



## Academy releases new innovation policy

The Academy's recently released *Policy Statement on Research and Innovation in Australia* was prepared in response to the many reviews that have taken place over recent months. These reviews will help the Federal Government build on the nation's capacity for research, science and innovation, to improve the quality of life for all Australians.

The policy statement is an important update of *Priorities in Research and Innovation for the next Australian Government*, produced by the Academy in 2001 in the lead-up to the last Federal election. It reviews progress in the development of Australia's research and innovation system and reports on its current status. Its thirteen key recommendations – which the Academy hopes will influence the decision and policy-making process underpinning Australia's innovation system – relate to:

- building a knowledge economy;
- private investment in R&D;
- other incentives to stimulate private investment in R&D;
- CSIRO and other publicly funded research agencies;
- the higher education system;
- science and mathematics education;
- Major National Research Facilities;
- Cooperative Research Centres;
- the roles of State and Commonwealth governments;
- the international dimension.

In his foreword to the *Policy Statement*, Dr Jim Peacock, Academy President, said that he welcomed the ongoing national debate about science, engineering and technology and that he was encouraged by the high level of agreement across the political spectrum that Australia's economic and social well-being is critically dependent on the ability to capture the benefits of a strong science and innovation system. But he expressed concern for the widening gap between Australia's gross expenditure on R&D and the OECD average and said that although Australian government

expenditure on R&D is relatively high on the OECD table, business expenditure is very low, bringing the total national gross expenditure down.

Dr Peacock went on to say that the Academy is convinced that a strength of the Australian science and innovation system is the pluralistic nature of the funding arrangements and the management structures of the various organisations in the system. The Government's National Research Priorities should further strengthen the system and enhance its competitiveness and contestability.

The *Policy Statement* is available on the Academy's website at [www.science.org.au/media/ria.pdf](http://www.science.org.au/media/ria.pdf). The thirteen recommendations contained in the statement are reproduced here:

1. That government extends the Backing Australia's Ability funding initiatives, both in time and funding level, to address the continuing decline in Australia's overall R&D effort, and to ensure the realisation of the national benefits to be achieved as outcomes of the National Research Priorities, announced in December 2002.
2. That government revisits its strategy to encourage investment in R&D by the private sector.
3. That government considers implementing a formal offset program when giving assistance to major industrial developments.
4. That government reviews the quantum of funding allocated to CSIRO for the next triennium, to capitalise on the multidisciplinary capacity of CSIRO to engage as a coherent partner with the rest of Australia's innovation system.
5. That government establishes a Higher Education Funding Council to drive the process of developing a shared vision for Australian higher education, in which government, universities and the private sector work for the common good of Australia.
6. That government introduces a research assessment process within the framework of the proposed Higher Education Funding Council, to inform the process of allocating research-related funding to universities.
7. That government restores the level of public funding for universities to compensate for the decline in total funding available for teaching and research.

*(Continued on page 2)*

### Overwhelming response to program

Following the successful pilot program of scientific visits for young Australian researchers to the USA and Europe in 2000, the Academy has received additional funding from the Department of Education, Science and Training to extend this initiative into 2004. The program, launched on 17 September by the Minister for Science, Mr Peter McGauran, will enable a total of 34 Australians to visit their hosts and conduct research

projects for periods of 2 to 6 weeks, between January and June 2004.

The Academy was overwhelmed by the response to its call for applications from young researchers and two committees have been set up to assess the 172 applications. Given this remarkable response to the program, the Academy will be seeking additional funding to administer a longer-term scheme.

### 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

### Award deadlines

For information see [www.science.org.au/awards/awards.htm](http://www.science.org.au/awards/awards.htm).

### International exchanges

For information on deadlines see [www.science.org.au/internat](http://www.science.org.au/internat).

### Gifts to the Academy

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

## Mapping salinity in Australia

The Academy held a public forum at the Shine Dome on 17 October on 'Salinity mapping methods in the Australian context'. The forum was the second stage of the Academy's involvement in the Department of Environment and Heritage and the Department of Agriculture, Fisheries and Forestry's project to establish a position statement on the use, range and effectiveness of the various technologies for mapping salinity. Salinity is one of Australia's major environmental issues and an important part of tackling the problem is mapping salinity, from the regional or catchment scale down to the farm paddock.

The first stage of the project, a scoping workshop hosted by the Academy in Canberra on 1 September, was attended by a group of 25 invited experts in salinity mapping from around Australia. After an address by Lord Robert May of Oxford, the

President of the Royal Society of London, the scientists participated in a lively discussion of salinity mapping issues. Feedback from the workshop was incorporated into a draft technical report and user's guide.

