



AuPS News

March 2008

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President's Message

This Newsletter introduces Simon Potocnik (RMIT University) as the new Associate Editor succeeding Trevor Lewis (UNSW) who has done an outstanding job producing the quarterly AuPS newsletter for the past 3 years. On behalf of the membership, I express my sincere thanks to Trevor for his dedication and effort both in editing of the newsletter and as a Council member. I also wish to acknowledge the important contributions of David Saint (University of Adelaide) as AuPS National Secretary (2002-07) and Enzo Porello (University of Melbourne) as Student Representative to AuPS Council. A/Prof. Joe Lynch (University of Queensland) was elected as National Secretary and Mr. Stefan Gehrig (University of Melbourne) as the Student representative at the December AGM.



My congratulations to the Local Organising Committee (Derek Laver, David Pow, Robin Callister and Dirk Van Helden) for an outstanding joint AuPS/ASB meeting held in Newcastle last December. The quality of the plenary lectures, symposia, oral communication and posters were excellent and it was pleasing that the meeting was attended by over 200 registrants. Planning is underway by the Local Organising Committee chaired by Gordon Lynch for the annual AuPS meeting to be held in Melbourne in November-December 2008.

The Beijing Joint Conference of Physiological Sciences is to be held in Beijing, China 19-22 October 2008 involving the Chinese Association for Physiological Sciences, The Physiological Society UK, the American Physiological Society, the Canadian Physiological Society and AuPS. Details of the programme are on the website: <http://www.beijingphys2008.org/> and deadlines for Abstract submission are May 31 and Registration July 15, 2008. AuPS is committed to providing travel support for a limited number of student members to attend and present at this conference.

Since the last AuPS Newsletter, there have been significant changes at the national level that will be of interest to AuPS members. The election of the Federal Labor Government with Kevin Rudd as Prime Minister heralds a new era in Australian Higher Education. The Minister for Innovation, Industry, Science and Research, Senator Kim Carr, announced last month his plans for a new research quality and evaluation system. The Excellence in Research for Australia (ERA) initiative, to be developed by the Australian Research Council

(ARC) in conjunction with the Department of Innovation, Industry, Science and Research, will assess research quality using a combination of metrics and expert review by committees comprising experienced, internationally-recognised experts. The ERA will use leading researchers to evaluate research activity progressively in each of the ARC discipline clusters and several clusters covering health and medical research that will be informed by experts from the NHMRC. Each cluster report will detail by *institution* and by *discipline* those areas that are internationally competitive, together with emerging areas where there are opportunities for development and further investment. 'The ERA will replace the now defunct Research Quality Framework with a streamlined, internationally recognised and transparent research quality assurance system.

David Adams
President

CALENDAR OF EVENTS 2008

Beijing Joint Conference of Physiological Societies to be held October 19-22, 2008:

Abstracts Due: May 31, 2008.

<http://www.beijingphys2008.org/>

The New York Academy of Sciences conference on Integrative Physiology will be in New York, USA, 14th - 16th May 2008.

Deadline for abstract submission is Friday, March 14, 2008.

<http://www.nyas.org/events/eventDetail.asp?eventID=9509&date=5/14/2008>

The Australian Health and Medical Research Congress Brisbane, 16th - 21st November 2008.

Abstract submissions will be called for early 2008

<http://www.ahmrccongress.org.au/>

Abstracts for 2008 AuPS meeting; Due during September 2008.



Kyoto, Japan, July 27 - August 1, 2009
Function of Life : Elements and Integration

**XXXVI International
Congress of Physiological Sciences**

AuPS 2008: Melbourne



Melbourne will be the venue for the joint Australian Physiological Society and Australian Society for Biophysics meeting in 2008.

Prizes awarded at the annual meeting, Newcastle December 2007.

The A.K. McIntyre Prize 2007.

The Society established the A.K. McIntyre Prize for members of the Society 'who are judged to have made significant contributions to Australian Physiological and/or Pharmacological Science over their predoctoral and early postdoctoral years'.

The 2007 prize was awarded to:

William Macdonald School of Biomedical, Biomolecular and Chemical Sciences, The University of Western Australia, Crawley WA 6009, Australia.



