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April 2008

Future Events 2008

Lectures in Sydney are held in Lecture Room 1, Darlington Centre, University of Sydney at 7 pm on the first Wednesday of the month with drinks available from 6 pm.

Sydney

Wednesday 7 May

From sulphur chemistry to new cancer treatments

Professor Phil Hogg

Director of the UNSW Cancer Research Centre

Wednesday 4 June

The Australian Tsunami Warning System - protecting Australia from waves of destruction

Dr Dale Dominey-Howes

School of Safety Science UNSW

Southern Highlands Branch

15 May, 6.00pm

Greenhouse Solutions with Sustainable Energy

Dr Mark Diesendorf

Institute of Environmental Studies

The AGM will be held at this time Frensham, enter off Waverley Parade Mittagong.

Sydney Observatory 150

Saturday 14 - Sunday 15 June

Seminars on the history of Australian meteorology and astronomy

Target Theatre, Powerhouse Museum -details p4

AIP-RNSW Joint Lecture

Tuesday 27 May 2008

6.00 for 6.35 pm

Professor Bob Clarke, UNSW

Slade Lecture Theatre, School of Physics, Sydney University

Further details next issue

From sulphur chemistry to new cancer treatments

Professor Philip Hogg

Genes encode proteins, which are the machinery of life. All life forms make proteins that contain strong bonds between pairs of cysteine amino acids called disulphide bonds. Most disulphide bonds stabilize a protein's structure. A minor population of disulphide bonds serves a functional role. Philip and his team have shown that some disulphide bonds have evolved to control how protein's work by breaking or forming in a precise way. He has called these bonds 'allosteric disulphides'. Application of this basic research has led to the development of a novel class of cancer drugs and a cell death imaging agent. The lead cancer drug is currently being trialled in cancer patients. The imaging agent non-invasively detects dying and dead tumour cells. The agent could be used, for instance, to assess the efficacy of cancer therapy. The technology has been licensed to Pharma for clinical development.



Philip Hogg

Professor Philip Hogg graduated with a PhD in biochemistry from the University of Queensland in 1987. Following post-doctoral stints in the USA and Sweden he returned to Sydney in 1991. He is now Director of the UNSW Cancer Research Centre and will lead adult cancer research in the new Lowy Cancer Research Centre that is currently being built on the UNSW Campus. Philip has won numerous awards for his research, has published over 100 research articles and is an inventor on 24 patents.

Innovation

Presidential address, AGM April 2008

In his address on innovation to the AGM, the President, John Hardie, challenged members to recognise the importance of innovation if the Royal Society is to function effectively in the future.

He started by considering the present situation in terms of the Society's strengths, weaknesses, opportunities and threats, using as examples of strengths, its rich historical background, its collection of unique historical material and its new approaches to time-honoured activities. The Society has consolidated some of its strengths by playing a key role in the newly launched Royal Societies of Australia, by reinvigorating the Bulletin and Proceedings and through the initiative to return science to Science House.

The second part of the address looked at what innovation is and how it is applied in various organisations, particularly those related to science and the promotion of science. The President defined innovation as: 'To innovate is to derive new value or to lead to something new'.

The third part of the address explored how innovation could be applied in the context of the Royal Society of NSW. The President stated that the Society must accept and embrace innovation, and that it must innovate - with measured self-confidence - if it is to move forward and live up to the goals expressed when the Society was founded.

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Patrons

**His Excellency, Major General Michael Jeffery AC CVO MC (ret'd),
Governor General of the Commonwealth of Australia**

Her Excellency, Professor Marie Bashir AC CVO Governor of NSW

National Water Commissioner – Professor Peter Cullen



Australia lost one of its great scientists when Professor Peter Cullen died on the 13th of March 2008.

The Minister for Climate Change and Water, Senator Penny Wong, said, "Professor Cullen was a unique and courageous Australian scientist who bridged the gap between the worlds of science and politics.

"To use his own words, he felt an obligation in 'speaking truth to power'.

"As a Commissioner for the National Water Commission, and in many other roles, he made a powerful contribution to national water reform.

"As an internationally renowned freshwater ecologist working in the area of water in the landscape Professor Cullen's scientific work gave Australians a new understanding of the fragile nature of our rivers and wetland systems.

