



AUSTRALIAN ACADEMY OF SCIENCE

NEWSLETTER

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UK Chief Scientific Adviser at the Shine Dome



John Beddington at the Shine Dome in October

The UK Government Chief Scientific Adviser Professor Sir John Beddington CMG FRS gave a public lecture in Canberra at the Academy's Shine Dome on 10 October 2012. In his lecture Sir John provided an overview of his role in providing scientific advice to the government during the 2009 swine flu outbreak, the 2010 volcanic ash incident, and the 2011 Fukushima nuclear disaster. In each case Sir John showed that accurate and timely scientific advice played an important role in the government's response to these incidents. The chief scientific adviser has been responsible

for increasing scientific capacity across Whitehall by encouraging all major departments of state to recruit a chief scientific adviser within their own department.

Before the public lecture, Federal Minister for Employment and Workplace Relations Bill Shorten announced that a new position of chief scientist would be created within the Department of Education, Employment and Workplace Relations.

The Academy is looking forward to hosting more high-profile visitors from the UK next

year. Royal Society President Sir Paul Nurse will visit in January. In May, former UK Chief Scientific Adviser Sir David King will be the keynote speaker at the Academy's 2013 annual dinner and symposium *Power to the people: the science behind the debate*. More information about Science at the Shine Dome is available at www.science.org.au/events/sats/sats2013.

The public lecture given by Sir John can be viewed on the Academy's website at www.science.org.au/events/lectures-and-speeches/beddington.html. 

Message from the President

Science in politics

We breathed a collective sigh of relief recently when the Government confirmed it would continue current funding levels for research grants administered through the National Health and Medical Research Council and Australian Research Council, although it is of significant concern that planned funding increases to the universities through the Sustainable Research Excellence scheme did not eventuate. The Academy lobbied hard behind the scenes to ensure that rumoured cuts to the research budgets did not take place.

Hopefully the outcome was an indication of parliamentarians better understanding the value of research, and of science itself, to our quality of life and to our economy. We anticipate many more fruitful discussions with our federal representatives through the new group, Parliamentary Friends of Science. This group will complement the Parliamentary Friends of Women in Science and Engineering established earlier this year and has already held a very well received evening of stargazing on the roof of Parliament House, with Professor Brian Schmidt FAA FRS Nobel Laureate.

Science was also the hero of the day at the Prime Minister's Prizes for Science, where teachers, researchers, bureaucrats and lawmakers gathered to honour individual scientists and educators for their transforming work. Warmest congratulations again to Ken Freeman FAA FRS and the other winners. The Academy was very pleased to have the opportunity to honour them with a breakfast in the Shine Dome the next day, which was supported by Questacon.

New Corresponding Member

We were thrilled to recently welcome a personal hero of mine, Sir David Attenborough OM CH CVO CBE FAA FRS, who formalised his Corresponding Member status by signing our Charter Book in Melbourne. His extremely tight schedule precluded him coming to the Shine Dome, and this marks the first time the book has left Canberra since it arrived from the Royal Society. It is always a humbling experience to hear our extraordinary Fellows and Corresponding

Members sincerely express their profound appreciation at having been elected to the Fellowship.

Public awareness of science

The *Caring for the Australian countryside* public lecture series has drawn to a close, after a year of inspiring and diverse presentations on the many different perspectives on the science and socio-economic implications of land management. I hope you can join us next year for our *Australian science: global impact* public lecture series, which explores Australian research of significant international influence. Each of the lectures is broadcast live on the internet: if you cannot attend in person I urge you to tune in online. The series is, of course, just one of our many stimulating avenues for engaging researchers, early career researchers, policymakers, teachers and the broader Australian community in scientific discussions.

This year's program has also featured many highlights such as the National Science Week speaker series, *Giants of science*; the annual Australia–China Symposium on healthy ageing; Professor Elizabeth Blackburn's *Hooked on science* tour; and *Innovation requires global engagement*, a public forum with broadcaster Professor Robyn Williams AM FAA and Professors Andrew Holmes AM FAA FRS FTSE and Brian Schmidt. Early and mid-career researchers (EMCRs) were enthusiastic participants in our EMCR Forum's first national meeting, *Science Pathways*, the 2012 Theo Murphy High Flyers Think Tank, *Australia's population 2050*, and the 2012 Australian Frontiers of Science conference.

Education accolade

Our school education programs, *Science by Doing* and *Primary Connections*, have undergone significant resourcing changes during the year. They continue to craft innovative, inquiry-based resources to address the National Science Curriculum Years K to 10 and to train teachers in their use. As a reminder of the high regard in which these programs are held internationally, the 2012 Purkwa Prize, a Grand Prize of the French



Suzanne Cory

Academy of Sciences, was awarded to Shelley Peers, Director of *Primary Connections: linking science with literacy*, at a ceremony in Paris in October.

Science around the world

Our colleagues in Asia have been provided with a fresh approach to promoting the role of science in education, government policy and public discourse, with the long-awaited amalgamation of the two regional bodies into a single entity, the Association of Academies and Societies of Sciences in Asia (AASSA). This important merger, which was nurtured by past president of the Academy, Professor Kurt Lambeck AO FAA FRS, ably assisted by Professor Bruce McKellar FAA and our Manager of International Programs, Nancy Pritchard, will enable science to be more visible and effective in Asia.

In September, I was delighted to attend the Chinese Academy of Sciences Forum of National Academies, where Chinese President Hu Jintao spoke eloquently about the importance of science and technology as a driving force behind economic prosperity, social development and human civilisation. In this Asian Century, it's particularly important that we increase Australian science engagement in our region, as well as maintaining and forging new relationships and collaborations elsewhere around the world.

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Scientists on trial

The global science community watched with concern as six scientists were convicted in an Italian court recently over the advice they gave before an earthquake in L'Aquila, Italy, in 2009. As well as raising legitimate questions about the possible effect of the finding on the willingness of scientists to make predictions about natural disasters, the case has highlighted the importance of effective processes to translate scientific knowledge and evidence into public policy and advice. We continue to take a keen interest in the fate of the scientists involved.

A special thank you to Fellows

In July we wrote to all Fellows and to early and mid-career researchers inviting suggestions for future Theo Murphy (Australia) Fund supported events, and for future Questions and Answers publications. The Academy was delighted to receive a large number of valuable suggestions and proposals in response, and I would like to thank everyone who took the time to respond.

Vale

It is my sad duty to report that in recent months we have lost four friends and colleagues: my condolences go to the families of Professor Gordon Ada AO FAA, Professor Paul Korner AO FAA, Professor Nancy Millis AC MBE FAA FTSE and Professor Rob Sutherland AO FAA. They will be greatly missed.

End of year

Some of this year's biggest projects will be completed in the period between writing this column and publishing the newsletter. Expect a bumper edition of the newsletter in March, when we'll report on our very busy end of year period!

For now, I wish you and yours a peaceful Christmas and a happy, healthy and inspiring new year.

Professor Suzanne Cory AC PresAA FRS

Parliamentary Friends of Science

Federal parliamentarians were recently treated to a private astronomy master class at Parliament House with Nobel Laureate Professor Brian Schmidt, celebrating the launch of the Parliamentary Friends of Science.

The new friendship group was launched in September during the annual *Science Meets Parliament* event organised by Science and Technology Australia. The group unites politicians of all colours from both Houses of Parliament through a common interest in science.

With the assistance of some of his postgraduate students and five generously proportioned telescopes, Professor Schmidt talked the group

through a short history of the Universe and a brief tour of the galaxy.

Parliamentary Friends of Science co-conveners the Hon Richard Marles MP and Karen Andrews MP announced the group's main aims — to enable a meaningful dialogue between scientific leaders and parliamentarians about the science that underpins policy and to inform political debate; to provide a forum for eminent Australian and visiting scientists to engage with parliamentarians; and to provide a mechanism that parliamentarians can use to seek expertise from scientists in relevant disciplines.



