



Australian  
Academy of  
Science

CELEBRATING  
fifty  
years  
2004

A formal reception was held at Government House in Canberra on 19 February to mark the 50th Anniversary of the founding of the Academy. On 16 February 1954, Queen Elizabeth II presented the Royal Charter to the Academy's Founding President, Mark Oliphant. The Governor-General Major-General Michael Jeffery and Mrs Marlena Jeffery extended their congratulations to the Academy and presented the current President, Dr Jim Peacock, with the Supplemental Royal Charter. Three of the Academy's Past Presidents were amongst the Fellows and their guests who enjoyed the hospitality of the Governor-General and Mrs Jeffery. The formal reception was preceded by afternoon tea at Ian Potter House, where the Charter Book was on display, together with the celebratory flags that will fly along Commonwealth Avenue in Canberra during May.



# Eureka moments!

The Academy's 50th Anniversary exhibition—Eureka moments! Highlights from 50 years of Australian science—will be launched at the National Museum of Australia on 5 May. The exhibition celebrates Australian science by highlighting scientific innovations and endeavours that have impacted on society and culture.

After its launch at the National Museum, the exhibition will be on show in the Parliamentary Library before leaving Canberra to travel to capital cities and regional centres around Australia. During National Science Week the exhibition will be displayed in the foyer of the Australian Museum in Sydney and the Academy will host a public lecture in Sydney as part of the Science in the City program.



Pictured with some of the items from the exhibition - a freeze-dried rabbit, fibre optic cable and a rug made out of feral cat skins - are Dr Liz Truswell (right), the Exhibition Coordinator, and Sarah Brooker, the 50th Anniversary Project Officer.



A snapshot of images from the exhibition.



Visitors to the Shine Dome this year will be greeted by banners marking the Academy's 50th. Celebratory flags will fly along Commonwealth Avenue in Canberra during May.



# Measuring research excellence

The Academy has for some years advocated the need for refinement in the way research excellence is measured. It is essential to concentrate excellence in particular areas of research in particular institutions, permitting a concentration of resources and research infrastructure to underpin a critical mass of research capability. There has also been recent criticism over the current methodology used for assessing research performance and the linkage of this with various granting processes. These factors led to the National Academies Forum, a joint initiative of the four learned Academies, holding a workshop on 23 March to scope a public forum on the topic of measuring excellence in research and research training.

The timeliness of the Academies' involvement in this issue was reinforced the next day by the release of three important reports by the Minister for Science, Education and Training, Dr Brendan Nelson, one of which stressed the need to revisit the current framework of assessing research quality.

The National Academies Forum workshop was facilitated by Dr Michael Barber, Secretary, Science Policy, who called on each Academy to provide a description of excellence in scholarship and research within the context of each Academy's disciplines. The joining of the four learned Academies in this project ensures that the perspectives of each area of discipline will be given proper consideration.

The public forum will be held in the Shine Dome on June 22-23 and will focus on excellence in research and research training as it contributes to socio-economic well-being and international competitiveness. There is some concern that allocation of funds to universities under the Research Training Scheme, on the basis of the RTS formula comprising all higher degree completions, weighted at 50 per cent, and the total number of publications, weighted at 10 per cent, is a recipe that ignores quality. The forum will examine options for improved recognition of research excellence in the Australian context.



From left: Dr Mike Sargent (Australian Academy of Technological Sciences and Engineering), Professor Sue Richardson (President, Academy of the Social Sciences in Australia), Professor Iain McCalman (President, Australian Academy of the Humanities), and Dr Michael Barber (Australian Academy of Science) at the workshop.

## New medical science scholarship

The Academy is delighted to announce the establishment of a postgraduate scholarship in medical science. The scholarship has been made possible through a \$400,000 bequest from the estate of Miss Lola Douglas.

Miss Lola Douglas was a classic lady - tall, upright, an astute and independent woman. She inherited her wealth from her father and her brother Douglas who, like her, never married and died childless. She was a shrewd investor, never touching the capital, living only off the interest income of her investments. She lived modestly, not spending much on herself except to indulge her love of travel. This she did extensively - not in the rushed, modern way, but by ship in the relaxed style of a bygone era.

Lola Douglas was a great philanthropist with a keen interest in medical research. Her main

charity was the Royal North Shore Hospital in Sydney but she gave to many charities over the years. When drafting her will, she expressed the wish to spread her estate across a number of organisations. She was impressed with the work of the Australian Academy of Science and immediately warmed to the suggestion by her solicitor, Mr Neil Geikie, that she include the Academy as a beneficiary in her estate. Through her bequest, the Academy will be able to fulfil one of Lola's great wishes - to support young researchers.

Details of the Douglas and Lola Douglas Scholarship in Medical Science will be finalised ready for commencement in the 2005 calendar year. For information about donations to the Academy, please contact the Executive Secretary, Professor Sue Serjeantson, on 02 6247 5777 or [es@science.org.au](mailto:es@science.org.au).