These draft reports were then discussed at the public forum on 17 October, which was chaired by Academy Fellow Dr Phil McFadden. Approximately 70 people, representing a range of stakeholders, heard leading scientists in four broad areas of salinity mapping give presentations. Each session was followed by an extensive open floor discussion. A transcript of the proceedings is available on the Academy's website at [www.science.org.au/conferences/salinity/index.htm](http://www.science.org.au/conferences/salinity/index.htm).

Feedback from the forum was incorporated into the final reports, available on the National Dryland Salinity Program's website at [www.ndsp.gov.au/80\\_airborne/airborne.htm](http://www.ndsp.gov.au/80_airborne/airborne.htm).

## Academy releases new innovation policy *(Continued from page 1)*

8. That HECS-exempt scholarships be provided for students commencing science teacher education and a percentage of the HECS debt of science and mathematics teachers forgiven for each year of teaching service.
9. That the ad hoc nature of the Major National Research Facilities Program be replaced by the inclusion of a one-line budget item in the Science and Technology Budget each year, even if there are competitive rounds on a less-than-annual basis.
10. That government works to maintain bipartisan support not only for the Cooperative Research Centre Program, but also for education, research and innovation more broadly.
11. The Academy proposes a model for enhanced collaboration in the Australian innovation system via a competitive Collaborative Fellowship scheme involving universities, Publicly Funded Research Agencies and industry, to be administered by the Joint Academies.
12. That government retains the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) and upgrades the Commonwealth, States and Territories Advisory Council on Innovation.
13. That government ensures that Australia retains a creative scientific community capable of pursuing internationally significant science, and makes specific provision for the maintenance of international linkages with Australian research and researchers.

## New principal sponsor for *Nova: Science in the news*

The Academy is delighted to announce that the Commonwealth Bank Foundation has become the new principal sponsor of its highly regarded *Nova: Science in the news* website. The sponsorship amount of \$150,000, to be paid over a 3-year period, will go towards development and infrastructure costs.

The Commonwealth Bank Foundation's sponsorship builds on the support provided over the last 7 years by the Australian Foundation for Science, the Australian Government and Telstra. Individual topics on *Nova* are sponsored by relevant organisations, including research institutions, private companies, government agencies and philanthropic trusts.

*Nova* continues to increase in popularity, receiving over 1.6 million hits during the 12-month period to the end of August 2003. Part of *Nova's* growth is the result of being a favourite link from other websites. This is reflected in the prominence of *Nova* topics in the 'top ten' results for keyword searches on the web's largest search-engine, Google.

Recent topics added to the *Nova* website are 'Stem cells – gateway to 21st century medicine' and 'Nanoscience – working small, thinking big'. *Nova* is at [www.science.org.au/nova](http://www.science.org.au/nova).



From left: John Ralph (Chair of the Australian Foundation for Science), Professor John McKenzie (Secretary, Education and Public Awareness) and Academy President Dr Jim Peacock.

## Primary science and literacy project

The Academy has embarked on a collaborative national project to link the teaching of science with the teaching of literacy in primary schools. This follows a decision by the Board of Directors of the Australian Foundation for Science to fund the first stage of the project.

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 have all nominated representatives for the Reference Group. Discussions with the State and Territory education jurisdictions have been very positive.

The first stage of the project will involve the development of a model that meets the needs and priorities of each State and Territory. A meeting of the Reference Group will be held at the Shine Dome in early December.

## Australian Foundation for Science

To enable the Australian Foundation for Science to streamline its administration, its structure is to be changed. Members voted for this change at the Foundation's Annual General Meeting on 18 September. The solvent voluntary winding-up of the Foundation as a separate company and its re-establishment as a recognisable entity under the Academy's umbrella will take several months. The re-established entity will continue to be called the Australian Foundation for Science and the Foundation's projects will continue to operate in the same way as they currently do.

## News from our National Committees

At the 16th Conference of the International Union for Quaternary Research (INQUA), held from 21-30 July in Reno, USA, the following Australians were elected to office: Professor Allan Chivas, University of Wollongong, Treasurer; Associate Professor Colin Murray-Wallace, University of Wollongong, Commission President: Coastal and Marine Processes; Dr Brad Pillans, Australian National University, Commission President: Stratigraphy and Geochronology. One of the six new honorary members approved at the conference was Professor Jim Bowler from the University of Melbourne. Honorary memberships acknowledge outstanding contributions to Quaternary research and to the service of INQUA. It was also announced that the **National Committee for Quaternary Research's** bid for Australia to host the 17th INQUA conference in Cairns in August 2007 was successful.

