, as previously mentioned, is done with bulls rather than artificial insemination, so particular care must be taken to avoid heat stress on the bulls, and provide adequate shade so that they may still be at work in the summer months.

In terms of nutrition, the animals rely heavily on grazing large areas of the 2,000-acre ranch. The sward is composed mainly of grasses with areas of alfalfa and marshland (alfalfa must be limited in quantity to prevent bloat). With the quality of grazing hugely dependent on the year and the level of the water table, supplements of hay can be used and mineral licks containing iodised salt with added cobalt.

In conclusion, in being able to revisit this stun-

ning country and specifically revisiting this particular ranch in southern Saskatchewan, I was able to gain an understanding, not merely theoretical but practical, of some of the major challenges faced by Canadian farmers due to the harsh environment and extreme annual temperatures. It has been a privilege to return and have this opportunity to experience and learn so much.

**What were some of the things you enjoyed most about working on the project?**

It seemed that throughout my stay, no two days were the same. Although some practical jobs became routine, each day was as exciting as the next. For one thing, seeing the vastness of creation every day and being in stunning scenery was breathtaking; let alone the hands-on experience I had on the ranch itself! I loved having the chance to get stuck in with the practicalities of cattle ranching in Canada, living with an awesome family and experiencing ranch life first-hand (including attending the annual Herbert rodeo). A fantastic trip in every way!

**What aspects of your travel project did you find most challenging?**

I think one of the big challenges, in a very different way to my previous visit, was the climate. The extreme temperatures (and unusual humidity for the area) made the work itself challenging, and highlighted the issues faced in animal husbandry in trying to realistically combat the effects of this on the livestock. Having said that, being able to work alongside

a great family made it a really great time, even with challenges.

**How has this project assisted your studies and personal development?**

This project has given me a far more complete picture of cattle ranching in Canada, one not only useful in understanding the practices and culture out there for its own sake, but also giving me a valuable insight into techniques and methods that may well become increasingly needed in the UK given the predicted climate change.

The Met Office currently predicts an average global temperature rise of 0.71 degrees in the next 10 years alone (see Met Office Decadal forecast), as well as an increase in extreme weather events and shifting rainfall patterns. As Britain experiences this more extreme climate there will be an increasing need to combat some of the challenges already faced by beef farmers in Canada, such as heat stress, lack of nutrition and the like. Britain has already witnessed the effects of such changes in recent years with the Bluetongue outbreaks. Although now Bluetongue free, with climates still changing an awareness of the farming techniques used abroad is of great importance to my future profession.

Personally, I found the experience amazing! I learnt a lot, had an awesome time and was able to experience and get stuck in on a Canadian ranch in the summer – an opportunity I would not have been able to take were it not for this grant.

# Traversing the Archipelago – adventures in Indonesia

by Aurora Horwood

**Location:** Indonesia

**Award:** Ulysses Travel Fund

**Dates:** 11<sup>th</sup> July–9<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

My travels around Indonesia involved countless different activities, which formed part of experiencing the diversity of culture and pursuits offered by the archipelago. My aim with this project was to explore as much of the country's culture, natural scenery and wildlife as possible, as well as undertaking exciting diversions. Whilst in Java I visited museums and monuments in Jakarta. In Yogyakarta I had the opportunity to visit the largest Buddhist temple in the world, Borobodur, as well as the Hindu temples of Prambanan. Adventure was a primary component of my travel itinerary. In Kaliurang – home to one of the world's most active volcanoes, Mount Merapi – I had the opportunity to explore ash-covered vegetation and barren landscapes when venturing into the danger zone of the volcano, which most recently erupted just last October.

Meanwhile, in Bali I was lucky enough to experience the rich culture of its Hindu temples,

Balinese dances and the people themselves. Seeing the offerings left out by the island's inhabitants every morning was a beautiful expression of their religion. Yet I also saw the lush and verdant rice terraces that populate much of the island's terrain. I was able to photograph much of Indonesia's beauty whilst travelling.





What were some of the things you enjoyed most about working on the project?

Being able to do so many phenomenal things and witness so many fantastic sites was one of the best parts of this project. My journey involved mountain trekking, elephant riding and white-water rafting, among countless other activities.

However, a few things do stand out. Journeying through Lombok to reach the Gili Islands, monkeys littered the sides of the roads, which were also bumpy and pot-holed. Furthermore, the boat we took from Lombok to Gili Trawangan at times seemed as though it was going to capsize, but this journey



was well worth the visit. The Gili islands – tiny and beautiful – were great places to watch fantastic sunsets and experience Indonesia’s underwater wildlife. Swimming with turtles just metres away and being bombarded by remarkably multi-coloured fish made me really appreciate the wonders of nature. Even more amazing however, was visiting Mount Bromo. Viewing this volcano, which is surrounded by a beautiful sea of sands, from Mount Penjakan at sunrise was truly spectacular, as was riding motorcycles through the sands to journey to the lip of Bromo’s crater and look into it. Documenting all of this with my camera was also something I really enjoyed, as an avid photographer, and it allowed me to capture these amazing things for posterity.

What aspects of your travel project did you find most challenging?

Travelling around Indonesia was not always straightforward or easy. At times, the language barrier made communicating with people difficult. However, one of the nicest things about travelling was how friendly and helpful many of the Indonesian people were.

The language barrier was particularly difficult when the person I was travelling with was admitted to hospital in a less populated area. Communication simply about what





he had been diagnosed with and the time of his discharge from hospital was more arduous to come by. This highlights the fact that ensuring that we were careful about the food and water we consumed was something we always had to be aware of.

[How has this project assisted your studies and personal development?](#)

Through my tripos studies I had already learnt about the impact of the West on third world nations. Consequently, seeing first-hand how Indonesia's Dutch colonial heritage was reflected within the country and how even now it still impacts on its tourism was interesting. As well as this, Indonesia is the world's largest Muslim democracy, though the

islands successfully retain a religious pluralism with Hinduism – the dominant religion in Bali for instance. To see how such elements operate within the nation and how divergent religious and ethnic groups coexist clarified further the variety of Indonesia, as well as literally demonstrating the country's national motto, 'Unity in Diversity'. Thus, witnessing the rich diversity between Indonesia's different islands, and seeing how the different religions and traditions have shaped the various places we visited, was fascinating. Travelling, for me, was a lesson in independence and this trip constituted the longest journey I have undertaken. Having completed this trip, I personally feel more confident about undertaking more travel in the future, for even longer, and in even less-travelled parts of the world.







Undergraduate  
Academic  
Research  
Projects

# Condensation of water on superhydrophobic carbon nanotube arrays

by Patrick Arran

**Location:** Caltech

**Dates:** 27<sup>th</sup> June – 2<sup>nd</sup> September, 2011

**Briefly describe the activities of the project in which you were involved.**

Under the guidance of my supervisor, I was involved with every part of this self-contained project. This started with the growing of carbon nanotube arrays and various processing routes to obtain the desired properties. The experimental method and apparatus was mostly under my control, as was the actual carrying out of experiments and taking recordings. I collated the results in ways suggested by my supervisor and those I thought of myself and between us we drew conclusions and asked further questions. I was also required to give a presentation summarising my project to other students and faculty at Caltech.

**What were some of the things you enjoyed most about working on the project?**

Experiencing the lab environment was initially the most enjoyable part of the project, especially as the

lab in which I was working contained many different pieces of apparatus. Becoming familiar with this wide range of equipment and its capabilities provided much interest. As the project yielded results, I found it exciting to be finding out something new and contributing to knowledge of the behaviour of carbon nanotubes.

**What aspects of your travel project did you find most challenging?**

Finding a reliable and repeatable way to test for and record condensation took several attempts and there were many small problems with samples. Intellectually the most challenging part was thinking exactly what the results indicated, without making conclusions beyond those implied.

**How has this project assisted your studies and personal development?**

The project has given me an idea of what academic research in the sort of cutting-edge fields that I am interested in is like. This will allow me to make an informed decision about my future career. It has also helped to broaden my expertise and it gave me a chance to solidify a surprisingly broad range of what I had learnt in the last two years with real applications.



# Zariski geometries

by Thomas Avery

**Location:** Department of Pure Mathematics and Mathematical Statistics, Cambridge

**Dates:** 16<sup>th</sup> August – 23<sup>rd</sup> September, 2011

**Briefly describe the activities of the project in which you were involved.**

The aim of the project was to investigate the mathematical subject of Zariski geometries, and try to gain insight into these structures. I was working under the supervision Professor Hyland from the Department of Pure Mathematics and Mathematical Statistics. My role in the project was to read some of the existing literature of the subject and report back to Professor Hyland, highlighting the key parts of the theory, as well as any potential areas for further research. In order to do this however, I first needed to gain some background knowledge in other areas of mathematics, in particular model theory and algebraic geometry.

