



# The Royal Society of New South Wales Bulletin and Proceedings 312

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February 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.

**Wednesday 5 March**

*Note the change of date*

### The Four Societies Lecture

The four societies are the Australian Nuclear Association, the Engineers Australia, RSNSW, and the Australian Institute of Energy.

*Future prospect for large scale solar thermal power technologies.*

**A/Professor Keith Lovegrove**

Australian National University

**Friday 14 March 2008**

### The Society's Annual Dinner

**Our Patron, Professor Marie Bashir AC CVO Governor of NSW and her husband, Sir Nicholas Shehadie, will be attending.**

*See flyer for details and booking form.*

**Wednesday 2 April**

### Annual General Meeting at the Darlington Centre

## Southern Highlands Branch

**6.15 pm Thursday 21 February**

Drama Theatre, Frensham, Mittagong

**Professor Rick Shine**

*The evolutionary and ecological impacts of cane toads*

For dinner bookings only, call the Fitzroy Inn on 4872 3457. For all other enquiries please phone 0414 621 650.

**1.30 pm Saturday 5 April**

### Global Warming and the Cosmos

Clubbe Hall, Frensham, Mittagong. See flyer.

## The Four Societies Lecture - 5 March 2008

### Dr Keith Lovegrove

#### *Future prospect for large scale solar thermal power technologies*

**T**he Australian National University has been working on paraboloidal dish solar concentrators since the early 1970s. At ANU construction work has just begun on a new 500m<sup>2</sup> dish prototype that will be the basis for the commercial plans of Wizard Power Pty Ltd, the company that has an exclusive licence to the ANU technology. Dish concentrators along with trough shaped linear concentrators and Central receiver towers with heliostat fields are the basic approaches available for solar thermal power systems. The last two years have seen a major resurgence world wide in activity in this field. This talk will give an overview of the activity in Australia and overseas and at the ANU in particular. The potential scope for solar thermal power systems to make a major contribution to energy supply will be discussed, including the longer term potential for solar thermochemical production of fuels for transport and export.



*Keith Lovegrove*

**D**r Keith Lovegrove is the leader of the Solar Thermal Group in the Department of Engineering at the Australian National University. He also teaches undergraduate and postgraduate courses in Energy Systems and Systems Engineering within the Department of Engineering. He has had a long involvement with The Australian and New Zealand Solar Energy Society, a section of the International Solar Energy Society. The society is a non-profit organization of renewable energy professionals and supporters and includes among its members most of the renewable energy researchers in Australia. Dr Lovegrove has served in the past as Chair, Vice Chair and currently as Treasurer. During his time as Chair, he initiated the well known "Solar House Day", held across both countries each September. He was also Chair of the organization's Solar 2006 conference organizing committee. Further information can be found at [www.anzsos.org](http://www.anzsos.org) and <http://www.solarhouseday.com/>

Dr Lovegrove has authored or co-authored over 100 research papers and contributed to many media interviews and reports on the renewable energy field.

The Solar Thermal Group works on a range of high temperature and low temperature thermal technologies. The group has continued on from the pioneering work that was begun in the ANU in the early 1970's. A highlight of the work has been the completion of the world's first experimental solar driven closed loop thermochemical energy storage system based on ammonia dissociation. The group operates experimental facilities centred around the ANU's 400m<sup>2</sup> and 20m<sup>2</sup> paraboloidal dish solar concentrators. More information about the group can be found at <http://engnet.anu.edu.au/DEResearch/solarthermal/>

### 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**

## Meet our Councillors

### **Marian Haire BSc Dip Ed, Hon Treasurer**

My memories of learning science go back to a discussion in primary school in the '50s about geology and collecting buds from trees in spring. In secondary school



Marian Haire

Sister Frances explained levers and fulcrums and as a treat showed us the skeleton kept in a closet in the science room.

My father was a life member of the Royal Dublin Society

and he used to take me to their talks. Somewhere along this journey my passion for science was ignited.

I went on to complete a science degree at University College Dublin in 1969. At this time Ireland was far from prosperous. The troubles in the North were flaring up and many young graduates went overseas to gain experience. My husband and I went to Toronto Canada where getting a job in science was difficult so I worked with Fisher Scientific and later for Bell Telephone as a service representative.

During the next phase of my life I was lucky enough to be able to stay at home to raise my three children. It was at this time I first discovered the joy of working for my community. I developed activities with other young mothers for our local playgroup. Then in 1980 my husband decided Australia would be the best place in the world to raise our children and off we set on a new adventure. Again I got involved in my community and became Treasurer of the local school P&C, ran the Uniform shop and helped in the canteen. I also ran a second hand shop called Treasures Galore. When my youngest son was in Primary school I decided I needed to do something more challenging.