Photo: Lorna Sim Photos

Brian Schmidt stargazes on the roof of Parliament House with Karen Andrews and Richard Marles

Meeting with the Minister for Health and Ageing

Academy President Professor Suzanne Cory and the Secretary Science Policy, Professor Bob Williamson AO FAA FRS, met with the Minister for Health and Ageing to discuss the *Strategic review of health and medical research* and the Academy's project *The science of immunisation: questions and answers*.



Health Minister Tanya Plibersek and Suzanne Cory

Honours to Fellows

Australian Museum Eureka Prizes

Professor Suzanne Cory AC PresAA FRS

Awarded the 2012 Eureka Prize for Leadership in Science in recognition of her leadership of the Australian Academy of Science, the Walter and Eliza Hall Institute of Medical Research, and her leadership in research.

Professor Victor Flambaum FAA

Awarded the 2012 Eureka Prize for Scientific Research for his work with colleagues at the University of New South Wales that suggests the laws of physics vary across the cosmos.

Professor Doug Hilton FAA FTSE

Awarded the 2012 Eureka Prize for Outstanding Mentor of Young Researchers in recognition of his support and encouragement provided to young scientists over the past two decades and in particular for his establishment of the highly successful Undergraduate Research Opportunities Program.

Other awards

Professor Chris Goodnow FAA FRS

awarded the 2012 GlaxoSmithKline Award for Research Excellence in recognition of his research that has improved the medical world's understanding of how the immune system distinguishes between healthy body tissue and invading microbes.

Professor Noel Hush AO FAA FRS awarded the 4th Ahmed Zewail Prize in Molecular Sciences in recognition of his contributions to electron transfer processes.

Professor Kurt Lambeck AO FAA FRS

awarded the 2012 Balzan Prize for Solid Earth Sciences in recognition of his findings that have radically modified climate science.

Professor David Lindenmayer FAA

awarded a 2012 Whitley award from the Royal Zoological Society of NSW for contributions to conservation.

Dr Jim Peacock AC FAA FRS FTSE

2012 recipient of the Rabobank Leadership Award in recognition of his outstanding



Kurt Lambeck receives the Balzan Prize from Italian President Giorgio Napolitano. Photo: Balzan Prize Foundation



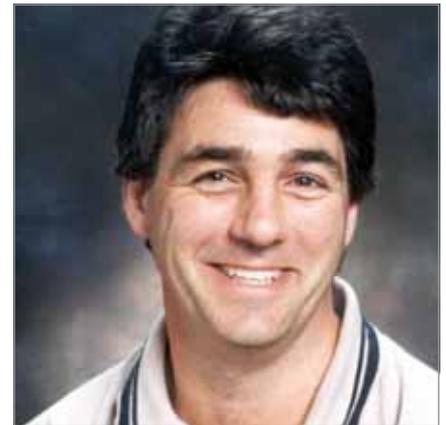
Noel Hush

contribution to the food and agricultural industries.

Professor Marilyn Renfree FAA awarded the 2012 Australia and New Zealand Society for Cell and Developmental Biology President's Medal in recognition of her pioneering research as a developmental biologist in Australia and internationally.

Street name commemorates Academy astronomer

In the new Canberra suburb of Casey, the streets are named after diplomats, public servants and administrators. One of them, Hogg Street, was named in October this year in honour of the astronomer and public servant **Dr Arthur Robert Hogg** FAA (1903–66).



David Lindenmayer

Dr Hogg worked at Mount Stromlo Observatory from 1929 until 1966, apart from war service at the Munitions Supply Laboratories. He was elected to the Australian Academy of Science in 1954, and at the time of his death was acting director of Mount Stromlo Observatory. His scientific expertise covered Magellanic clouds, cosmic rays and the use of aluminising telescope mirrors. It was Dr Hogg's suggestion that a piece of the north pier of the Great Melbourne Telescope be used as the foundation stone of the Shine Dome. It was also his investigations and advice which led to the siting of the Anglo-Australian 150-inch (3.8 m) telescope at Siding Spring Observatory. 🌄

2012 Haddon Forrester King Medal

In October the 2012 Haddon Forrester King Medal was presented jointly to Professor Anthony Naldrett and Dr Shunso Ishihara. Professor Naldrett is University Professor Emeritus at the University of Toronto, Honorary Professor in the School of Geosciences, University of the Witwatersrand, South Africa, and an Honorary Research Fellow of the Natural History Museum, London. Dr Shunso Ishihara is Scientific Adviser and former Director of the Geological Survey of Japan.

The President of the Australian Academy of Science Professor Suzanne Cory AC PresAA FRS hosted a celebratory black tie

dinner at the Shine Dome, Canberra, on 19 October, where she awarded both medals. Those attending heard the recipients speak about the highlights of their life's work.

The Haddon Forrester King Medal is made to scientists for original and sustained contributions to earth and related sciences. The award is for work of particular relevance to the discovery, evaluation and exploitation of mineral deposits, including the hydrocarbons.

From his research on magnetite-series and ilmenite-series granitic rocks in

Japan, **Dr Shunso Ishihara** established in 1971 that the degree of oxidation of a granite magma may be related to geographic location, with important implications for the associated mineralisation. His recognition of oxidised and reduced granites was fundamental to the development of an understanding of the relationship between the oxygen fugacity of both magmas and the magmatic volatile phase, and mineralisation. The magnetite-ilmenite scheme remains the basic scheme for the metallogenic classification of granites.

Distinguished geologist **Professor Anthony Naldrett** has made a lifetime contribution to the understanding of orthomagmatic Ni-Cu-PGE sulfide deposits of all types. He has played a key role in the elucidation of almost all the fundamental geological processes associated with this type of deposit. He was the first western researcher to obtain access to the giant Noril'sk and Jinchuan deposits in Russia and China.

After receiving their medals Dr Ishihara spoke on 'Discovery and modern relevance of the magnetite-series and ilmenite-series granitoids', and Professor Naldrett spoke on 'Evolution in our thinking about magmatic sulfide deposits over the past 50 years'.

Mr Gerard Rheinberger, Exploration Director, Rio Tinto, concluded the dinner with an appreciation of the work of both recipients, from an industry perspective. ▲



Suzanne Cory awards the Haddon Forrester King Medal to Shunso Ishihara

Visit by Corresponding Member

During his recent visit to Australia, Sir David Attenborough made time in his hectic schedule to sign the Charter Book and share lunch with a small group of Fellows and invited guests in the Karagheusian Room of University House, University of Melbourne.

Sir David was invited by Council to be a Corresponding Member of the Academy in 2007, in recognition of his outstanding contributions over more than 50 years to the promotion of science and science education through the writing, narrating and presentation of highly regarded

nature documentaries. Many scenes in these documentaries have been made in collaboration with research scientists, including those in Australia.

The Academy invited Sir David's daughter Susan, who was travelling with him, and his son Robert, a long-term resident of Canberra, to attend the lunch and celebrate the signing of the Charter Book. There were plenty of opportunities for discussion with Sir David, who showed a great interest in the Academy's education programs, particularly *Primary Connections*. ▲



David Attenborough signs the Charter Book

The 2012 Ian Wark Medal and Lecture for applied research

On 11 September 2012, the 2012 Ian Wark Medal and Lecture was awarded to Professor Kevin Galvin at a gala dinner at University House, Australian National University, Canberra. Professor Chennupati Jagadish, Vice President of the Academy, awarded the medal. Professor Kevin Galvin is a world leader in the separation of particles on the basis of size and density in fluidised beds, and the motion of particles near inclined surfaces.

After receiving his medal Professor Galvin gave a lecture entitled 'Why the old adage, "publish or perish", is no longer enough', drawing on his experience in getting the reflux classifier developed and funded by industry, to emphasise the importance of links between industry and scientific research.