**What were some of the things you enjoyed most about working on the project?**

I enjoyed the chance to find out about an area of advanced mathematics that is at the cutting edge of research, and is quite far removed from anything covered in an undergraduate syllabus. It was interesting to see the contrast between mathematics as taught to undergraduates, where all the problems

and details have been long since resolved, and mathematics research where there are frequently unanswered questions, and the best approach to a problem is not always clear. I also enjoyed seeing how several seemingly unrelated subfields can come together and complement each other.

**What aspects of your travel project did you find most challenging?**

The theory of Zariski structures is very abstract, and at times it was difficult to get an intuitive grasp of the structures I was working on. It was also sometimes difficult to work with much less support than I was used to, working directly from a book with no lectures or supervisions to help when I didn't understand something. In addition, having to talk about what I had been working on in seminar-style presentations was a fairly new experience, and at first was somewhat daunting.

**How has this project assisted your studies and personal development?**

I have definitely gained a lot from doing this project. I think I have developed my research skills and intuition, and have become more confident at teaching myself and working on my own, without the support provided by an undergraduate course. I have also grown much more confident at presenting mathematical content to others, and at giving oral presentations in general. It has also been useful to gain an insight into how mathematical research is done.

# Living Lady Macbeth: Cambridge American Stage Tour

by Victoria Ball

**Location:** East Coast of USA

**Dates:** August – October, 2011

Briefly describe the activities of the project in which you were involved.

Whilst performing Lady Macbeth in a US tour of 'Macbeth', I looked at the ways in which relations and tensions shift throughout the two month period among the cast and crew when living and working in such close proximity and investigated how the actor's personality became, at times, inextricably linked with that of their character. Another area for exploration emerged whilst in the field; the attachment to the character of Lady Macbeth on the part of women across the USA was profound.

What were some of the things you enjoyed most about working on the project?

The reception of the production by audiences in the USA was fantastic and incredibly encouraging. I gave workshops to a number of students, both university and high school level and really enjoyed sharing my ideas about the part and play and listening to their own impressions. It was wonderful to be performing so frequently and also living with the

small company and getting to know them so well over the two month period. We had fights, tears, we shared rooms and clothes. We really became like a family - families are not always biologically connected!

What aspects of your travel project did you find most challenging?

The project was exhausting and intense, yet I really enjoyed every minute. It was initially difficult to balance my interaction with others and observing their actions, but it was a process that became easier and that I learnt to love. I was fully immersed as one of the team and was able to witness social interaction, and be a part of it.

How has this project assisted your studies and personal development?

It was such a unique opportunity to be so fully immersed whilst observing the group. It was an excellent introduction to fieldwork and made me really appreciate that fieldwork lies at the very heart of anthropology. As I hope to pursue a career as an actress, the chance to perform such an iconic part to thousands of people across two continents time and time again was invaluable training.

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My expenditure ended up being much higher than I had foreseen, due to our hosts not always providing food, so I was particularly grateful of the grant, which made this incredible opportunity possible.





# Differential forms, Hodge theory, fundamental groups

by David Lukas Benjamin Brantner

**Location:** DPMMS, Cambridge

**Dates:** 28<sup>th</sup> June – 3<sup>rd</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

My summer project can be divided in two parts:

- Geometric Group Theory: I managed to prove two new results on stable commutator length, a central concept in geometric group theory. Firstly, I showed that a generic word in  $F_2$  of length  $n$  has scl arbitrarily close to  $n/2-1$ . Secondly, I proved that the determination of scl is NP hard, independent of the employed algorithm. These results are submitted for publication and uploaded on the ArXiv ('On the Complexity of Sails', second version).

- Algebraic Geometry: I firstly filled several holes in the Cambridge tripos by learning about the deRham complex, Bundles, and basic homotopy theory (including minimal models) with Bott and Tu's 'Differential forms in Algebraic Topology' and about schemes, sheaves and sheaf-cohomology with Hartshorne's 'Algebraic Geometry'. After this, I familiarised myself with spectral sequences, abelian and derived categories. The participation in

a reading group on D-modules (along with Hotta's book) allowed me to immediately get an idea of how these abstract concepts are used in modern mathematics. I computed the sheaf cohomology of certain varieties for several quasi-coherent sheaves, which helped me to build up a better understanding for the strength of Cech cohomology. Subsequently, I worked through Serre's prominent paper 'GAGA'. Finally, I had all tools in my hand to read the first volume of C. Voisin's famous book on Hodge theory. The intellectual peak was reached when she used many of the aforementioned techniques to prove that the algebraic deRham complex computes the smooth cohomology  $H(X, \mathbb{C})$  of a projective variety and that the Hodge-deRham sequence degenerates after the first term.

What were some of the things you enjoyed most about working on the project?

Having the time to learn abstract mathematics that would be considered to be too specialised to be included in the Cambridge tripos.

Understanding the precise statement of GAGA, i.e. the relation between the analytic and algebraic structure of projective varieties.

Finding two new theorems which can be understood with little effort by any mathematician.

What aspects of your travel project did you find most challenging?

Transition from lectures to books as sources of mathematical information.

How has this project assisted your studies and personal development?

The project had an affirmative role in my decision to pursue a PhD in (Algebraic) Geometry and will allow me to take a more informed decision concerning my supervisor. The new results on  $scl$  will hopefully allow me to get a publication.

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I wish to warmly thank St John's College for supporting me with such a generous grant and Professor Grojnowski for supervising me.

# Psychology Assistant at the Cambridge Centre for Family Research

by Rosalyn Buckland

**Location:** Cambridge Centre for Family Research

**Dates:** 18<sup>th</sup> July – 30<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

I assisted with a research project providing empirical data on the relationships between children and parent in non-traditional family forms. My role included coding and transcribing interviews, as well as the statistical analysis of data.

What were some of the things you enjoyed most about working on the project?

I enjoyed working in as part of a team to get results in new fields of research. I was very interested in the area of research, and appreciated the ability to use what I learnt from it in my own work with children.

What aspects of your travel project did you find most challenging?

The original project I was working on, looking at parent-child relationships in donor insemination

families, did not manage to get enough participants to progress beyond the interview to the data coding stage. I therefore transferred project to assist with a paper on the differences between native and second-generation immigrant families. This meant I had to be adaptable, learn to work with a new team, and re-define my role.

How has this project assisted your studies and personal development?

The project has helped in my studies by giving me insight into extended research projects, and the methods of working within them. It has helped me in my personal development by teaching me to cope with individual responsibility as part of a team.

# A research project into the stereotypic behaviour of big cats in captivity

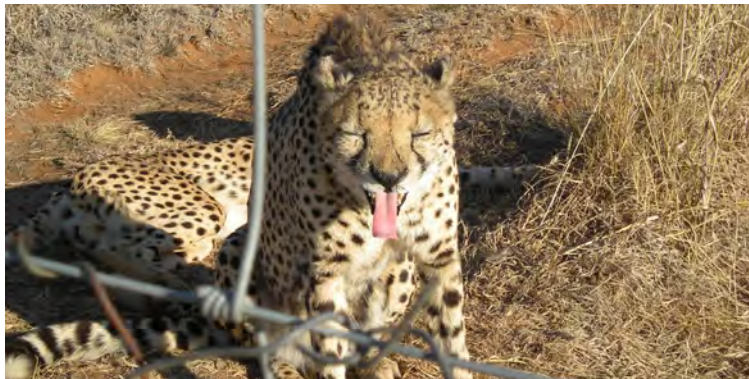
by Samantha Davis

**Location:** Cheetah Experience, Bloemfontein, South Africa

**Dates:** 4<sup>th</sup> – 18<sup>th</sup> July, 2011

Briefly describe the activities of the project in which you were involved.

I was volunteering at Cheetah Experience, which is a big cat sanctuary with the long term goal of breeding cheetahs and releasing them back into the 'protected wild'. While I was there, as well as undertaking activities such as feeding, the day-to-day husbandry duties and projects such as fixing the fences, I



studied the stereotypic behaviour of the animals in the enclosures. This was expected to involve repetitive pacing up and down the fence line, which is usually seen in carnivores in captivity. I noted in particular any differences in the behaviour to do with activities on the farm (e.g. feeding time), the proximity of other conspecifics, as well as any enrichment found within the enclosures.