The prize was presented by Dr Peter Kenny, on behalf of SDR Clinical Technology, joint sponsors with the AuPS of the \$1,000 award.

Blackwell Publishing Oral Presentation Prize.



The prize was presented by David Adams, the president of AuPS to **Isuru Jayasinghe** Department of Physiology, Faculty of Medical and Health Sciences, University of Auckland, New Zealand .



Abstract: *I.D. Jayasinghe, M.B. Cannell and C. Soeller*, Visualization of the 3-D distribution of proteins involved in cardiac excitation-contraction coupling using a novel optical approach *Proc. AuPS 38: 153P*

The Student Oral Presentation, SDR Clinical Technology Prize, was awarded to Trent Reardon, for his presentation titled; Iron accelerates skeletal muscle fatigue at 37°C. **Abstract:** *T.F. Reardon and D.G. Allen*, *Proc. AuPS 38: 170P*. School of Biological Sciences, University of Sydney.



The prize was presented by Dr Peter Kenny, on behalf of SDR Clinical Technology, the sponsor of the prize.

The Post-Doctoral Publication Prize

Awarded for the best paper published in a refereed journal by an AuPS member during their Post-Doctoral period was awarded to:

Renaë Ryan

Discipline of Pharmacology
Bosch Institute, University of Sydney

The PhD Publication Prize

Awarded for the best paper published in a refereed journal by a PhD student was awarded to:

Joshua Edwards, La Trobe University and to **Yang Zhe**, School of Biomedical Science, University of Queensland .

Blackwell Publishing, Poster Prize.

Presented to Equal Winners:

Fernanda Gravina

School of Biomedical Sciences,
University of Newcastle

Abstract: *F.S. Gravina, K. Ryan, M.S. Imtiaz, S.L. Sandow, R. Smith, H.C. Parkington and*

D.F. van Helden, Inhibitors of mitochondrial function disrupt uterine pacemaking *Proc. AuPS 38: 119P*

Melissa Walsh

School of Biomedical Sciences,
University of Newcastle

Abstract: *M.A. Walsh B.A. Graham, A.M. Brichta, and R.J. Callister* Maturation of neuron excitability and membrane conductances in the superficial dorsal horn of the mouse spinal cord *Proc. AuPS 38: 121P*

Stephney Whillier

Department of Biological Sciences,
Macquarie University

Abstract: *S. Whillier, J.E. Raftos and P.W. Kuchel* The ability of the red blood cell to synthesise glutathione in type 2 diabetes mellitus, and the implications for disease management *Proc. AuPS 38: 83P*

Student Poster Presentation Prizes

SDR Clinical Technology Poster Prize

Awarded to: **Wayne Anderson**

School of Biomedical Sciences,
University of Newcastle

Abstract: *W.B. Anderson, B.A. Graham, P. Jobling, P.A. Tooney, A.M. Brichta, and R.J. Callister*, Differential inhibitory signalling in the superficial and deep dorsal horn of the mouse spinal cord *Proc. AuPS 38: 120P*



The prize was presented by Dr Peter Kenny on behalf of SDR Clinical Technology.

Congratulations to all the winners who, given the tied results clearly presented work of a consistent and high standard. The judges are to be commended for their untiring efforts to consistently reward quality achievements. Special thanks to the sponsor for the awards.

Other Awards

On behalf of AuPS, I wish to acknowledge and congratulate Emeritus Professor Mollie Holman AO on being awarded the David de Kretzer Medal for 2007. Named in honour of Professor David de Kretzer, Governor of Victoria, the David de Kretzer Medal is awarded annually to an individual who has made an exceptional contribution to the Faculty of Medicine, Nursing and Health Sciences at Monash University over a significant period of time. Both Professor Holman, and the previous recipient of the David de Kretzer Medal, Professor Warwick Anderson AM, are long-time members of AuPS. Professor Anderson is currently Chief Executive Officer of the NHMRC.

David Adams
President

2007 AuPS – Physiological Society (UK) Exchange Lecturer

Standing room only in Glasgow.

