

Grow Your Own Pearls!!!

In April, Berni Aquilina, a pearling industry consultant, gave a fascinating slide show presentation to the Nelson AWIS members on her experiences in the industry. Members learned how cultured pearls are grown, and what impact efforts such as Berni's are having on the economies of small island communities.

Berni's knowledge in the industry is somewhat self acquired in that, like Elvis Presley, she happened to be in the right place at the right time and managed to grow her knowledge by being around people working in the industry. She then went on to university to acquire further qualifications. She has worked on well-funded, larger fleet type commercial operations in Australia and also, smaller projects in island communities that are struggling economically to survive.

It is the latter type of work that presently interests Berni. She said that while the advantages of a larger commercial operation may be that the boats are usually sea worthy and equipped with sophisticated electronics and communications equipment, the challenges and level of personal involvement with island community locals working towards becoming economically independent is very rewarding. Funding for her work can be a challenge. She works to make budgets stretch to cover flights, equipment and pay for her time, but usually the folks Berni trains are keen to learn the skills and at the end of the day, are proud of the pearls that they have been able to harvest.

So how do you make a pearl? To make a pearl, two oysters are usually needed. One oyster is a recipient oyster that is around 2 years old and usually larger and older than the donor oyster. The donor oyster is selected for the pearl characteristics such as colour and lustre that they are likely to impart to the cultured pearl. Tissue taken from the donor pearl oyster is cut into small pieces and grafted into



The final product – Amon pearls



An office with a view!! Berni seeds an oyster

several dozen other oysters. Berni teaches people from the local island community how to grow pearls by inserting a slip of donor tissue and a nucleus, typically a shell bead about 7mm in diameter, into the recipient oyster's tissue. This involves using an assortment of surgical tools. After receiving their "implants" the oysters are suspended at a depth of a few metres from the water surface in pocket like nets or rope chaplets. Over about 2 years, a sac formed by the tissue of the donor oyster covers the bead with nacre, the mother of pearl material that creates the pearl surface. When the pearl is harvested, there is usually 1 to 2 mm of nacre covering the bead and that is what is marketed as a cultured pearl.

Berni departed at the end of April for Manihiki in the Cook Islands where she is in her fifth and last year of a project training local people for pearl seeding. Next she goes to Kiribati where she is involved in a project that is working to create a sustainable pearl growing and harvesting industry in the Kiribati Islands.

Report from the dry side

Jean Fleming shares her experiences of moving to Australia and settling into research and teaching at Griffith University's School of Biomolecular & Biomedical Sciences.

It is just over a year since I arrived in Brisbane to start a new life, as an untenured and part-time academic at Griffith University's Nathan campus. So what is it like to give up everything and start again? I thought some of my wonderful AWIS friends might like to hear how I'm coping in this crazy country over the ditch. Well to be honest, I've had my ups and downs. It's never easy becoming an "also ran", after the experiences I have had over the past six years and I have spent many nights staring at the ceiling fan, wondering why I ever left my comfortable tenured Associate Professorship in Dunedin.



Jean at Dicky Beach, Caloundra, Sunshine Coast

On the plus side I can tell you about early morning walks in the local park, with a dawn chorus of lorikeets, sulphur-crested cockatoos, butcher birds and fig birds, all of us enjoying the last remnants of the cool night, before the sun's heat penetrates; of kayaking trips out on Moreton Bay, with pelicans and turtles sharing the turquoise water or of Christmas dinner 2005, feasting on a tub of prawns and barbecued octopus, while the rain bucketed down around us and the lightening and thunder made candles and conversation obsolete. Once the storm moved out to sea we walked home to our beach house down a moonlit beach, watching the silent lightening display over Moreton Island.

Also on the plus side, I spent the first nine months at Griffith sharing a tiny office with Christine Wells, another new academic to the School of Biomolecular & Biomedical Sciences (BBS). Christine is a bioinformatician and molecular biologist, whose energy and knowledge are phenomenal. She taught me a huge amount – from how to get things done at Griffith, using the web-based system (a nightmare I won't describe), to how to find all sorts of interesting information about genes using bioinformatics. We now work on a joint project, looking at the control of expression of the activin- β C and - β E genes in mouse and human tissues. Christine (plus a few other good colleagues I have here in Brisbane) helped me reorient myself, find some money to fund summer student projects and get back into the lab for a little immunohistochemistry. And to my astonishment, I found I still enjoyed the lab work and could still achieve results, although I do have difficulty reading the volumes on plastic measuring cylinders these days! So now I have a little funding and I am in the process of starting up my mouse studies again here. My teaching has also brought

me satisfaction. I teach second year renal and respiratory physiology, as well as good old diffusion, osmosis and signal transduction, a big course on reproduction and early development to the third year physiology students, principals of developmental biology to a Masters program called Foundations for Health Professionals (including Genetic Counselling) and (wait for it) the basics of biostatistics to the BBS Honours students. In addition I run the seminar program for the BBS and convene the BBS 3rd year research project course.

On the minus side, the path to setting up a lab, getting a decent grant and actually producing good data seems to be longer and steeper than ever. I just keep writing those grant applications and sending them off, but I find the odds stacked against me really daunting. There is huge potential for great collaborations here and new projects are beginning to emerge from the debris of the move (all those cartons of books!). Above all, I miss New Zealand – the shape of the land, the feel of the rain (it's just so dry here), the smell of the roses in my Dunedin garden, the song of bellbird and, especially, the wonderful women of my country. I miss you all – although WISEnet is providing a good substitute for AWIS. So if you come this way, give me a ring on 07 3371 5928. I'd love to hear from you.

AWIS listserver (free!)

A low volume forum for announcements and discussions relevant to women in science.

To join, visit

<http://lists.otago.ac.nz/listinfo/awis-list>

Fertility Research Rewarded

After grueling interviews new AWIS member Julia Young has been awarded two scholarships to travel overseas to further her research into sheep fertility.