One of the topics discussed at the meeting of the **National Committee for Antarctic Research** in Melbourne on 22 July, was the hosting of the 29th meeting of the Scientific Committee on Antarctic Research (SCAR), which will be held in Hobart in 2006.

On 24 July Academy Fellow Professor Ronald D Ekers, **National Committee for Astronomy**, assumed the Presidency of the International Astronomical Union (IAU). The IAU, founded in 1919, is the internationally recognised authority overseeing the science of astronomy. Professor Ekers' term will run until 2006. Professor Rachel Webster, Chair of the National Committee for Astronomy, said, 'Professor Ekers has played a key role in fostering the careers of a whole generation of Australian scientists. In addition to this, he has created an internationally competitive radio observatory.'

Two Australian delegates, Dr John Forge, **National Committee for History and Philosophy of Science** member, and Dr Rachel Ankeny, University of Sydney, attended the General Assembly of the Division of Logic, Methodology and Philosophy



Members of the National Committee for Geography. Back row from left: Professor Ruth Fincher, Professor Kathleen Gibson, Professor Jim Walmsley, Professor David Gillieson (Chair), Professor John Dodson, Dr Iraphne Childs, Professor Iain Hay. Front row from left: Emeritus Professor Bruce Ryan, Julia Freeman.

of Science, of the International Union of the History and Philosophy of Science (IUHPS), in Oviedo, Spain from August 7-13.

At the recent 42nd General Assembly of the International Union for Pure and Applied Chemistry (IUPAC), held from 8-15 August in Ottawa, the following Australians were elected to office in the IUPAC Bureau for 2004-5: Professor David St C Black, University of New South Wales and former Chair of the **National Committee for Chemistry**, Secretary General; Professor Robert G Gilbert, University of Sydney, Elected Member.

**National Committee for Chemistry** member, Professor John Ralston, University of South Australia and recent IUPAC Australian delegation leader, has been nominated to be the Australian representative on the newly created IUPAC Union Advisory Committee, which will advise the Executive Committee on IUPAC policy. Dr Andrew Whittaker, University of Queensland, has been nominated to be

the national representative for IUPAC's Macromolecular Division.

The **National Committee for Crystallography** met in Broome on 12 August. The Committee discussed the current review of higher education collaboration; supported a proposal for a synchrotron summer school to be held at the Australian National University in February 2004, and noted that a soft/hard X-ray conference would be held in Cairns in July 2004. On 5 September the Academy issued a media release on 'The case for an Australian synchrotron' (available at [www.science.org.au/academy/media/5september03.htm](http://www.science.org.au/academy/media/5september03.htm)).

The Australian Law Reform Commission is currently undertaking an Inquiry on Gene Patenting. A meeting was held at Ian Potter House in Canberra on 22 September at which the Commission's Issues Paper, *Gene Patenting and Human Health*, was discussed. The Commission's representatives at this meeting were Professor Anne Finlay (Commissioner),

## Boden Conference

Associate Professor Brian Opeskin (Commissioner), Bruce Alston (Senior Legal Officer) and Miranda Biven (Senior Legal Officer). They were joined by the Chair of the **National Committee for Biomedical Sciences**, Professor Philip Kuchel, the Chair of the **National Committee for Plant and Animal Sciences**, Professor Andrew Cockburn, and representing the **National Committee for Medicine**, Professor Jonathan Stone.

The **National Committee for Geography** met at Ian Potter House on 26 September. Topics discussed included the structure, program and timelines for the organising committee of the International Geographical Union (IGU) regional conference to be held in Cairns in 2006; liaison with geographers in Southeast Asia and the Southwest Pacific; and the forthcoming IGU Congress to be held in Glasgow in 2004. Dr Robert Baker, University of New England, has been appointed as Vice Chair of the IGU Commission on Modeling Geographical Systems.

In October, **National Committee for Earth System Science** member Professor Andy Pitman, Macquarie University, was endorsed as Australia's representative on the International Geosphere-Biosphere Programme (IGBP).

The National Committee for Mathematics has changed its name to the **National Committee for the Mathematical Sciences**.

The Minister for Science, Mr Peter McGauran, launched the **National Committee for Earth Science's National Strategic Plan for the Geosciences** on 15 October at Parliament House, Canberra. The strategic plan is presented as a framework within which the geosciences can develop their contribution to major national and global issues and ensure the maintenance of research excellence. Copies of the 86-page report are available from Judy Richmond at the Academy ([ns@science.org.au](mailto:ns@science.org.au)) or can be downloaded from the Academy's website at [www.science.org.au/natcoms/earth-strategic.pdf](http://www.science.org.au/natcoms/earth-strategic.pdf).