It started with a phone call from David Saint inviting me to give the UK-Australian Physiological Society Prize Lecture in 2007. After several milliseconds of ritual hesitation I agreed and then asked what was involved. The answer is a very typical academic mixture of loosely-defined tradition and back-of-the-envelope planning. The positive aspect is that you can do almost whatever you like within a few general guidelines.



The lecture alternates between the UK and Australia. One year an Australian is chosen who goes to the UK; the next year the reverse. In the former case the AuPS chooses the lecturer and pays the airfare while the host country pays the travel and living expenses. The normal form is that the lecturer gives his lecture at a meeting of the host country Physiological Society and then visits a series of Departments and repeats his lecture. In my case the formal first lecture was at a meeting of the Physiological Society in Manchester in

September 2007 so the rest of my visit revolved around this fixed point.

A few months after the phone call I received an email from David Bennett, the International Events Coordinator of the Physiological Society (yes - they are grand enough to have paid administrative staff). We confirmed the Manchester meeting and he asked me where else I would like to go. I mentioned three or four institutions where I had lived, worked or played in an earlier life. A few months passed and I received an Excel spreadsheet of about 20 institutions who had been contacted and requested my presence as a lecturer. The spread sheet contained extracts from the letters from the institutions and the warmth of these invitations could be felt even from a spreadsheet. Like many scientists I suffer from a mild form of paranoia in which I feel that my groundbreaking research has not been fully appreciated by the rest of the world - one symptom of this condition is that when I receive an invitation to talk about my research I find it very hard to say no. However even I can see that giving the same lecture 21 times might pall so I constructed an itinerary involving nine Universities up and down the country constituting a grand tour of UK and Scotland.

All seemed well with this plan but for two minor hiccups; David Bennett informed me that the UK Physiological Society had a limit on the expenses they would pay, which, while generous, was not capable of funding a grand tour; secondly he asked me for my itinerary and I realized that responsibility for detailed planning might be mine. At this point I decided to hire a car and began to email everyone I knew on the path of the grand tour requesting a bed for the night. Again friends and distant acquaintances rallied to the call and the financially-slimmed-down tour was intact.

Thus I arrived at Heathrow on a sunny morning in September and set off in my hire car for Manchester. Here I stayed with Austin Elliott, an ex-PhD student and frustrated literary talent, for the duration of the

Manchester Physiological Society meeting. I gave my first lecture to a large captive audience at a cardiac specialty meeting. Seemed to go down well and many old friends including Brian Jewell, my PhD supervisor, and Otto Hutter, whose laboratory at University College I had inherited, were able to attend and provide welcoming talks.

The rest of the tour was a wonderful sequence of travelling, staying with friends and in the occasional hotel, giving my talk and being wined and dined by various hosts around the country. So I will just pick out some highlights to give the flavour.

Audiences were variable in size; always double figures (just) but definitely the highlight was Glasgow where my friend and some-time post-doc Godfrey Smith had had the good sense to hire a very small lecture room which was filled to capacity leading to the proud boast of the title. Glasgow amazed me with opera - Car man (sic), intimate restaurants, delightful wine bars and the drunken crowds I remember from my youth seem to have moved elsewhere. Godfrey is now the Professor of Physiology and runs a lab which made me feel proud of whatever contribution I made to his training. Langendorff-perfused hearts everywhere surrounded by sophisticated optical arrangements for recording action potentials on the surface; all home-made and controlled by complex electronics, purpose-built amplifiers and analyzing software.

I spent a wonderful weekend in the Lake District staying with friends of friends in a 500 year old cottage. The weather was perfect and I had a magical walk through Little Langdale and a visit to the local pub, the Old Dungeon Ghyll (quite unchanged from 40 years ago).

Visiting Dundee, I saw new Biomedical Buildings that seemed to stretch endlessly into the distance. It turns out they have done a deal with big pharma which contributes to new buildings and provide annual running costs. It is all part of a Faustian bargain which allows the drug company to have first look

and negotiating rights at any new intellectual property.