## Academy Officers

*President*  
Dr Jim Peacock

*Secretary (Physical Sciences)*  
Professor Bruce McKellar

*Secretary (Biological Sciences)*  
Professor John Shine

*Secretary (Science Policy)*  
Dr Michael Barber

*Foreign Secretary*  
Professor Kurt Lambeck

*Secretary (Education and Public Awareness)*  
Professor John McKenzie

*Treasurer*  
Professor Ian McDougall

Published by the Australian  
Academy of Science  
GPO Box 783  
Canberra ACT 2601  
[www.science.org.au](http://www.science.org.au)

Telephone: (02) 6247 5777  
Fax: (02) 6257 4620  
Email: [aas@science.org.au](mailto:aas@science.org.au)

Honorary editor:  
Professor Neville Fletcher FAA

Material in this *Newsletter* is  
copyright but may be reproduced  
with acknowledgment.

Previous *Newsletters* available at  
[www.science.org.au/newsletters](http://www.science.org.au/newsletters).

ISSN 1031-9204

# Boden Conference on visual cortex

The Australian Neuroscience Society held a Boden Research Conference entitled *Visual Cortex: A Variety of Viewpoints* in Melbourne on 26-27 January.

The outer covering of the brain is called the cerebral cortex. A substantial part of the cortex is devoted to vision and vision-related cognitive functions. Visual cortex is an image processor of awesome power, but many of its capabilities and mechanisms are poorly understood. Neuroscientists study visual cortical function using a variety of techniques, such as single-cell electrophysiology, functional imaging, and psychophysics. The meeting brought together a selection of international and local scientists that use these and other techniques to

pursue their particular interests. The topics discussed included some of the most pressing current issues, such as attention, object segregation, memory, and plasticity.

The conference attracted 22 speakers, including nine from overseas, and 70 delegates. It was organised by Associate Professor Trichur Vidyasagar of the University of Melbourne and Dr Alan Freeman of the University of Sydney. Abstracts of the talks can be found at [www.fhs.usyd.edu.au/bio/cortexsat](http://www.fhs.usyd.edu.au/bio/cortexsat).

The Boden Conferences are sponsored by the Academy from a bequest made by the late Dr Alexander Boden.

[www.science.org.au/awards/boden.htm](http://www.science.org.au/awards/boden.htm)

## Forthcoming events

- Science at the Shine Dome, 5-7 May - see [www.science.org.au/sats2004](http://www.science.org.au/sats2004).
- Fenner Conference on the Environment, 24-25 May, see page 4 and [www.science.org.au/conferences/fenner](http://www.science.org.au/conferences/fenner).
- Australian Foundation for Science Open Session, 16 November, see page 3.

## New topics on Nova

- Getting into hot water - global warming and rising sea levels
- Bugged down in the four-wheel drive debate?

[www.science.org.au/nova](http://www.science.org.au/nova)

## Award deadlines 2004

- Oxford Nuffield Medical Fellowship. See [www.science.org.au/awards/nuffield.htm](http://www.science.org.au/awards/nuffield.htm). Closing date 28 May.
- Each year the Academy invites nominations for its prestigious junior and senior awards for outstanding research in the natural

sciences. See [www.science.org.au/awards](http://www.science.org.au/awards) for the conditions of each award and nomination forms. Closing date, 30 August.

## International exchanges

The Academy invites applications for its next round of scientific visits to Europe, North America (USA, Canada, Mexico), Asia (China, Japan, Korea, Taiwan), and Postdoctoral Fellowships to Japan and Korea. See [www.science.org.au/internat/exchange/contscix.htm](http://www.science.org.au/internat/exchange/contscix.htm) for application forms and selection criteria.

## Basser Library

Anyone wishing to use the Basser Library should contact the librarian, Rosanne Walker, on (02) 6247 9024 or [lb@science.org.au](mailto:lb@science.org.au).

## Gifts to the Academy

If you would like to make a gift or a bequest to the Academy please contact the Executive Secretary, Professor Sue Serjeantson, on (02) 6247 5777 or [es@science.org.au](mailto:es@science.org.au).

# Inaugural Adam J Berry Memorial Fund winner

Ana Markovic, of the Children's Cancer Institute Australia, is the winner of the inaugural Adam J Berry Memorial Fund award. She will receive funding to assist her travel to the National Cancer Institute in Bethesda, Maryland, USA, where she will undertake research relating to childhood acute lymphoblastic leukaemia.

The Adam J Berry Memorial Fund is co-managed by the Academy and the Foundation for the US National Institutes of Health. It was established in memory of a young Australian scientist and aims to assist a young Australian researcher to travel or work in the USA at one of the institutes of the National Institutes of Health (NIH) each year. In addition to gaining valuable experience, scientists are

expected to make a contribution to the research program of the institute to which they are temporarily attached.

Adam died in a car accident in 2002, aged 25. He had been in the US for 14 months, working at the National Cancer Institute. During that time he was able to make a major contribution to the research program by establishing methods for genotyping genetically modified mouse strains to study cancer pathogenesis, collating this data and maintaining a database essential to the work of his colleagues. Adam's work at the National Cancer Institute was fulfilling and challenging and he enjoyed the collegial atmosphere.

Donations to this fund can be made by contacting Nancy Pritchard ([nancy.pritchard@science.org.au](mailto:nancy.pritchard@science.org.au)).



Ana Markovic



Sir Brian Smith, the most recent past Vice-Chancellor of the University of Wales in Cardiff, briefs Professor John White on the recent review of the UK Research Assessment Exercise (RAE) by Sir Gareth Roberts.