What impressed me personally was Peter Cullen's remarkable communication skills. He had the rare talent for 'explaining complex problems and the solutions offered by science'. He was very quick to commend his science communicators for the help they gave in getting his message out.

He was also a 'Fellow of Science in the Pub' an honour bestowed on him when he joined a panel to debate Publicise or Perish, moderated by the ABC's Dr Paul Willis and Bernie Hobbs for the CRC Association Conference in Melbourne in April 1999. However, apart from this, he was honoured by many other awards, including Officer of the Order of Australia, and the Prime Minister's Prize for Environmentalist of the Year in 2001.

He went on to become a founding member of the Wentworth Group of Concerned Scientists for which he became the public figure identified with water issues and the environment.

Robyn Stutchbury, with extracts from Distilled, the Monthly Newsletter from the National Water Commission March 2008.

President's Address continued from p1



In conclusion, the President offered the following suggestions for future action within the Society:

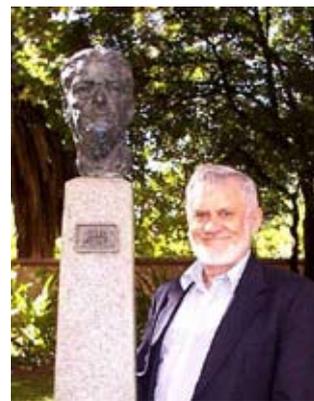
- Use the available technology
- Publish our heritage
- Promote the Society
- Foster new relationships
- Innovate.

John Hardie, President, addressing the Society's Annual General Meeting

The full text of the Presidential Address will appear in the Society's Journal.

A Report from our Historian

Consultant historian Dr Peter Tyler has now begun preliminary work on the Society's history. One of the first stages of the project will be to conduct oral history interviews with a selection of people who had (and perhaps still have) connections with the Royal Society of New South Wales. Some of the obvious choices will be the surviving Past Presidents, but it is also desirable to get a broad range of viewpoints - rank and file members, guest lecturers, government officials and other people who have been associated with the Society over the years. Unfortunately, we have lost touch with some of these people.



Peter Tyler with Lord Florey

Oral history has been defined as a picture of the past in people's own words. If you are interested in being interviewed, or you know the whereabouts of other people who have made significant contributions to the activities, Peter would like to hear from you (ptyler@bigpond.net.au or phone 02 9420 4371). Not everybody who volunteers will be asked to do a formal interview - in some cases a brief telephone chat might be sufficient to gather the relevant information.



NO IT DEFINITELY ISN'T VIDEO...
NO ONE WILL KNOW YOUR TOUPE
KEPT SLIPPING OFF.

About fifteen people will be interviewed in depth. This will involve a session of about one and a half hours, either at your home or office, or at the Royal Society rooms if you prefer. Location, times and dates are flexible. The interview will be recorded, forming a primary historical resource that will be deposited with the Royal Society archives held by Mitchell Library. Interviews will not be transcribed into a verbatim text a la Hansard, but will be "logged" so that notable comments can be located readily. A copy of the recording will be given to each interviewee if requested;

interviewees will not be directly quoted without permission.

2007 Annual Reports

The Society's Annual Reports which were presented to members at the AGM on 2 April are available on our website at: <http://nsw.royalsoc.org.au/society.html> If you cannot access the reports on the web and would like a hard copies sent to you please contact the Office.

Membership Renewal

Your membership renewal forms have been mailed to you recently. Your prompt payment will be appreciated. You can now pay your membership electronically; for more details see your renewal form. If using this system be sure to include your reference details i.e. membership number and name. You should also send a fax or email to the office to allow us to check the payment is actually received.

NSW Scientist of the Year Award

The NSW Government through the Office of Science and Medical Research (OSMR) has announced NSW Science Prizes with nominations due on Friday, 20 June 2008.

Categories

Nine awards of \$5,000 each will be granted to individuals in the following categories:

1. Environment, water and climate change sciences
2. Mathematical sciences
3. Physics and astronomy
4. Biomedical sciences
5. Plant and animal sciences
6. Chemistry
7. Computer sciences
8. Engineering sciences
9. Leadership in secondary science teaching

The main award of \$40,000 for the NSW Scientist of the Year will be granted to the overall winner, selected from the first eight categories. Awards in categories 1-8 will be granted to individuals on the basis of:

- Excellence of research
- Work that has been undertaken in the last five years
- Work that addresses a significant health, environmental or technological challenge facing NSW
- Work that has the potential to impact on priorities set out in the NSW State Plan and the NSW Innovation Statement.

http://www.osmr.nsw.gov.au/science_communication/science_promotion/scientist_of_the_year

Would you like to help motivate today's science students to build a bigger and brighter generation of Australian researchers?