The Boden Conference on Epithelial-Mesenchymal Transitions (EMT) was held on 5-8 October 2003 at Port Douglas, Queensland. The meeting was convened locally by Don Newgreen from the Murdoch Children's Research Institute, Erik Thompson from the Bernard O'Brien Institute of Microsurgery, and Guy Lyons from the Sydney Cancer Centre. A powerful international committee was chaired by Professor Elizabeth Hay from Harvard Medical School and included US, Canadian, Japanese, German and French members. The conference was supported by the National Institute of Health (USA), the Potter Foundation, a number of Australian research institutes, in addition to Academy support.

EMT involves differential expression of many genes and alterations in the function of many cellular and extracellular molecules. EMT is the name given to a very complex set of changes in cell behaviour. The outcome of these changes is the transformation of cells arranged in a coherent layer – epithelial cells – to more individualistic and potential motile cells – mesenchymal cells. It was recognised decades ago, by Professor Hay, as a primary mechanism in

embryogenesis for remodelling tissues. More recently EMT has been seen as crucial to the spread and invasion of carcinoma, and more recently still, various pathologies marked by fibrosis have had their resemblances to EMT explored. Despite the basic and clinical importance of EMT, this extremely rapidly growing field has never had a conference devoted to it, and indeed the disciplines of developmental biology, cancer and pathology rarely interact although they have much to share.

This Conference addressed these shortcomings by bringing together 120 international and Australian experts spanning each of these disciplines. Keynote lectures were given by Professor Elizabeth Hay, Professor Mary Hendrix from the University of Iowa, and Professor Jean Paul Thiery from the Institut Curie, Paris.

Plans for future EMT Conferences were unanimously agreed upon during one of the open discussion sessions. These will be held in Canada in 2005 and in France in 2007.

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

## Census of marine life

More than 50 nations – including Australia – are contributing to the Census of Marine Life – a US\$1 billion, 10-year global initiative to assess and explain changes in diversity, distribution and abundance of life in the oceans.

The project will advance scientific knowledge of marine biodiversity, build international cooperation and technology, and respond to research needs for the decade. It also promises to assist countries to meet other needs such as providing information for issues related to biodiversity conservation, marine protected areas, sustainable fisheries, habitat loss and pollution, and global climate change. All information

collected will be available online for scientists and the general public via the Ocean Biogeographic Information System (OBIS).

Australia is represented on the international steering committee overseeing the project by Dr Ian Poiner, CSIRO Marine Division. The national steering committee for Australia met for the first time in October to discuss its terms of reference and the development of a 5-year plan. The Academy is represented on the national steering committee by its Senior Science Policy Analyst, Dr Gina Newton, who is also Vice-President of the Australian Marine Sciences Association.

## International visitors

### National Science Council of Taiwan

Dr Che-Ho Wei, Minister for Science and Chairman of the National Science Council of Taiwan, visited Australia from 19-21 August to officially open the S&T Division of the Taipei Economic and Cultural Office (TECO) and the Australia-Taiwan Food Biotechnology Workshop in Sydney. The Academy and the Academy of Technological Sciences and Engineering hosted a dinner for Dr Wei and his delegation on 19 August 2003. On 10 October, Professor Brian Kennett, Chair of the Academy's Asia and Postdoctoral Exchange Committees, met with Dr Kuan-Ching Lee, Counsellor, Science and Technology Division of TECO, Professor Huang Yang from the National Science Council, and Professor Wen-Hsien Li, Department of Physics, National Central University of Taiwan, to discuss activities between Australia and Taiwan.

The visitors also met with the Acting-Director of the Research School of Physical Sciences, Professor Stephen Buckman, who gave them a tour of the School and hosted a working lunch for them. Professor Neville Fletcher represented the Academy at the lunch.

### Visit by UK researcher

Academy President Dr Jim Peacock hosted a lunch for Baroness Susan Greenfield at the Academy on 10 September 2003. The lunch was attended by Professor Ian Chubb, Vice-Chancellor of the Australian National University, and several Fellows of the Academy. Professor Greenfield is Director of the Royal Institution of Great Britain, a post she holds jointly with her Chair of Pharmacology at Oxford University. She was visiting Australia at the invitation of the Rio Tinto Science Olympiads.