Professor Galvin is recognised by both the academic and industrial worlds for his outstanding contributions to the field of

gravity separation. His major research and development collaboration with Ludowici Australia has produced a definitive description of the complex physical processes involved in separations. This provides a basis for applying the technology in the design of a broad range of applications. He leads a number of current projects funded by the Australian Research Council, Australian Coal Association Research Program, and other industrial collaborating partners.

His work on fluidised beds and inclined sedimentation has resulted in the development of the reflux classifier, high throughput fluidised bed technology that has significantly influenced industrial gravity separation processes for the beneficiation of coal and dense minerals. The reflux classifier consists of a novel fluidised bed incorporating a system of parallel inclined channels. With closely spaced inclined channels, shear-induced inertial lift conveys relatively low-density particles with the fluid flow, while the denser particles sink and slide down the inclined surfaces. Professor Galvin has conducted fundamental studies of the separation and transport of particles through inclined channels, and of the particle lift force and other mechanisms of particle resuspension. ▲



Chennupati Jagadish congratulates Kevin Galvin on the Ian Wark Medal

Interviews with Australian Scientists

The *Interviews with Australian Scientists* pages on the Academy website have attracted more than 100 000 visitors in the past 12 months, clearly demonstrating the popularity of the program.

Nobel Laureate and Corresponding Member **Professor Elizabeth Blackburn AC FAA FRS** kindly agreed to be filmed for the *Interviews* program during her recent visit to Australia for the 'Hooked on Science' tour, aimed at encouraging secondary students to take up science. Professor Blackburn was interviewed on 21 June 2012 while she was in Canberra. Her interviewer, Professor Julie Campbell AO FAA, was herself a subject of the interview program. A schoolgirl from

Tasmania, Professor Blackburn went on to win the Nobel Prize in Medicine or Physiology in 2009 and introduced a new word — telomerase — into the English language.

We posted the completed interview with **Dame Bridget Ogilvie AC FAA FRS** in conversation with Professor Robyn Williams on the Academy website in October 2012. It describes how she went from a solitary childhood pondering farm parasitology to receiving 24 honorary doctorates! www.science.org.au/scientists/interviews/o/bo.html

Interviews with Professor Mandyam (Srini) Srinivasan FAA FRS and Professor Geoffrey Burnstock FAA FRS will be posted on the website in coming months. ▲



Julie Campbell with Elizabeth Blackburn after filming her interview

Science Pathways: Getting Science on the National Agenda

The Academy's Early–Mid Career Researcher (EMCR) Forum held its first national meeting, Science Pathways: Getting Science on the National Agenda, at the Shine Dome in Canberra on 24–25 September 2012. The program is available at www.science.org.au/ecr/emcr/documents/SciencePathwaysProgram.pdf.

The meeting was proudly supported by Monash University, CSIRO, Elsevier and many other universities and organisations. Minister Bill Shorten, Minister Tanya Plibersek, Mr Adam Bandt MP, Mr Allan Griffin MP, Ms Amanda Rishworth MP, Ms Karen Andrew MP, Mr Ian Macfarlane MP, Ms Sophie Mirabella MP and Dr Sharman Stone MP sent letters of support.

The event was a great success with 137 delegates attending, mostly EMCRs (115 PhD students, postdoctoral fellows and junior group leaders) but also Fellows of the Academy and government and industry representatives. All of the meeting's sessions were very well received. In particular, early and mid career researchers were excited to participate in active discussions about new ideas that could help shape the future of Australian science.

The Academy's Secretary Science Policy, Professor Bob Williamson, welcomed all delegates and included a greeting from the Academy's President, Professor Suzanne Cory. The Chief Scientist Professor Ian Chubb ^{AC} officially opened the meeting and Professor Brian Schmidt delivered the inaugural Chuwen Keynote address in honour of founding Forum member, Dr Ben Chuwen.

As well as presentations, panel discussions and group work, the meeting included three professional development sessions. These covered best practice in training and development and gender equity policies; a career hotspot on professional opportunities available to young scientists; and an education session on policy development and implementation.

The three major imperatives identified were improvements in career structure and funding; better coordination of all Australian EMCRs; and an Australian EMCR web resource/information hub/discussion



The Chief Scientist opens the forum

forum to be initiated by the Academy's national EMCR Forum.

Clear short-term, mid-term and long-term action plans for the next 12 months aim to address these issues. These include establishing early and mid career researcher networks in each state (those in Victoria and the Australian Capital Territory are already underway); drafting

a publication for submission to the newly established Parliamentary Friends of Science and other leaders in government, research, business, industry and education; and hosting a second national meeting in 2013, Science Pathways: Getting Early–Mid Career Researchers Engaged with Industry. ▲

A ROYAL MESSAGE

Earlier this year the Private Secretary to His Royal Highness the Prince of Wales wrote to Professor Suzanne Cory about some of the Prince's upcoming charitable activities in Australia. In that letter, Professor Cory was asked to convey Prince Charles's greetings to the Fellowship of the Academy:

The Prince of Wales ... has asked me to extend to you and to all the Fellows and Members of the Australian Academy of Science his warmest good wishes.

Prince Charles last visited the Academy in 1979, when he was inducted as a Royal Fellow of the Academy, the climax of three weeks of exhibitions, symposiums, public lectures and films to celebrate the silver jubilee of the Academy's foundation.



PUBLIC LECTURE SERIES 2013

The 2013 public lecture series on *Australian science: global impact* will be chaired by Nobel Laureate Professor Brian Schmidt. The first lecture in the series is on Tuesday 5 February 2013 with Professor Suzanne Cory speaking on lymphoma research — harnessing death for life.

Primary Connections director receives 2012 Purkwa Prize

On 11 October 2012 Ms Shelley Peers, Director of *Primary Connections*, received the prestigious Purkwa Prize at the Palais de la Decouverte — Universcience in Paris. The 20 000 Euro Purkwa Prize is a Grand Prize of the French Academy of Sciences in memory of the winner of the 1992 Nobel Prize in Physics, Georges

Photo: Casino Foundation



Shelley Peers

Charpak (1924–2010), and is funded by the Casino Foundation.

The phonetic spelling of the name of the prize reflects the French 'pourquoi' (meaning 'why'), respecting the will of the founder. Professor Charpak established the prize in 2005 to promote and develop innovative teaching that develops questioning and curiosity and promotes scientific literacy. It is an international award for educators who have introduced innovative methods in science education.

Shelley, a former medical biochemist, became a primary school teacher in the 1980s and then science education officer for the Queensland Studies Authority. In 2001 she completed a Master of Education (Research) at Queensland University of Technology, studying the professional growth of teachers. Her passion for teaching science in primary school has led to many roles, publications, and presentations both nationally and internationally. She has been Director of *Primary Connections* since 2005.

In that time, *Primary Connections* has been one of Australia's fastest growing education programs, winning several awards along the way. With more than 20 research reports attesting to its impact, the program is really making a difference for teachers and students.

There are now 10 distinguished Purkwa laureates from around the world — as well as Australia, they come from the United States, China, Colombia, Chile, Mexico, Serbia, Great Britain, France and Morocco.

Exciting new science for Australian primary schools

Primary Connections released 10 new units in October, building on the existing 17 units to support teachers and help them take children on a fun and interactive learning journey.

The new units are:

- Foundation
 - *What's it made of?*
 - *On the move*
- Year 1
 - *Schoolyard safari*
 - *Look! Listen!*
- Year 2
 - *Water works*
- Year 4
 - *Plants in action*
 - *Package it better*
 - *Material world*
- Year 5
 - *Desert survivors*
 - *Light shows*
 - *What's the matter?*
- Year 6
 - *Marvellous micro-organisms*
 - *It's electrifying*
 - *Change detectives*

Primary Connections units are warehoused and distributed by Abacus Educational Suppliers.