What were some of the things you enjoyed most about working on the project?

I particularly enjoyed learning about, and working with different feline species such as lions, leopards and cheetahs which are not found in large numbers in the UK.

What aspects of your travel project did you find most challenging?

When I arrived at the sanctuary, I found that the animals were not pacing as was expected. This meant that I had to change the project I was writing to try and find a reason as to why they weren't pacing. This involved measuring and mapping a number of large enclosures.

How has this project assisted your studies and personal development?

I have gained a vast amount of knowledge about a set of species that are rarely found in normal veterinary practice in the UK. I have also acquired an insight into how the profession varies across the world.



# Human pneumococcal carriage study: the role of anti-PspC antibodies in blocking the interaction of PspC with human factor H

by Michael Garner-Jones

**Location:** Liverpool School of Tropical Medicine  
**Dates:** 27<sup>th</sup> June - 12<sup>th</sup> August, 2011

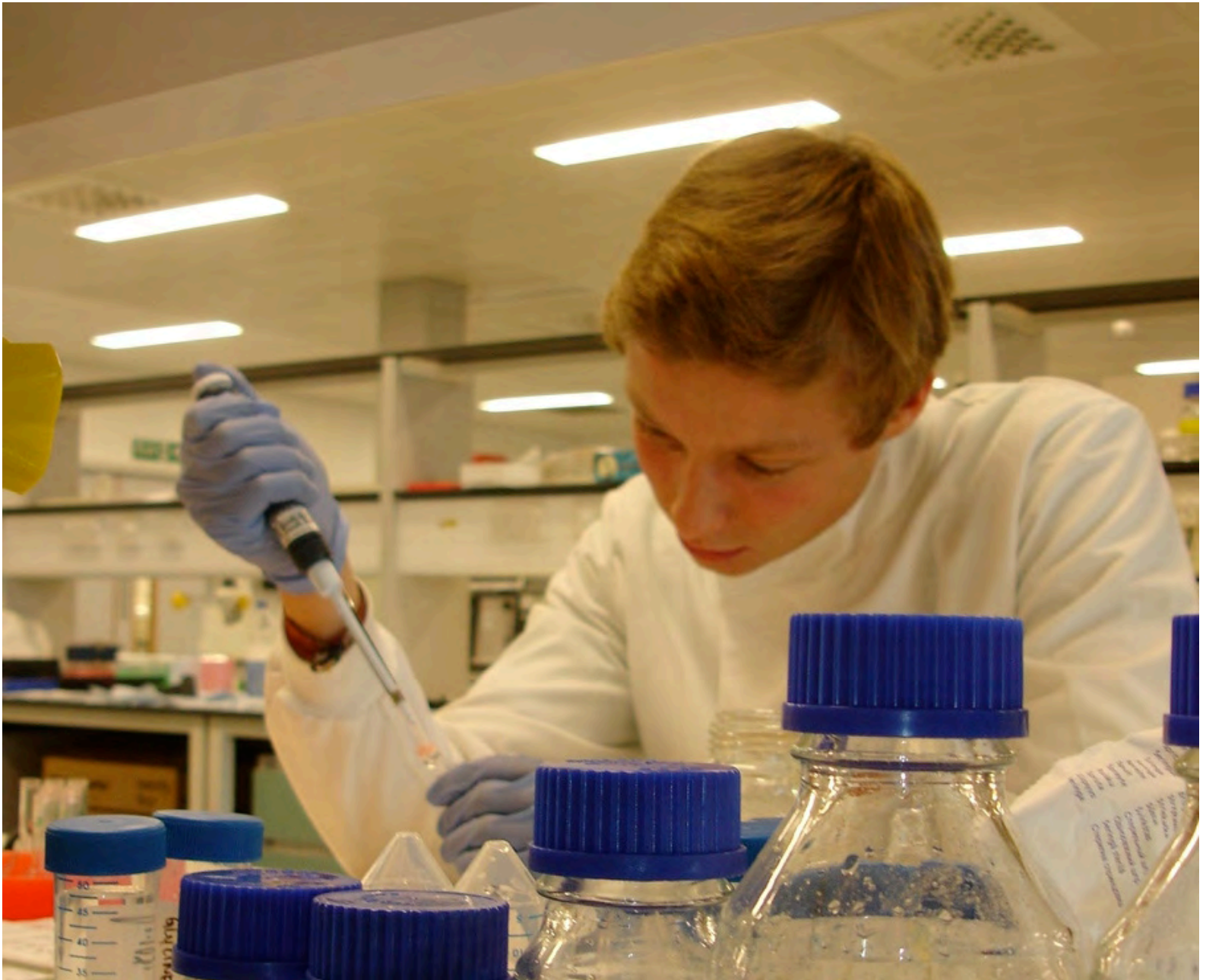
Briefly describe the activities of the project in which you were involved.

When *Streptococcus pneumoniae* invades the human host its PspC surface antigens bind serum Factor H; this inhibits complement activation and aids epithelial cell invasion resulting in colonization and infection. The aim of my research project was to isolate anti-PspC antibodies from human serum and see if we could block the interaction between the PspC antigen and Factor H and thereby prevent colonization. If this was the case PspC protein could potentially be used to develop an effective vaccine against pneumonia.

Prior to my project it had been shown that unpurified serum samples did cause a partial blocking of the interaction but any effects were mostly masked

by the high concentration of Factor H contaminating the samples. Since IgG is the most abundant and most understand immunoglobulin I started by isolating specific anti-PspC antibodies from several different human samples. This purification was a two-stage process involving a Protein G column (theoretically this should bind all the IgG in the sample and ensure no Factor H remains in the elution) and a CNBr Sepharose-PspC column (to extract and concentrate the specific anti-PspC antibodies). I used ELISA and Western Blot techniques to measure the concentrations of antibodies and Factor H contamination that were obtained in the elutions and supernatants at each stage of the purification and made adjustments to the protocol accordingly. I then conducted separate Factor H and anti-PspC binding assays using flow





cytometry to make sure that, in isolation, they bound to the PspC antigens on the bacteria. We tested this on three different Pneumococci strains: D39, 23F and 6B. It had previously been shown with PspC knock-out Pneumococci that PspC was the only surface protein on the bacteria that bound Factor H. Once these interactions had been confirmed I then conducted an inhibition assay where we subjected Pneumococci to anti-PspC antibodies and then introduced Factor H to see if it was still able to bind. We used FITC-conjugated anti-fH antibodies to measure the amount of bound Factor H.



Using the same protocol principles we then purified anti-PspC IgG antibodies from nasal wash samples to try and prevent Factor H contamination, and repeated all experiments with purified anti-PspC IgA antibodies since this is abundant on mucosal surfaces where pneumococcus is encountered in situ.

[What were some of the things you enjoyed most about working on the project?](#)

I loved working within the LSTM Respiratory Infection Group. The people within the team were really friendly, approachable and provided an easygoing fun working environment. I really enjoyed working with people who were always willing and eager to help and give advice. I enjoyed having the flexibility to direct my own work and use my initiative to decide which approach would be best to solve a problem. I also found it really satisfying and felt a great sense of accomplishment when I was able to independently carry out experiments, obtain valid results and further investigate aspects of the project on my own. It was also rewarding to know that my supervisor trusted me in developing and conducting the experiments independently and considered my results valid and reliable. I also enjoyed having to present my data to the research group and then receiving feedback and suggestions that I may not have thought of.

During my time at LSTM I most enjoyed the hands-on practical element to the project. When I arrived I was given two potential projects – one that was wet lab-work based and a ‘dry project’, which involved analyzing, updating, improving, and



re-submitting a paper. I quickly discovered that the practical, experimental side to the project was where my strengths and interests really lie.

**What aspects of your travel project did you find most challenging?**

Although as a whole I enjoyed the project, I found the level of dedication needed to fulfill such a big commitment challenging, especially when my vacation was already so busy. The project occupied a large proportion of my vacation and it was difficult having to compromise paid work to partake in the project. Also, the long hours including the commute proved to be tiring. However, I was still disappointed when I had to finish the project (in order to attend a health project abroad) as I still had work left that I wanted to do.

In addition, I found it a challenge having to accept that sometimes results are reliable and correct even though they are not the results you wanted or expected. It was difficult having to accept that even though theoretically an experiment should work, that is not always the case in reality.