Following the 2001 RAE in the UK, Sir Gareth Roberts was commissioned by the UK higher education funding bodies to review research assessment. The report by Sir Gareth was issued for consultation in May 2003 and remains under consideration.

Sir Gareth wrote in the preface to his review, available at [www.rae-review.ac.uk/reports/roberts.asp](http://www.rae-review.ac.uk/reports/roberts.asp): 'The recommendations in this report constitute a radical overhaul of the Research Assessment Exercise (RAE). They do not however represent a wholesale rejection of the RAE and the

principles upon which it was built. All who examine the impact of the RAE upon UK research and its international reputation must, I think, agree that it has made us more focused, more self-critical and more respected across the world. It has done this, in large part, by encouraging universities and colleges to think more strategically about their research priorities'.

Sir Gareth will be visiting Canberra in the first week of June for consultations with officers in the Department of Education, Science and Training and will visit the Academy on 3 June.

## Australian Foundation for Science

The Open Session for the Australian Foundation for Science will be held on 16 November 2004. The recent streamlining of the Foundation's administrative structure has removed the requirement for a Board of Directors and associated meetings. However, the Foundation will continue to report on its projects at the annual Open Session. The Advisors' Committee has also been retained and the Academy is delighted that Mr John Ralph, former Chairman of the Board of Directors of the Foundation, has agreed to chair it. Mr Ralph's services to science and the Academy have been recognised by his election to the Fellowship this year.

### Australia's Nobel Laureates in print

*Australia's Nobel Laureates: Adventures in Innovation* was published by ETN Communications Pty Ltd in February. It combines a collection of ten life portraits of Australia's Nobel Prize winners with real-life case studies of Australia's current achievements in innovation. The Academy features as one of the leading innovative organisations profiled.

The book normally retails for \$74.95 but is available to readers of the *Newsletter* for \$46.95. Contact Caroline Maxwell on 02 9410 3660 or [CMaxwell@etncom.com](mailto:CMaxwell@etncom.com).

## FENNER CONFERENCE

### Population and environment debate

The Academy will hold the 2004 Fenner Conference on the Environment, *Understanding the Population–Environment Debate: Bridging Disciplinary Divides*, on 24–25 May 2004 at the Shine Dome in Canberra. The conference aims to improve the level of the population and environment debate through understanding disciplinary differences and fostering an integrated, multi-disciplinary approach. It will be opened by the Minister for the Environment and

Heritage, the Hon. David Kemp, and will be chaired by its patron, Professor Frank Fenner. Other contributors include Professor Julie Thompson Klein (Wayne State University, USA), Dr Paul Monk (Austhink), Professor Ian Lowe (Griffith University) and Phillip Toyne (Ecofutures). On the second day of the conference, a panel chaired by George Megalogenis (*The Australian*) and including Paul Kelly (*The Australian*) and Laura Tingle (*Australian Financial Review*) will give a media perspective

to the debate. The conference has been well supported by high-level sponsorship from the Department of Agriculture, Fisheries and Forestry, the Australian National University, the Department of the Environment and Heritage and the Department of Immigration, Multicultural and Indigenous Affairs.

**The program and registration information is online at**  
[www.science.org.au/conferences/fenner](http://www.science.org.au/conferences/fenner)

## Benchmarking methodology pilot study

The Academy has recently completed a pilot study to develop a benchmarking methodology for assessing emerging areas of science and technology in Australia. The methodology was used to assess Australia's nanotechnology capability. The study found that while Australian nanotechnology researchers are producing high-quality work across all areas of nanotechnology, there is evidence that we are not advancing our capabilities as quickly as the rest of the world. The findings also suggested

that Australia may fall further behind in the future unless nanotechnology is maintained as a national research priority and funded accordingly.

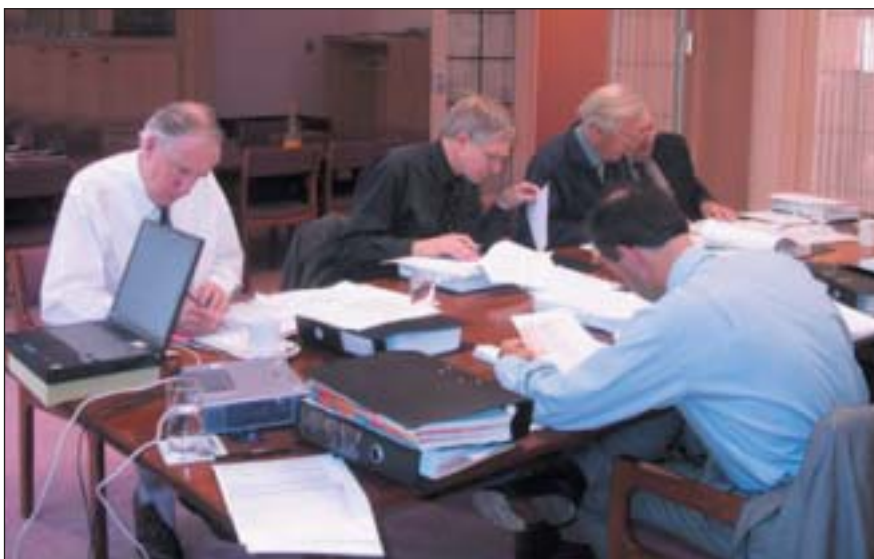
The findings of the project were presented at the 2003 Sir Mark Oliphant International Frontiers of Science and Technology Conference, *Scaling Down to a Nano-materials World*, in Melbourne in December.