More information about *Primary Connections* is available at www.science.org.au/primaryconnections/. ▲

Feature Fellow

To showcase the outstanding scientists who are Fellows of the Academy, a new *Feature Fellow* page was recently launched on the Academy website at www.science.org.au/fellows/feature-fellow/. Fellows will be asked to answer five questions designed to sum up their career highlights and inspirations. They will be selected by working alternately from either end of the alphabet — the first Fellow to be featured is Professor Brian Anderson AO FAA FRS FTSE. The page can be accessed from the home page carousel or from the news page, and will be publicised by social media.



Science by Doing

The future is looking good

With funding from the government, the future of *Science by Doing* is looking good. The goal of *Science by Doing* is to improve science learning for year 7 to 10 students by engaging them with science using an inquiry-based approach. This is done by supporting the professional learning of school-based science teaching teams with curriculum and professional learning resources. The basis for these award winning resources was established in stage one, and now with further funding will be extended in stages two and three.

Stage One 2009–11

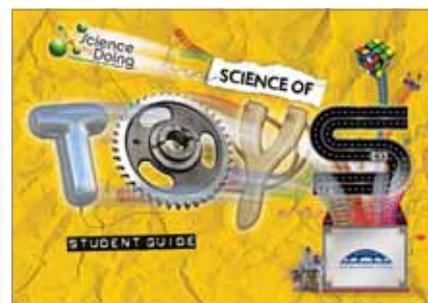
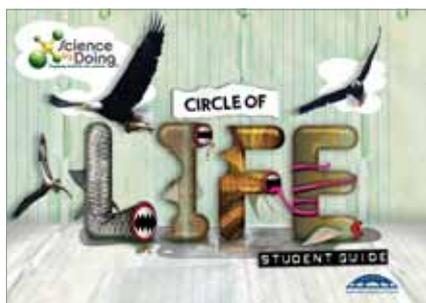
Developed professional learning approach, five professional learning modules and initial curriculum resources.

Stage Two 2012–13

Developing seven new curriculum units and transporting the existing curriculum resources for online delivery so that all schools can freely access them.

Stage Three 2013–16

Complete final eight curriculum units plus new professional learning modules for online delivery. *Science by Doing* will be implemented through partnerships with states and territories.



year 7	The circle of life	Enough water fit for drinking	The science of toys	Earth and space
year 8	From little things big things grow	Rock, paper, scissors	Energy	Rock your world
year 9	Ecosystems and change	Chemical reactions	Light, sound, action	Plate tectonics
year 10	Evolution and heredity	Chemical patterns	Motion and energy transfer	Systems on the big scale

■ stage one (completed) ■ stage two ■ stage three

In all, we will create 16 curriculum units for years 7 to 10 (see table). The student and teacher guides for these units will be freely available through the Academy website.

During the first two terms of 2013 the new curriculum units will be trialled in selected Australian schools, to field

test the quality of the units and the functionality of online delivery. After this the units will be revised, with the expectation that the units will be available to schools from July 2013 through the Academy website, as open source resources. ▲

Journey out and about in the Universe



Richard de Grijis with Michael Dopita and audience members at the Shine Dome

A packed Shine Dome audience took a journey through the immensity of the Universe with Professor Richard de Grijis from Peking University, the Academy's 2012 Selby Fellow. Professor de Grijis used recent images, animations and results, informed by his own research to traverse through the cosmos, starting from planet Earth to the nearest stars, our Milky Way galaxy, and beyond to the edge of the observable Universe in just 26 steps. Professor de Grijis delivered lectures in most capital cities in Australia as part of the Selby tour. The Selby Fellowship is financed through the generosity of the trustees of the Selby Scientific Foundation.

His presentation at the Shine Dome can be viewed at www.science.org.au/events/lectures-and-speeches/deGrijis.html. ▲

International news

Association of Academies and Societies of Sciences in Asia (AASSA)

Since 2010 the Academy has hosted the secretariat of the Federation of Asian Scientific Academies and Societies

(FASAS), with Professor Kurt Lambeck as the federation's elected President.

For the last two years, and at the urging of the InterAcademy Panel (the global network of science academies), FASAS and the Association of Academies of Sciences in Asia (AASSA) have been

holding discussions on merging the two organisations into a single Asian science grouping in order to be more visible and effective in the region and to tackle the challenges whose long-term resolution requires science-based advice.

The result is the new Association of Academies and Societies of Sciences in Asia (AASSA), formally launched on 18 October 2012 in Colombo, Sri Lanka, at its inaugural general assembly during a special four-day event organised by the National Academy of Sciences of Sri Lanka.

Professor Jenny Graves AO FAA was elected member-at-large of the AASSA Executive Board. Professor Lambeck will hold the position of Immediate Past President for one year. Others elected to the executive board were from Bangladesh, China, India, Korea, Malaysia, Russia, and Turkey.

Australia–Japan Joint Science & Technology Committee meeting

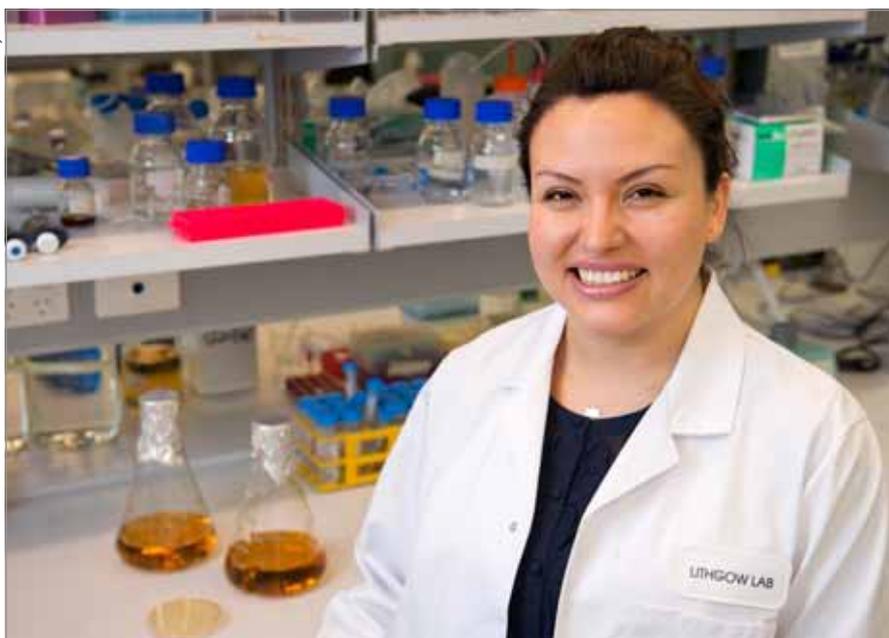
The 14th Australia–Japan Joint Science & Technology Committee meeting organised by the Department of Innovation, Industry, Science, Research and Tertiary Education (DIISRTE) and the Japanese Ministry of Education, Culture, Sports, Science and Technology was held on 23–24 August 2012 in Tokyo.

DIISRTE invited Ms Nancy Pritchard, the Academy's Manager of International Programs, to be part of the Australian delegation and to give a presentation on the Academy's exchange programs with the Japan Society for the Promotion of Science that date back to 1977.

This high-level bilateral government meeting with Japan was an opportunity to update key policy information in science and research between the two governments, and to reaffirm the importance and value Australia sees in its science and technology relationship with Japan. The meeting agreed with Japanese initiatives to increase bilateral collaboration, including the continuation of the exchange program with the Japan Society for the Promotion of Science.

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Photo: Denisse Leyton



BEDE MORRIS FELLOWSHIP

The Bede Morris Fellowship is supported by the family and friends of Professor Bede Morris FAA, in honour of Professor Morris's contribution to immunology and Australia–France relations. This award supports one outstanding scientist to travel to France each year to undertake research.

Dr Denisse Leyton from Monash University was selected as the 2012 recipient and travelled to France for two and a half months from October to work with Dr Olivera Francetic at the Institut Pasteur on structural and functional insights into the assembly of type IV pili from enterohaemorrhagic *Escherichia coli*.