**How has this project assisted your studies and personal development?**

Before starting the project I made the assumption that many scientists may be reluctant to share and contribute their information, as they wanted to make discoveries and have the recognition themselves. However, it was evident that, at least for the people

I was working with, they were more concerned with sharing information, collaborating and contributing to scientific understanding as a whole rather than craving glory and prestige themselves. I have definitely come to appreciate the benefit of collaboration and sharing knowledge for the sake of the end goal, rather than for your own interests.

In particular, as a result of my work I will be named as an author on a pending publication; this will no doubt reap dividends in the future. Furthermore, I have established relationships and connections with Liverpool School of Tropical Medicine, which may prove to be useful in the future.

I have also gained a much better understanding of research as a profession and also as an obligation. The project has emphasized how crucial research is for the progression of medicine. This experience has shown me that if you truly want to make a big difference you need to address the root of the problem rather than just continually treating its effects. After reflecting on my placement I can now foresee research as a potential part of my future career.

# Porto Montenegro: revolutionising nautical tourism and the lives of locals

by Ysemay Hackett-Evans

**Location:** Tivat, Montenegro

**Dates:** 24<sup>th</sup> August – 30<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

I went to Tivat in Montenegro for 5 weeks to carry out dissertation research into the impact of the development of Porto Montenegro, a high-end super yacht marina, on the local residents. In order to do this I conducted a number of interviews and questionnaires with local residents, local professionals, businesses in the area and the marina authorities in order to try and build a clear picture about the ways in which the development of the marina has affected the day-to-day lives of local residents in either a positive or negative way. Montenegro is reported to have the poorest GDP in Europe and so I was extremely interested to see how local citizens reacted to such a high-end development, in which many of the facilities are out of their reach.

What were some of the things you enjoyed most about working on the project?

The fact that I was in Montenegro for such a long time period and was working closely with a translator throughout this time meant that I was able to fully immerse myself in the lifestyle there. Having someone who could show me around and explain things from a local point of view really helped to broaden my horizons and meant that I could start to understand the situation that I was in from another point of view. The fact that I was in the same small town for 5 weeks meant that I got to know a number of the local people really well and was made to feel really welcome. The development of Porto Montenegro is ongoing and is not set for completion before 2013 at the earliest. I would love to have a chance to go back in a year's time in order to chart its progress as whilst there I really got a sense that the local residents were embracing the changes that they saw, something which I found very exciting.

What aspects of your travel project did you find most challenging?

For me the most challenging aspect of the project was to find people who were willing to take part. I managed to interview 45 people over the course of my stay but it was a constant struggle to persuade people. On this front my translator was extremely helpful as she was able to explain to people why I wanted to speak to them and what I would be using the data for, something that people were fairly suspicious about.

Another aspect that I found quite challenging was ensuring that I really kept the aim of my research in

mind the whole time. Whilst researching or planning interviews I found that I would often drift off topic and so had to be careful to review the questions that I had designed in order to make sure they were relevant to my research aims.

### How has this project assisted your studies and personal development?

This project allowed me to collect all of the primary data that I require for my dissertation. Having first hand experience of data collection has made me a lot more critical of the methodologies that I read about in studies that I come across in my day-to-day reading as I now understand more fully the challenges and opportunities that face researchers when out in the field.

By being in charge of my own research and work schedule for 5 weeks I do feel that I have become a lot more independent and confident with my work now that I have returned to England. Being in a situation where you really had to put yourself out there and constantly be asking to interview people means that I feel a lot more comfortable talking to people that I do not know and I have come to realise that it really is true when people say that if you don't try you will never succeed and this is something that I am trying to integrate into my daily life.



# Hong Kong: place and identity in an asian global city

by Andrew Halton

**Location:** Hong Kong

**Dates:** September, 2011

Briefly describe the activities of the project in which you were involved.

I visited Hong Kong for a month to investigate youth culture and explore the complexities of identity formation and performance in a city which is rapidly changing; caught between the 'West' in decline and China on the up. I conducted a range of interviews



with young people between the ages of 16 and 21 from 2 youth centres and a university. In particular I focused on their everyday expression of identity through fashion, music, dance, and the spaces of the internet. This was accompanied by a series of participant observation studies as I followed my research subjects in their day to day lives, watching how they interacted with friends, what things were important to them and what consumed most of their time.

**What were some of the things you enjoyed most about working on the project?**

What I really enjoyed was having the chance to engage with people of a similar age to me on the opposite side of the world. To see people in similar positions to me but facing very different challenges and experiences was really eye opening.

The opportunity to get immersed in an Asian city was amazing. Most traveling consists of staying in one place for no longer than a week. Spending a month in the city gave me the opportunity to get familiar with how it worked, its people and general way of life. This was definitely a highlight of my trip and I cannot wait to return.

**What aspects of your travel project did you find most challenging?**

One of the most difficult aspects of my research was trying to overcome the language barrier. Research is hard enough at the best of times but when neither part really understands the other then it gets a whole lot trickier.

**How has this project assisted your studies and personal development?**

I have gained valuable first hand experience into the study of identity, culture and power relations which characterise much of the papers I am taking in my Part 1B and Part 2 courses. This project supplied the research and insights which will now make it possible to write my dissertation. Not only was this a highly rewarding experience but also a very enjoyable one. I hope to take what I have learnt this summer and use it to make my final year of the trip a successful one.

# German and French organ music in Leipzig

by Freddie James

**Location:** Leipzig

**Dates:** 24<sup>th</sup> July – 1<sup>st</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

I took part in two courses at the European Organ Academy at the Musikhochschule in Leipzig, one of the major summer courses for young keyboard players from around the world. There were teachers and students from at least three continents involved in courses on music from the earliest keyboard repertoires to pieces that had been commissioned for the Academy. I participated in courses on Early French repertoire with Professor Christoph Krummacher and on the music of J.S. Bach with Professor Pier Damiano Peretti. The courses included lectures about music history and performance practice and daily master-classes and concerts.

What were some of the things you enjoyed most about working on the project?

The classes were inspirational. Several of them were on organs from the time of Bach, two of which he actually designed and then performed the inaugural recital on. Playing the instruments that Bach's

music was written is an education in itself, requiring a more careful approach to matters of playing technique and expression that is necessary on most English instruments. It was clear that for many of Bach's works what seems a perfectly acceptable tempo on an English organ is unfeasibly fast on an all-mechanical historic instrument with an extremely heavy key touch. I learned a lot from the lectures, classes and concerts and can honestly say that my approach to the music I studied has been transformed, hopefully for the better!

What aspects of your travel project did you find most challenging?

There were occasional communication difficulties caused by the large number of different languages spoken but nothing insurmountable.

How has this project assisted your studies and personal development?

It was very interesting to meet other musicians from around the world, trained in a number of different traditions of playing. I'm very grateful to the college for enabling me to attend this course on repertoire that I have a strong academic and practical interest in.