**The report is online at**  
[www.science.org.au/policy/nanotech.htm](http://www.science.org.au/policy/nanotech.htm).

## Humboldt Foundation visit

To coincide with the visit to Canberra on 1 March by the President of the Alexander von Humboldt Foundation, Professor Dr Wolfgang Frühwald, the Academy hosted a forum on *German–Australian Scientific Co-operation: Experiences and Future Perspectives*. Australia's Chief Scientist, Dr Robin Batterham, and Professor Frühwald chaired the forum, which was convened by the Academy's Foreign Secretary, Professor Kurt Lambeck.

Academy Fellows Professor Erich Weigold, Professor Yuri Kivshar and Professor Anna Wierzbicka, all from the Australian National University, spoke about their experiences as participants in the Humboldt programs and members of the German delegation Professor Rainer (Universität Saarbrücken), Professor Regine Kahmann (Max-Planck Institute) and Professor Johannes Kabatek (Universität Freiburg), discussed possible future initiatives with Australia. Mr Jost-Gert Glombitza, of Deutsche Forschungsgemeinschaft (DFG), met with Professor Lambeck to discuss the Memorandum of Understanding between the Academy and the DFG.



The Europe Exchange Committee hard at work late last year assessing applications for visits to Europe in 2004–05. From left: Professor Rod Rickards (Chair), Professor Philip Kuchel, Professor Neville Fletcher, Professor Ross Taylor and, with his back to the camera, Alain Moulet (Science and Technology Attaché, French Embassy).

### Newsletter online

To receive email notification when new issues of the *Newsletter* become available online, register at [www.science.org.au/infolist.htm](http://www.science.org.au/infolist.htm).

## Elizabeth and Frederick White Conference



The Elizabeth and Frederick White Conference - *Planetary Timescales: From Stardust to Continents* - organised by the Australian National University's new Planetary Science Institute, was held in Canberra from 16-19 February. The conference marked the opening of the Institute and brought together astronomy and Earth science experts

from around the world. Pictured at the conference are the co-directors of the Institute, Professor Mark Harrison and Professor Penny Sackett.

The Elizabeth and Frederick White Research Conferences are sponsored by the Academy.

[www.science.org.au/awards/e&fwhite.htm](http://www.science.org.au/awards/e&fwhite.htm)

## Science and literacy

The Academy's collaborative national project to link the teaching of science with the teaching of literacy in primary schools held a Reference Group meeting in December.

The Australian Foundation for Science has funded the first stage of the project, which will see the development of a model that meets the needs and priorities of the different states and territories. A draft model has been circulated to the Reference Group for feedback.

The Reference Group has considerable expertise and includes representatives in science and literacy from the Commonwealth government, all state and territory education jurisdictions, the National Catholic Education Commission, the Independent Schools Council of Australia, the Australian Science Teachers' Association, the Australian Literacy Educators' Association and the Primary English Teaching Association.

Contact: [marian.heard@science.org.au](mailto:marian.heard@science.org.au)

## Australia's scientific linkages

The Academy has been funded under the ARC's Learned Academies Special Projects Scheme to undertake a study on maximising the benefits from Australia's international scientific linkages. The study aims to assemble an inventory of significant international research programs in which Australian scientists might reasonably be expected to be involved. This will allow Australia's current participation to be placed against the wider set of opportunities for international engagement. The project will evaluate mechanisms that enhance Australian scientific involvement in international programs, including the mechanism of subscriptions to

international scientific organisations. The planned outcomes are to ensure more targeted investment in areas of national priority and increased leverage of international scientific resources for the benefit of Australia.

A meeting to discuss the roles and responsibilities of the National Committees for Science will be held on 28 April and will provide input into the project. The meeting will be attended by the Chairs of the twenty-two National Committees and will be facilitated by Professor Bruce McKellar (Secretary, Physical Sciences) and Professor John Shine (Secretary, Biological Sciences).

## Climate change report

*International Climate Change Science: Australia's role, links and opportunities* is now available on the Academy's website at [www.science.org.au/reports/ago.pdf](http://www.science.org.au/reports/ago.pdf). This report, commissioned by the Australian Greenhouse Office, provides an overview of the international climate change science scene and its significance to Australia. It highlights Australia's outputs and benefits and also provides extensive descriptive appendices on the various international research, observation and assessment initiatives. The report concludes with recommendations for Australia's international role and research.

## Honours to Fellows

**Professor Peter Doherty**, University of Melbourne, has been awarded the inaugural Curtin Medal for Medical Research. It was presented by the Minister for Science, Peter McGauran, at the National Portrait Gallery's official launch of 'Australia and the Nobel Prize' in December.

**Professor Mervyn Paterson**, Australian National University, has been awarded the 2004 Walter Hermann Bucher Medal of the American Geophysical Union. The Medal was established in 1966 and is awarded biennially. The award recognises Professor Paterson's contributions to the basic knowledge of the Earth's crust, particularly his research in understanding the mechanical behaviour of the crust under pressure and temperature conditions representative of the planet.