Oxford. Lunch and a walk in the University Parks with my son Ben, currently a computational protein chemist for a small start-up company in Cardiff. He loves it and the uncertainty of having no job in a couple of months unless he can persuade an investor with more money than sense to part with another \$100,000 doesn't seem to trouble him. During my day in the Department of Physiology, Anatomy and Genetics (catchy names are all the rage) I was shown the cardiac NMR laboratory. Here they are developing a technique that improves the sensitivity of carbon compound detection by 10,000 fold (I hope I've got this right). All you need is a spare NMR machine (a million pounds will get you a second hand one) and the sample is exposed to an exotic magnetic pulse sequence and then has to be removed and injected rapidly into a heart in another NMR machine all within the 60 s or so before the exotic spin goes away.

And so to Heathrow and the long journey home. A kaleidoscope of memories of snippets of science, the beautiful English and Scottish countryside and, above all, so many people who generously lent their time and friendship to make my visit enjoyable.

Prof David Allen

Bosch Institute and School of Medical Sciences,
University of Sydney

How important are practical outcomes in research?

Some years ago, on behalf of APPS, I interviewed my friend and teacher, Archie McIntyre (1913-2002) and asked him about his life and work. One question that came up was his views about pure versus applied research. Here is what he said:



"In the early days, whether something had a useful, practical outcome was a consideration, but not a major one. If research is not driven by the pressures of a useful outcome, the work often seems to be more objective. And who is to

say what knowledge is going to be useful, and what isn't? Research should also be part of someone's intellectual training, to try to find out something new, if they can. Here the intellectual achievement should be rewarded, not the practical outcome".¹

Remarkably, these views are a long way from present-day realities. Another anecdote I can contribute from my own experience during my days as a young budding physiologist is that it seemed to me departments engaged in applied and clinical research generated outputs that were not as strong as departments concerned with basic science. At the time I concluded that applicability of research findings and clinical outcomes were influences that distracted enquiring minds driven by the motivation most closely linked to creativity, that of curiosity. Such a conclusion prompts the question, are the basic driving forces for creativity any different today? To me that seems unlikely. Yet the intellectual climate is quite different. How has that come about?

An important factor is likely to be the rapid rise to prominence of the reductionist biologies, molecular biology, genomics and proteomics. These disciplines have frequently been able to come up with specific answers to questions that point directly to practical outcomes or clinical relevance. Then we have seen the rise of the whole stem cell industry. All of the new developments, important as they are, have tended to focus the researcher's eye firmly on the opportunities provided by commercial exploitation. Such a trend appears to have brought with it a rise in the incidence of scientific fraud.

There is another influence that, in my view, has altered the research climate in Australian universities. In the past, federal funding has allowed universities to provide significant support for research at the level of individual departments. These funds were intended to be spent to encourage broadly-based research in many areas, in both the basic and applied sciences. That situation changed with introduction of the Dawkins era in the late 1980's. Overnight the number of Australian universities increased several-fold, but not the

federal funds to support them. Application of the vegemite principle led to significant funding shortfalls in the established universities. They responded to the crisis in several ways, including through a greater encouragement of applied outcomes and commercial exploitation of research. We saw the rise of university-owned commercial companies which acted as an interface between university research and industry. Needless to say, this was accompanied by the introduction of a new university bureaucracy to administer the changes as well as to impose a corporate structure on university administration. There was a new term on everyone's lips, "intellectual property". At the same time the federal government began to exert its own pressure through government-based funding agencies encouraging applied outcomes and practical relevance.

Some of the casualties in this process of change were the decline of research activities in areas not thought to have commercial potential. An example in my own field is the gradual disappearance of comparative physiology. True, there has been a recent upsurge of interest in insect vision although, in some respects, this may be a special case. Research aimed at obtaining an understanding of mechanism, rather than practical outcomes has been discouraged. We don't want to understand it, just exploit it. Some of these attitudes can be seen reflected in the previous Research Quality Framework rating process of research. Ultimately everything is directed at money and profit.

Coming back to the starting point of this piece, if the prime motivation that drives us in our quest to understand the world around us is curiosity, then we should encourage it. It may mean that pay-offs from research for the community at large may take longer to be realized. But they promise to be substantial. Add to that the far-reaching benefits from the climate of intellectual rigor and scholarship such changes would bring. In the end it is these influences which will help to define our culture, not the search for profit. In the past, the creative processes underlying art and science were seen to be closely linked. In

recent years the two have begun to diverge. Let's bring them closer together again.