# Dynamic combinatorial synthesis of catenanes

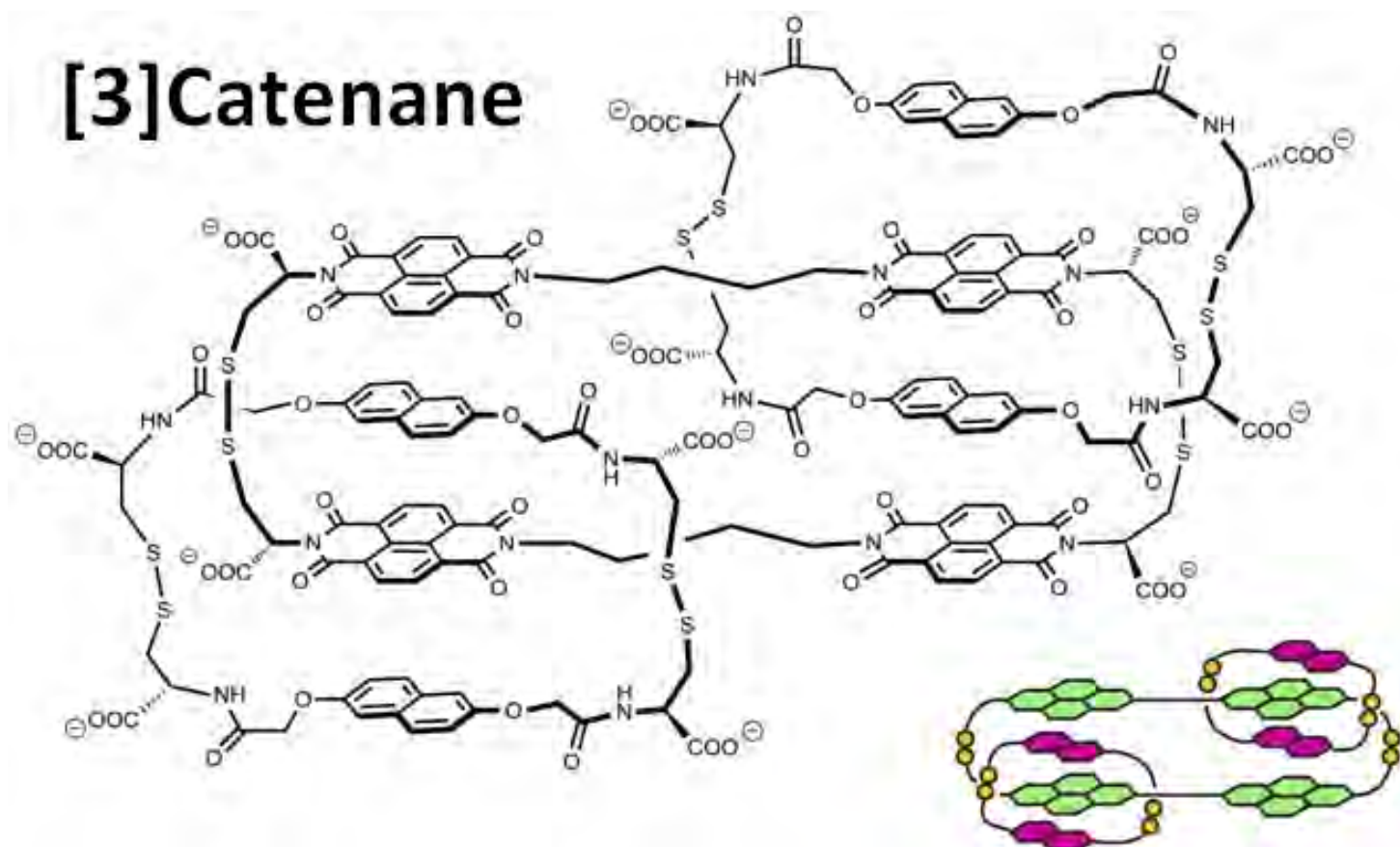
by Nick Jenkins

Location: Department of Chemistry

Dates: 2<sup>nd</sup> August – 30<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

Investigating the potential of Dynamic Combinatorial Chemistry to self-assemble interlocked molecules called catenanes. Catenanes attract the interest of scientists for their potential applications in nanotechnology. During my Part III Chemistry project,



I successfully synthesised water soluble catenanes containing three interlocked rings, [3]catenanes, in high yields. During this summer project, I attempted to extend this concept to form larger catenanes containing four linked rings, [4]catenanes. My work involved design, synthesis, testing and interpreting the results of a variety of different systems. However, I was unfortunately unable to synthesise any [4]catenanes in more than trace amounts.

What were some of the things you enjoyed most about working on the project?

Exploring the frontier of research and synthesising complex molecules, such as catenanes, as well as being exciting it provides a great challenge. The Dynamic Combinatorial method of synthesis employed is a very elegant system which can self-assemble separate components to form complex structures extremely efficiently. I also enjoyed being able to continue the fulfilling work I carried out during my Part III project in the Sanders research group.

What aspects of your travel project did you find most challenging?

The most challenging aspects were the common frustrations of scientific research – things not working as well as one would hope. The interpretation of unexpected or missing results proved tricky at times; however, the experienced gained in these areas helped shape my understanding of the science.

How has this project assisted your studies and

personal development?

As well as the satisfaction of extending my previous research and gaining additional laboratory experience, the extra work has helped the completion of two academic papers - based on my Part III project - that have been submitted for publication. The first of them, 'Templated Dynamic Synthesis of a [3]Catenane', has just been accepted by the scientific journal *Angewandte Chemie* and will hopefully be published in the near future.

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I would like to thank Professor Jeremy Sanders for his support and allowing me to continue work in his group. Special thanks are due to Fabien Cougnon for maintaining his excellent day-to-day supervision. Finally, I wish to thank St John's College for providing me with the funds that enabled me to undertake this research.



# Nanoparticle based coloured coatings for titanium surfaces

by Nina Klein

**Location:** ETH Zurich, Switzerland

**Dates:** 11<sup>th</sup> July – 17<sup>th</sup> August, 2011

**Briefly describe the activities of the project in which you were involved.**

My work was focused on synthesising zirconium dioxide nanoparticles and finding methods to coat them onto titanium substrates. The aim of this project was to provide a white coloured coating to improve the aesthetics of titanium dental implants. During my placement I was able to visit Straumann - the dental company who is collaborating with the ETH for the project. It was interesting to see their vision for the project and how it was formulated to engage with the aims of basic scientific research.

In the lab I soon learnt enough techniques to be relatively independent whilst preparing and carrying out experiments. To synthesise the nanoparticles I mixed the precursor chemicals in the protective atmosphere of an Ar glove box and then placed the mixture in an oven to be heated for over 48 hours. These nanoparticles were then incorporated into suspensions which I used to investigate various coating methods including dip-coating and spray-coating. Timing and coordinating the separate parts of the

synthesis and coating experiments was difficult. I learnt to conduct each process more efficiently and to plan ahead, to ensure that the nanoparticles were produced in time for the experiments I had planned. Some of our experiments did not produce the results we had expected, but in fact this often proved to be advantageous as mostly it meant that I read more literature and discovered something about the process that I did not know before.

At first I did not realise the scope for creativity in the project, and thought that I would simply try different variations of dip-coating. However, after reading some literature and discussing it with my supervisor he said that we could try other techniques too. This made me much more excited and keen to find out what we might discover. I felt as though I had some control over what I did and I would be able to pursue any interesting ideas I had. I suggested biocompatible polymers might be an interesting possibility for a coating, and so I was able to experiment with nanoparticle-polymer composite films as coatings which had never been done before.

**What were some of the things you enjoyed most about working on the project?**

I had imagined that as a researcher it might be quite an isolating experience to work on highly specialised projects for so many years. I was pleased to find that within my group there was a lot of communication and that some students were working on different aspects of a larger project. I probably had more interaction than most as I was assisting a

PhD student, so I had more support and someone to discuss ideas and difficulties with. I was also encouraged to share the progress of my project at weekly group meetings, even to bring in samples to pass around. This showed me the benefits of collaboration; other group members were able to advise me on new avenues of investigation and give fresh viewpoints on problems I had encountered.

I especially enjoyed the trip to meet the industry sponsors Straumann. I learned a great deal about the difficulties of converting scientific discoveries into commercial projects. It was also interesting to talk to another member of the nanometallurgy group - who was working closely with a dental laboratory to test the implants - about her experiences working with industry partners.

### What aspects of your travel project did you find most challenging?

I found the pace of life in the lab very different to that of a Cambridge Undergraduate. Much of the day was spent setting up experiments or trying to fix machinery. Sometimes at the end of a day you didn't have any results and that was quite discouraging. It was important for me to learn that all of the preliminary work is part of the process and has to be done in order for the project to progress, so it is valuable even if it does not have measurable results.

It was very exciting to be working independently in a world-renowned lab and it was very rewarding to be making a contribution to research which might

one day be part of our everyday lives. In hindsight however, it might have been more beneficial to use a wider variety of machinery and techniques, especially for analysis. As I was trying to produce a coloured coating, much of the analysis was simply done by eye so I did not learn any new techniques for recording or analysing data.

Although Swiss-German is the spoken language in Zurich, both German and English are widely spoken too. I had enjoyed learning German up to GCSE and travelling in Germany, so I was looking forward to refreshing my German. Upon arrival I was pleasantly surprised at the volume of vocabulary that can back to me over the first few weeks. I was, however, disappointed to find that although the written language is German, very few people wanted to speak in German, instead preferring English, so I didn't have quite as much speaking practice as I had hoped for. I did enjoy recognising words and translating signs in town and I certainly feel much more interested in improving my grammar and spoken German as a result of living in Zurich. The vocabulary I knew served me well day-to-day in town but within the group mostly Swiss-German was spoken so I found it much harder to communicate naturally. It was difficult to join a conversation at lunch or to know what someone was asking when they walked into a room. I think if I were to join an international group I would try to learn the local language as it is very important, both socially and scientifically.