AUSTRALIA–INDIA EARLY CAREER AND SENIOR VISITING FELLOWSHIPS

In June 2012 the Australian Academy of Science invited applications from Australian researchers for the Australia–India Early Career and Senior Visiting Fellowships. The fellowships aim to increase the uptake of leading-edge science and technology and facilitate Australia's access to the global science and technology system by supporting bilateral relations with India.

Sixteen early career and 33 senior visiting fellowships were awarded to Australian researchers in October 2012, following an announcement by the Prime Minister during a state visit to India on 15–17 October.

The full list of successful applicants is available on the Academy's website at www.science.org.au/internat/asia/index.html.

Meeting of the global network of science academies

The Academy's Foreign Secretary Professor Andrew Holmes AM FAA FRS FTSE attended the executive committee meeting of the InterAcademy Panel in Kuala Lumpur, Malaysia, on 15–17 October 2011. The meeting considered issues including memberships, funding affiliated network grant applications, project applications, publications and communications, and policy activities.

The executive committee also considered and accepted the Academy's expression of interest to host the Panel's executive committee meeting in Canberra in October 2013.

The Academy has been a member of the Panel since 1992, and has served on the executive committee for two four-year terms. The Academy's term on the executive will come to an end in February 2013.

Chinese Academy of Sciences Forum of National Academies

On 18 September 2012 Academy President Professor Suzanne Cory attended a session of the general conference of the Academy of Sciences for Developing Countries in Tianjin, China, by invitation of the President of the Chinese Academy of Sciences, Professor Chunli Bai. Professor Cory gave a speech on 'The role of the Australian Academy of Science in promoting innovation through science policy' at the forum 'National Academies and Open Innovation'. The Chinese Academy invited ten other academies of science to talk about the roles of national academies in promoting national innovation and in enhancing global science and technology and innovation cooperation.

Two thousand researchers from China and many other countries around the

world attended the forum, which was opened by the President of China, Mr Hu Jintao. President Hu noted that science

and technology are important driving forces behind economic prosperity, social development and human civilisation. ▲

EUROPEAN RESEARCH GRANTS

The Australian Academy of Science has received funding of \$170 000 from the Department of Innovation, Industry, Science, Research and Tertiary Education to deliver the project 'Australian participation in European Cooperation in the field of Scientific and Technical Research', or 'COST' for short.

Australian researchers travelling to Europe between July 2012 and June 2013 may receive a grant in aid of up to A\$5000 to undertake a short term scientific mission of COST and/or to attend a workshop or meeting of COST.

Applications are assessed on a first-come first-serve basis. Applicants must be a member of a COST Action before applying for funding from the Academy.

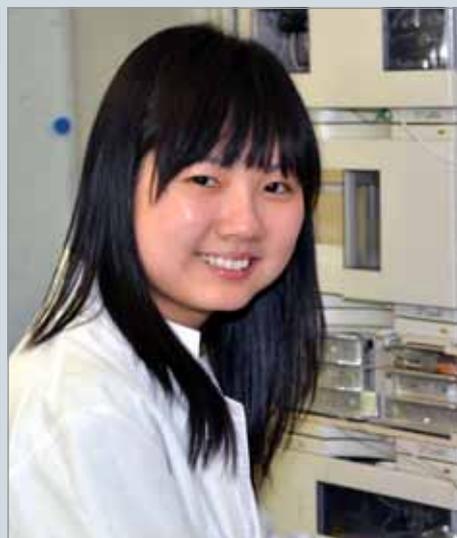
www.science.org.au/internet/europe/cost.html

ROD RICKARDS FELLOWSHIP

The Rod Rickards Fellowships were established in 2009 by the family of Professor Rod Rickards FAA in memory of Professor Rickards' important contributions to Australian science through his outstanding achievements in the chemistry of compounds of medical, biological, agricultural and veterinary importance. The award provides funding for a researcher to travel to Europe to undertake research in the area of chemistry or biology.

Dr Kathryn Holt (below left) from the University of Melbourne is one of the 2012 recipients of this fellowship. She conducted research on superbugs in the food chain, and the global spread of highly drug-resistant *Salmonella*, at the Institut Pasteur with Dr François-Xavier Weill during September 2012.

As joint recipient of the fellowship, in September – November 2012 **Dr Jennifer Koh** (below right) from the University of Technology Sydney visited Dr Pierre Escoubas at VenomeTech in France to conduct research on developing peptide toxins as therapeutics and biopesticides.



Photos: Holt: University of Melbourne; Koh: University of Technology Sydney

News from National Committees

Astronomy

Chair: Professor Elaine Sadler^{FAA}

Committee member Professor John Dickey and the Chair were Australia's joint national representatives at the International Astronomical Union's XXVIII General Assembly in Beijing on 20–31 August this year.

There were eight major scientific symposiums at this large and very successful meeting of more than 3000 astronomers, including over 100 Australians. Chinese Vice-President Xi Jinping spoke at the opening ceremony and met privately with a small group of astronomers including Professor Ron Ekers^{FAA FRS} and committee member Professor Brian Schmidt. Committee member Professor Matthew Colless^{FAA} was appointed to a second term as Vice-President of the International Astronomical Union

Earth Sciences

Chair: Professor Brian Kennett^{FAA FRS}

After more than eight years of planning, the 34th International Geological Congress of the International Union of Geological Sciences in Brisbane on 5–10 August 2012 was an outstanding success. It attracted 6012 delegates from 112 countries, and was the largest geoscience event ever held in the southern hemisphere, with more than 3700 talks and almost 1500

poster presentations. Australia welcomed the election of Dr Ian Lambert as Secretary-General of the Union (2012–16). Other meetings at the congress venue included the second World Young Earth Scientist meeting (www.networkyes.org/).

Collaborative funding arrangements for travel meant that the IGC GeoHost Program provided some \$A1.6 million for travel by geoscientists from developing countries. Funding from mainly Australian sources, especially AusAID (the Australian Agency for International Development) allowed delegates to attend technical training workshops and then to attend the congress.

Earth System Science

Chair: Dr Roger Gifford

The committee met at the Academy on 15 August 2012 to discuss implementation of the recommendations of the report *To live within Earth's limits*. Meetings have since been arranged with Chief Scientist Professor Ian Chubb and Professor Aidan Byrne (CEO, ARC) to discuss opportunities for improving the potential for highly multidisciplinary research in Earth system science.

In September, the Chair spoke to audiences at Shanxi University and Taiyaun Normal University in Shanxi Province, China, on establishing a discipline of Earth system science in Australia.

History and Philosophy of Science

Chair: Professor Rachel Ankeny

The committee met at the University of Sydney on 26 September 2012, in conjunction with the workshop *History and Philosophy in Australia: Looking Forward*, which was organised by the committee with support from the Australian Academy of Science and the Sydney Centre for the Foundations of Science.

The invitation-only workshop of about 60 Australian history and philosophy of science scholars opened with a public keynote address by Professor James Griesemer, University of California Davis. Sessions focused on early modern science, methods in history of science, history of medicine and biology, activism and science and technology studies, philosophy of physics and philosophy of biology.

The committee is reviewing submissions for its biennial student essay prize in the history of Australian science or environmental history, organised and funded by the Academy (through the committee) and the National Museum of Australia.

Mathematical Sciences

Chair: Professor Nalini Joshi^{FAA}

Support for the Decadal Plan for the Mathematical Sciences continues to grow, and already includes funding of more than \$100 000 from national organisations and university departments of mathematical sciences. Its steering committee consists of chairs of subcommittees and the members of the executive group, as well as Drs Jan Thomas and Anthony Henderson and Professor Marilyn Goos. Workshops around Australia will seek feedback. The steering committee's subcommittees (with 43 invited members so far) include one looking at Australian mathematics from an international viewpoint, chaired by Professor Terry Tao^{FAA} from UCLA. A website for the plan will be linked to the committee's web page at www.science.org.au/natcoms/nc-maths.html.