The CSIRO 2008 Student Research Scheme is now open for project nominations and it needs your help to make the scheme a success

The Student Research Scheme is a national program that offers selected senior secondary science students the opportunity to complete a brief research project under the supervision of practising researchers in laboratories, offices and field study areas.

Unlike work experience, students are presented with a problem or an idea, and undertake a minimum of 20 hours of real research to develop their own sets of results and findings in order to complete the project. The project can be a small part of ongoing research, or a project specially designed for the scheme. Most projects take place during the school holidays.

Nominations close soon so please help by forwarding this information to scientists in your organisation. For further information, please contact:

Ms Rachel Rothwell 02 9490 8428 Email srs.nsw@csiro.au

Entries for the Eureka Prizes close 2 May 2008
www.australianmuseum.net.au/eureka
email: eureka@austmus.gov.au
or Roger Muller at the Museum: 61 2 9320 6230

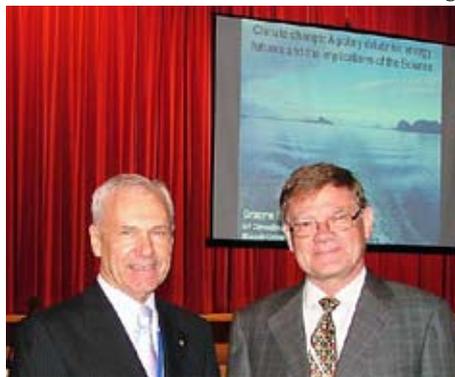
Southern Highlands Branch

Global Warming and the Cosmos

This very successful symposium organised by the Southern Highlands Branch of the Society was held on Saturday 5 April at Frensham School in Mittagong.

Two of the world's leading climate scientists came together to give presentations on whether they think climate change is man-made, natural or both. The presentations were given before an enthusiastic audience of some 250 people, and were followed by a lively Q&A session.

Dr Graeme Pearman, the former head of the CSIRO Atmospheric Division and adviser to Al Gore and the Garnaut Climate Change Review was the first speaker. He gave an overview of the atmospheric CO₂ theory agreed to by the majority of scientists. He described the warming of the Earth's climate, showing that it accelerated towards the end of the 20th century.



Dr Graeme Pearman (left) with Dr Eigil Friis-Christensen at the Global Warming Symposium

He explained the very large amount of detailed research and computer modeling which went into the report by the Intergovernmental Panel on Climate Change (IPCC). He reported the finding by the IPCC that global warming was very likely (>90% certainty) caused principally by human activity and showed that worldwide action is needed now to

reduce emissions of greenhouse gases. Dr Pearman outlined the likely outcomes of not acting, or only partly acting, to reduce greenhouse gas emissions.

The second speaker, Dr Eigil Friis-Christensen, director of the National Space Institute (NSI) at the Technical University of Denmark demonstrated the strong correlation between variance in solar activity and the Earth's temperatures. He showed that the effect of solar variation on the Earth's climate was heavily underestimated in the IPCC models, probably by a factor of about 4. Dr Pearman explained that since there was no known mechanism for this, it was not possible to include it in the IPCC models.

Dr Friis-Christensen questioned the accuracy of the ground-level 'global temperature' measurement, which went up very rapidly in the 1990s. He said that there is a complete mismatch between it and both tropospheric and oceanic measurements. He explained the mechanism by which higher solar activity led to reduced numbers of Galactic Cosmic Rays (GCRs) reaching the Earth.

Dr Friis-Christensen described NSI research into the way in which GCRs may be the 'missing link' through the creation of ultra-fine aerosols that may lead to cloud condensation nuclei needed to form clouds. Dr Pearman challenged this hypothesis saying that his own research had shown that there were very often already many more aerosols in the atmosphere than were needed to form clouds, and that they still did not create clouds.

Both speakers agreed that much more research is needed into the ways in which solar variation affects climate, and to investigate whether there is a link between GCRs and cloud formation which is significant in the context of climate change.