### North Korea

The Ambassador of the Democratic People's Republic of Korea, Mr Jae Hong Chon, met with the Academy's Foreign Secretary, Professor Kurt Lambeck, on 16 October. The Ambassador was interested in learning about the Academy's activities, particularly its exchange programs.



From left: Dr John Zillman (President of the Australian Academy of Technological Sciences and Engineering), Dr Che-Ho Wei, Dr Jim Peacock, Dr Timothy Yang (representative of the Taipei Economic and Cultural Office in Canberra).



From left: Professor Kurt Lambeck, Dr Chung-Duk Kim, Dr Keith Boardman, Professor Sue Serjeantson and Byung-Whan Ho (Director of the Division of International Programs of KOSEF).

### French Academy of Sciences

The Foreign Secretary met with Professor Gerard Siclet of the French Academy of Sciences on 10 November to discuss French-Australian relations and matters relating to the International Council for Science (ICSU). Professor Siclet was in Canberra to attend the FEAST 4 conference, Networking for Excellence.

### Korea Science and Engineering Foundation

The Foreign Secretary met with Dr Chung-Duk Kim, the Chairman of the Korea Science and Engineering Foundation (KOSEF), on 11 November to discuss KOSEF's collaborative programs with the Academy. Dr Kim was in Australia to explore the possibility of further promoting

scientific cooperation with counterpart organisations in Australia, and to get an overview of research activities in Australia.

### Forum for European-Australian Science and Technology Cooperation

The Foreign Secretary, Professor Kurt Lambeck, welcomed the Minister for Science, Mr Peter McGauran, and the His Excellency Patrick Henault, Ambassador of France in Australia, to the Academy on 12 November for the signing of a new French-Australian Science and Technology Programme jointly funded by the French Embassy and the Department of Education, Science and Training. The program will provide resources for a DEST-French Embassy Call for Proposals, to support workshops and collaborative research projects. The programme will be open to both public and private researchers, with priority being given to the fields of natural resources, life sciences, energy, material and Information and Communication Technology.

The signing of the new agreement coincided with the launch of FEAST-France research network. The network, a sub-group of FEAST, will provide support for the French-Australian research community, facilitating the organisation of collaborative projects, workshops and other activities through a network of liaison officers and the provision of information on grants, events, contacts and potential partners.

The FEAST Networking for Excellence Conference – a conference on world-leading research and the importance of networking – was held at the Shine Dome and the Australian National University on 13-14 November. The conference, the fourth in a series of events organised by FEAST to promote Australian-European research collaboration, provided researchers, research managers and policy makers with an ideal opportunity to explore research activities and major drivers impacting on international research collaboration.

### Chinese Academy of Sciences

The President of the Chinese Academy of Sciences and Vice Chairman of the Standing Committee of the National People's Congress of the



Professor Kurt Lambeck receives a gift from the President of the Chinese Academy of Sciences, Professor Lu. (Photo courtesy of Chinese Embassy, Canberra.)



From left: The Governor-General, Major-General Michael Jeffery, Professor Yongxiang Lu and the Minister for Education, Science and Training, Dr Brendan Nelson, at the dinner hosted by the Academy for Professor Lu.

People's Republic of China, Professor Yongxiang Lu, visited the Academy on 13 November to discuss the exchange program between the Academies and to get an overview of Australia's research and development activities. After giving a lecture at the Shine Dome he was the guest of honour at a dinner hosted by the Academy's Foreign Secretary, Professor Kurt Lambeck. The Governor-General, Major-General Michael Jeffery and Mrs Jeffery, also attended the dinner. While in Australia, Professor Lu opened the joint laboratory of Soil

Biology/Soil Environmental Science of the University of Adelaide (Waite Campus) and the Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing. He also renewed an agreement between the University of Melbourne and the Chinese Academy; and signed an Agreement relating to an AusAID/ACIAR-supported project with the Chinese Academy of Sciences, Tibet Bureau of Agriculture and Animal Husbandry, Tibet Academy of Agricultural and Animal Sciences and CSIRO Sustainable Ecosystems.

## Honours to Fellows

**Professor Graeme M Clark** has been made an Honorary Fellow of the Royal Society of Medicine (London) for his fundamental and pioneering research into hearing loss and the development of the cochlear implant to restore or reduce that loss.

**Professor Ron Ekers** has been appointed President of the International Astronomical Union - the world's largest professional body for astronomers. Professor Ekers was the Foundation Director of the Australia Telescope National Facility from 1988 until 2003, when he took up a Federation Fellowship (see page 4 for more information).

