

President

Prof. David Allen
The University of Sydney
president@auaps.org.au

National Secretary

Dr. Robyn Murphy
La Trobe University
secretary@auaps.org.au

Treasurer

A/Prof. Peter Thorn
The University of Queensland
treasurer@auaps.org.au

Editor & IT Manager

Hon A/Prof. Dave Davey
ITmanager@auaps.org.au
editor@auaps.org.au

Webmaster

Dr Annick Ansselin
webmaster@auaps.org.au

Associate Editor

Dr. Glenn Wadley
Deakin University
newsletter@auaps.org.au

Student Representative

Ms. Divya Mehra
University of Newcastle
divya.mehra@uon.edu.au

Councillors

Dr. Nicole Beard
Australian National University
nicole.beard@anu.edu.au

A/Prof David Saint
University of Adelaide
david.saint@adelaide.edu.au

Dr Bradley Launikonis
University of Queensland
b.launikonis@uq.edu.au

Prof. Daniel Markovich
University of Queensland
d.markovich@uq.edu.au

A/Prof. Matthew Watt
Monash University
matthew.watt@monash.edu

Dr. Yue-kun Ju
The University of Sydney
yue-kun.ju@sydney.edu.au

Public Officer
AuPS Secretary

AuPS Website
<http://auaps.org.au>

Student Profile – Daniel Chaston (ANU)

How did you get interested in physiology?

After my Honours year I took a job as a technician in the Blood Vessel Laboratory at the John Curtin School of Medical Research. My involvement in the lab at that time gave me an understanding of how changes within arteries could affect broad cardiovascular physiology. I found this fascinating and consequently gained a great appreciation for the type of 'top down' approach that characterises physiology research.

What are your current research interests?

Currently I am absorbed by coupling of blood flow to the metabolic demands of the body's tissues. I am amazed at the speed and specificity of hyperaemic responses. My current research is on a type of gap junction found in arteries which is believed to be essential for this process.

What do you do to relax?

My favourite past time outside work is playing Australian Football with the ANU Australian Football Club. This tends to dominate my social life, however when nothing is on I like to go and find live music, - all types so long as it's good.

Which research direction would you like to take in the next 3-5 years?

My current research has made me realise that small impairments to vascular function will often have little or no effect on broad cardiovascular parameters as we are able to measure them. This has led me to believe that when a patient presents at the clinic with a cardiovascular disturbance (such as hypertension) a lot of things have malfunctioned prior to their arrival. I would like to carry out research that sheds more light on the aetiology and pathophysiology of pre-hypertension. I think it would be great if we could get a cardiovascular 'read-out' on individual events that accumulate to cause hypertension, such as a stressful period at work or a big night out.

Daniel was awarded the SDR Student oral presentation prize at the 2011 Joint AuPS/ASCEPT/HBPRCA Meeting in Perth.



Student Profile – Kimberley Mellor (University of Melbourne)

After completing my undergraduate degree at the University of Otago in New Zealand, I came to Melbourne to undertake an honours research year in Lea Delbridge's lab in Physiology, University of Melbourne. Although it was a tough, and often frantic, year, I really enjoyed the challenge and felt encouraged that research was a career path that I wanted to pursue. I have recently completed a PhD in the area of diabetic cardiopathology and my PhD work identified cardiac autophagy activation as a key player in the diabetic heart. My current research focuses on further exploring the mechanistic link of cardiac autophagy and metabolic stress in insulin resistance and evaluating possible therapeutic targets in this disease setting. I am grateful for the opportunities that I have received which have enabled me to continue on this research career path, and I feel privileged to have a job that I enjoy so much. I hope to build on the foundation of my PhD studies and work towards establishing myself as an independent researcher in the field of diabetic cardiopathology over the next few years.



Kimberley was awarded the SDR Student publication prize at the 2011 Joint AuPS/ASCEPT/HBPRCA Meeting in Perth for best original paper.

Gage Muscle Conference 2012

Wednesday April 18th - Friday 20th 2012 at Canberra Boys Grammar School, ACT.

Sessions will start at 11.00 am 18th April and finish at 3.30 pm 20th April.

Themes

- molecular mechanisms in Ca^{2+} signalling in heart and skeletal muscle
- excitation-contraction coupling in health and disease (cardiac and skeletal)
- muscle as an endocrine organ
- muscle aging and injury
- muscular dystrophies
- inherited myopathies
- Other neuromuscular disorders (myotonic dystrophy, FSH, inflammatory myopathies, inclusion body myositis, and non structural mechanisms of muscle weakness).

