

"Why I want to be a professional engineer."

Matthew Sinclair

This time last year I had little to no idea of what I wanted to study at a tertiary level. In school I was equally interested in humanitarian subjects and the sciences, and I achieved a grade 'A' in all my CIE external examinations including French, English, Chemistry, Physics and Mathematics. I also earned myself a place on the Auckland Grammar School Honours Board with all my results being 90%+. On top of that I'm an enthusiastic pianist and composer, so initially I was really very undecided when it came to choosing what path to follow at university.

Without much idea of what I wanted to study after high school, and with a year left to decide, I chose to apply for the GENESIS Research National Science and Technology Forum 2006 near the end of Term 3 in 2005. After a long selection process involving an application and interview by our local Rotary Club, I received the wonderful news that I had been selected as one of 144 students from around NZ who would attend this event, and I was fortunate enough to have most of the Forum cost covered by the Rotary Club of Auckland. The Forum aimed to ensure that its students:

- recognise the high standing of New Zealand science and technology;
- appreciate the many career opportunities offered by science and technology;
- consider their commitment to a career in science or technology;
- identify the particular studies they should undertake to enter one of these careers;
- develop further those scientific attitudes promoted by the National Curriculum in Science and Technology.

For me personally, I found that not only had the Forum achieved all its proposed goals, but also I had made lasting friendships with many of the brightest young students from around the country. The Forum exposed all of its students to a wide range of scientific career opportunities at such institutes as Auckland University of Technology, the University of Auckland, Massey University, Unitec and the Manukau Institute of Technology. Not to mention visits to such facilities as those of Air New Zealand, TVNZ and GENESIS Research, just to name a few.

Every single visit was quite fascinating, but for me a trip to the University of Auckland for a presentation on the emerging field of Biomedical Engineering truly caught my eye. By the end of the Forum this pathway had become my ideal for something truly worth undertaking at university, not just because of the challenge of such a demanding choice of study but also because of the huge growth prospect of the industry, and more importantly how much this particular field should be able to benefit society as a whole in the future. I found my academic and worldly interests also leaned towards this subject as, with my father who completed a BSc at the University of Auckland and subsequently was recruited as an engineer by the company Schlumberger.

Another more recent event which has helped convince me to become a biomedical engineer was the election of Auckland Grammar School Old Boy, Peter Hunter as the latest New Zealander to be a Fellow of the London Royal Society. As the founding director of the Bioengineering Institute and a professor at the University of Auckland's engineering department, it was great to see that he has been internationally recognised and acclaimed for his work in Biomedical Engineering in New Zealand. It is partially due to the fact that Kiwis have always been recognised for ingenuity and innovation, attributes which would see us

excel in such a field as Biomedical Engineering.

After being accepted to attend the GENESIS Research National Science and Technology Forum in January this year, everyone at this Forum was given the opportunity to apply for the chance to represent New Zealand at the London International Youth Science Forum (LIYSF) in

August this year. During the closing ceremony of the GENESIS Forum there were two people announced as winners of plane tickets and a place at the LIYSF, who were Hana Christensen and myself. It was an amazing opportunity which I just couldn't believe I had been given, and I sought to make the most of what would turn out to be quite possibly the most rewarding and educational experience of my life. Between February and August of this year I spent much of my time raising money to cover the cost of the LIYSF. I managed to raise the full cost in the end by grants from the Royal Society of New Zealand, The Auckland Rotary Club, The One Tree Hill Educational Jubilee Trust, and Auckland Grammar School, as well as selling numerous boxes of chocolates and fundraising books.

At the LIYSF I was able to visit such prestigious institutes as Oxford and Cambridge Universities, Imperial College London and University College London. Once again I was exposed to the surprisingly numerous fields of science and I was also allowed to select certain lectures, presentations and visits that I wanted to attend. I decided to make the most of the opportunity by choosing visits to discover more of what Biomedical Engineering was about.

At a presentation at Imperial College London on Biomaterials and Tissue Engineering, as well as Bio-Nanotechnology, I learned much about their research into tissue engineering, nanotechnology approaches to bone and cartilage tissue engineering, and biological assembly of nanostructures. We were also given a tour of the nanotech, cell culture, and biophonics research labs, and watched demonstrations in the operation of their state-of-the-art research facilities. This was all tremendously encouraging as I began to see how exciting developments made in Biomedical Engineering could be, and how beneficial they could be in healing wounds, curing illnesses, and repairing or replacing damaged or malfunctioning organs and tissues.

With such a promising future for Biomedical Engineering in New Zealand, taking Biomedical Engineering at the University of Auckland seems like the perfect step to take after high school. I have recently been given a conditional offer to the Accelerated Engineering Pathway at the University of Auckland which would allow me to complete a Bachelors Degree in just three years instead of the usual four, and a Masters degree in 4 years.

I have not been granted any other scholarships towards my studies and would be truly grateful to the IPENZ for granting me a scholarship towards a course of study I strongly feel I should take. For me, becoming a professional engineer in the field of Biomedical Engineering would mean becoming part of a group of engineers who will benefit the nation and society as a whole by advancing technologies which can be used to cure illnesses, replace damaged tissue and unlock the potential of nanotechnology.

Matthew Sinclair