Queen Mary Expedition Award: Research and Living in Singapore

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I was fortunate enough to receive the Expeditions Fund award from Queen Mary to help fund this trip and help links between Singapore and London.

In January of this year I asked my tutor, Dr Steve Dunn, whether there were any materials science based research internships happening over the summer. I’d previously done one research project before in nanomaterials at Imperial College London and was hoping to build on my experience. I’d spent the majority of the previous year slogging out London and was itching for a chance to use my skills elsewhere. London makes you appreciate areas of the world that are not as big or expensive to live on a low budget. The previous year had also demonstrated to me that even the best of us in our areas in technology are not guaranteed opportunities like this, with many of my friends who had graduated not gaining employment in areas they wanted. He said there was a place in Singapore available and I immediately said yes. I was told I would be sent to Nanyang Polytechnic in the northern section of Singapore known as Ang Mio Kio.

On the 30th of June 2011, I set off for Singapore via Dubai. I was able to have a stop off in Dubai with friends and family; reconfiguring my time zones and attempting to get a working sleep pattern. This was something that was not able to achieve for the majority of my time overseas.

Singapore has changed dramatically in the last few years and is positioning itself as a world leader in technology. The world class institutions that have set up based around technology aim to create the area as a hub for any incoming ideas and companies.

*Taken on Clarke Quay Bridge.*
Preparations for Singapore National Day

I arrived on the 3rd of June in the evening, and made my way to the Polytechnic in a sleepy haze. Getting across Singapore is easy, the total area is roughly equal to the area of Greater London and is far better organised. Taxis are cheap and the MRT (Metro Railway Transport) is even cheaper. Arriving at the Polytechnic complex I was met with my keys by a German student, who had been living there for four months as part of an internship in mechanical engineering. The school integrates foreign students into their classes and their technical projects, creating links within Europe. It creates a sense of community and international understanding that Singapore has tried to build on. Over the next few months I got to know many of them well. Many of them spend half a year on projects before heading back to Europe.

Satay Street vendors near the Marina area in the centre of Singapore.
The next morning I was woken at 7:30am to sign papers for apartment leases. At this point I could have signed away parts of my soul for sleep. The normal routine for students and just about everyone else on the entire island is getting up at the crack of dawn. The superintendents were surprised that I wasn’t up too. I ignored the comment and cried inwardly to myself, resolving that I would at least attempt to get up on time. This resolution lasted all of three days. Having received all the things needed for my stay, I headed off to meet my project supervisor in the Advanced Biomaterials laboratory in Nanyang Polytechnic, specifically the Advanced Nanomaterials lab.

My supervisor and boss was Dr Hannah Gardner. She specialises in materials chemistry and originally comes from a chemistry background from the University of Sheffield. I was assigned to look at new ways of creating quantum dots using organic wet chemistry methods. It was left up to me to decide how to create the experiment. This was a completely new area for me, requiring me to learn totally new skills to be able to apply to the experiment I had to plan out myself. The lab is set up in such a way that multiple concurrent projects can be run, linking solar cells and dyes. This is excellent for working with new ideas and for helping with interlinking projects. The work involved synthesising two metals in heated oils to create binding of the dots. After that the samples were tested using materials characterisation techniques, like bombarding the dots with UV to visible light to see what wavelengths have been absorbed into the dots. The people in the lab working with me were great and had a real passion for science. I thank Dr Gardner for letting me construct my own experiments and having faith in me that it would all work out.

The experiment was eventually successful. I have so much gratitude to the team at Nanyang Polytechnic. Planning an experiment takes multiple tries and many failures, not to mention occasionally just experimenting with things on a whim. The patience and the ability of the team in the lab were great, as well as the environment they created.

A street store in Little India.

While I was there I had the chance to explore the island most weeks and travel. Singapore is famed for its food and mixture of cultures, which are all centred on the docks. It’s recently developed the outskirts as well towards the north, with tower blocks in all directions. I found
it very easy to get lost and spent at least one afternoon walking around without a map or any clue to what I was doing. It’s cheaper to buy food out than it is to cook for yourself, with much of the food costing less than £3 for a main meal. The street vendors have amazing food to rival many restaurants in London, with places like Satay Street and Little India providing excellent street food.

The experience allowed me to meet up with other researchers and students I knew from London and elsewhere on different projects. Living in a new city for a long period of time can be stressful and it’s comforting to have other people in the same position as you. We had visits to the islands around Singapore, like Pilau Ubin, cycling around the last few parts of rural Singapore. Being so close to so many transport links in Asia, flights are cheap and I was able to visit Malaysia and Thailand. Occasional breaks from the lab and a busy city were appreciated.