For more information visit <http://www.gageconf.org.au/muscle2012/>



Sydney 2012 Joint AuPS/PSNZ/ASB Meeting

2012 Sydney - Australian Physiological Society/ Physiological Society of New Zealand and Australian Society for Biophysics - 2-5 December.

University of New South Wales, UNSW Kensington Campus, Sydney

AuPS organising committee chair: Prof Gary Housley, UNSW (g.housley@unsw.edu.au)

AuPS invited lecturer:

Prof Joe Lynch: Queensland Brain Institute; School of Biomedical Sciences, Univ. Qld.

Invited plenary speakers:

Prof Håkan Westerblad - Scandinavian Exchange Lecturer, Karolinska Inst. Sweden.

Prof Lutz Birnbaumer - National Institute of Environmental Health Sciences (NIEHS), USA.

18 Symposia:

- Integrative physiology of the heart
- New insights into cardiac Ca²⁺ handling and excitability
- Science at the high performance computing frontier
- Cystic fibrosis today & tomorrow
- A vignette of TRP ion channel physiology
- Ion channels as drug targets
- Calcium signalling in microdomains essential to normal cell function
- Molecular insight via advanced fluorescence microscopy
- Spectral imaging in physiology – a highlight of techniques
- Brain dysfunction & translational neurophysiology
- Perinatal asphyxia: adaptation and consequences
- Developments in auditory & vestibular physiology
- Bridging the gap between molecular reductionism and physiology- the usefulness of 'omics'
- Muscular adaptations to exercise: mechanisms at play
- Skeletal muscle in health and disease
- Advances in methods for intestinal motility
- Autonomic physiology - nutrient sensing in the GI tract
- Physiology education

Breaking news about this exciting meeting is available at <http://aups.org.au/Meetings/201212/>



The Royal Society of Victoria

Promoting science since 1854 and polar science since 1874

YOUNG SCIENTIST RESEARCH AWARDS

NOMINATIONS NOW OPEN FOR 2012

The Royal Society of Victoria has established three prestigious prizes open to post-graduate - doctoral students in all areas of Biological, Physical and Earth Sciences. These prizes are designed to recognise good science and provide students further experience in presenting information to an audience of scientists and the general public on their particular research field. Students have the opportunity, if they wish, to participate in the Society's mentoring program, whereby they receive mentoring in their chosen field by senior scientists who are Members of the Society.

These prizes are awarded to students in their second to fourth year of their doctoral candidature at the time of application. Students should submit an extended abstract and application form by 31 May 2012. From these, the judges will select a short list of two to three candidates in each of the fields of Biological, Physical and Earth Sciences.

Each of the short-listed candidates will give an oral PowerPoint presentation (15 minutes, 5 minutes discussion) before a general audience at the Society on Thursday, 27th September 2012 commencing from 6:15 p.m. The winners are announced on the night and the monetary prize and certificate awarded.

Light refreshments follow the presentations, which are open to fellow students, friends and family as well as Members of the Society.

Applicants must be Members of The Royal Society of Victoria. If the student is not already a Member, submit (1) an application form for membership with (2) the extended abstract (with Aims; Hypotheses; Method; Results and Conclusion) and (3) a covering letter.

Each prize includes a certificate and a monetary prize. The Biological Science prize and Earth Sciences prize are supported by the E D Gill Fund and the Neil Archbold Estate.

Publicity will be distributed through the Science, Engineering and Medical Faculties and Post Graduate Student Offices of each of the Victorian Universities.

Nominations close at close of business not later than 31 May 2012 (Executive Officer, The Royal Society of Victoria, 9 Victoria Street, Melbourne 3000)

Enquiries to: The Royal Society of Victoria, Tel (03) 9663 5259, email: rsv@sciencevictoria.org.au

CUBE^{NET}: What is it, and why should we care?

A personal commentary, by Bill Phillips

On 12th December 2011, approximately 30 Australian and NZ academics, plus invited overseas speakers, met at the Shine Dome in Canberra to form the **Collaborative Universities Biomedical Education Network (CUBE^{NET})**. With the teaching year finally behind us why meet to talk about the future of undergraduate education? The short answer is this: governments are placing great store on quantitative evaluation, so either we academics work together nationally to advance quality on our own terms or we risk changes in the way we teach and assess being imposed from above by 'Learning experts' from other disciplines.



CUBE^{NET} is an initiative on behalf of the Australian Academy of Sciences and the Australian Learning and Teaching Council, led by **Phil Poronnik** (RMIT) to provide a collaborative platform about trying to lead change in undergraduate teaching, and how we might get there.