**Professor Jenny Graves'** work with kangaroo chromosomes is being featured on a series of Australian stamps. Professor Graves is the leader of a new research centre to be established at the ANU to research the kangaroo genome. The Centre for Kangaroo Genomics is funded by the ARC and includes Academy Fellows **Professor Terry Speed** and **Professor Marilyn Renfree**.



Professor Jenny Graves and one of the stamps in the series.

**Professor Roger Summons** has won the 2003 Alfred Treibs Award for major achievements in organic geochemistry.

The Award is presented by the Geochemical Society of America's Organic Geochemistry Division.

## 2003 PM's Prize

**Professor Jacques Miller** has been awarded the 2003 Prime Minister's Prize for Science for contributions to immunology through his research into the role the thymus plays in the immune system. He also discovered that mammals have two distinct types of white blood cells - those created in the thymus (T cells) and those derived from bone marrow (B cells). His research in these areas has been fundamental to the work of other research scientists. The prize was awarded on 9 September at a dinner in the Great Hall of Parliament House. In announcing the win, the Prime Minister said that Professor Miller 'is a pre-eminent research scientist whose immense contribution to our understanding of immunology has had a far reaching impact on



Professor Jacques Miller (right) being congratulated by Dr Jim Peacock.

international medical research and treatment'. Professor Miller was interviewed for the Academy's *Video Histories of Australian Scientists*

series in 1999. An edited transcript is available on the Academy's website at [www.science.org.au/scientists/jm.htm](http://www.science.org.au/scientists/jm.htm).



## ACADEMY AWARDS

### 2003 Haddon King Medal

Academy Fellow Dr Ken McCracken was presented with the Haddon King Medal at a dinner at the Shine Dome on 28 August. Members of the King and McCracken families attended, together with many of Ken's colleagues. The guests enjoyed Ken's overview of his research in mineral exploration, which began in 1971 when CSIRO appointed him to establish a laboratory to develop geophysical techniques for minerals exploration in the Australian environment. Since his retirement from CSIRO in 1989 Ken has consulted widely in the Australian mining industry. In particular, he played an important role in BHP's (now BHP Billiton) development of the ability to map the Earth's gravitational field from low-flying aircraft.

The Haddon King Medal honours the contributions of the late Haddon Forrester King to mineral exploration. The award, normally made every two years, is made to a scientist, resident in Australia or elsewhere, for original and sustained contributions to Earth and related sciences. More information is available at [www.science.org.au/awards/haddon.htm](http://www.science.org.au/awards/haddon.htm).



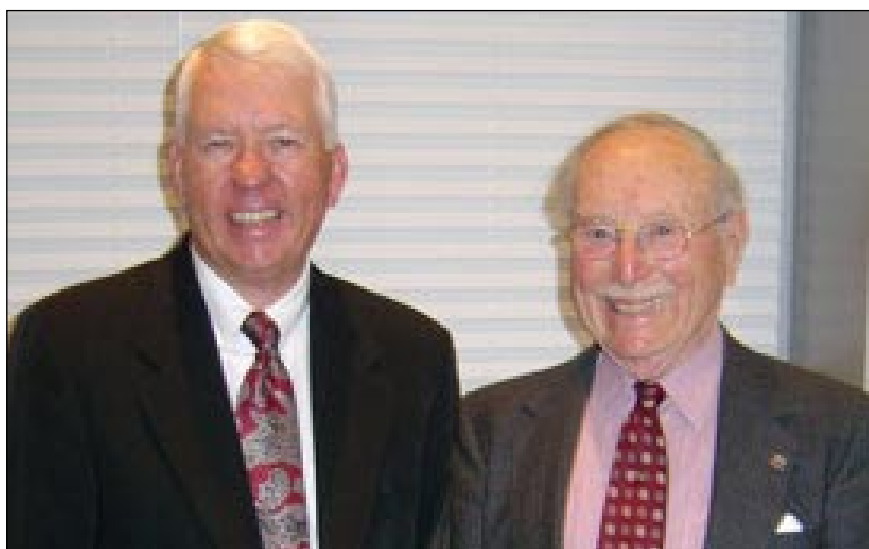
*Dr Ken McCracken (right) and Dr Jim Peacock with the Haddon King Medal.*

### 2003 Selby Fellowship

The 2003 Selby Fellow, Dr Charles Arntzen, Presidential Chair and Director of the Arizona Biomedical Institute at Arizona State University, visited Australia from 14-24 October, giving public lectures and scientific workshops in Perth, Canberra, Melbourne and Adelaide.

