EARLY DAYS

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From the Editor

How to succeed in research in Australia

You have finally made it! You have finished your PhD, and sweated through your first post-doc, maybe in the States or Europe, maybe here in Australia. You were one of the fortunate ones: through a combination of hard work and a bit of luck you got several papers in good journals. You have joined the band of 'early-career researchers', working as a real scientist.

Of course, you have only a two or three year appointment, and the money that pays your salary is from a grant to your professor, the head of the department. You like the project, though perhaps not the fact that every time you need something, you have to ask for approval. And it is difficult when you don't get that really good PhD student, or have a research assistant assigned to your project. And you wish you could teach the undergraduates something that excited you, not the subject everyone else had rejected.

You gradually realise that success in research involves negotiating an obstacle course. *Real Lives and White Lies in the Funding of Scientific Research* by Peter Lawrence, a senior researcher at the Laboratory for Molecular Biology in Cambridge, UK, provides a handy and relevant perspective. The sub-heading of this *Public Library of Science Biology* article is, 'The granting system turns young scientists into bureaucrats and then betrays them.' It will resonate.

Fortunately, there is hope. There are new schemes, such as the 1000 Future Fellowships, that will be filled over the coming five years. It is particularly important that many of the schemes now include funding for a post-doc or research assistant and money for consumables. There is a Rudd Government commitment to meet the full cost of research but it will take until approximately 2015 to achieve this. The Excellence in Research for Australia (ERA) Initiative together with compacts between the government and each university should provide opportunities for younger researchers to ask their institutions to provide innovative and flexible career paths that differentiate each of them from the more traditional ways that are often seen.

To have a great career, however, you will need skills. The most important are not always those you learned in the lab doing your PhD. I have listed some skills (right): can I suggest every early-career researcher makes it their objective to learn at least one in the coming year.

Bob Williamson
Secretary for Science Policy
Australian Academy of Science

Skills you will need

People skills: do you know how to get the best out of a research group? How do you recruit the best staff, and inspire them to give their best to the project with a high degree of loyalty? Can you mentor those who are junior, and take mentoring from friends and colleagues who are more senior? The top US funding bodies, National Institutes of Health and National Science Foundation, now require a 'mentoring programme' as a part of all grant applications.

Management skills: especially time management, but also the ability to juggle and put in place a scientific programme within the framework of regulatory demands, health and safety, ethics, finance and employment law. How do you know which of the dozen or so committees you *really* should go to? How do you ensure that misconduct does not occur, and how do you deal with it if it does?

Media skills: because if your work goes well, you should be able to tell the public and commentators why it matters. Most of us are paid by the Australian tax payer, and we owe it to those who pay us to assure them we care about the value we give them. The media (usually) wants exciting and worthy research stories, and if you learn how to offer and present this, you will be a good spokesperson for science.

Finance skills: because whatever you end up doing, if you are senior you will need to understand the relationship between money and outcomes. There is *never* as much money as you think you need. Finance skills range from how to read a balance sheet, how to raise money, how to drive the best bargain, how to manage projects from inception to final audit, and how to ensure that you can deliver what you contract for at the price that you can negotiate.

Resources

There are terrific courses and training programmes available in all these skill areas. The courses really work. Many of them are not 'internal', but are offered by professionals and therefore cost a bit. However, some of the internal courses, such as those offered by the CSIRO, are also excellent. So seek out courses that provide you with the necessary skills and training. A quality employer will know that your value will increase if they invest in you, and you can always invest (time if not money) in yourself.

Doing it yourself: Fortunately, there are lots of low cost and free resources to help you 'Do it Yourself'. My personal favorites are two little books called *Career Advice for Life Scientists I & II*. These collections of articles were originally issued by the Women in Cell Biology group in the American Society for Cell Biology. Volume 1, Volume 2. The articles are for men as well as women, and most are relevant to people in physics or engineering as much as for biology and medicine.

Articles such as 'The Imposter Phenomenon', when you wake up in the middle of the night and think that you aren't really much good at research, and 'Communicating Effectively in Departmental Meetings' will resonate with everyone. And each article just takes 15 minutes to read.

Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty is another book worth your time to read. It was developed based upon training courses run by the Burroughs Wellcome Fund and the Howard Hughes Medical Institute in the USA.

The Careers section of *Science* also has a variety of interesting and useful resources.

Finally, there are lots of cheap 'idiots' guides' that you can find in any bookstore and are useful: *How to Interview and Be Interviewed* and *How to Manage Difficult People* are two favourites.