Scholarship recipient Julia Young

I grew up on a sheep and beef farm in Southland as the middle child of three siblings, with parents who actively encouraged my love of science and animals from an early age. I completed a BSc(Hons) majoring in Biochemistry, and am now in the third year of my PhD at the University of Otago. During my undergraduate degree I was lucky enough to carry out a summer project with AgResearch where my interest in reproduction and molecular biology began. I worked with the Reproduction group on the basic biology of fertility using the Booroola merino sheep as our model. Studying sheep biology, in particular fertility, has proven that sheep are an extremely valuable resource for investigating many features that also apply to human biology. The identification of a mutation in a highly conserved receptor in the Booroola merino sheep has produced a new model in which to study the molecular control of fertility. A greater understanding of this may lead to the development of new methods for manipulating ovulation rate in humans that in turn might lead to more advanced approaches for *in vitro* fertilisation and novel methods for contraceptives.

My PhD project is a two-tiered approach at investigating tissues involved in fertility focussing on signalling in the pituitary gland and in the ovary. The research is now at a stage where I require the expertise and resources from groups in Europe and Singapore to complete the experiments I am currently undertaking. Earlier this year I was awarded two scholarships to enable me to do this. The first scholarship was a New Zealand Postgraduate Study Abroad Award, from Education NZ (\$5500). This award was specifically targeted for study in certain countries. Fortunately, one of their chosen countries was Singapore, where I planned to carry out bioinformatics at

the Novartis Institute for Tropical Diseases. The second scholarship was a little more difficult to obtain. A rigorous interview with a very scary panel was required, and the moment I walked out I swore I would never apply for a scholarship that required an interview again! But to my surprise, I was awarded the Elman Poole Travelling Fellowship (\$25 000) to spend 3 months abroad working on my PhD. For this scholarship I will work in the laboratory of Professor Alan McNeilly at the University of Edinburgh, a world authority in the field of pituitary function. I will also visit the University of Helsinki to work with a group of researchers AgResearch are currently collaborating with. Both visits will provide me with a valuable opportunity to learn new research techniques and extend our current collaborations.

I will also present the results of my research at the Society of Reproduction and Fertility Conference (Leeds, UK), and have been invited to give a seminar at the University of Nottingham. During my trip I will meet Mr Poole, who was born in Invercargill, educated at the University of Otago, and who currently lives in Oxford, UK, where he is now retired from the Radcliffe Infirmary. An elderly man giving a young person a huge once-in-a-life-time opportunity, I have much to thank him for.

Membership fees for 2006 overdue

Enjoying this newsletter? If you haven't paid your subs this will be the last one you get. Check your address label and if it says 2005 you need to pay your subs.

Only \$25 for full members and \$15 for students / retired. If you have any questions regarding membership email membsec.awis@gmail.com. Subscription forms are available from the website www.awis.org.nz. Send subscription forms with payment to

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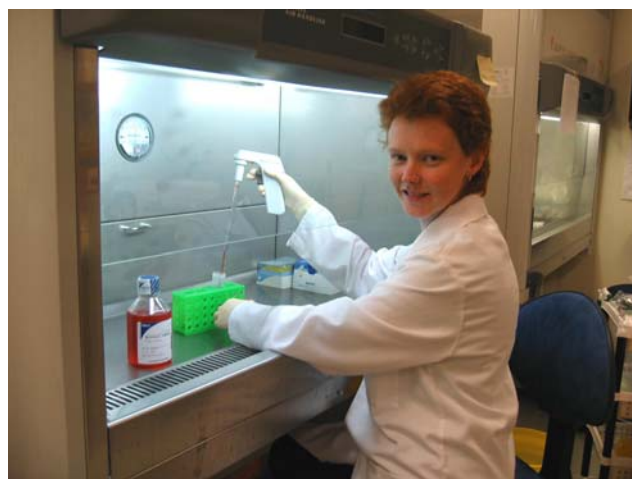
In March 2006 five New Zealand and five UK scientists spent a week together in a networking program that aims to foster new scientific collaborations between New Zealand and the UK. AWIS caught up with three of the New Zealand scientists involved.

International Networking for Young Scientists (INYS) is a British Council Program run in New Zealand with the support of Otago and Auckland Universities. It is aimed at postdoctoral scientists and those who have been tenured for 5 years or less. Dr Julia Horsfield and Dr Stephanie Hughes, from the School of Medical Sciences at Auckland, and Dr Liz Ledgerwood, from the Biochemistry Department at Otago, were given the exciting opportunity to identify a potential UK collaborator and invite them to New Zealand, and then spend a week talking science with a group of like-minded individuals. The week started in Dunedin with a sightseeing trip on the Otago Peninsular and dinner – a chance for everyone to get to know each other in an informal setting, and for the New Zealanders to show off some of their wonderful country. Then it was down to the serious work – the science. Four days (and some late nights) of presentations, seminars and discussions was highly stimulating, inspiring and exhausting! The reward on the final day a trip to Waiheke for reflection on the week, discussion of future work and the opportunity for wine tasting and a swim in the warm northern waters.

The INYS program that Stephanie, Julia and Liz took part in was the third that focussed on biomedical science. The biomedical series was supported by Otago and Auckland universities. In 06/07, the focus will shift to those working in climate change research. If this is a current focus for your postdoctoral research, or you have up to ten years postdoctoral experience in this area, then email felicity.connell@britishcouncil.org.nz for more details about how you can be considered for selection. Read more about the British Council INYS scheme here <http://www.britishcouncil.org/science-research-inys2.htm>. The next INYS, which will be held either at the end of 2006, or the beginning of 2007.

If you want to know more about the work of the British Council, subscribe to their electronic newsletter via their website www.britishcouncil.org/nz-newsletter-subscribe.htm.

**Dr Stephanie Hughes, Dept of Pharmacology,
Auckland University**



Stephanie in her lab

Having been accepted into the INYS program, I was then faced with identifying an UK participant within a couple of weeks. You wouldn't think it would be difficult finding someone willing to come to New Zealand on an all-expenses paid trip, however I guess an e-mail from out of the blue suggesting this, may have seemed a little too good to be true. I had previously met my UK collaborator, Dr Jon Cooper at an international meeting, and decided to contact him to see if he knew anyone who might like to be involved in the INYS program. Instead, Jon leapt at the chance to come to New Zealand himself. Having started my research career working on the molecular pathology of a group of lysosomal storage diseases collectively known as Batten disease (Jon's field), I moved to the US where I was introduced to gene and stem cell replacement therapies, again mainly using Batten disease as a model. Since returning to New Zealand four years ago, I have focused on using the tools of gene therapy, viral-mediated gene transfer vectors, as tools to study basic cell biological processes such as stem cell development. Having participated in the INYS program has been a great opportunity for me to reacquire myself with the Batten disease field, and has led to several potential collaborations with both Jon and other Batten disease researchers. In addition I have extended my network of contacts both within New Zealand and the UK. I would highly recommend the INYS program and thank the British Council for the opportunity to be involved.