Photo: IAU/CNCC



Performance showing the Chinese Long Ribbon Dance during the opening ceremony of the IAU General Assembly 2012 in Beijing, China

...continues on page 13

Mechanical Sciences

Chair: Professor Ivan Marusic

The new Chair welcomed five new committee members at its meeting on 16 October 2012 at the Academy, where Professor Mark Bradford FTSE accepted the role of Deputy Chair. Planned initiatives include a fundraising campaign to establish a new award for early career researchers.

The committee heard reports on the 13th World Congress and 12th General Assembly of the International Federation for the Promotion of Mechanism and Machine Science in Guanajuato, Mexico, in June 2011, and the General Assembly and International Congress of the International Union of Theoretical and Applied Mechanics, in Beijing in August 2012.

Plant and Animal Sciences

Chair: Professor Roger Leigh

The committee met at the Academy on 10 August 2012 to discuss initial planning for a decadal plan on agricultural sciences (the first planning workshop will be at the Academy in December 2012).

The committee also discussed the Australian Government's National Food Plan green paper (www.daff.gov.au/nationalfoodplan/process-to-develop/green-paper) and submitted a response, which is available at www.science.org.au/natcoms/documents/SubmissionNationalFoodPlanGreenPaper.pdf.

Space Science

Chair: Professor Russell Boyce

The National Committee for Space Science met at the Academy on 9 August 2012 with representatives from government and industry.

The 12th Australian Space Science Conference was held at RMIT University on 24–26 September 2012. The conference was jointly sponsored and organised by the committee and the National Space Society of Australia. It covered fundamental and applied research that applies to space technologies, including space science,

space engineering, space industry, space archaeology, government, international relations and law and education and outreach.

More information on the conference is available at www.nssa.com.au/ocs/index.php?cf=14. ▲

Crystallography

Chair: Emeritus Professor Mitchell Guss

A very successful Aperiodic 2012, the seventh International Conference on Aperiodic Crystals, was held in Cairns in September, organised by Professor Ray Withers FAA and Dr Siegbert Schmid under the auspices of the Commission on Aperiodic Crystals of the International Union of Crystallography. Among the 110 delegates from 23 countries was the winner of the 2011 Nobel Prize for Chemistry, Professor Dan Shechtman from Israel, who gave a special Nobel lecture.

A workshop on methods for the study of membrane proteins, organised by past committee Chair Professor Jenny Martin, Dr Daniella Stock and Dr Jacqui Gulbis was held on Heron Island in September with 63 participants.

The 15th International Small-Angle Scattering Conference in Sydney in November is important for Australia, given the recent construction of new small angle scattering instruments for neutrons at the OPAL reactor at ANSTO and for X-rays at the Australian synchrotron. The joint Society for Crystallography in Australia and New Zealand/Asian Crystallographic Association meeting and a special symposium to celebrate the 100th anniversary of WL Bragg's publication of the law of X-ray diffraction that bears his name were held in Adelaide in December, and co-sponsored by the Academy through the committee. The Chair is a member of the Executive Committee of the International Union of Crystallography, which also met in Adelaide, on 4–5 December.

On July 3 this year the General Assembly of the United Nations adopted a resolution sponsored by the Kingdom of Morocco and co-sponsored by Australia that designated 2014 the International Year of Crystallography. As a result of an initiative by the committee, Australia Post released a set of five stamps on 28 August 2012 celebrating Australia's first Nobel laureates. Among these is William Bragg, the pioneer of crystal structure analysis, who won the physics prize with his father in 1915 at the age of 25, and is still the youngest ever winner.

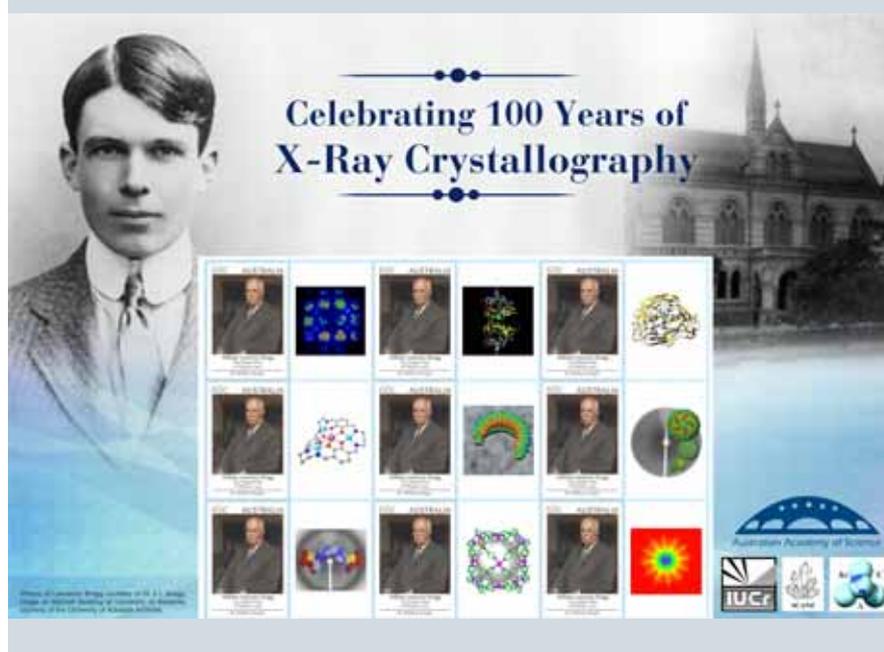


Image: © Australia Post

Exploring the radio continuum Universe with SKA pathfinders

The Square Kilometre Array (SKA) is an international two billion dollar project to develop the most advanced radio telescope in the world with a collecting area of one square kilometre, orders of magnitude larger than the current most sensitive radio telescopes. The SKA will address such fundamental questions as 'When did the first stars and galaxies form?' and 'What are dark energy and dark matter?', and will provide the definitive tests of Einstein's general relativity around black holes. Construction of the first phase of the SKA is due to start in 2016, with the first operations in 2020.

On 30 May – 1 June 2012 more than 40 people attended an Australian Academy of Science Elizabeth and Frederick White

Conference at CSIRO Astronomy and Space Science in Marsfield, Sydney. The conference was the second meeting of the SKA Pathfinders Radio Continuum Surveys (SPARCS) working group, which reports to the SKA project scientist. At the meeting there was a balance of high quality presentations and constructive discussions from representatives of the SKA pathfinder groups. The forum aimed to coordinate the radio continuum surveys of the groups in a project which heralds the beginning of a second 'golden age' of radio astronomy.

Given the recent SKA dual-site decision, the importance of MeerKAT (the South African pathfinder), the Australian SKA Pathfinder and the Murchison Widefield

Array (the two Australian pathfinders) is now greater than ever. There are challenges in proceeding from independent projects to being part of the SKA, and in processing and making use of the data from the pathfinders, but these are challenges that the SPARCS group relishes. The group also acknowledged that continuum observations are just one facet of radio surveys as continuum information is vital for spectral line, polarisation and time domain surveys, and there is a large scope for commensality between different types of surveys. The 3rd SPARCS meeting will be held in 2013, possibly in South Africa or Calgary. ▲

COMING EVENTS

Australian science: global impact public lecture series

Shine Dome, Canberra

5 February

Professor Suzanne Cory

Internationally recognised molecular biologist and President of the Australian Academy of Science, Professor Cory will describe how her cancer research has led to the development of an exciting new class of cancer drugs, currently being trialled in the clinic.

5 March

Professor Brian Schmidt

Winner of the 2011 Nobel Prize in Physics, Professor Schmidt will speak about his discovery of dark energy, and explain why the expansion of the Universe is accelerating.

2 April

Professor Jenny Graves

Renowned geneticist and Academy Secretary Education and Public Awareness, Professor Graves will describe how the map of the marsupial genome is unlocking genetic secrets with deep implications for human health.