**Professor Ian Ritchie** has won the 2003 Western Australian Premier's Prize for Achievement in Science for his research in hydrometallurgy. The Premier, Dr Geoff Galop, acknowledged Professor Ritchie's work as a leading international expert in hydrometallurgy and his initiation and development of the A J Parker Cooperative Research Centre for Hydrometallurgy.

**Professor Ross Taylor** gave the invited Plenary (Masursky) Lecture at the annual Lunar and Planetary Science Conference in March in Houston, Texas. The conference was sponsored by NASA and the Lunar and Planetary Institute and attracted 1300 participants.

### Australia Day honours

**Professor Graeme Clark**, University of Melbourne was awarded the Companion of the Order of Australia (AC) in the Australia Day honours list. The award was for service to medicine and to science through innovative research to further the development of cochlear implant technology for worldwide benefit.

**Professor Adrienne Clarke**, University of Melbourne, was also awarded an AC for service to science and academia as a leading international researcher, for the application of economic benefit to scientific discovery, and for mentoring future leaders.

**Dr Robin Batterham**, Commonwealth of Australia, was appointed an Officer of the Order of Australia (AO) for service to science, engineering and technology through promoting collaboration, excellence and innovation to enable Australian industry to remain internationally competitive.

**Dr Robert Williamson**, Murdoch Children's Research Institute, was also appointed an AO for service as a biomedical research scientist in the field of human genetics, as an educator and administrator, and as a major contributor to the debate on ethical issues related to genetics practice.

**Emeritus Professor Frank Gibson**, was appointed a Member of the Order of Australia (AM) for service to science, particularly through biochemical research, to administration, and through support for professional organisations.

**Professor Roger Short**, University of Melbourne, was also appointed an AM for service to science as a reproductive biologist and as a contributor to a range of international groups concerned with fertility and related issues.

## New Fellows

The Academy congratulates the following scientists who were elected to the Fellowship on 25 March. More information on our new Fellows will appear in the next *Newsletter*.

Professor Robert Antonia, Professor Martin Banwell, Professor Robert Bartnik, Professor Robert Baxter, Dr Matthew Colless, Professor David Cook, Professor Christopher Easton, Professor Peter Forrester, Professor Ian Frazer, Professor Paul Haddad, Dr T J Higgins, Professor Richard Hobbs, Professor Ary Hoffmann, Professor Rao Kotagiri, Professor Malcolm McCulloch, Professor Nancy Millis, Mr John Ralph, Professor David Smyth, Professor Robert Vincent, Professor Malcolm Walter, Professor E Marelyn Wintour-Coghlan.

## Deaths

### Harry Minnett



Harry Clive Minnett was born in Sydney on 12 June 1917 and died there on 20 December 2003. He was educated at the University of Sydney, where he graduated BSc (mathematics and physics) in 1939 and BE (electrical and mechanical), with 1st class honours, in 1940.

In April 1940 he became an assistant research officer at the CSIRO Radiophysics Laboratory (later the Division of Radiophysics), where he was to spend his entire working life. His first task was working on developing metre-wave and microwave radar systems for shore defence gunnery, aircraft warning and naval sea search. He then spent several years working on microwave radio astronomy and in 1952 became leader of the Radio Navigation Group, which developed a microwave radar for measurements of vehicle speed by the NSW Police Department. He was involved in the design and construction of both the Parkes Radio Telescope and the Anglo-Australian optical telescope at Siding Spring and spent several years as Engineering Director of the Interscan Microwave Landing System project. He retired from CSIRO in 1981 as Chief of the Division.

After his retirement he worked as a consultant to Interscan Australia, then as Deputy Chief Executive, Interscan International, until his second retirement in 1986.

The work for which he was best known was his contribution to the electromagnetic theory of aerials and waveguides and the invention



of the 'hybrid mode' aerial feed, which enables large radio telescopes and space-communication aerials to be operated with markedly greater efficiency and polarisation purity. In the astronomical field he was the first to detect radiation in the microwave region (1–20 cm wavelength) from beyond the solar system. He was also the co-discoverer of the dust layer on the moon's surface 20 years before its confirmation by the Apollo XI astronauts.

Harry Minnett, OBE, was elected to the Academy in 1976 and the Australian Academy of Technological Sciences and Engineering in 1979. He was also a winner of the inaugural Australian Medal of the Guild of Air Pilots and Air Navigators, London.

His wife, Margot, died in 1992. He is survived by his daughter Kate, son Adam, daughter-in-law Ashleigh and granddaughter Sophia Hannah.

## John Young



John Atherton Young was born in Brisbane on 18 April 1936 and died in Sydney on 10 February 2004. He was educated at Church of England Grammar School, Brisbane and the University of Queensland, graduating BSc (Hons I) in 1958 and MBBS (Hons I) in 1960. The University later awarded him the degrees MD (1965) and DSc (1975).