The Society sincerely thanks the two speakers for their presentations and Clive Wilmot and his Branch members for organising the event. Sixty-four new Associate members have joined the Society as a result. We are also grateful to Dick Whitaker, formerly of the Bureau of Meteorology, for chairing the symposium, and Frensham School for hosting it.

Lecture 15 May: Greenhouse Solutions with Sustainable Energy

Dr Mark Diesendorf Institute of Environmental Studies

Global warming is accelerating, as the result of several amplification processes, and urgent strong action is needed now to reduce greenhouse gas emissions. The only technologies that are capable of making big reductions in emissions before

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Southern Highlands Branch Lecture cont.

2020 are efficient energy use, the lower-cost renewable energy sources and gas. Neither coal power with CO₂ capture and storage nor hydrogen from renewable energy sources will be commercially available on a significant scale before the 2020s at earliest. To implement the available sustainable energy technologies, new policies are needed from both federal and state governments.

Dr Mark Diesendorf is based at Institute of Environmental Studies, UNSW. Previously, at various times, he was a Principal Research Scientist in the CSIRO Division of Mathematics and Statistics, Professor of Environmental Science at UTS, President of the Australia New Zealand Society for Ecological Economics, Vice-President of the former Sustainable Energy Industries Council of Australia and Director of Sustainability Centre Pty Ltd. He is the author of about 100 scholarly publications, including the recent book "Greenhouse Solutions with Sustainable Energy".

Members

You are invited to contribute articles and notices to the Bulletin. Do you have comments to make? Are there events coming up that we should all know about? Please send in your contributions by the end of the first week of the month to the Society's office (contact details p4).

Urgent – Volunteer help please

Please help your Society at a time when we are so snowed under trying to cope with all our new initiatives. It is an exciting time to be involved. Please contact Val at the Society's office.

Science for Science House

This project seems to have caught the imagination of the scientific community. Society member, **Eugenie Lumbers (Emeritus Scientia Professor, FAA MDDBS DSc)** has volunteered her services to enlist the support of a number of Fellows of the Australian Academy of Science and other colleagues and friends, including Mr John Bilton, Principal Director of the internationally acclaimed architectural firm, PTW, formerly known as Peddle Thorp and Walker. It was this firm that designed Science House, winning for them the first ever Sulman Medal. The attitude towards this project among heritage architects is that buildings should be re-used and particularly so for their original purpose.



Professor Eugenie Lumbers discussing the Society's collection with Vice Chancellor, Professor Gavin Brown

There are a number of scientists who have agreed to support the project in principle. They include Professor John Shine, Professor Mike Archer and the ABC's Robyn Williams. We have also been fortunate in gaining the interest of the Office of Science and Medical Research and with the help of our supporting scientists it is planned to meet with its senior advisers.

Deborah Smith, Sydney Morning Herald's Science Editor, has also taken an interest in the initiative. She has already published an article *Heritage comes back to the future** (SMH Thurs 10 April, p22.) and has asked to be kept informed of our progress. She would like to think that one of the functions of Science House will be to set up media interview rooms.

To quote directly from the architects at the time of designing the building in 1928: *'We have endeavoured to reflect the function of the building in the architectural treatment, interpreting the learned proclivities of the various societies into a refined Florentine facade, somewhat restrained and wholly dignified.'* We should keep these words in mind as we move towards establishing Science for Science House in the context of the 21st Century.

** a copy is available by email*

Sydney Observatory's 150th anniversary

The Observatory will be celebrating its 150th Anniversary with seminars on the history of Australian meteorology and astronomy.

When: Saturday 14 & Sunday 15 June 2008

Where: Target Theatre, Powerhouse Museum

Cost: \$30 per day or \$40 for two days including Museum entry and afternoon teas.

The two seminars are to be introduced with an opening lecture at the Observatory at 6.30pm Friday 13 June by Professor Fred Watson. The high profile speakers include Professor Neville Nicholls from Monash University who is a member of the Intergovernmental Panel on Climate Change (IPCC) that was awarded the 2007 Nobel Peace Prize. Full details with programs, speakers and abstracts are at <http://www.sydneyobservatory.com.au/events/whatson.asp>.

For bookings please contact Sydney Observatory on 02 9921 3485.

Contact your office bearers

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