Changes

Driven by Federal Government policy, undergraduate numbers have expanded greatly over the past decade, and our disciplines and schools have often struggled to cope with increases in student numbers without commensurate increases in staff and money. Year-by-year increases in enrollment numbers have often been met by localized crisis-management within biomedical departments. A common coping response has been to reduce the number of essays and practical report assignments, increase practical class sizes, and cut back

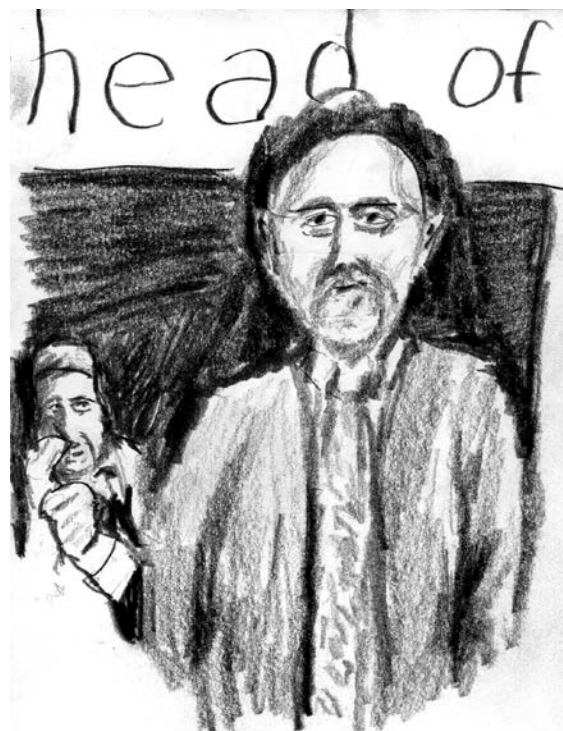
on tutorials. Students have often responded to increased fees by increasing their hours of outside paid employment, which reduces their on-campus activities. Downloadable lectures have further facilitated their displacement from the vibrancy of campus life. 'Full-time' university studies have become, for many students, just one component of a busy working week, often discharged via their laptop or 'i-thing'.

The adaptations that we have made, and that our students have made in response, can each be individually justified, but collectively they raise some important questions:

- What does three years of undergraduate life now contribute to the personal and intellectual development of a bright young Australian?
- Do our *Science* graduates understand the empirical scientific approach?
- Will our graduates be citizen-advocates for scientific evidence (and science funding) to help answer the big, hard public-interest questions of the future?
- Will they have learnt any analytical skills useful in their unknown future careers?
- Is undergraduate teaching increasingly just a continuation of high school?
- Are we failing to challenge and inspire them intellectually?

Three perspectives

The CUBE^{NET} forum revealed several distinct cultural perspectives relevant to answering these questions. First, there was the top-down, big picture perspective outlined in talks given by Ian Chubb (Chief Government Scientist, see link below) and John Rice (Council of Deans of Science). Both are concerned with the need to coordinate efforts, set standards, and align biomedical education with anticipated needs of the future economy and labour markets (country-wide expertise in the “omics” etc). Projecting current or future skills needs is always tricky. More so given we lack a clear view of the full diversity of career employment in which our recent biomedical graduates are currently engaged.



None of us have a crystal ball to know the opportunities and needs of the economy in 2020. Nevertheless, most of us could probably describe graduate attributes such as personal responsibility, initiative, self-motivated independent learning and the like that we value in our research assistants and tutors, and that we strive to develop in our Honours students. As a discipline we need to discuss the sorts of generic skills and professional qualities that best characterize the strong, internationally-competitive biomedical *science* graduates of any era. Only then can we work together to encourage/reward the development of these qualities in our undergraduates.



The second perspective was of academics aiming to build respect and deference among their peers for scholarship in Learning and Teaching. They want to build a serious career path for academics that choose to focus on research into Learning and Teaching. Several contributors felt this was best achieved by publishing scholarly papers. Maybe so, but Learning and Teaching is clearly an area of applied research. It should have demonstrable practical outcomes. I suspect that most of my

academic colleagues would be much more likely to read and apply a paper describing a robust new physiology practical class (tested and improved over several iterations), rather than a

paper on less-tangible matters of educational theory. Just because a paper has immediate practical application doesn't mean it has less intellectual substance. As with wet-lab research, recognition and career advancement tends to be greater if the results are useful to those outside our own narrow area of research interest. CUBE^{NET} work groups offer a forum for collaborative developments in areas such as improving the practical class experience and online learning (outlined below).

