Choosing zoology over botany

When Louise left Epsom Girls Grammar in Auckland, a school that recently honoured her with their Founders Award, she was intent on studying biology at university, but couldn’t decide between zoology and botany.

“I was invited into the Honours programme for both. There were some great people in the botany area – Frank Newhook for example – and I was so impressed by Dick Matthews and Stan Bullivant in cell biology. But in the end it was the people in the zoology department that drew me in. At the time, they had the youngest professor ever appointed – Euan Young – who was just such an exciting, dynamic head of department. I’m still in touch with him.

“I always tell students that you can learn course content from texts and other resources, but it’s the lecturer’s performance that stays with you. You remember the storytelling, and you remember the story because of the person telling it.”

CHOOSING ZOOLOGY OVER BOTANY

Soon after completing her university studies, Louise was awarded one of the last-ever Rhodes Visiting Fellowships for Women. These fellowships were designed to give females an opportunity to study at Oxford. At the time, traditional Rhodes Scholarships were only open to men.

“Rhodes Visiting Fellowships were for post-graduate fellows, and they rotated them around the women’s colleges at Oxford. When I applied, the college was Lady Margaret Hall – a wonderful place. The principal of the college, a man, was a New Zealander. In 1979 Lady Margaret Hall was the first women’s college to take in men. They were very exciting times.”

Louise arrived at Oxford with much more than a suitcase and a determination to do great research. She had a young child with her.

“My husband Jon insisted I take up the fellowship. He didn’t want to be the man who stood in the way of his wife’s career, and he didn’t want to hear others make remarks like ‘oh, but she could have done so much more’. So, with his blessing, I packed up our young son and went to Oxford.”

While working in the zoology department at Oxford, Louise encountered many influential scientists, including English evolutionary biologist and television star Richard Dawkins.

“I used to try and find Richard at morning tea, just so I could listen to him talking. He always had something interesting to say.”

Rhodes Visiting Fellowship, University of Oxford

When Louise returned to New Zealand after her Oxford studies, marine biologist Jon was setting up an oyster farm and export business near Warkworth, an hour north of Auckland. They’d had two and a half years apart, so she was keen to focus on family time.

“I thought of coming down to Auckland to take up a junior lectureship in the zoology department, but our son was at primary school and it just didn’t seem like a good thing. So I approached the local high school about a becoming a science teacher. After a year at Teachers’ College, I joined the staff of Mahurangi College.”

Louise loved high school teaching, particularly the questions and enquiries from students with a passion for biology.

A Decade of High-school Teaching

The Neurological Foundation acknowledges recently-retired Professor Emeritus Louise Nicholson, an inspirational Kiwi neuroscientist and teacher who has pioneered spinal cord injury research in New Zealand, and left an extraordinary legacy in more ways than one.

Louise Nicholson, a member of the Foundation’s Scientific Advisory Committee for many years, has enjoyed a career of many high points and ‘eureka’ moments. We asked Louise to recall the most memorable of these, knowing that our Headlines audience would appreciate knowing more about her life’s work.

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For close to 20 years, Louise has been a teacher at the University of Auckland to work in a lab at the Salk Institute in San Diego. Since the mid-1990s. It started when she took leave from the University of Auckland to work in a lab at the Salk Institute in San Diego.

The spinal cord has been a special passion of Louise’s career. Fortunately, she was wrong. I found a way back in.

When I first returned from Oxford and was selected to go to Teachers’ College, I remember one of my university supervisors telling me that it was going to destroy my career. Fortunately, she was wrong. I found a way back in.

“It was in the very early days of the internet, when PubMed medical publications were first available online. I used PubMed to look at what everyone was working on in the Anatomy Department at University of Auckland, thought about the skills I had and worked out where I could contribute. Then I approached (now Sir) Richard Faull at the university and suggested to him that I could utilise electronmicroscopy as a research tool, to look at cells and how cells talk to each other. There was a lot of scope there.”

EASING BACK INTO UNIVERSITY LIFE

Ensconced once more at the University of Auckland, after a ten-year sojourn, Louise found her high school teaching experience invaluable.

“My teaching experience was just what they wanted at the time of my appointment. My first job was to rewrite the year-one curriculum for the medical programme, and to integrate it properly into a six-year programme. Previously it was just a first year of zoology – an introduction to things like dogfish cranial nerves – which the students didn’t find particularly relevant. I was tasked with rewriting the programme so that it linked properly to the human factors. Because I had been a secondary school teacher, including a national examiner at the bursary and scholarship levels, I knew what knowledge the students arrived with.”

In order to critically review the existing programme, Louise put herself in the students’ shoes and went to every lecture and lab with them.

“Those medical students are all specialists now, and I sometimes bump into them. We laugh at how we did this first-year course together.”

The first-year programme developed by Louise for medical students was so successful and popular, it was later opened up to other students as well.

“The Bachelor of Human Biology was always intended to be a global qualification that’s not just for medical students, but it hadn’t happened. Students kept asking ‘why can’t we do any human biology here at Auckland?’ So now they can, and it’s one of the entry courses for programmes like pharmacy, nursing and medicine, as well as health science.”