## How has this project assisted your studies and personal development?

When I arrived I was amazed by the natural beauty of Switzerland; stunning mountains looking down onto crystal clear lakes. Most weekends I went into the mountains around Zurich on foot or by bike and found little towns with local charm. My favourite part of living in Zurich was the bathing culture. The lakes are all very clean and so residents come down for a dip in the water after work - I swam frequently both in the main lake and a little lake I discovered further out of town. During my stay there was a national holiday to celebrate Switzerland, on that day the buses all had flags on them and in the evening there was a firework display. The locals were allowed to set off fireworks themselves, so all round the lake at different times you could see little fireworks going off - it was very different to the large coordinated displays normally put on in England.

Before this placement I had not read many scientific papers, so it was a pleasant surprise to find that most of them were written in an accessible style and I was able to understand them. I learnt that when reading literature it is important to extract the information relevant to your project and record its source. I found that copying the relevant parts of each paper over to a word document allowed me to keep track of the information I had gathered. The synthesis of the nanoparticles and preparation of the suspensions for coating trials improved my lab work. I was exposed to new preparation methods and new chemicals, meaning that I am now proficient with more apparatus

and have a better knowledge of the chemicals that I encounter in the lab. I have also learnt that creativity is an essential scientific skill; in terms of generating ideas for avenues of investigation, and also determining why a method might be producing unusual results.

Academia can have a reputation for having many old professors who are solely focused on their research but this was not the case at ETH. There were all kinds of people working in the labs and each of them was friendly and helpful, whilst still being serious about their research. Living abroad meant that I was particularly interested in the views of those in the group who had chosen to work internationally and what they thought of living in other cultures. It was very nice to meet other PhD students in the group as they were actually only a few years older than me, so I was able to get along with them very well. It made the step up to a PhD seem possible; here were real people, not so different to myself, embarking on years of research on their own. I often went to lunch with them and tried to ask lots of questions to find out what they thought of the University and an academic career in research.

Working in a lab allowed me to form my own opinions about an academic research environment, but it also allowed me to ask others about their experience. This was extremely valuable as they have more long term experience and I was able to get a cross section of views from different members of the group. I certainly feel more prepared to enter a research environment, as I now have a better

understanding of what different groups and supervisors might be like, and what kind of project might be more suited to my interests. I had hitherto thought that I might like to work closer to the actual production of a materials science based project, but through this placement I have seen that real creativity and excitement might be found much earlier on in the process. I also learned much more about how collaborations with industry work, and the benefits and difficulties of doing this.

Overall I think that this experience has educated me, as it has given me a better idea of what it would be like to work in research and also in an international setting. It has certainly prepared me for the next step in my studies and means that I will be able to make better judgements and more informed decisions about my future. I hope that this report has shown you how valuable this placement was to me on many different levels. I am extremely grateful for the support that St John's College provided to make my placement possible, and I would like to take this opportunity to thank them.

# Core formation in super-earths

by Simon James Lock

**Location:** California Institute of Technology, Pasadena, CA, USA

**Dates:** 24<sup>th</sup> June – 5<sup>th</sup> September, 2011

Briefly describe the activities of the project in which you were involved.

Last year I was fortunate enough to be selected by the college to participate in the CamSURF exchange scheme with the California Institute of Technology (Caltech). The exchange involved me spending 10 weeks doing research at Caltech in Pasadena, CA. The title of my project was 'Core Formation in Super-Earths'. Super-Earths are terrestrial planets that are - like the Earth - mainly made up of silicates and iron but are several times more massive.

When studying super-Earths it is customary to consider them as being - like the Earth - fully differentiated, i.e. having a mainly iron core with a surrounding silicate mantle. However due to their extra mass, super-Earths have a much larger gravitational potential energy. It has been my work this summer to model a cooling super-Earth to investigate whether this extra gravitational potential energy prevents the planet from cooling enough to differentiate significantly. We managed to demonstrate that super-Earths

of a few Earth masses may not cool enough, over a typical planetary lifetime, to form a significant core. We intend to publish these findings.

I have also taken this opportunity, with the other exchange students and a number of other SURF students, to explore part of America. We spent most of our weekends visiting places in California including LA, San Francisco, Santa Barbara, Santa Monica and San Diego. I also stayed a while in America after the exchange to travel to Las Vegas, the Grand Canyon, Chicago, New York and Washington DC.

What were some of the things you enjoyed most about working on the project?

This summer has been a fantastic opportunity to





experience the world of academic research. The work I have been doing has allowed me to get my teeth into a project that I now properly understand - an opportunity that it is hard to get at undergraduate level. As well as working on my own project, I have also really enjoyed attending weekly discussion groups. It has been very useful to gain the experience of working in a research environment and it has encouraged me to study for a doctorate.

I have also really enjoyed working, living and travelling with some fantastic people. My mentor, Professor David Stevenson, is an amazing scientist and it has been a real pleasure to work with him. The exchange students, as well as several other students from Caltech's SURF program, have made this summer a fantastic experience.

Furthermore visiting some of the world's most inspiring places, such as the Grand Canyon, are experiences I will not soon forget.

**What aspects of your travel project did you find most challenging?**

I found working for long periods in isolation on a project that at times seemed intractable a very challenging experience. Although I managed to solve most of the problems I was faced with I definitely learned a lot about myself and my need to work in a more social atmosphere.

Being in New York and Washington over the tenth anniversary of the September 11<sup>th</sup> attacks was at times

very challenging. The sense of national mourning combined with the fear of another attack lurking under the surface was a unique atmosphere.

**How has this project assisted your studies and personal development?**

Firstly the knowledge I have acquired this summer will help me directly in my studies next year as I intend to take several related courses. More indirectly however this summer has allowed me to explore an area of research I am considering as a possible career. We are also hoping to publish the work from this project which will be very useful when applying for further study.

Working with Professor Stevenson has really changed the way I tackle problems. It has taught me to be more thoughtful and to consider a number of options before starting in a particular direction.

I think that traveling is one of the best ways of developing as a person. The mass of experiences I acquired over almost 12 weeks spent in America has helped change the way I view the world, particularly American culture and History.

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I would like to thank the staff at both St John's and Caltech who have made the exchange possible and helped to make it such a wonderful experience. I would also like to thank my mentor Prof. D. Stevenson for all his help and advice.

# Directed evolution of the estrogen receptor ligand binding domain

by Dan Lu

**Location:** Department of Biochemistry, University of Cambridge

**Dates:** 7<sup>th</sup> June – 19<sup>th</sup> August, 2011

Briefly describe the activities of the project in which you were involved.

Proteins are fundamental to cellular functions. In order to study protein functions, systems have been developed to activate and deactivate proteins in a time-dependent manner. For example, the ligand binding domain (LBD) of the estrogen receptor can be fused to heterologous proteins to generate reversible protein switches. Such fusion proteins are held inactive by association of the LBD portion with the heat shock protein 90 in the absence of ligand. Upon ligand binding, the heat shock protein is displaced and the proteins of interest become active. The most commonly used ER-LBD is activated by the synthetic molecule 4-hydroxytamoxifen.

In this project I carried out site-directed mutagenesis on the ligand binding domain of the estrogen receptor based on rational design in order to generate a mutant receptor that binds the insect hormone

ponasterone A instead of 4-hydroxytamoxifen. A yeast two-hybrid system was used to detect ligand binding with the modified estrogen receptors. Results identified several mutants that displayed increased ponasterone A binding and decreased 4-hydroxytamoxifen binding. These mutants act as starting points for future mutagenesis work to generate a ligand binding domain with enhanced ponasterone A binding. Successful generation of such a receptor would enable fusion proteins to be activated by ponasterone A, a ligand that is native for mammalian cells and does not therefore possess any estrogenic effects, circumventing the major drawbacks with using 4-hydroxytamoxifen. In addition, the generation of a second switchable LBD would allow independent regulation of activities of two different proteins within the same cell.

What were some of the things you enjoyed most about working on the project?

Science research does not always go according to plan. Part of the fascination is to then devise new schemes to overcome the problems encountered. I particularly enjoy this problem solving and find excitement if it then works as hypothesised. Furthermore, the laboratory I worked in was very friendly and I had a very good time getting to know the fellow lab members and learn more about the functioning of scientific organisations and life as a scientist. In terms of experiments itself, I generally enjoyed most techniques as they were mostly new to me, however certain methods became slightly repetitive as the project went on.



What aspects of your travel project did you find most challenging?