After a year as an intern at the Royal Brisbane Hospital he accepted a research position at the Kanematsu Memorial Institute at Sydney Hospital, where he investigated amino acid

transport in the kidney. He then spent two years at the Physiologisches Institut der freien Universität Berlin working on salivary glands. He returned to Australia in late 1966 as a senior lecturer in physiology at the University of Sydney, becoming Professor of Physiology in 1976, a post he held until 2001. During this time he also held positions as Dean of the Faculty of Medicine (1989–97), Interim Director of the Kolling Institute for Medical Research (1992–93) and Pro Vice-Chancellor (Health Sciences) (part-time 1994–97 and full-time 1997–2003). He was an energetic and able academic administrator, whose achievements included the introduction of a four-year graduate degree in medicine and the refurbishment of the old medical school building.

Young was one of the world's leading scientists in the field of glandular physiology, particularly that of the salivary glands, but he also made important contributions towards understanding the secretory processes of other glands and organs, including the lacrimal glands, the thyroid, the pancreas, the kidney and the testis. He played a major part in the development and exploitation of microperfusion techniques that made it possible to test the two-stage hypothesis of exocrine glandular secretion. He was also the first to recognise that both the glandular secretory structures and the excurrent ducts are under autonomic nervous system control, both sympathetic and parasympathetic.

Among Young's extracurricular activities were his work for the Australian Physiological and Pharmacological Society as National Secretary (1983–88) and as President (1995–2000), and as a Council member of Musica Viva. He won a number of awards, including being appointed an Officer in the Order of Australia in 1994; annual Orator and gold medallion, Menzies School of Health Research, Darwin in 2000; and a Centenary Medal in 2003. He was elected to the Fellowship of the Academy in 1986, was a member of Council (1989–92) and Secretary, Biological Sciences (1998–2002).

He is survived by his companion, Alexander Cambitoglou.

## John Pople



Sir John Pople, elected a Corresponding Member of the Academy in 1993, died in Chicago on 15 March 2004 at the age of 78. He was born in England and educated at Trinity College, Cambridge, where he was a Research Fellow (1951–54) and then Lecturer in Mathematics (1954–58). In 1961 he was elected to the Royal Society, and in 1964 he moved to the United States, initially as Carnegie Professor of Chemical Physics at the Carnegie-Mellon University. From 1986 he was a Trustee Professor in the Department of Chemistry of Northwestern University. He spent a number of periods in Australia, particularly at the Australian National University's Research School of Chemistry.

In 1998 John Pople shared the Nobel Prize in Chemistry with Walter Kohn for his development of computational methods in quantum chemistry, which made possible the theoretical study of molecules, their properties and how they act together in chemical reactions. His computational techniques and computer programs are widely used in universities and commercial companies, and revolutionised the way chemistry is practised. In 2003 he was awarded a Knighthood in the Queen's New Year's Honours List.

## Biographers

Memoirs of deceased Fellows are published in *Historical Records of Australian Science* and are also available on the Academy's website at [www.science.org.au/academy/memoirs](http://www.science.org.au/academy/memoirs).

The biographer for **Sir Ian McLennan** is Dr Peter Richards; the biographer for **Harry Minnett** is Dr Brian Robinson; and the biographers for **Professor John Young** are Professor D I Cook, Professor M J Rowe and Professor M J Field.

## World academies collaborate

The Inter-Academy Panel on International Issues (IAP), a global network of the world's national science academies, was launched in 1993. Its primary goal is to help member academies work together to advise citizens and public officials on the scientific aspects of critical global issues. It is particularly interested in assisting young and small academies to achieve these goals.

In September 2003 the IAP issued a statement calling on the United Nations to adopt a ban on human reproductive cloning. In the same statement, however, the science academies indicated that therapeutic cloning should be exempt from the ban.

The Foreign Secretary, Professor Kurt Lambeck, represented the Academy at the IAP General Assembly in Mexico City from 1-5 December, where the IAP released statements on scientific capacity building, science education, science and the media, access to scientific information and mother and child health. The Academy has also provided input to the IAP on Australian science education for their website portal on this topic. The Academy's term on the Executive of this body expired at the end of 2003.

## Global warming and rising sea levels

'Getting into hot water - global warming and rising sea levels' is the newest topic on the Academy's educational website *Nova: Science in the news*.

The 20th century saw the greatest increase in temperature of any century during the last thousand years, and the 1990s was the warmest decade since records began. As the temperature rises, so does the sea level - with profound consequences for us all.

In its 2001 assessment of global warming, the Intergovernmental Panel on Climate Change projected that global mean sea level is expected to rise between 9 and 88 centimetres by 2100, with a 'best estimate' of 50 centimetres.

CSIRO researchers believe that

damage costs associated with coastal flooding would more than double in southern Queensland and northern New South Wales if sea levels were to rise by 40 centimetres. Low-lying coastal ecosystems, such as the freshwater wetlands that make up about 90 per cent of the coastal zone of Kakadu in the Northern Territory, would also be vulnerable. Future planning should take global warming and consequent sea level rises into consideration.

The topic, available at [www.science.org.au/nova](http://www.science.org.au/nova), was developed with support from the Australian Greenhouse Office. The principal sponsor of *Nova* is the Commonwealth Bank Foundation.