Dr Arntzen is known for his groundbreaking work in plant-based vaccines. Much of his research is focused on developing low-cost delivery systems for vaccines against diseases such as hepatitis B, E. coli and the Norwalk virus. He has worked with tomato-based vaccines and has recently concluded clinical trials using potatoes. The purpose of his visit was to enable interaction with scientific colleagues and to convey to the wider Australian community the achievements and potential for GMO technologies for human health worldwide, especially in developing countries.

The Selby Fellowship is generously supported by the Selby Scientific



*Dr Charles Arntzen (left) with Benn Selby.*

Foundation and is presented annually. Fellowships are awarded to distinguished overseas scientists to visit Australia to give public lectures and seminars and to visit scientific centres in Australia. Fellows

are expected to increase public awareness of science and scientific issues. More information is available at [www.science.org.au/awards/selby.htm](http://www.science.org.au/awards/selby.htm).

## Academy sponsors Dialogica Award

The Academy has sponsored a prize for science writing in this year's *Campus Review's* Dialogica Awards. This was the second year of the awards, which are designed to encourage excellence in written communication by academics, researchers, administrators and educators.

The Academy sponsored a \$3000 special prize for excellence in communication on a scientific topic by a researcher aged 35 and under.

At a presentation ceremony at Melbourne's Victoria University, Professor John McKenzie, the Academy's Secretary for Education

and Public Awareness, presented a cheque for the Academy's prize to Dr Joseph Hope, from the Physics Department at the Australian National University. Joseph's entry, 'Living in the real world', is an entertaining and easy-to-read essay dealing with the mysteries of quantum mechanics. It is available on the Academy's website at [www.science.org.au/academy/media/dialogica03.htm](http://www.science.org.au/academy/media/dialogica03.htm).

Professor Don Napper, a Fellow of the Academy, joined lead judge Professor Malcolm Gillies and Professor Fay Gale in judging the entries.



*Dr Joseph Hope (right) receiving his award from Professor John McKenzie.*

## National Research Infrastructure Taskforce

In recognition of the importance of infrastructure to the research efforts of Australia, the National Research Infrastructure (NRI) Taskforce was established in May 2003 by the Minister for Education, Science and Training, Dr Brendan Nelson, to develop a National Research Infrastructure Strategy. The National Academies Forum was represented on the Taskforce by Dr Phil McFadden.

The strategy will inform Government investment in research infrastructure for publicly funded higher education institutions and research agencies. It will also aim to ensure that funded infrastructure is used effectively and productively and remains relevant and viable for the research it supports.

The Taskforce's national consultation process drew 110 submissions, including a substantial submission from the Academy (available at [www.science.org.au/academy/media/23july03.pdf](http://www.science.org.au/academy/media/23july03.pdf)). In early October the Taskforce released a draft Discussion Paper and held a second series of stakeholder consultations around the country before presenting a final report to Dr Nelson at the end

of October. In its final report (available at [www.dest.gov.au](http://www.dest.gov.au)), the Taskforce reinforced the view that a high quality research sector is an essential component of national competitiveness and that lack of access to research infrastructure of relevance and of global significance is likely to limit the outcomes and quality of research – a view increasingly held by many other nations.

The Taskforce proposed a series of investment principles to be adopted by all publicly funded research agencies and funding agencies. These generally call for a strategic and cooperative approach to investment – as opposed to the more traditional competitive process typical of funding for research themes or projects. Importantly, the Taskforce proposed the formation of a National Research Infrastructure Council to oversee, implement, monitor and review the strategy and to provide advice to governments. The Academy welcomes the approach suggested by the Taskforce and hopes that it will address the significant gap in funding support of Australia's Major National Research Facilities, as identified and described in the Academy's submission.

## National Science Foundation Program

The US National Science Foundation (NSF) is advertising its 2004 summer program in Australia for US graduate students in science and engineering. The program, announced in September by the Minister for Science, Mr Peter McGauran, is managed by the Academy.

To reflect the inclusion of Australia in the list of eligible countries, NSF has added 'Pacific' to the name of the program, which is now known as the East Asia and Pacific Summer Institutes for US Graduate Students. China, Japan, Korea and Taiwan are the other countries covered by the program.

The program will allow twenty US students to travel to Australia, for a period of 8 weeks from June/July to August, to conduct research in laboratories and to initiate personal relationships with their Australian counterparts. For more information see [www.nsf.gov/sbe/int/start.htm](http://www.nsf.gov/sbe/int/start.htm).

## Richard Mark

Richard Freeman Mark was born in Tauranga, New Zealand on 11 August 1934 and died in Canberra on 13 August 2003. He was educated at Otago University, New Zealand, graduating MMedSc in 1956 and MBChB in 1959; and the Université d'Aix-Marseille, France, where he was awarded a Doctorat de Troisième Cycle. Research for both of his postgraduate degrees led to papers in *Nature*, a very auspicious beginning for his career.