I encountered several problems throughout establishing my 'system' because it is a novel approach therefore very little was previously published on this project. This made the project more interesting knowing it is brand new however it does also mean that any problem I encounter requires a new solution to be devised by my own knowledge. Although sometimes I have indeed found new solutions to progress, this was not always the case. The problem of 'yeast mating' and 'yeast protein expression' has not been resolved and the lab will put effort in the future to try to bypass these difficulties, however given my own time constraint I was unable to overcome these challenges myself.

How has this project assisted your studies and personal development?

Many of the techniques used in my project I have studied in my lectures as an undergraduate. However it was completely different to actually perform these experiments hands-on because it made me realise the challenges first hand and realise the drawbacks of each system, therefore now I have a better understanding of how to analyse data I observe in future. Not only this, I feel I now have much better time-organisation skills and have become a better scientist by being able to think of solutions to problems myself as well as enhancing my overall understanding of cell and especially cancer biology. This experience therefore has been invaluable in my opinion for my

personal development towards becoming an eventual high quality scientist.

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I would like to take the chance here to thank Professor Evan and his laboratory for having me during summer and St John's College for providing the support I needed through this project. I really appreciated everyone involved for their support both scientifically and financially.

# Assessing sustainable forestry in the Peruvian Amazon

by Laura Plant and Tomos Prys-Jones

**Location:** Peru

**Dates:** 28<sup>th</sup> June – 27<sup>th</sup> August, 2011

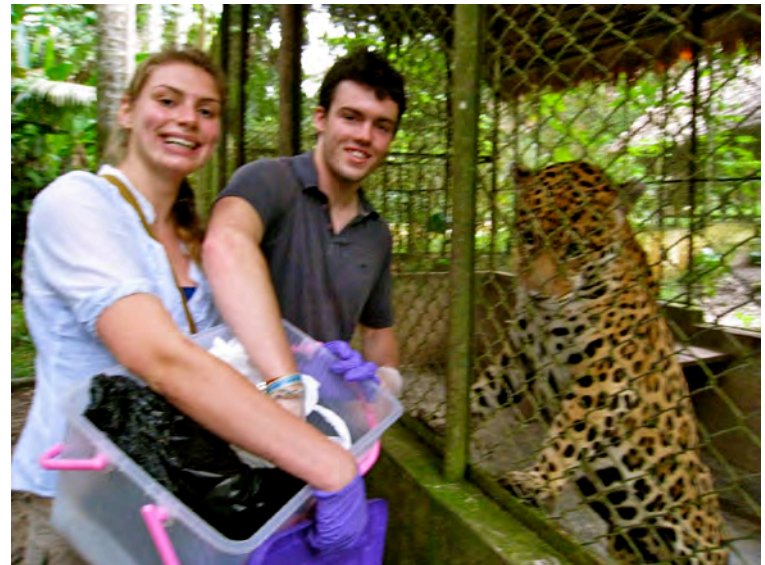
Briefly describe the activities of the project in which you were involved.

We were working for a sustainable forestry company - which had recently received FSC certification - based in Iquitos, Northern Peru. The aim of the project was to set up an experiment that will, over the

next 5 or so years, determine the sustainability of their practices. We spent 3 weeks inside the concession area of the company marking trees in areas, some of which will be selectively harvested next year. Next year's students (from St John's) will re-measure these plots in order to gain an idea of the regeneration time, composition changes and growth rates of the rainforest. We also looked at dung beetle biodiversity as it is a good indicator group for forest health and presence of mammals.

What were some of the things you enjoyed most about working on the project?

The experience of being in the jungle was one that we are unlikely to ever forget. We met some amazing Peruvians, living completely different lives to us



but who were nevertheless great company and good friends to us.

We saw some unique animals and plants, of particular note was the wild boar piglet that occupied our camp (tents) for several days.

**What aspects of your travel project did you find most challenging?**

Having to learn Spanish very quickly since neither of us spoke a word before arriving (and English is not widely spoken in the jungle!). Living, working and overcoming experimental problems together for 9 weeks was a challenge, but we came out the other side and are still friends (just!).

**How has this project assisted your studies and personal development?**

We learnt a lot about survival whilst living in the jungle and how to use our initiative when faced with problems and a language barrier. Regarding studies, setting up a large-scale experiment gave us an insight into life as a researcher and the logistical and scientific problems they face. We realised the importance of flexibility in experimental design having been forced to adapt our method many times depending on the resources available.

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We would like to thank Johnian Stuart Clenaghan, co-director of Greengold Forestry, for giving us the opportunity to do this project and his financial



support. In addition we owe a lot of Stuart's colleague Gareth Hughes OBE for all his assistance whilst we were out in Peru.

# 'New' gentlemanly capitalism: inheriting an elite renaissance or witnessing elite revolution in the city of London?

by Christian Roberts

**Location:** The City of London, United Kingdom

**Dates:** July – August, 2011

Briefly describe the activities of the project in which you were involved.

As part of the Geographical Tripos, I undertook a project in the City of London to support my Part IB & II Dissertation study. During my research, I conducted a range of qualitative and quantitative research methodologies upon a stratified sample of elite sub-groups. Through a range of data-collection activities, I obtained both primary and secondary data to understand the current dynamics of the elite class in contemporary London. A significant proportion of data was collected through interviews with many elite sub-groups including: the political/bureaucratic elite, the social/cultural elite and the economic/financial elite. Interviews were further supplemented during fieldwork with questionnaires and ethnographic studies using participant observation to uncover 'Old-Boy

Networks', boardroom behaviour and elite power structures today. Contact with many of the elite were established before and during the fieldwork through personal networks, the 'snowball' effect and meeting potential members at corporate events I attended during the project.

What were some of the things you enjoyed most about working on the project?

I really enjoyed the opportunity to witness first-hand how my own theoretical knowledge of power, wealth and social class were often visibly and invisibly played out on a daily basis in situations I observed during the project. Furthermore, it was extremely interesting and enlightening to study and interact with respondents, who were often high-profile leaders and exceedingly successful in their specialist field. Through immersing myself in their own environment on a daily basis, and observing their characteristics, opinions and behaviour I was able to gain a unique approach to studying this increasingly powerful force in society. This was further underpinned through meeting a diverse range of people in a variety of locations; such as bankers at corporate headquarters; politicians in constituency offices; journalists at editorial desks; and even members of the social elite. This exciting opportunity allowed my research to gain an authentic, yet intellectual framework to explore the context and nature of power in London, as it evolves as a global city.

What aspects of your travel project did you find most challenging?

The most challenging part of the project was often gaining contact with, and access to, members of the elite resulting from high levels of mobility, lack of free time and demanding business links. This challenging practical problem of initial contact was established through the array of gatekeepers which I met during the project including; corporate secretaries, managers, HR personnel and other individuals who have access to the interests and schedules of elite members. However, this problem was usually overcome through my own positionality as an 'insider' to many of the elite community that were studied. This resulted from my affiliation with Cambridge University, often recognised as an elite institution, which helped secure ac-

cess to influential data opportunities. This succeeded in building rapport and acceptance, as not only were many themselves former students, but also because I was able to attend multiple events organized by the University to collect systematic and rigorous evidence for later study.

### How has this project assisted your studies and personal development?

This project has made a significant contribution to my Part II Dissertation study, providing me with the opportunities to conduct extensive and detailed research within a dynamic Global city and elite environment. It has facilitated the collection of data that will be analysed towards an empirically-informed discussion of the contemporary elite towards a comprehensive analytical examination, in order to understand the extent that a new ascendancy has emerged during the current intensification of globalization in major cities such as London. With regard to my own personal development, the project has provided me with the skills to organise, research and administer a detailed project to deadlines, and also the interpersonal and communicative skills required to conduct interviews and network with members of the professional/business class. This set of skills will support my own advancement in the real world, by understanding how successful professionals operate and evolve in the corporate domain.



# The PID controller for the intensity stabilization of an external-cavity diode laser

by Jirawat Tangpanitanon

**Location:** Cavendish Laboratory

**Dates:** 1st July, 2011

Briefly describe the activities of the project in which you were involved.

The motivation of this project is that when an external-cavity diode laser scans its frequencies within a certain range, there will be fluctuations in their intensities. If the range is large, e.g. 5 GHz, the mean intensity will lower causing an unstable-reference systematic error in an experiment. My purpose was to built an electrical circuit to stabilize this intensity fluctuations to an adjustable constant value.