FASTS – Women in Science report

On 19 October the Federation of Australian Scientific and Technological Societies released the report *Women in Science in Australia: Maximising Productivity, Diversity and Innovation*. Although nearly 15 years has passed since a previous Australian Government review identified the under-representation of women in the science, engineering and technology fields, there has been limited change or progress towards increased female participation, particularly in positions of leadership. Sharon Bell (the report author) said it was time for a renewed focus on women in science and technology. To read more of Professor Bell's findings go to: **www.fasts.org/images/news2009/fasts%20women%20in%20science%5B1%5D.pdf**

Government and Research

ARC Consultation Paper: ARC Peer Review Processes

The ARC released a Peer Review Processes Consultation Paper on 14 September to seek feedback on specific issues relating to ARC's peer review processes. The Consultation Paper outlined a range of issues and potential improvements the ARC is considering as part of its review of peer review processes. Read the Academy's 19 October submission in response.

Any comments on the paper or the Academy's submission can be forwarded to **Fiona.Leves@science.org.au**.

Competition

The first three early career researchers, who email Fiona (**Fiona.Leves@science.org.au**), and provide a topic idea for an article you would like to see in a future issue of *Early Days*, will receive a free copy of *Making the Right Moves*. This 2006 publication is the second edition of *Making the Right Moves* and contains chapters on topics as varied as leadership, time management, obtaining funding, technology transfer and collaboration development.

2009 High Flyers Think Tank

The 2009 High Flyers Think Tank, *Agricultural productivity and climate change* was held in Melbourne on 22 and 23 October. The two day conference brought together 65 early- and mid-career researchers from a diverse range of disciplines as well as recognised experts in agricultural productivity, food security, climate change, and social science fields.

Professor Peter Gregory, Chief Executive of the Scottish Crop Research Institute delivered both the keynote address of the Think Tank and an open lecture as part of his 50th Anniversary Selby Fellowship on *Food security in a changing climate.*

Discussions at this year's Think Tank were not focused on climate change itself, but rather on facing the challenge of agricultural productivity in a changing climate. Think Tank participants identified and examined potential mitigation and adaptation strategies, in the context of other environmental, social and development pressures. The outcome of discussions was the recognition that although Australia is facing a number of complex interacting problems – climate change, water, food security and population – there are opportunities for sustaining Australian, and global, social, economic and environmental health.

Bulletin board

POSTDOCTORAL AND INVITATIONAL FELLOWSHIPS IN JAPAN 2010

The Australian Academy of Science, in association with the Japan Society for the Promotion of Science, invites applications from Australian researchers to undertake Postdoctoral and Invitational Fellowships in Japan. Postdoctoral Fellowships are for a period of twelve to twenty-four months; Invitational Fellowships are either short term, for fourteen to sixty days, or long term, for two to ten months. Researchers in any field of natural sciences, including technology, engineering and medicine may apply. For further information and guidelines go to: **www.science.org.au/internat/programs.htm#Asia** Applications close on Friday 5 February 2010.

AUSTRALIAN ACADEMY OF SCIENCE ECR EVENTS IN 2010

Next year the first Academy event for early-career researchers will be Science at the Shine Dome (SATS), from 5 to 7 May 2010. Each year the Academy invites approximately 60 of Australia's top early-career researchers to attend the three day event. SATS is an exciting opportunity for young researchers to learn about the latest research across a range of science disciplines, meet and talk with renowned scientists, science teachers and other early-career researchers and participate in career development workshops.

To attend the early-career researcher portion of SATS you need to be nominated by your research organisation or institution. The Academy will invite nominations in March 2010 for early-career researchers to attend SATS. For information go to: **www.science.org.au/events/sats/sats2009/ecr.htm.**

GRANTS FOR INTERNATIONAL TRAVEL

Applications are invited for grants for short-term scientific visits to Europe and North America in 2010 through the International Science Linkages – Science Academies Program.

Further information is available from **www.science.org.au/internat/programs.htm.** Applications close Friday 26 February 2010.

UNESCO-L'ORÉAL INTERNATIONAL FELLOWSHIPS

Each year Unesco and L'Oréal award fifteen young female researchers in the life sciences, at the doctoral or postdoctoral level, an International Fellowship to the value of US$40,000 over two years. The fellowship aims to build research capacities in the awardees home country, provides international networking opportunities and supports the retention of women in the sciences. The following provides a link to a report on previously successful applicants and may be of interest to those intending to apply in 2010 (for 2011 funding). **http://sciencecareers.sciencemag.org/pdf/tools_tips/outreach/loreal_wis_2009/loreal_wis_2009.pdf**