Dr Julia Horsfield, Dept of Molecular Medicine and Pathology, Auckland University

Fruitfly meets Zebrafish – a blind date. Thanks, British Council!

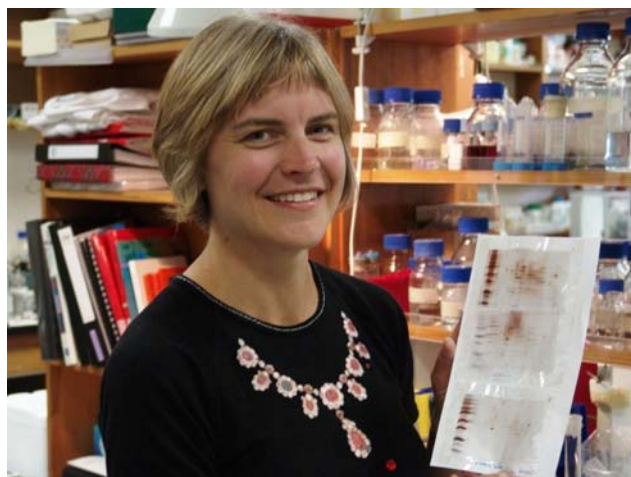
I'm very fond of fruit flies. Look at enough flies down a microscope, and they start to attain a peculiar sort of attractiveness of their own. In my first job after receiving my Ph.D., I worked in a *Drosophila* (fruit fly) lab as part of a team. We were investigating how cells make the decision to either divide, or differentiate. Several years later, I'm still working on essentially the same problem (obviously a curly one!), but now I work with the zebrafish, a small stripy tropical aquatic beastie. Fish definitely have their pluses, although all that sloshing water can make constant wet feet an occupational hazard! And zebrafish are cute, in their way. Even so, I was delighted to be able to invite Margarete Heck, a *Drosophila* geneticist from Edinburgh, to New Zealand to take part in the INYS program this year. Margarete and I are coincidentally working on the same family of proteins, called cohesins – she in flies, and me in fish. These



Julia out and about with her son Dan

proteins are essential for mitosis (cell division), and also for animal development. So it made sense to swap notes and compare our scientific findings. It also gave me a wonderful opportunity to revisit what I love so much about studying cell division in *Drosophila* – the elegant genetic tricks, the sequenced genome, the sparkly eyes..... Even though I'd never met her before the INYS week, Margarete and I got on like a house on fire! We had lots in common, including that classic struggle, trying to develop a research career while raising a young family. We have plans to collaborate in the future, and I hope to visit her lab in Edinburgh one day in the not-too-distant future – if the kids'll let me!

Dr Liz Ledgerwood, Dept of Biochemistry, Otago University



Liz hard at work

As a fully grant funded researcher in New Zealand my career since getting my PhD has been dictated by many things – scientific interest, first child, second child and of course where the money was going to come from. In my PhD at the Christchurch School of Medicine I had worked on a small link at the end of the chain that successfully sends proteins out of a cell. I had remained fascinated with this process and some ten years later in 2005 I found myself returning to study this pathway, this time focusing on the folding of proteins at the beginning of the export chain. So my selection to take part in INYS was very timely, and several emails and a phone call later I had convinced Dr Robert Spooner to take an all expenses paid trip from late winter in Warwick to late summer in New Zealand to meet a New Zealander he'd never heard of before (who could refuse!). Robert works on nasty toxins such as ricin and it turns out that ricin and other toxins use the protein folding machinery of the cell to get to their cellular target. The protein my group works on might help ricin kill cells, but ricin is not the sort of thing you buy in to your lab to do a few experiments. Compared to my usual day-to-day rush between school, preschool and work that is the norm for most working mothers, having the opportunity to spend a week discussing science (and a multitude of other topics) with a group of scientists at similar stages of their careers was a wonderful luxury. The collaboration with Robert is ongoing and I also made some great new contacts in New Zealand science – and discovered a new approach for my research – look out zebrafish! So a big thankyou to the British Council for getting us all together.

Be Breast Aware

We all lead busy lives and often struggle to make time for ourselves but many Christchurch women took a step in the right direction recently and attended a Breast Health Seminar.

Merridee Sargent, a National Breast Health Educator for the New Zealand Breast Cancer Foundation ran seminars in Christchurch. Merridee has spent 13 years working in New Zealand and overseas as a radiation therapist. As a result of seeing what women go through after being diagnosed with breast cancer she feels strongly about educating women about breast health awareness and early detection of breast cancer. The seminar covered basic facts about breasts and breast cancer, dispelled many of the myths associated with breast cancer and strongly encouraged age appropriate screening mammograms, clinical examinations and breast self-examination.

Increased awareness, population growth and the establishment of the government screening program BreastScreen Aotearoa in 1999 mean that more women are diagnosed with breast cancer today. Currently there are about 2400 women diagnosed each year, making breast cancer the most common cancer that affects New Zealand women. However with early detection more than 80% of women diagnosed will survive. A key message during the seminar was that breast cancer is unpredictable and whilst there are some risk factors (see box), 90% of women have no known risk factors and only 5 - 10% of breast cancer is hereditary. The best protection is early detection by being breast aware.

Being breast aware means regular breast self-examination, clinical breast examinations by a doctor or health professional from the age of 40 annually and age appropriate screening mammography. Whilst screening mammograms are free every second year for women ages 45-69 through BreastScreen Aotearoa, breast tissue in younger women (under 40) is usually denser resulting in mammography being less effective to detect breast cancer, so self-examination is important. If you do find a lump or notice changes such as nipple discharge, changes to the skin such as dimpling, puckering or scaling, newly inverted nipple, change in shape or size of the breast, consult your doctor as soon as possible. 90% of all breast lumps are benign and the process to confirm diagnosis is usually to 'triple test' which involves having a clinical examination, imaging (diagnostic mammogram or/and ultra sound), and a biopsy if diagnosis is still to be determined.