The circuit I built was a control circuit called the 'PID' (proportional-integral-differential) controller. The circuit uses a negative-feedback control; it finds the difference between an output signal from the system and a reference value, then the result goes into the PID controller. The PID controller then design and sends a signal back to the system. If the output signal from the system is, for example, higher, then the PID controller will design an input such that the system produces a lower output. In this way, the output from

a system can be controlled.

In this experiment the system was an optical circuit; the laser signal was transformed into an electrical signal by using a diode, this signal was described above as an output from the system. The electrical signal from the PID controller went back to an optical circuit by using an opto-acoustic modulator - the device that can change a laser's intensity by applying a voltage across it.

The circuit was tested by scanning a laser frequencies from 47080 GHz to 470486 GHz with a step of 0.02 GHz. The result showed that the percentage error around the mean of the intensity was reduced from 3.7% to 0.6%.

What were some of the things you enjoyed most about working on the project?

Things I enjoyed most were to work in such a good and encouraging atmosphere with my supervisor and the others in the lab and also to challenge myself by solving problems which I initially thought that could not be solved by myself.

What aspects of your travel project did you find most challenging?

The challenge was that it was my first time to build a 'real and usable' circuit and I had no idea about what the values of each parameters should be. Moreover, the laser signal after transformed into an electrical one was weak, hence amplification was required. If the signal was amplified too much, then

the PID controller would exaggerate the result. If the amplification was too low, then the output from the PID controller was not high enough to make a change in laser intensity. In neither case, the system can be controlled.

How has this project assisted your studies and personal development?

Building the PID controller requires the use of an electrical device called op-amp. This device is introduced again in my 2nd year experimental class which causes a problem to a lot of students, since there are many things in the device that deviates from what we expect from the theory. So working on this project definitely helped me gain a better understanding of the device.

The work also helped me to be well-organized, how to communicate with people and how to work in a laboratory.

# Cambridge iGEM 2011

by Felix Zhou

**Location:** Department of Plant Sciences, Cambridge and Cambridge Nanophotonics Institute

**Dates:** 27<sup>th</sup> June – 3<sup>rd</sup> October, 2011

Briefly describe the activities of the project in which you were involved.

Nature's colour are not just due to pigments. Certain squids including members of the *Loligo* genus and octopuses like the Hawaiian bobtail, renowned for their remarkable abilities of camouflage in fact derive their colour change from structure. They possess a family of proteins called reflectin that self assemble natively into stacks of periodically alternating layers of protein and extracellular material which in turn exploits thin film interference to produce colouration. Through phosphorylation the spacing between the layers can be altered, changing the dominant reflected wavelength and colour.

However little is known about reflectins and the native colour mechanisms. In previous work, researchers have only overexpressed the protein in *E.coli*, purified the protein and demonstrated self-assembly into thin films, diffraction gratings and nanowires in-vitro.

As part of the International Genetically Engineered Machine (iGEM) competition the Cambridge team

aimed to take this work further and explore the properties of these proteins in-vivo and in-vitro. We aimed to isolate the gene responsible for reflectin production, one part of the native colour changing mechanism in squid, express this within *E.coli* and promote protein self-assembly in-vivo. We also wanted to explore the protein's optical properties by making thin films in-vitro.

At the end of the project we had managed to improve protein solubility via a *torA*-reflectin-GFP protein fusion on a low-copy plasmid whilst attempting periplasm transport through the TAT pathway, imaged reflectin in *Loligo* squid tissue under the confocal microscopy and produced high quality, uniform, single and multi-layer thin films which exhibited tunable, responsive and reversible colour change.

Our work attracted the attention of BBC Horizon and it will be featured in a documentary on Synthetic Biology early next year.

To read more about our project and see some of the stunning images and videos we have please go to our wiki, <http://2011.igem.org/Team:Cambridge>

What were some of the things you enjoyed most about working on the project?

Unlike the majority of iGEM teams, our team did not solely comprise of biologists. In fact five of the nine members including myself hail from engineering, physics and even mathematics. This interdisciplinary nature helped bring new perspectives in problem solving and exposed me to many new skill sets. Additionally our



supervisors adopted a hands-off approach and we were given responsibility for the entire running of the project (research-wise as well as sponsorship) including website design and purchases. I found this environment much more stimulating and helped to aid development of independent thinking.

Under this environment I came to lead our in-vitro investigation in collaboration with the Nanophotonics Institute from start to finish, planning and implementing each experiment every step of the way. The feeling when we finally produced a dynamically iridescent uniform film from initial nothingness after much blood and sweat was frankly nothing short of euphoric. As a result I have become more convinced of pursuing a research career.

Whilst I worked primarily on the research side, my colleagues handled the administration of the project for which I am much obliged. Watching my colleagues handling the sponsorship, website design and purchases I gained a newfound respect and appreciation for the work of administration staff and lab technicians whose excellent work is often under-appreciated, but without it us researchers would find difficult to concentrate on our research without distraction.

Ultimately, I believe what I enjoyed the most was not the fruits of my research but rather the development of my research methodology and thinking during the research process. In fact for me the highlight of this project was the iGEM European Jamboree where I learnt of many original ways to use existing tools and many new angles to view and tackle problems as well as witness-

ing somewhat of a masterclass in research methodology characterised by impeccable organisation, apt use of modelling and well planned experimentation that demonstrated proofs of principle every step of the way.

**What aspects of your travel project did you find most challenging?**

Initially what I found most challenging was learning and familiarising myself with the technical terminology, theory and the experimental techniques in synthetic biology having only a GCSE background in Biology. Additionally whenever I asked for advice I found it particularly unnerving no two people in the lab would give the same answer to the same question coming from the physical sciences. This was not helped by my initial lack of confidence when I compared myself to my colleagues from Biology. However, after getting stuck into and getting results in the experimental work, I quickly gained confidence and through experience I learnt to make my own independent judgements. Eventually I came to head the majority of the wet work and was the primary diagnostician for experimental procedures.

Research-wise, due to lack of sponsorship and reduced project time compared to previous Cambridge iGEM teams I found myself confronted with what I dub 'limited resources, maximum information' problem, where every experiment is regarded as constituting some piece of evidence like in a crime scene, which when pieced together solves the larger research problem. In other words, every experiment, every procedure must be made to count and yield information which

helps towards solving the overall problem.

In practice, I found this very difficult to achieve but it was a very real problem I faced as I led the in-vitro work; what is the goal of the experiment? How many repeats/samples do I do? How many variables do I test? The only solution I arrived at was careful planning by breaking down the overall objective into manageable steps consisting of a set of experiments. For every experiment only the minimum number of controls, samples/repeats were used, prior to each the next experiment had already been planned budgeting for success and failure and all experimental results were immediately analysed. Indeed It was not uncommon for us to stop experiments part way through if sufficient evidence had been collected. Even then, once results are analysed how does one interpret the results? How significant are they? What if the results are completely unexpected? Research is rarely predictable.

Many times in my investigations, the results shocked and surprised me. At these points every researcher is confronted with three fundamental questions: a) Is the result repeatable? Do I carry on, collect more data?, b) Stop, step back, take a good look at the big picture and reanalyse or c) Do I try a different method or branch of enquiry? I believe only through experience can one hone their judgement in this matter. Often I found particularly in my case where there is a lack of pre-existing literature that decisions could only be made based on intuition and accumulated data using consistency of results as a guide or after random experimentation based on curiosity. With the benefit of hindsight, there were many areas where

I could have improved, where I was not as efficient as I thought or did unnecessary work. However I am certain that without constantly battling with the questions I have posed above and the laboratory help from Dr Matthew Hawkeye at the Nanophotonics Institute, I could not have possibly achieved the in-vitro results I did in just 10 experimental days!

### How has this project assisted your studies and personal development?

I feel I have benefited hugely from the project. As a member of an interdisciplinary research team, I have learnt much from my colleagues including new software tools in areas such as programming, web development and graphics design. Being a practical project, I have also gleaned many valuable laboratory techniques like microscopy and fundamental biology procedures like the PCR reaction and have come to develop confidence in my own practical skills. These are valuable skill sets which I believe will help in future research projects.

Most importantly I believe iGEM has helped me develop research maturity. Through devising and leading my own research project I have learnt to ask probing questions, of the importance of careful experimental planning and thorough consideration of the resulting data. As a result I have learnt to view problems from many different angles which in turn has helped me to consider my tripos content in wider contexts outside its immediate field of application and take one step closer to being able to flexibly manipulate my course content.





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