WORKING WITH TOMORROW’S SCIENTISTS

For close to 20 years, Louise has been a teacher at the Rotary Science & Technology Summer Forum, a residential course for high-school students held in Auckland. It’s run by the Milford Rotary Club and involves students from all over New Zealand who have just completed Year 12.

“The students have two weeks of exposure to all different aspects of science and technology. Many of them are arts-based students, so they might get squeamish around blood, but this course opens their eyes to a whole range of tertiary study areas they might not have considered. It helps them to find their passion.”

In 2012 Rotary recognised Louise’s ongoing contribution to the success of the programme by making her a Paul Harris Fellow. She’s in good company – US President Jimmy Carter, UN Secretary-General Javier Perez de Cuellar and astronaut James Lovell are also Paul Harris Fellows.

NINA KONDELOS PRIZE FROM THE AUSTRALASIAN NEUROSCIENCE SOCIETY

Louise has been a member of the Australasian Neuroscience Society (ANS) for nearly 30 years and believes it’s Australasia’s premiere neuroscience group. She has also been the New Zealand representative on their council for two consecutive periods. In 2013 Louise received the Nina Kondelos Prize from the society, which is awarded each year to a leading female neuroscientist for outstanding contributions to basic or clinical neuroscience research.

“I have long-standing connections with people on the council and various committees. The society supports excellence with various awards for publications and they are great at promoting young people. The award I received was set up by Professor George Paxinos, in honour of his sister who died young due to Parkinson’s disease.”

BRAIN BEE AND THE CATWALK FOUNDATION

The spinal cord has been a special passion of Louise’s since the mid-1990s. It started when she took leave from the University of Auckland to work in a lab at the Salk Institute in San Diego.

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I was trying to understand the molecular changes that take place in the brain and felt I needed to retrain, so I went to the Salk Institute for a year and worked in the molecular neurobiology lab with Professor Martyn Goulding, a New Zealander. Not only did I learn all about molecular biology but I cloned two novel genes that regulate neurons in the spinal cord.

While at the Salk Institute, Louise got to know Australian neuroscientist Linda Richards. When Linda returned to Queensland and began working for the Queensland Brain Institute, she set up the Australian Brain Bee Challenge – a competition for high school students. Linda suggested Louise do the same for New Zealand.

“Along with Linda’s support, I established the Brain Bee Challenge for Kiwi students. The Neurological Foundation helped us with financial support to kick it off.”

The challenge includes both a team competition and an individual competition. Year 11 students compete to determine who’s the ‘best brain’ on various brain-related topics, such as intelligence, memory, emotions, sensations, movement, stress, ageing, sleep, addiction, Alzheimer’s disease and stroke.

It was while seeking sponsorship funding for the Brain Bee Challenge that Louise first met Catriona Williams, the founder of CatWalk (CatWalk Spinal Cord Injury (SCI) Research Trust). After meeting wheelchair-bound Catriona at the Karaka horse sales, Louise had an emotional drive home.

“I started thinking about the science I was really interested in, which is looking at the responses and the changes that happen following trauma, as well as with chronic conditions such as Alzheimer’s and Parkinson’s diseases.”

“I was quite tearful about going to Karaka to ask her for support, and here was this lovely person in a wheelchair because of spinal cord injury. I thought ‘can’t we do something for her?’ Then I started thinking about the science I was really interested in, which is looking at the responses and the changes that happen following trauma, as well as with chronic conditions such as Alzheimer’s and Parkinson’s diseases.”

With the immense enthusiasm and significant financial support of CatWalk, Louise helped to set up the Spinal Cord Injury Research Facility (SCIRF) within the Centre for Brain Research at the University of Auckland.

The major role of SCIRF is to establish expertise and maintain spinal injury models that can be accessed by researchers throughout New Zealand. The centre’s goal is to get people out of wheelchairs and back on their feet.

PUTTING HER MONEY WHERE HER MOUTH IS

Louise is now retired, or as retired as a passionate neuroscientist can ever be. Although she stood back from the Brain Bee Challenge this year, she is thrilled that Dr Lance O’Sullivan and his Moko Foundation sent a large cohort of students from the Far North to this year’s competition.

“The Brain Bee is all about access and opportunity, and this just shows that if you give students access and the opportunity, they excel.”

Just before her retirement, Louise and her husband Jon donated $1 million to the Centre for Brain Research. This parting gift is the largest single donation ever made by a staff member of the university and will be used to support PhD students working to find a cure for spinal cord injuries.

We wish Louise and Jon all the best for a very happy retirement (but we know we will bump into Louise in the corridors of the Centre for Brain Research from time-to-time).

LOUISE’S FAVOURITE PART OF THE BRAIN – THE BASAL GANGLIA

“I’ve been very active in the International Basal Ganglia Society (IBAGS). In fact, I ran the conference in New Zealand in 2001, and it’s still heralded as the best IBAGS meeting we’ve ever had. The basal ganglia is a group of nuclei at the base of the forebrain, and it’s of huge interest to us all because it’s the area that controls and modifies your mood and movement. It’s highly affected in Huntington’s disease and also part of the area that’s affected in Parkinson’s disease. So it’s an area of the brain that is critical in neurodegenerative diseases.”