At the end of the evening there was the opportunity to examine a silicon breast which contained at least four lumps. This was a really worthwhile exercise as it provided some guidance on what breast lumps might feel like (a frozen pea) as opposed to normal breast tissue which can normally feel quite lumpy or like soft grapes.

If you get the opportunity to attend one of these seminars – do it and take along your mother, sister, aunts and friends! The seminars are well worth your time, and will definitely encourage every woman to consider regular self exams.

The New Zealand Breast Cancer Foundation publishes some very useful resources including their "Breast Book" and a CD, which shows how to do a self examination. Check out their website www.nzbcf.org.nz or phone the foundation 0800 902 732 for the CD.

Breast cancer research

The Breast Cancer Foundation supports research into breast cancer. Jo Perry's research is Marsden funded but recently she has been awarded a grant from the New Zealand Breast Cancer Foundation which has allowed a PhD student to work with her on the project.

Risk factors for Breast Cancer

- Gender - being female
- Age - Risk increases with age but cancer in younger women can be more aggressive
- Family History - Have a direct relative (mother, sister, daughter) with breast cancer diagnosed before the age of 50
- Hormones - Increased risk with early menstruation and late menopause, having your first child after 30 (or no kids). This is connected to oestrogen exposure
- Diet – A high fat diet
- Previous history of breast cancer
- Alcohol - More than a glass a day
- Stress
- Physical activity can reduce the risk

Breast cancer is the most common female cancer in New Zealand affecting almost 10% of women in their lifetime and resulting in over 600 deaths every year. The majority of breast tumours rely on estrogen for their growth and as a result targeting the estrogen pathway has been a key strategy in the treatment of breast cancer. However the fact that many women with

hormone-responsive metastatic breast cancer will develop resistance to these therapies is a major clinical challenge which has not been adequately addressed yet. We need to investigate new pharmaceutical targets in order to address this problem if we are going to make any significant impact in the treatment of this disease and this is the current focus of my research.

Cancer is a continually developing process with several stages involved in tumour progression. One means by which breast tumours may develop resistance to endocrine therapies is by using alternative growth factor pathways that bypass the need for stimulation by estrogen. One such well known pathway is the Her2 growth factor pathway which may now be treated with the drug, Herceptin and has received a lot of recent media attention.



Breast cancer researcher – Jo Perry

Our group is headed by Professor Peter Lobie, a world authority on human growth hormone, who recently moved to the Liggins Institute from Singapore. His work over the last few years has demonstrated the pivotal role that local (or autocrine) production of human growth hormone plays in the development and progression of mammary cell carcinoma. Human growth hormone is secreted from the anterior of the pituitary gland and is essential for correct growth and development.

However growth hormone is also secreted from extra-pituitary sites and it is the abnormal upregulation of this local, or autocrine, growth hormone that may be important in breast cancer. Our work has shown that upregulated autocrine human growth hormone increases the growth and survival of human breast cancer cells and results in more aggressive and invasive tumour characteristics. Currently I am investigating the role of autocrine human growth hormone in the development of resistance to endocrine therapies used in the treatment of this disease.

There is already a FDA approved compound available on the market that can block growth hormone signalling pathways in the cell. We hope to show that by using this compound in conjunction with conventional anti-estrogen therapies, that we will be able to improve the prognosis of patients with breast cancer.

I returned to NZ at the beginning of last year (2005) after spending 12 years overseas. I spent 8 years in London which included a PhD at the Institute of Cancer Research in Fulham. Following this was a four year postdoc position at the Murdoch Children’s Research Institute in Melbourne. I am currently working at the Liggins Institute with Professor Peter Lobie and happy to be home.

Sustained Excellence in Teaching

Juliana Mansvelt was thrilled to be awarded the Massey University Award for sustained excellence in teaching. She shares some of the changes and challenges she’s dealt with during her teaching career

When I first started at Massey in 1994 I had had no experience of teaching other than a few tutorials as a PhD student, and the gap between myself and the majority of my students was only a few years. I am not a natural public speaker and can well remember my feelings of apprehension before my first lecture, my colleagues laughed and said they would come and stand at the back of room! That first lecture was hardly outstanding, but as a result of numerous training and development courses, a fair bit of experimentation with teaching and learning methods, and a lot of trust in God, my teaching is much improved. I love the subject I teach, believing geography provides a window on the world, a means of thinking critically about relationships between people and place and the processes that connect them. While I have learnt many useful teaching techniques over the years I believe being passionate about what one teaches and having a genuine concern for students and their learning has been the key to successful teaching. I derive much pleasure from seeing students learn, and really enjoy the interaction with my students.

Over the years I have been at Massey my two greatest challenges have been juggling home and family, and balancing teaching and research. My husband Neil is a scientist at AgResearch Wallaceville and we lived in Otaki for 10 years, and recently moved to Levin since his position will soon be moving to Massey’s Palmerston North’s campus. Since having baby Laura in 1997, Hannah (1999) and Grace (now 7 months) I have worked part-time time. With the commuting, need to organise childcare and my desire to have a life outside of Massey I have found working half time a good balance. While I work far more than the notional half time I am paid for, I

am able to work at home some days, to do things with the kids after school and to manage my workload more easily. Balancing teaching with research is also a challenge – mainly in terms of getting time to do fieldwork with the constraints of childcare, and particularly with regard to the costs and logistics of taking sabbatical and going to conferences. Having said that, while I dislike the pressure I often face, I do love my job and the flexibility it offers. Unfortunately I can no longer claim to be only a few years older than my students; when I mention the significant political economic changes occurring with the election of the 1984 Labour Government, I realise the majority of my students were not even born then. Giving ‘Prince’ as an example of a post-modern pop star produces even more mysterious glances!



Juliana, husband Neil and the kids, Laura, Hannah, and Grace playing Shrek Operation!

Hard work really does pay off...

Caradee Wright describes what has driven her to research UV radiation exposure in New Zealand.

Born in Durban, South Africa, I've grown up with the sun shining on me almost all year round! My keen interest in the sun and the sky probably started in my early years while playing under an umbrella at the beach and watching Dad surf the warm waves of the Indian Ocean. While studying geography - my favourite subject - at Durban Girls High School, my passion for the world around me, both physical and social, evolved. I followed my heart and went on to



Caradee well protected from UV radiation out on field work during her time at NIWA.

pursue a Bachelor of Social Science (Geography and Environmental Management) at the University of Kwa-Zulu Natal from 1997-1999. The efforts I made during my high school years paid off when I achieved 6 A's in my final school year, the geography subject award and subsequently University of Kwa-Zulu Natal scholarships for each of my three undergraduate years.