CAPTURING THE FABRIC OF THE UNIVERSE

Art and science have long been linked. Though the challenge to find visual ways of representing scientific achievement has changed dramatically in recent decades, modern digital technology can open up possibilities for artists as well as scientists.

Valerie Kirk is Head of Textiles at the Australian National University's School of Art in Canberra. Her tapestries referencing three Nobel

Laureates and one based on the work of the late Professor Frank Fenner AC FAA FRS already hang in the Australian National University. In 2012 she received an Arts ACT Creative Arts fellowship for her present project, a tapestry on the work of a fourth Nobel Laureate, astrophysicist Professor Brian Schmidt. Valerie is using a digital image of the Universe from the Hubble Space Telescope to weave her tapestry.



Valerie Kirk and her tapestry Universe

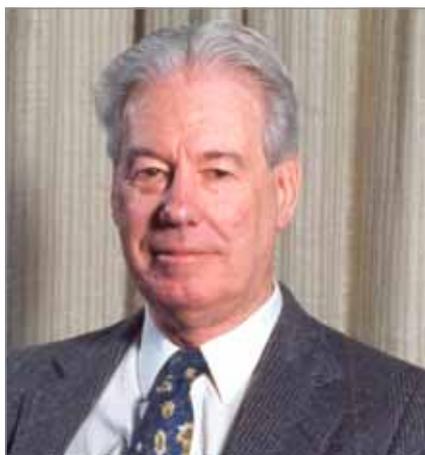
Gordon Ada

Gordon Leslie Ada (b Sydney 6 December 1922, d Canberra 25 September 2012) was educated at the University of Sydney (BSc Hons 1943, MSc 1946, and DSc 1959). He worked at the National Institute for Medical Research in London before joining the Walter and Eliza Hall Institute, where he led crucial experiments that confirmed the clonal selection theory (including the 'hot-antigen suicide' experiment). In 1968 he became head of the Department of Microbiology at the John Curtin School of Medical Research (JCSMR), Australian National University, where his interest in international health developed. Seeking to combine virology and immunology, he established a team of two young scientists to work on immune recognition of viruses. The spectacular success of Professors Peter Doherty *AC FAA FRS* and Rolf Zinkernagel *AC FAA*, who discovered major histocompatibility complex restriction, led to their Nobel Prize in 1996. Gordon also significantly contributed to the development of a vaccine for HIV as scientific advisor for the Australian–Thai HIV vaccine consortium.

He worked with the World Health Organization, retired as an emeritus professor from JCSMR in 1987, and spent three years as director of the Centre for AIDS Research, Johns Hopkins School of Hygiene and Public Health. He became a visiting fellow in immunology at JCSMR on his return to Australia.

Gordon was elected as a Fellow of the Australian Academy of Science in 1964 and served two terms on the Council (1972–75, vice-president 1974–75; and foreign secretary 1977–81). He was awarded an AO in 1993, made an Honorary Member of the Australian Society for Biochemistry and Molecular Biology in 1999, and was elected to the Johns Hopkins University Society of Scholars in 2001.

Gordon served his profession as a foundation member of both the Australian Society for Immunology (of which he was president in 1975–76) and the then Australian Biochemical Society (president in 1966–67). He also served on the editorial boards of six immunological journals, the Science Advisory Committee



Gordon Ada

of the Australian Broadcasting Commission (1981–83) and the Consultative Committee on Research and Development of the Australian Development Assistance Bureau.

In 1946 Gordon married Jean MacPherson, who died in 2001. He is survived by his children Ian, Andrew, Louise and Neil, six grandchildren and two great-grandchildren.

Based on an obituary by Gus Nossal

Paul Korner

Paul Ivan Korner (b Moravská Ostrava, Czechoslovakia 18 November 1925, d Sydney 3 October 2012) was educated at the University of Sydney (BSc 1946, MSc 1947, MBBS 1951, MD 1956). He was a National Health and Medical Research Council junior research fellow at the Kanematsu Memorial Institute of Pathology (1952–53) and an overseas research fellow with the Life Insurance Medical Research Fund of Australia and New Zealand (1954–56). From 1956 to 1959 he was a senior lecturer in physiology at the University of Sydney, and then associate professor of cardiopulmonary physiology (1959–1960). He was foundation professor of physiology at the University of New South Wales (1960–68) which he left to return to the University of Sydney as Scandrett Professor of Cardiology and head of the Hallstrom Institute of Cardiology at the Royal Prince Alfred Hospital.

In 1975 he became professor of medicine at Monash University and director of Melbourne's Baker Medical Research



Paul Korner

Institute, positions he held until 1990. During his directorship the institute became Australia's first institute dedicated entirely to cardiovascular research, and earned an international reputation for research on hypertension and atherosclerosis. He established a free heart risk reduction clinic and a lipid clinic as well as expanding the hypertension evaluation clinic. From 1987 to 1990 he was also president and chairman of the Board of Management of Amalgamated Alfred, Caulfield and Royal Southern Memorial Hospitals.

Paul's research in many fields focused on understanding circulatory control to gain insights into the pathogenesis and rational treatment of cardiovascular diseases, particularly hypertension. His contributions spanned the role of the autonomic nervous system both in the brain and in the periphery, baroreceptor and chemoreceptor reflexes, structural changes and the vascular amplifier, and auto regulatory control theory. His definitive book *Essential hypertension and its causes* was published in 2007.

Paul was elected as a Fellow of the Australian Academy of Science in 1974 and served on the Council from 1979 to 1982 (vice-president 1981–82). Other honours included the Edgeworth David Medal of the Royal Society of New South Wales (1958), RT Hall Prize, Cardiac Society of Australia and New Zealand (1970), Franz Volhard Award, International Society of Hypertension (1982), an Advance Australia Award for services to medical research in 1989 and Officer of the Order

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of Australia in 1990. The week he died he was due to receive the Medal for Outstanding Achievement from the International Society for Hypertension. In addition the Victor Chang Institute holds weekly Paul Korner Seminars and the Baker IDI Heart and Diabetes Institute has established the Paul Korner Medal for outstanding student achievement.

He is survived by his wife Jennifer, children Nicholas, Anthony and Harriet, and grandchildren Mauricio, John, Brayan, Tom, Daniel and Paul.

Based on an obituary by John Chalmers, James Angus and Garry Jennings

Nancy Millis

Nancy Fannie Millis (b Melbourne 10 April 1921, d there 29 September 2012) was educated at the University of Melbourne (BAgrSc 1945, MAgrSc 1946, Honorary DSc 1993, HonLLD) and Bristol University as a Boots Scholar (PhD 1952). Nancy's doctoral research was on the fermentation of cider and she continued her interest in applied microbiology, setting up a course at the University of Melbourne.

On her return to Australia she had hoped to work for Carlton United Brewery, but at that time they did not employ women in their laboratories. She became a lecturer in microbiology at the University of Melbourne in 1952 and professor of microbiology in 1982, retiring in 1988 as an emeritus professor. She was chancellor of La Trobe University from 1992 to 2006. When she retired from this role, the University awarded her an honorary DSc. Her significant contribution was also recognised by the annual Millis science lecture series, the naming of a major research building at the Albury–Wodonga campus after her, and by the Nancy Millis Room in the student union on the Melbourne campus.

Nancy's study of the management of moulds led to one of the first textbooks on biochemical engineering, where the principles for managing large-scale fermentations were set out. A species of bacteria, *Millisia brevis*, was named after her.