The third perspective was of academics who juggle both biomedical research and teaching. Time-poor, we work to improve our teaching incrementally, mostly by collaborating with our close colleagues. We learn what works from immediate experience, rather than formalized educational theory. Does consistent application of this tentative, empirical approach to university teaching work less well than theory based approaches?

While all the speakers demonstrated our common interest in undergraduate learning outcomes, it occasionally felt like attending the UN General Assembly without the translator headphones. We all need to get better at communicating our common threads of interest more clearly and concisely to those beyond our own individual perspective and research interests.



There was a debrief session the following morning. Many of the 40 or so remaining delegates volunteered to join one of 9 working groups. All the groups would be happy to have more members. The working group I joined is interested in the **Career Destinations** of biomedical graduates. A challenging first step is to survey graduate destinations. Graduates of our 2006 classes by now will have navigated their way into a range of careers beyond lab research and medicine. No doubt some of the careers they have found did not even exist when we were their age. A survey is probably the best way to help us align intended graduate attributes to the sorts of careers future undergraduates might strive for. Indeed don't we owe it to our students to provide some up-to-date career suggestions in a fast

changing world. As we begin to learn about the full range of career opportunities we can document the career experiences of biomedical graduates in the form of short video interviews made by students for students. See for example: <http://www.physiol.usyd.edu.au/~billp/biovideo/>

A second working group will investigate **Core Concepts and Competencies**. This is of particular interest to the Federal government but should give us pause. We routinely set minimum standards in the form of the passing grade, but to define threshold competencies would seem to me to be a contentious change in a global ethos. Unlike Latin, both knowledge and skills in the biomedical sciences change over time and will vary from place to place



according to the expertise and enthusiasm of the lecturer. Surely our role is to engage the interest of bright young people, motivating them to develop their full intellectual potential by whatever means works best for the individual lecturer. To me, a focus on threshold competencies is to ask students for less than they are capable, essentially to waste their time. This shift of onus would promote University as an extension of high school, rather than a promoter of the intellectual dynamism upon which Australia's future depends. Collectively we hold hundreds of years of experience in the organization, practice and assessment of Physiology teaching and learning. The onus is upon all of us to seriously debate the pros and cons before defining any threshold competencies.

The **Online educational environment and resources** working group grew out of ideas of several of the speakers at CUBE^{NET}. There is much creative energy for IT-facilitated learning amongst us that should resonate with today's undergraduates. The **Visualising Biomedical Research** working group comprises people interested in 3D structure and drawing in learning and communicating ideas. As physiologists this springs from the knowledge that motor enactment of visual input promotes learning.

The remaining working groups are concerned with: **Health research into the future** (how to advance learning in bioinformatics and the “omics”), **Bioscience Teaching into allied health** (will address the oft neglected service courses), **The Practical Class Environment** (inter-institutional collaborations will be particularly important here), **Pre-requisite requirements** (should we require physics and/or maths etc. for entry into a biomedical degree, and on what justification?) and **Applied Research into Science Education** (aiming to improve learning outcomes and teaching approaches through collaborative studies).



Working together maybe we can create something new to make for a better undergraduate experience, but only if we are really prepared to talk and listen to each other.

University education has changed a lot since I was an undergraduate. Class sizes are frequently bigger, and university policies often pay lip-service to teaching whilst making it harder for academics to remain active in both teaching and research. On the plus side, many younger lecturers are seriously committed to their own research while also developing teaching in ways that really challenge undergraduates. We individually spend considerable time and effort in attempting to motivate our Honours and PhD students to apply and develop their minds, as judged by outcomes such as peer-reviewed papers. We now have a national forum for working together to build enthusiasm for that kind of intrinsically-motivated active learning in our undergraduate students. All are invited to join and take an active part!

Another forum has been scheduled for December 10-11, 2012.

CUBE^{NET} Working groups and their members:

Career destinations of our graduates: Bill Phillips (Sydney), Fiona Carroll (La Trobe), Larry Chamley (Auckland), Yvonne Hodgson (Monash).

Core Concepts and Competencies: Martin Stone (Monash), Kirsten Zimbardi (UQ), Nirma Samarawickrama (Monash), Pauline Ross (VIBE-UWS), Kay Colthorpe (UQ), Lesley Lluka (UQ), Yvonne Hodgson (Monash).

The Online environment and resources: Phil Long (UQ), Anita Berry (Monash), Joseph Rathner (La Trobe), Suzanne Evans (Newcastle).

Visualising Biomedical Sciences: Dawn Gleeson (Melbourne), Michael Nott (RMIT), Peter Tregloan (UQ/Uni Melbourne), Phil Poronnik (RMIT), Roy Tasker (UWS).