In 2000, I approached the Head of Life and Environmental Sciences, Prof Roseanne Diab, for ideas for an Honours dissertation. Sometimes in life, an event can change the path of your life forever, and this meeting was the first of such events that radically changed mine. Prof Diab suggested I use locally collected solar UV data to conduct a health risk assessment of UV radiation (UV) exposure among the inhabitants of Durban. I was awarded a National Research Foundation (NRF) scholarship to conduct this research which then sparked my interest in personal solar UV dosimetry and behavioural science. In 2001 I was awarded another NRF scholarship to do a Masters degree in which I used polysulphone film badges to measure UV exposure of schoolchildren in Durban. This scholarship included a travel grant and Prof Diab suggested that I contact a University of Kwa-Zulu Natal alumnus Dr Greg Bodeker, who works for the National Institute of Water and Atmospheric Research (NIWA) in New Zealand, to discuss the viability of a visit. I embarked upon the first overseas trip in my life to NIWA Lauder where, yet again, my life was altered. Dr Bodeker suggested I consider a PhD at the University of Otago and that together with the help of Dr Tony Reeder of the Social and Behavioural Research in Cancer Group at the University of Otago, we would secure funding for a large, first-ever, personal UV dosimetry study in New Zealand. I

returned to South Africa, inspired, and we worked hard on funding applications, however, we were unsuccessful on the first attempt. I spent 2002 lecturing atmospheric science at the University of Kwa-Zulu Natal and 2003 teaching geography at Durban Girls High School, quietly plotting how to eventuate my dream of completing a PhD abroad.

With perseverance and hard work we successfully obtained a Cancer Society of New Zealand Project Grant and I was awarded a NRF Prestigious Scholarship for Study Abroad. Unfortunately, the NRF scholarship only covered part of my international student fees but thankfully, NIWA agreed to pay my first year's fees. My husband and I travelled to New Zealand in October 2003 and I spent three months at NIWA Lauder, preparing the study design. My husband returned to South Africa in January 2004 and consequently, we celebrated our 2nd and 3rd year

anniversaries apart with 14 000 km of ocean between us. Despite the challenges associated with a long distance marriage, I can testify that 'absence makes the heart grow fonder'.

I attended the Non-Ionising Radiation Workshop in Seville, Spain in May 2004 to discuss instrument and study design with experts in the UV radiation measurement field. The networking opportunities provided during international conferences and the exchanging of ideas among experts in the given area of research are invaluable to the PhD process.

The study commenced in July 2004 and aimed to measure the solar UV radiation exposure of primary schoolchildren, as well as their concurrent activities and sun protection practices, sun-related knowledge, attitudes and behaviours, and their school and community sun protection and skin cancer prevention efforts. Vanessa Hammond and I visited 28 schools in the regions of Auckland, Waikato, Wellington/Hutt Valley, Canterbury and Otago/Southland and used electronic UV monitors specifically designed for the study by Martin Allen (PhD candidate at the University of Canterbury) to measure 488 schoolchildren's UV exposure between October 2004 and April 2005. Vanessa and I made the most of our travelling fieldwork campaign and saw numerous beautiful places around New Zealand while making good friends along the way too.

In 2005, I was awarded a University of Otago Prestigious International PhD scholarship to assist with paying my fees and living expenses. Once the fieldwork was completed, Vanessa and I spent weeks entering, checking and cleaning the data in preparation for my presentation of

the preliminary results at the 6th World Conference on Melanoma in Vancouver in September 2005. Together with support from my three PhD supervisors, Dr Tony Reeder, Dr Greg Bodeker and Assoc Prof Brian Cox, and biostatistician Andrew Gray, I presented some of the study results at the NIWA UV Workshop: An Update (Dunedin, 19-21 April 2006). We found that, on average, schoolchildren's daily UV exposure was relatively low; however, some children still received sufficient UV to elicit sunburn on some study days. We identified potentially high UV exposure activities as physical education, athletics, school lunch time and walking home from school. Boys tended to experience higher UV exposures than girls. Interestingly, although older girls knew more about sun protection than boys, they did less to protect themselves from the sun than younger boys and girls. Overall, we found that children's sun-related knowledge and behaviours were more likely to be preventive for melanoma when attitudes towards a suntan were not positive. I hadn't presented anything quite as important as these study results since the previous NIWA UV Workshop in Christchurch in 2002 and consequently I



Children have a high exposure to UV

spent three weeks practicing my presentation. My hard work must have paid off as I was honoured to receive the award for the best presentation at this Dunedin UV Workshop.

Recently, I have been invited to present the full study results, as well as a paper I published in 2005 that reviews all studies in this field, at the American Society for Photobiology 33rd Annual Meeting in Puerto Rico in July 2006. Assistance from a Frederick Urbach Memorial travel award will make this trip possible. I hope to submit my PhD dissertation before the end of December 2006. Concurrently, I am considering post-doctoral options for 2007. A PhD is the most challenging experience an emerging scientist can face. Compounded with a long-distance marriage and initial funding hiccups, my PhD adventure has been just that, a worthwhile journey that has shaped my life and my being in ways beyond those initially imagined. I am living my dream. I still face each day with the same saying I had posted on my teenage cupboard door, *carpe dieum, seize the day!*

From the editors

Many thanks to everyone who provided articles or suggestions for articles for this month's newsletter. It's always a lovely surprise to receive an article that I haven't had to ask for so please keep them coming. The newsletter editors have a new address, so in future please send your feedback, articles and suggestions to awisnewsletter@gmail.com. We also have a new newsletter coeditor so a big welcome and thanks to Julia. She bravely took charge of formatting this month's newsletter and hopefully this hasn't put her off all together.

Malina Storer
Newsletter co-editor

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Gender differences in ADHD

When Julia Rucklidge started investigating ADHD in girls she found little research and many assumptions based on studies of boys.

Science and learning were modeled in my childhood, having been raised by a science academic and school administrator. So, for me, pursuing an academic career was an obvious choice, and psychology seemed the most directly relevant field of study given my interests throughout high school. Clinical psychology, in particular, allowed me to be both a scientist and practitioner, enabling me to stay in touch with the practice of psychology, teach a discipline I feel passionate about and stay involved in cutting-edge research.