## Forthcoming conferences

The Academy is the co-sponsor of *Insect Sensors and Robotics*, a conference in The Sir Mark Oliphant International Frontiers of Science and Technology Conference Series (funded by the Government as part of the Innovation Access Program), to be held in Brisbane on August 23-26. The conference will bring together creative roboticists and the best biologists to design novel, biologically inspired micro UAVs (unmanned aerial vehicles) and legged vehicles for a variety of applications. More information is at <http://isr.rsbs.anu.edu.au>.

The Academy is also the co-sponsor of *Separations Technology VI: New Perspectives on Very Large Scale Operations*, to be held on Fraser Island

from 3-8 October. The conference will focus on the development of new, large-scale separation technologies to meet worldwide concerns about the mitigation of greenhouse gas emissions, movement to a hydrogen fuel economy, provision of clean water to urban communities, recovery of natural gas from deep off-shore reservoirs and the need for low environmental footprint minerals extraction. Technologies based on membranes, nano-structured materials and new chemistries will be explored, as well as the engineering challenges in translating promising science into reliable, large-scale plant. More information is at [www.engconfintl.org/4aq.html](http://www.engconfintl.org/4aq.html).



Academy staff and friends took part in a triathlon in Canberra on 8 February 2004 in aid of diabetes research. Susie Barratt (the Academy's Executive Assistant, far right) was the second-placed woman in the triathlon. The rest of the Academy's team was (from left): Amy Pryor, Chris Warris, Susan Beaton, Andrew Turvey, Sarah Brooker and Christian Searl.

# Charter Book

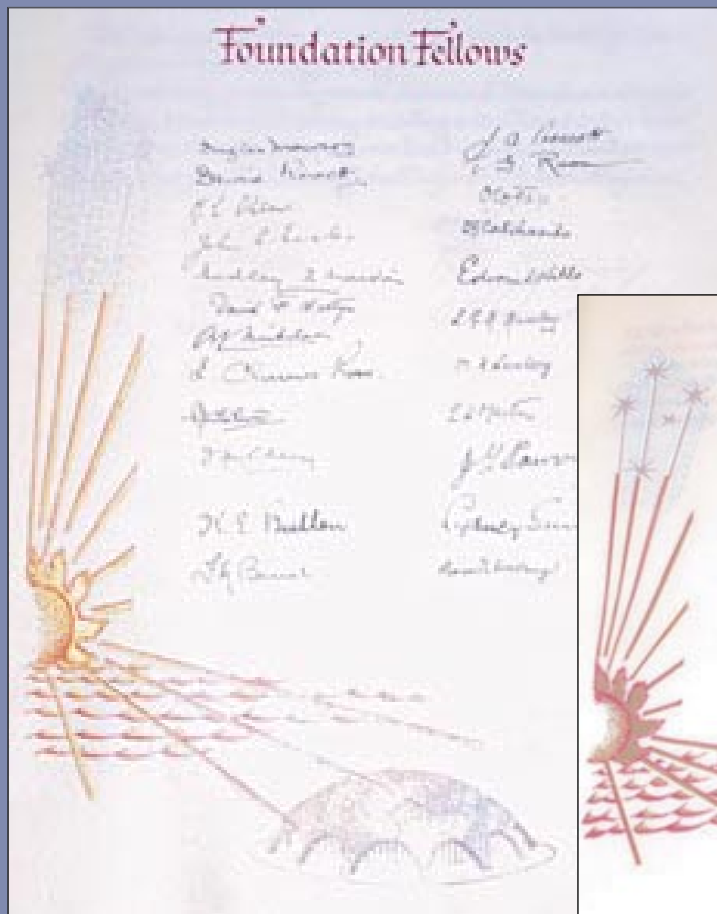
The Charter Book is the signature book, which Fellows sign on election to the Academy. The Charter Book itself was a gift to the Academy from the Royal Society in 1954. It was prepared and bound in the UK and sent here. The vellum in this volume is now considered to be quite rare.

## Foundation Fellows Signing Page

Foundation Fellows signed the first page of the Charter Book in 1954. After the construction of the Dome was completed, Founding Fellow Professor Hedley Marston asked New South Wales artist, Arthur Murch (1902-1989) to add the Dome and the associated design to the original 1954 signing page. Murch was educated at Sydney Technical High School as an engineering draughtsman. In 1924 he became a full-time artist in Sydney studying with Dattilo Rubbo, James Jackson and Raynor Hoff. He also worked in George Lambert's studio after he returned from a trip to

Europe in 1925 when he won the NSW Travelling Art Scholarship. From 1936 to 1940 he visited Europe again and was influenced by Cezanne, Seurat and Cubism. An official war artist for six months in 1942 in central Australia, Darwin and Thursday Island, Murch is known for his depiction of military activities in the Northern Territory, particularly the raid on Darwin and its aftermath. He is represented by 47 works in the Australian War Memorial. In 1949 he won the Archibald Prize for his portrait of fellow artist Bonar Dunlop. In the early 1960s, he painted the massive mural *Foundation of European Settlement* for Sydney's Circular Quay, depicting the flag-raising ceremony in Sydney on 26 January 1788.

In 2003, the Academy asked New South Wales calligrapher Dave Wood to replicate the design of the 1954 Foundation Fellows page for the Academy's Jubilee Year. Resident in Bateman's Bay, Wood is an award-winning and internationally known calligrapher. He was honoured with a Fellowship from the Society of Scribes and Illuminators (London) in 1990.