After spending several years as a research fellow in biology at the California Institute of Technology, he came to Australia to take up a senior lectureship in physiology at Monash University in 1966, progressing to reader in 1970. In 1975 he joined the Australian National University as a professor of biology and head of the newly formed Department of Behavioural Biology in the Research School of Biological Sciences. The Department became the Developmental Neurobiology Group in 1988 and he continued to head this group until he retired in 1999. He was also a registered medical practitioner in the ACT.

His research looked at how specific connections become established during growth and regeneration of nervous tissue, and the essential cellular basis of memory and learning. His approach was interesting because he combined both behavioural and cellular neurophysiological techniques. He also studied a variety of subjects. Before coming to Australia he studied cats, humans and monkeys, while at Monash University he undertook a long series of investigations on fish, including competitive reinnervation of muscle, and also studied axolotls, frogs and chicks. His ideas of synaptic competition and selection which were conceived during this period were ahead of their time but were later widely accepted. Finally, during his time at the ANU he worked on marsupials, whose early birth and long developmental period lent themselves well to studies of mammalian development, using *in vivo* techniques. This research, which continued until this year, included the development and function of visual, auditory and somatosensory systems.

Mark won the G E Rennie Medal of the Royal Australian College of



Richard Mark (Photo: Jeffrey Wilson, RSBS Photography, ANU).

Physicians in 1975 and the South Australian Museum's Peter Aitkin Medal in 1992. He was elected to the Academy in 1974 and served on the Council from 1984 to 1987.

He is survived by Lauren, his children David and Bettina and his grandchildren Jacob and Lily.

## New SET Unit

A new Science, Engineering and Technology Unit has been established as part of the National Security Division of the Department of the Prime Minister and Cabinet to provide an overarching view of national research requirements and priorities for counter-terrorism.

Initially the SET Unit is developing a set of priority requirements for possible research, based on capability gaps identified by the agencies responsible for counter-terrorism. At the same time, it is developing a research program to support the best research proposals in line with the priority requirements. To this end, it is consulting widely both in the counter-terrorism and SET communities.

The Unit is looking to achieve the same sort of outcome that was achieved by a rapid survey undertaken by the Prime Minister's Science, Engineering and Innovation Council Working Group on Science and Security in September 2002. The survey identified two research tasks that have since been applied to the counter-terrorism problem with some success. The SET Unit is hoping to identify such future opportunities to more effectively apply national resources in SET for the counter-terrorism problem.

The SET Unit can be contacted on [setu@pmc.gov.au](mailto:setu@pmc.gov.au) or by phone on (02) 6271 5247.

## 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 **Dr Ken Key** is Dr Max Day; the biographers for **Professor Richard Mark** are Professor Lesley Rogers and Professor Phil Waite; the biographers for **Professor Ian Thornton** are Professor Tim New, Dr Alan Marshall and Dr Courtney Smithers; the biographers for **Professor Alan Wardrop** are Professor R E Williamson, Professor Bruce Stone and Dr Huntly Higgins.



The Academy's President, Dr Jim Peacock, enjoying a moment with his wife Margie during celebrations at CSIRO Plant Industry to mark his retirement. Dr Peacock retires as Chief of CSIRO's largest research Division in December after 25 years at the helm. Academy Fellow Dr Jeremy Burdon will take over as Chief.



Former Academy President, Dr Lloyd Evans, was recently interviewed for the Academy's series of interviews with Australian scientists. Here he is explaining how he uses *Lolium* plants to investigate flowering. Transcripts of interviews are available at [www.science.org.au/scientists](http://www.science.org.au/scientists).

## International Scientific Linkages

The Academy has been funded under the ARC's Learned Academies Special Projects Scheme to undertake a study in 2004 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 set 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.

The Academy's Foreign Secretary, Professor Kurt Lambeck, will chair the steering group for this project.

## Changes to Academy Charter and Bye-Laws

The Governor-General, Major-General Michael Jeffery, has approved the Supplemental Royal Charter and changes to the Academy's Bye-Laws. These appeared in the 5 November 2003 issue of the *Commonwealth of Australia Gazette*. The changes to the Bye-Laws permit the Fellowship to elect up to four additional Fellows by ordinary election and up to three by special election in our anniversary year of 2004. The Fellowship was overwhelmingly in favour of these changes in the postal ballot conducted in June of this year and it is pleasing to see the matter come to fruition.