Julia and family in the Rocky Mountains while on study leave.

My research studies began under the direction of a fiercely independent and driven scientist, Professor Bonnie Kaplan. Under her guidance, I secured a PhD in clinical psychology and then went on to complete a post-doctoral fellowship at the Hospital for Sick Children, Toronto, Canada, under the guidance of another brilliant female scientist, Professor Rosemary Tannock. Looking for something dazzling, adventurous and further afield, my husband and I immigrated to New Zealand in 2000, where I began my academic career in the Department of Psychology at the University of Canterbury, Christchurch, New Zealand. We have been here since.

I don't think it is a coincidence that as a female scientist I have studied how ADHD manifests in females across the life span. When I first began looking at this area in 1995, there was almost no research on ADHD in females. All the work had been done on boys, mostly aged between 8 and 12. For me, it seemed an obvious area to research and one that wasn't likely to be researched by male scientists anytime soon! Assumptions were being made about ADHD in girls, but not investigated. Indeed, most of the research on females and ADHD that has emerged over the

last decade in ADHD has been conducted by female scientists.

I have now investigated a variety of issues in Canadian and New Zealand samples of adolescents and adults with ADHD, and have consistently shown similar findings. My most recent research, published in the International Journal of Disability, Development and Education, 2006, investigated gender differences in cognitive functioning in males and female adolescents with and without ADHD. Consistent with my previous research, girls with ADHD are significantly impaired in memory, processing skills, and ability to inhibit behaviours once started, as compared with females without ADHD. They are also as impaired in neurocognitive skills as boys with ADHD. Other research has shown that they struggle more in psychosocial areas compared with boys -- that is they have been shown to have lower self-esteem, more depression and anxiety symptoms and show a more external locus of control than their male counterparts.

Contrary to popular myths, girls with ADHD are struggling and emphasis needs to be placed on improving the assessment and identification of ADHD in females. They often go misdiagnosed and so clinicians need to be made aware of the importance of considering this diagnosis in troubled females. I include training on ADHD in females in the University of Canterbury curriculum for clinical psychology graduate students, and I regularly present this work to audiences in the community and at conferences overseas, in delightful places including Granada, London, Singapore, and New York.

Although I may shift my focus to other areas of research, I will continue to collect data on gender differences in ADHD across a variety of domains. My career has been slowed by the arrival of two delightful and energized boys, now aged 2 and 3 ½, and so I spend much of my time juggling motherhood and career, hoping to do justice to both. Balancing these equally important but contrasting priorities is not easy, but as long as I have support both personally and professionally, the balance seems to work. I take it a day at a time, don't look too far forward or too far backward. I recommend that women accept that some career opportunities will go past, in the confidence that they will reappear at a more opportune time in the future. And let go of any need to be a perfectionist!



Disclaimer
The views and opinions expressed in this newsletter are not necessarily those of the Publisher or AWIS. Whilst the Publisher has taken care to ensure the accuracy of material contained in the newsletter, no responsibility for errors or omissions will be accepted.

From the National Executive

Your executive is now getting ready for the AGM to be held on July 14th in Christchurch. This will be a pot luck dinner to which all AWIS members are of course invited. In order to facilitate better communication between branches we have decided to spend some AWIS funds on flying to Christchurch as many AWIS branch convenors as are able to attend. We look forward to hearing from you all.

The main subject for discussion at the AGM will be a review of where AWIS has got to, its relevance in working women's lives, aims for the future etc. Please contribute your feedback before the AGM.

Fiona Carswell

The AWIS AGM will be held on Friday the 14th July. The draft agenda is below

- 1) Presentation of Convenor's report
- 2) Presentation of Financial report
- 3) Election of officers to the National Executive: Malina Storer nominated as Convenor, Elisabeth Wells continuing as Secretary and Hazel Gatehouse continuing as Treasurer. Julia Wilson-Davey and Fiona Carswell to continue as committee members. Do any of the branches want to propose a representative or anybody else in Christchurch for that matter?
- 4) Setting of subscription and amount to return to branches – we propose to keep this at \$25 and \$5, respectively.
- 5) Future home of the AWIS executive. Wellington has indicated that they may be willing to take this on.
- 6) Discussion on how well AWIS is currently meeting members' needs – discussion of feedback from attached questionnaire.
- 7) Other business.

Not a member and interested in joining AWIS?

Go to www.awis.org.nz for more information and to download a membership form.

Have your say on the future of AWIS...

Many of you may have already seen this on the listserver. Please read the aims as set out below and give us your feedback on the questions that follow. The feedback will be discussed at the AGM (July 14) whereupon it will be decided if a change in direction of AWIS is required. Please email your responses to Fiona (carswellf@landcareresearch.co.nz)

AWIS aims to provide networking opportunities for women in the sciences and to increase confidence and visibility of women in science. We, as an exec, have really enjoyed each other's company and the broad range of guest speakers organised at branch meetings but we notice a nationwide decline in attendance at branch meetings and wonder if it's time to clarify the purpose of the Association for its members.

The current aims of AWIS are as follows:

- 1 To provide a network for women interested or working in the sciences to share scientific information, experience and skills.
- 2 To explore and speak on issues relating to women and to science.
- 3 To provide social interaction with others who have similar interests.
- 4 To assist girls and women to gain confidence in their role in the sciences and increase self-knowledge.
- 5 To provide visibility for women in the sciences and to support women to achieve visibility in the sciences.

Questions:

- 1) Are you an AWIS member and if so, how long have you been a member for?
- 2) Do these aims adequately address why you belong to AWIS? If not, can you please suggest alternatives that more adequately express the reasons for your membership.
- 2) How relevant is AWIS to both your professional and personal life? Why?
- 3) Is attendance at branch meetings an important part of belonging to AWIS for you? Please explain why/why not. If you don't attend meetings can you please let us know if there is a better way for you to participate.
- 4) How important to you are other AWIS functions such as the AWIS list server, website, newsletter, submissions from the organisation to government, quasi-government bodies etc?
- 5) Please provide any additional comments on what AWIS means to you and how you think we should continue as an organisation.