# Historian a part of history

One of the highlights of the Academy's 50th Anniversary year will be the publication of its history to date. The editor of the history, Professor Frank Fenner, is himself part of the story.

Fenner, a virologist from the Australian National University, is one of Australia's most eminent scientists. He gained recognition for his early research into the epidemiology of an unusual mouse disease, ectromelia (mousepox), which was related to smallpox. His experiments followed the effects of this disease through its incubation period, something which had not been done before and which gave new insight into virus infections in general.

When the myxoma virus was used to control rabbits in the 1950s he studied the changes to virulence of the virus and to resistance in the rabbits. He was later one of the leaders of the international campaign to eradicate smallpox, for which he shared the Japan Prize in 1988.

Fenner was one of the first group of scientists elected to Fellowship of the Academy in 1954, when he was only 39. He was the Academy's Secretary of Biological Sciences in 1961, when an Academy report was critical of the plan to dam Spencers Creek in the Snowy Mountains to produce hydroelectricity. The dam was not built.

'My father was a geologist,' he said. 'That's really how I got interested in the environment.' After a period as head of the John Curtin School of Medical Research, Fenner set up the Centre for Resource and Environmental Studies at the Australian National University. He and his late wife, Bobbie, made donations to the Academy that have enabled the convening of the Fenner Conferences on the Environment. These have brought together scientists, conservationists and natural resource managers to produce practical results.

The history of the Academy will cover its foundation, how it has linked Australian scientists and promoted research, its links with government and industry, its international relationships and its efforts to increase public awareness of science and improve

science education in schools. Fenner has played a role in many of these activities.

The history is the second update of a book compiled in 1979 by Fenner and another Fellow, Dr Lloyd Rees, *The First Twenty-five Years*. In 1995 Fenner extended this to *The First Forty Years*. Fenner has revised the history by going through the previous version, identifying sections that are out of date and asking Academy Fellows or staff to help update the sections.

This latest revision takes into account the changes that have occurred over the last 10 years. 'The Academy's involvement in science policy has become much greater,' said Professor Fenner. 'Recently there's been a lot of work on higher education and school education. We published several books for secondary schools up until 2002; the primary school program, *Primary Investigations*, is still going strong. The other big change has been the electronic revolution with all that has brought, such as the Academy's educational websites, *Nova: Science in the news* and *Video Biographies*. These sites are used extensively by students, teachers and the general public.'

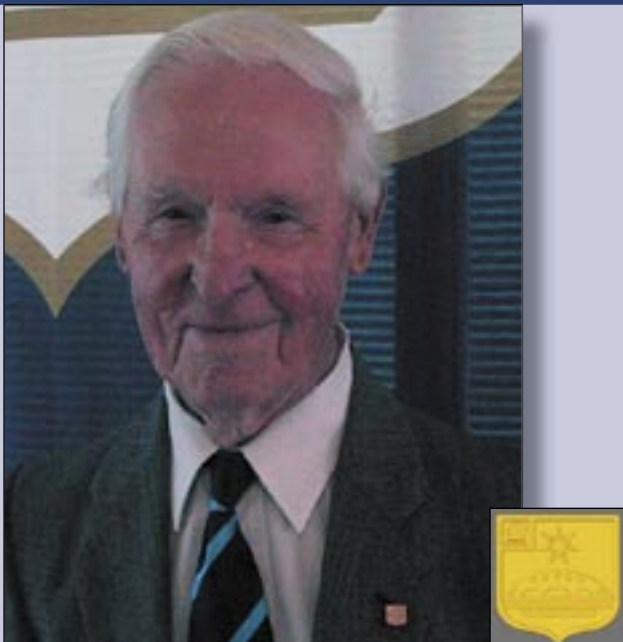
How has science changed since 1954? 'There were nothing like as many people in science then. It's expanded enormously. Big teams didn't exist. Most work was just solo, working with a PhD student or research assistant.' Fenner thinks that groundbreaking work is nearly always done by creative individuals 'who can see associations that other people haven't seen'.

Does he still think science can make the world better? Fenner is pessimistic about the future because of the increasing world population, the gap between the wealthy and the poor, and global warming.

'I think it's a very grim outlook. Science is the only thing that can help solve it. But it can't solve it by itself. We've got to make a major change in social behaviour.'

*The First Fifty Years* will be launched in December, the month Fenner turns 90. The Academy is grateful for the sponsorship it has received from BHP Billiton for the book's production.

**Roger Green**



To celebrate its 50th Anniversary, the Academy commissioned a commemorative lapel pin from the Royal Australian Mint. Worn here by Professor Frank Fenner, the gold pin with a frosted background features the Dome, a crown and a star. The design was taken from the Academy's coat of arms, described in Professor Fenner's history of the Academy (see item above):

On the shield there are three charges. The seven-pointed silver star represents the Commonwealth of Australia. The representation of the Academy building was used because of its unique and simple design; its use confirms to ancient heraldic practice when it was common for the bearer of arms to include a conventionalised representation of his own castle. The third charge, a royal crown on a silver canton, was included by special permission of The Queen in recognition of the royal foundation of the Academy in 1954 when the Charter was presented by hand of the Sovereign in Canberra.