Prof. Uwe Proske

1. Proske U. (2003). Obituary: Archie McIntyre (1913-2002) *Clinical and Experimental Pharmacology and Physiology* **30**: 303-306.

A Postcard from the Babraham Institute July 1st – Oct 31st 2007



Study leave is a wonderful thing, I had totally forgotten what fun it can be to spend as long as you like in the lab and not have responsibilities for lectures, marking and the running of a home lab. It felt like being a postdoc again.

The Babraham Institute is situated in the rural village of Babraham about 10 km south east of Cambridge. The site was a manor and farm owned by Jonah Webb who donated to the British government. It first became a research facility for British agriculture and livestock to develop improved crops and stock during the threat to adequate food supplies during the 1940s. More recently the site has developed under the sponsorship of the Biotechnology and Biological Sciences Research Council (BBSRC) as a centre for biomedical and food sciences research. The Institute undertakes research and training in the mechanisms of cell communication and gene regulation which underlie normal cellular processes and functions, and on how their failure or abnormality may lead to disease.

The rural setting in no way constrains the scientific endeavour of the institute. The density of population in England and the established University centre of Cambridge mean that researchers seek out places such as this to work and study. It seems to have been this way around Cambridge for the last 700 years and very unlike much of Australia where distance from a major city usually means reduced resources, infrastructure and academic pursuit. Interestingly the Babraham / Cambridge situation may be a little analogous to the RMIT Bundoora / Melbourne situation where both provide excellent sites of research facility and endeavour as satellites to larger centres.

My focus here in Babraham is with the Molecular Signalling Laboratory and their

long-standing interest and expertise in intracellular calcium signalling. This group had described amplitude modulation of calcium signals for salivary secretion and proposed IP₃ as an intracellular messenger in the early 1980s and today continues to look even more closely at the coding of intracellular calcium signals in a variety of cell types and tissues. The synergies between labs at the Institute allow researchers to measure transient calcium events with the latest confocal techniques, to identify the associated proteins and to alter and re-express them in a variety of tissues.

As physiology and cell biology becomes more specialised it's been a terrific opportunity to visit and benefit from the expertise of these specialist groups. Cellular calcium signals are known now to be transient and can be apportioned distinct elementary events depending on the source of calcium. The ways in which these events combine to signal spatially in the cell and temporally to control gene expression and the familiar actions of contraction, secretion or growth are well characterised in many tissues. Interestingly the net effect of these balanced signalling pathways can easily be disrupted and influenced by common therapeutics and these actions are only now being appreciated.

Needless to say the local beer is very refreshing and the Institute bar and social club offer great company. At the end of my stay it still felt rather special to cycle along walking paths through fields of crop to the nearby village, buy a pint and spend an afternoon watching local cricket.

Simon Potocnik

RMIT University School of Medical Sciences
P.S. I measured Ca²⁺ transients in the smooth muscle of intact arterioles, during changes in lumen pressure. The data were presented recently at the International Resistance Artery Symposium (9th IRSA, Hamilton Is. Feb. 08).



Sad News

It is with sadness that I inform you that Professor Chris Bell, a long-time member of AuPS and former AuPS Treasurer (1981-86) and Secretary (1993-95), died on Sunday 2 February 2008, after a long illness. Chris made very significant contributions to our Society and at the AuPS Annual General Meeting last December he was awarded an AuPS medal recognizing his contributions and honorary status in our Society.

David Adams
President



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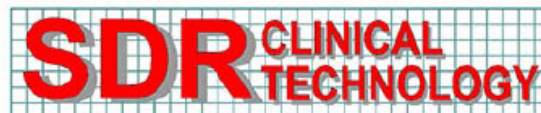


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This issue of AuPS News has been compiled by Simon Potocnik. With thanks to Trevor Lewis for considerable editorial help and to all contributors. The next issue of AuPS News will be distributed to members in June 2007. Any contributions for AuPS News should be sent to: newsletter@aup.org.au