Branch news

Christchurch



*Fiona Carswell, Convenor
(CarswellF@landcareresearch.co.nz)*

Nicola Beswick, intellectual property specialist, from James and Wells Intellectual Property, gave a fascinating talk in April on some of the common myths and pitfalls associated with protecting your ideas. Her talk covered patents, trademarks and copyrights and provoked much robust debate!

In May some AWIS members went to the NZ Breast Cancer Foundation public seminar that aimed to help people become more aware of breast health. Again, more can be learned from consulting the article earlier in this newsletter.

On June 22nd, Andrea Byrom will lead a discussion on "Women in Science Leadership". Andrea has recently been appointed as a science leader of "Wildlife Ecology and Epidemiology" at Landcare Research. We look forward to a cross-institution brainstorm on how best to approach this kind of leadership.

Nelson



*Jenipher Hubley, Convenor
(Jenipher.Hubley@nz.mwhglobal.com)*

In April, Berni Aquilina, a pearling industry consultant, gave a fascinating slide show presentation to the Nelson AWIS members on her experiences in the industry. Members learned how cultured pearls are grown, and what impact efforts such as Berni's are having on the economies of small island communities. For more details see the article in this newsletter

Palmerston North



*Nicole Roy, Convenor
(nicole.roy@agresearch.co.nz)*

No news this time

Auckland

Needs a new convenor, please contact the exec if you are interested.



Wellington

*Liz Feary, Convenor
(fearyelis@student.vuw.ac.nz)*

No news this time



Dunedin

*Lyn Dowsett, Convenor
(lyn.dowsett@stonebow.otago.ac.nz)*

No news this time



Hamilton/Waikato

*Liz Carpenter, Convenor
(liz.carpenter@agresearch.co.nz)*

The Waikato Branch meetings have started up in earnest for 2006. In April we went to dinner at a local restaurant (one that I'd wanted to try for AGES, Liz) and had a great evening comparing notes of what had been, what was coming up for us, etc. Penny talked a little about her change in career that she's been planning - involving training overseas for a year. Penny will be discussing this some more in our next formal AWIS gathering in July.

Our May meeting involved an 'Introduction to Belbin Team Roles'. Dawn Willix-Payne is an accredited facilitator for the Belbin team profile system and has been using the system in teams working on science projects for 5 years. Dawn offered a similar workshop at the AWIS conference last year, which was very well received. Dawn talked about the background to the Belbin team roles and how the concept was derived, and showed a video that portrayed some of the roles that help to make a team function well. Then it was a time for self-discovery, where everyone attending sat down to a short questionnaire that helped identify the team role that they performed well in. We had the chance to talk about how this new information could help us in our daily life - whether in teams at work, or within the family sphere. The only disappointing aspect of the evening was the poor turn-out, with just 8 attending, despite advertising this as an evening for friends and family.

In June we will be heading out to try another great Hamilton restaurant, and July 19th will see us meeting again at the McMeekan centre, AgResearch, with a presentation by Penny Cooke. I'd like to thank Nicole Hancock for agreeing to help out with some of the organisation for future branch gatherings.

Congratulations

Congratulations to Professor Linda **Holloway** who has been appointed as the next Chair of the National Health Committee. Until she retired in February Professor Holloway was the first woman to lead the University of Otago's [Division of Health Sciences](#).

Congratulations to Lincoln University's Caroline **Shorter** who has won the 2006 Zonta/Building Research Award. Caroline will use the award to support her PhD research into fungi that influence air quality in New Zealand homes

Congratulations to Dr Victoria **Metcalf**, the 9th winner of the Zonta Science Award. The award is designed to promote women in science and the award recipient is an emerging women scientist actively engaged in science.

New Zealand Association of Scientists Awards

Congratulations to those who received awards from the NZ Association of Scientists in 2005.

Research Medal

Fiona **McDonald**, University of Otago, for outstanding physiological research on cellular mechanisms operating in the kidney that help to control blood pressure

Science Communicator Award

Alison **Campbell** and Penny **Cooke**, School of Science and Engineering at Waikato University, for adaptation of the idea of Café Scientifique, providing opportunities for the public to listen and contribute to discussions and debates on scientific methods and issues.

Queens Birthday Honours

Congratulations to the following people recently recognised in the Queens Birthday honours list

O.N.Z.M

Associate Professor Dorothy Anne **BRAY** of Dunedin. For services to medical research.

M.N.Z.M

Dr Jane Elizabeth **HARMAN** of North Shore City. For services to food science and technology.

Ms Jane Elizabeth **LANCASTER** of Christchurch. For services to agricultural and horticultural research.

Ms Jennie Margaret **McCORMICK** of Manukau City. For services to astronomy.

2006 MacDiarmid Young Scientists of the Year Awards

Congratulations to the MacDiarmid Young Scientists of the year award reception.

National Award Winner:

Claire **French** (Auckland), 'CSI Cellular Source ID'. Claire was also first in the Science in our Communities category.

Runner-up Adding Value to Nature:

Jane **Kay** (Hamilton), 'Is low fat milk healthy for cows'.

Runners-up Advancing Human Health :

Kylie **Quinn** (Wellington), 'TB's partner in crime'.
Hayley Reynolds (Auckland), 'Melanoma, Catch it before it's too late'.

Commendation Advancing Human Health:

Dr Karen **Silvers** (Christchurch), 'Can Fish make you Happy'.

Winner Understanding Planet Earth:

Wendy **Imlach** (Manawatu), 'What's Making them Shake'.

Commendation Understanding Planet Earth:

Hayley **Lawrence** (Auckland), 'Can Whakapapa help save NZ's rarest seabird'.



New members
A warm welcome to the following new AWIS members:

Dunedin

Julia Young

We have 28 financial members

I know we really have more members than this so please make sure your subscription is up-to-date!

Julia Wilson-Davey
Membership Secretary

Give the chicks the ticks to make life run smoothly

Many thanks to Liz Carpenter who recently spotted this article by Mirko Bagaric head of Deakin Law School and author of How to Live: Being Happy and Dealing with Moral Dilemma in the New Zealand Herald. It is reproduced with their permission.

Equal opportunity is fine but not when it means that our flourishing continues to be impaired by the fact that the people who make all the important decisions come mainly from the wrong gene pool, with the obvious exception of Helen Clark.

Brace yourselves fellas, it's time we delegated up and required all political parties to introduce minimum 50 per cent quotas for the number of female candidates.