In 2004 Nancy was elected to the Australian Academy of Science, and to



Nancy Millis

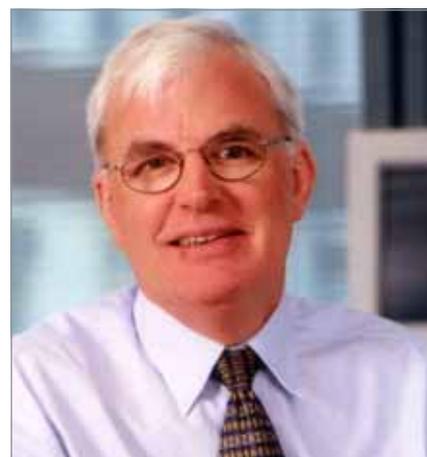
the Australian Academy of Technological Sciences and Engineering in 1977. She was awarded an MBE (1977) and made Companion of the Order of Australia (1990). In 2002 she was the subject of an Australia Post Australian Legends award in a series of stamps on medical scientists and in 2003 she received an Australian Government Centenary Medal. She was president and honorary life member of the Australian Society for Microbiology and an honorary life member of AusBiotech, and received an ATSE Clunies Ross Lifetime Contribution Award in 2007. The Millis Oration held at the annual AusBiotech conference is named in honour of her contribution to the industry.

Nancy played a key national role as chairman of the Monitoring Committee for Recombinant DNA in the 1980s, and served as chairman of the Genetic Manipulation Advisory Committee from 1988 to 2001. Other positions included membership of the board of Melbourne Water, service on the Cooperative Research Centre for Freshwater Ecology, and involvement in the development of the 1996 Australian drinking water guidelines. She chaired the Cooperative Research Centre for Water Quality and Treatment, whose successor, Water Quality Research Australia, annually awards the Nancy Millis PhD scholarship to its best PhD student.

Based on an obituary by Jim Pittard

Rob Sutherland

Robert Lyndsay Sutherland (b Gore NZ 18 July 1947, d Sydney 10 October 2012)



Robert Sutherland

was educated at Lincoln College, University of Canterbury (BAgrSc 1968, MAgrSc(Hons I) 1970, and honorary DSc 1994) and Australian National University (PhD 1974). After postdoctoral research at the Faculté de Médecin de Paris-Sud in Paris he worked briefly as a research scientist at the CSIRO Division of Wildlife Research.

Rob was a research fellow at the Ludwig Institute for Cancer Research, University of Sydney (1978–85), and during this time was also a senior lecturer (later reader) in the university's Department of Cancer Medicine.

In 1985 Rob became head of the cell biology group at the Garvan Institute of Medical Research. He became a professor at the Department of Medicine, University of New South Wales in 1991, and a senior principal research fellow of the National Health and Medical Research Council. Rob headed the Garvan Institute's Cancer Research Program for 27 years and became the inaugural director of the Kinghorn Cancer Centre, which combines the Garvan and St Vincent's Hospital.

Rob established one of Australia's most successful cancer research programs, initially in the fields of breast and prostate cancer but later diversifying into many solid tumours such as those of the pancreas, ovary, head and neck and lung. He was internationally recognised for research into cancers that depend on sex steroid hormones for their development and progression, particularly breast and prostate cancer. He helped to shed light

... continues on page 17

at a molecular level on how the female sex hormone oestrogen drives breast cancer cells to proliferate. More recently he turned his attention to the discovery of genes that could be used to predict the course of disease and the efficacy of therapies, and thereby guide clinical decision-making.

He was elected to the Australian Academy of Science in 2002. Other awards included the Ramaciotti Medal for excellence in biomedical research (2000), a Centenary of Federation Medal (2003),

life membership of the Australian Cancer Research Foundation (2009), Officer of the Order of Australia, NSW Premier's Award for Outstanding Cancer Researcher (2010) and Honorary Fellowship of the Royal Australasian College of Surgeons (2012).

Rob was on the Academy's Sectional Committee for Molecular and Cell Biology (2003–07) and National Committee for Biomedical Sciences (2003–05), and served the wider Australian scientific community with energy and distinction as a member of various committees of

the National Health and Medical Research Council and Cancer Australia. He was a committee member and board member of the Cancer Council NSW and of the Cancer Institute NSW. In 1996 he was on the team undertaking the quinquennial review of the Walter and Eliza Hall Institute of Medical Research.

He is survived by his wife Cheryl and children Andrew, Sarah, Rebecca and Charles.

Based on an obituary written by John Shine, Tony Burgess and Suzanne Cory ▲

Bruce Chappell and Allan White memorial

On Friday 19 October 2012, the Research School of Earth Sciences at the Australian National University unveiled the Bruce Chappell FAA and Allan White memorial seat in the garden of the research school. At the ends of the bench are large granite boulders — one shows characteristics of an I type granite (formed from igneous rock), and the other of an S type granite (formed from sedimentary rock). The letter-based classification system used for granites was initially proposed by these two researchers.

Dr Shunso Ishihara, who unveiled the memorial, was in Canberra to receive the Haddon Forester King Medal. Professor Chappell nominated Dr Ishihara for the award last year (see page 5). ▲



Shunso Ishihara unveils the memorial in October



Did you know... that the famous Shine Dome has a little known design feature?

Every year Canberra's local black ducks (*Anas superciliosa*) bring their families to the Shine Dome's moat, and every year it's a problem for the flightless ducklings, who cannot get out of the high-sided moat unaided. The Academy's talented groundsman Mark Troth (left) has used his technical drawing experience to design and create two ramps for the ducklings, with the help of former staff member Peter Hageraats. When the moat was drained for repairs almost two years ago, Mark installed his beautifully designed and made ramps, which are completely in character for the moat. The ducklings can now easily follow their parents out of the moat — a real labour of love for Mark, whose duties include cleaning up the surrounds of the moat each morning after the ducks.

Caring for the Australian Countryside public lecture series

Australia is known to have at least 27 500 introduced plant species, a total greater than the known number of native plant species, according to **Dr Richard Groves** from CSIRO Plant Industry, who gave the August public lecture. Invasive plants introduced either accidentally or deliberately as potential pasture plants or ornamentals now cost the Australian economy more than \$3.5 billion annually. Dr Groves examined biological control strategies for managing major weeds and discussed the role of vigilant concerned citizens.

Dr Michael Looker, Director of the Australia Program at the Nature Conservancy, told the September public lecture audience that public conservation management cannot fully protect the Australian environment and its diverse habitats. He explained that although two-thirds of Australia's lands are privately managed, most protection of Australia's unique biodiversity occurs on public land. Dr Looker highlighted through examples the important role of philanthropy in achieving significant and lasting outcomes for nature conservation.

The independent Federal Member for New England, **Mr Tony Windsor MP**, provided an overview of the conflicting interests of agriculture and mining in sensitive landscapes. Mr Windsor, who described himself as being blessed with a farming background, spoke of his family's pioneering efforts in minimum tillage over the last 40 years, and of his active role in parliament where he could advocate on behalf of issues affecting his electorate and the environment. Mr Windsor used the example of the

agriculturally productive Liverpool Plains and the recent signing of a national partnership agreement between the Federal Government and the eastern states on coal seam gas and a large coal mining development.

Professor Margaret Alston AOM from Monash University challenged assumptions that rural communities will downscale in efficient ways to make way for new environmental realities such as water scarcity or climate change. In the November public lecture *Rural policy, people and place: sustainability in an uncertain future*, Professor Alston examined the changes and uncertainties due to climate change, environment, telecommunications, health and education that are shaping Australia's rural spaces. She argued for greater attention to the social aspects of rural life, suggesting ways to achieve vibrant, well

serviced and supported rural people and places.

The public lecture series concluded in December, when **Professor Graeme Hugo AO** from the University of Adelaide explored the trends and implications for Australia's non-metropolitan population. According to Professor Hugo, there is a need for new consideration of Australia's settlement system in the light of contemporary and emerging economic, environmental and social trends. One-third of Australia's population lives outside the capital cities. He outlined the dynamics of our population growth, its increasing diversity and its changing spatial distribution.

The public lectures in the *Caring for the Australian Countryside* series are available for viewing at www.science.org.au/events/publiclectures/. ▲



Tony Windsor at the Academy in October

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