Health and research into the future: Bioinformatics and the "omics": Tony McKnight (ADInstruments), Liz Milward (Newcastle), Merridee Wouters (Deakin), Cathy Abbott (Flinders), Jens Coorssen (UWS). Working with SAMnet.

The Practical class environment "doing science": Kirsten Zimbari (UQ), Kay Colthorpe (UQ), Lesley Luka (UQ), James Botton (Adelaide), Nirma Samarawickrama (Monash). Working with SAMnet and VIBE.

Prerequisite requirements for the Biomedical Sciences: Cathy Abbott (Flinders), Trish Jenkins (RMIT), Sharon Flecknoe (Monash).

Science Education – applied research: Kay Colthorpe (UQ), Lesley Luka (UQ), , Fiona Carroll (La Trobe), Yvonne Hodgson (Monash Uni), Louise Smith (Uni SA), Meloni Muir (Sydney) with Manjula Sharma (Sydney).

- A CUBE^{NET} website is being developed at the time of writing this. Type "Collaborative Universities Biomedical Education Network" into your search engine.

- Ian Chubb's opening address to the forum is available at:

<http://www.chiefscientist.gov.au/2011/12/national-forum-on-education-in-the-biomedical-sciences/>

Bill Phillips, Physiology, University of Sydney
email: billp@physiol.usyd.edu.au
with thanks to Bronwyn McAllen for valuable feedback.



Society for Free Radical Research International

16TH BIENNIAL MEETING • Imperial College London • 6-9 September 2012 • United Kingdom

Discuss the impact of the latest research, concepts and applications of free radicals and antioxidants.

For more information on the conference remember to visit the conference website www.sfrimeeting.org

17th International Congress of the World Muscle Society

9-13 October 2012 • Perth, Western Australia

For more information

www.wms2012.com

First Australian Conference on Physiological and Physical Employment Standards.

In November of 2012, the Centre for Human and Applied Physiology (University of Wollongong), in collaboration with the Defence Science and Technology Organisation, will be running the First Australian Conference on Physiological and Physical Employment Standards. This conference will be held at the Australian War Memorial, Canberra (November 27th-29th, 2012).

The focus of this conference is upon the development, implementation and justification of physiological and physical employment standards within physically demanding occupations. Scientists from around the world will present their research relating to the development of these standards, and discuss problems and solutions concerning the relationship between these standards and the optimisation of a capable workforce whilst minimising workplace injuries. The nature of this meeting, the range of keynote speakers and their presentation topics, all fall within the realms of human and applied physiology, ergonomics, occupational health and safety, and occupational and environmental medicine. For this reason, we believe that some members of the Australian Physiological Society may be very interested in attending, or even presenting a paper at this meeting.

You may visit the conference web site via the following link:

<http://www.uow.edu.au/health/AusPES2012/index.html>

Translational Nephrology: from Mechanisms to Therapeutics

24-26 August, 2012

Novotel Lakeside, Queenstown



Photo: Jan Kettink

To have your name added to a mailing list for information, suggestions and questions, contact Jenny Bedford (Jennifer.bedford@otago.ac.nz) or Rob Walker (rob.walker@otago.ac.nz).

See also www.otago.ac.nz/kidney



ANZCCART Conference 2012

"Thinking Outside the Cage- a different point of view"

Rendezvous Observation City Hotel, Scarborough, WA (Tuesday 24th - Thursday 26nd July)

For more information please contact ANZCCART@adelaide.edu.au

Or visit <http://www.adelaide.edu.au/ANZCCART/>

AuPS Supporters



Poster Competition



Sydney 2012 Joint AuPS/PSNZ/ASB Meeting

Dec. 2nd – 5th, 2012

The local organizing committee for the combined societies meeting is offering a prize of \$200 for a poster with a physiology theme that best encapsulates the Physiological Sciences and the strengths of our Societies. The poster should be provided as a JPEG file (range 1 – 10 Mb; 600 dpi resolution; A0 dimensions: 841 x 1189mm - portrait) to the LOC secretary, Christine Riordan (c.riordan@unsw.edu.au), by July 1st. Short-listed posters will be on display at the conference and the winning poster will be announced during the conference dinner cruise on Sydney Harbour. Prizes will be awarded for all meritorious work used for banner presentations.

This issue of AuPS News was compiled by Glenn Wadley with assistance by Simon Potocnik and with many thanks to the generous contributors.

The next issue of AuPS News will be distributed to members in June 2012. All contributions for AuPS News should be sent to: newsletter@auaps.org.au before the end of May.