This isn't reverse discrimination, designed to make it up to women who have been repressed throughout much of history. Rather it is blatant self-interest. We should let chicks have a bigger role in running the country because research shows they are likely to do it better.

While us blokes might not be that smart when it comes to the important things, hopefully we're bright enough to know when we should call in the big guns for expert advice.

Studies show that women have more of what it takes when it comes to nation and community building qualities. For men, politics is typically about themselves, whereas for women it's about others.

It probably won't come as much of a shock to you but, yes, blokes are self-centred. A good illustration of this comes from a study that looks at lying. Men and women both lie during approximately a quarter of their social interactions.

But they lie for different reasons. Women are likely to fib to protect someone's feelings. Men are more prone to lying about themselves - the typical conversation between two blokes contains about eight times as many self-oriented lies as it does falsehoods about other people.

We also have confirmation that women are more compassionate. A study published in Nature revealed that while women showed signs of empathy with people they both liked and disliked, men appeared to enjoy pain being inflicted on their foes.

In explaining these results, one of the researchers, Dr Colin Wilson, stated it might be that women tend to have more reflective, thoughtful responses, and are less likely to make quick, punitive judgments.

Now, if you have a choice between a compassionate, thoughtful and considered leader or one that was reflexive, self-focused and punitive, who would you want making

the decisions? Even us blokes should be able to get that one right.

And there's no need to fear that chicks are a bit flaky when it comes to the mundane stuff such as balancing the books. Although blokes have bigger brains, studies show that men and women have the same average IQ.

If the chicks are so switched on, then why are they so grossly under-represented in politics and senior jobs? That's because they're smart enough to know that often the price to be paid for securing a high-flying position is too high.

There's lots of competition for such gigs. That means lots of people putting in seemingly endless time and resources into acquiring them. Many women, however, opt out of the running early in the competition for high-status positions. A London School of Economics study showed that men are three times as likely as women to regard themselves as work-centred. Women want opportunities, but not a life dominated by work. Again, the chicks are right on this score.

Studies into human well-being show that there is only a modest link between wealth and status and happiness. Far more important to happiness are fit and healthy bodies, realistic goals, self-esteem, optimism, an outgoing personality, a sense of control and a tight-knit family.

Thus, paradoxically, the people in our community who are best served to lead us are discouraged from doing so because they realise that the path to getting there is so burdensome that it is best not travelled. We need to clear the path for them.

Those of you who have had a hard-nosed female boss or have failed to detect a compassion injection into the community since Helen Clark took over the reins might still not be convinced that more chicks at the top is the way to go. The explanation for this is that a lot of women who make it to the top understandably feel the need to work within the dysfunctional hierarchical system and therefore adopt and implement strategies identical to those of their male counterparts.

So the key to securing a better-run country is to have more women at the top and ensuring that, en route there, they are not required to kick and scratch against the blokes. This will make sure that they don't adopt our misguided motivations and strategies. That's why we should set aside at least 50 per cent of the positions in all political parties for women.

This will even make us blokes better off. That's not to say we are the lesser sex. We still have it all over the chicks when it comes to bragging, lifting heavy things and drinking lots of beer. What's more, if we let them get on

with running the show, we will have lots more time to do all these important things.

Until the quotas get introduced, whenever it comes to voting, unless you're confident that the male candidate is an absolute star, back the odds and give the tick to the chick and hope she hasn't felt the need to think like a bloke along the way.

Announcements

Award for excellence in mentoring

Two new awards launched by the journal Nature will recognize excellence in mentoring in Australasian science. The scheme will acknowledge two scientists: one for lifetime achievement and another in mid-career. Nominations for these awards are now open. While many science labs have leading individuals who have devoted thought and effort to nurturing young researchers, Nature believes that mentoring should not be taken for granted. There will be two awards, each of AUS\$10,000: one for lifetime achievement and the other for a scientist in mid career. Researchers can nominate themselves or be recommended by research team members, past or present. Nominations will be open between now and 31 July 2006 and winners will be announced by Dr Philip Campbell, Editor in Chief of Nature, at an awards ceremony in Australia in December 2006. For full details and nomination forms please check: www.nature.com/nature/mentoringawards/australasia. For more information contact Carina Dennis at: naturementor@gmail.com

2007 UNESCO-L'Oreal Co-sponsored Fellowships for Young Women in Life Sciences

The National Commission would like to nominate four young women for the 2007 UNESCO-L'Oreal Co-sponsored Fellowships for Young Women in Life Sciences.

Each fellowship is valued US\$40,000 and there are 15 fellowships available for young women originating from UNESCO's member states who are making valuable contributions to further the development of life sciences (biology, biochemistry, biotechnology, and physiology). For more information contact Elisabeth Poppelwell (elisabeth.poppelwell@minedu.govt.nz)

Running Hot: Science in New Zealand

Early announcement:

This national conference is to be held in Christchurch Arts Centre, November 27,28, 2006.

It is a unique chance for new science voices, and scientists across disciplines to mix with policy makers and politicians; to profile the hot science underway in New Zealand; and to explore the future directions of New Zealand science. The conference will respond to such topical and internationally recognised issues as:

- * The challenges of collaboration and crossing boundaries in science
- * The role of science in changing social and environmental contexts;
- * Picking winners in the "Science Stockmarket".

Running Hot is being hosted by the Oxygen Group in conjunction with the Ministry of Research Science and Technology. View the Morst Website for further details on both the conference and the Oxygen group (www.morst.govt.nz).

Register your interest in receiving further updates by contacting the Conference Organisers - The Conference Team, marg@conferenceteam.co.nz or phone 03 359 2614

2007 UNESCO-L'Oreal Awards for Women in Science

Each year, the jury of the LOREAL-UNESCO Awards identifies as Laureates five leading women scientific researchers, one from each continent. New Zealand is part of the Asia (Oceania and Pacific) region. The five US\$100,000 prizes will be presented in March 2007 at the UNESCO Headquarters in Paris to five women scientists who have made an outstanding contribution to progress in Material Sciences (Physics and Chemistry).

The National Commission would like to nominate one woman scientist from the Material Sciences. If you have any suggestions, please email steve.thompson@rsnz.org

The deadline for nominations is June 30th 2006, therefore information needs to be received by the end of May. For more information, see: <http://www.forwomeninscience.com>

If Undelivered Please return to

*AWIS
PO Box 1078
CHRISTCHURCH*