By this time I was passionate about education and children so it was easy for me to slip into science teaching. I completed my Diploma in Education at Sydney University and started teaching science at Colyton High School.

*Continued p3*

## Southern Highlands Branch

*The Southern Highlands branch has made a flying start to 2008. There are two very exciting events coming p. the first is to be a lecture by Professor Rick Shine and the second Global Warming and the Cosmos. Details can be found in the Events column and the separate flyer.*

### **Professor Rick Shine**

#### ***The evolutionary and ecological impacts of cane toads***

Professor Rick Shine is a Fellow of the Australian Academy of Science and Professor in Evolutionary Biology at the University of Sydney. He has received many awards (E O Wilson Award; H S Fitch Award; Mueller Medal; Clarke Medal) for his major contributions to our understanding of the ecology and evolution of reptiles. He has become interested in invasive biology because of the arrival of feral cane toads at a site in the Northern Territory where he has a 20 year research project on the demography of tropical reptiles. The background information already accumulated on this site provides a unique opportunity to study the evolutionary and ecological impact of toads and the evolution of the toads themselves. Further information can be found at [www.bio.usyd.edu.au](http://www.bio.usyd.edu.au)



*Rick Shine with his evolutionary pace setter*

Traditionally, conservation problems can be seen as ecological issues, unfolding too rapidly for evolutionary processes to play any significant role. However, adaptation can happen very quickly under some circumstances, and the current invasion of cane toads through tropical Australia has produced some clear evolutionary effects. This talk will review recent evidence of rapid changes in the toads themselves as they adapt to Australian conditions and concurrent rapid responses by native fauna as they evolve to survive in the presence of these toxic invaders.

## The Royal Societies of Australia

State Royal Society delegates drawn from New South Wales, South Australia, Victoria and Western Australia, attended the first formal convention of the Royal Societies of Australia (RSA) in Canberra on Saturday 2 February. Six inaugural office bearers and eight councillors were elected as state representatives. The President of the Royal Society of New Zealand attended by invitation as an observer.

Australia's Royal Societies, some of which have a history dating back to the early 1800s, hold highly significant records of the development of science and intellectual pursuits from early Colonial times. The RSA will provide a valuable consultative influence on national science policy and help to strengthen public awareness of science through education, outreach and community activities. Through its collaborative strength the RSA is set to become a significant force both nationally and internationally.

The RSA was registered as a company limited by guarantee, ACN 126 868 586 on 3<sup>rd</sup> August 2007 with the Secretariat located in the premises of The Royal Society of Victoria. The Patron is His Excellency the Governor General of Australia.

### **Office Bearers (and their state societies)**

<i>President</i>	<i>Captain Bill McAuley (RSV)</i>
<i>Vice President</i>	<i>Mr John Hardie (RSNSW)</i>
<i>Honorary Secretary</i>	<i>Dr Philip O'Brien (RSWA)</i>
<i>Honorary Treasurer</i>	<i>Ms Marian Haire (RSNSW)</i>
<i>Honorary Librarian</i>	<i>Dr Michael Snow (RSSA)</i>
<i>Honorary Research Secretary</i>	<i>Mr Clive Wilmot (RSNSW)</i>

### **Councillors**

<i>Prof Jak Kelly (RSNSW)</i>	<i>Dr Allan Pring (RSSA)</i>
<i>Dr John Jennings (RSSA)</i>	<i>Dr Lyn Milne (RSWA)</i>
<i>Dr Alex Beare (RSWA)</i>	<i>Prof John Buckeridge (RSV)</i>
<i>Dr Laurie Martinelli (RSV)</i>	<i>Mr Craig Walton (RSQ)</i>

### **Contact details**

The Royal Societies of Australia • 9 Victoria St • Melbourne • Victoria 3000 • Australia  
Email • [rsa@scienceaustralia.org.au](mailto:rsa@scienceaustralia.org.au) Web • <http://www.scienceaustralia.org.au>  
Phone • +613 9663 5259 Fax • +613 9663 2301

## Meet Marian Haire (from p2)

Some great opportunities came my way and for five years in the early '90s I was a science consultant for the NSW Department of Education. I served as the Treasurer and President of the Science Teachers Association of NSW and ran the Young Scientist Awards program for some ten years. Young Scientist allowed me to take four students to the US to compete in international competitions where we won several significant prizes.

In 1995 I started work with the National Standards Commission (NSC) to manage a program called Measurement in Sport. This was a project which produced science learning resources for schools and students across Australia. After this was completed I started writing test procedures for Trade Measurement Inspectors. In 2004 NSC became part of the National Measurement Institute (NMI) when I took on the role of Training Manager in measurement for Australian industry.

I joined the Royal Society after meeting Karina Kelly at a USYD Annual Physics dinner. She invited me to join council and asked me to sort out a problem the Society had with version control of the Rules and By-laws. I nominated for Treasurer in 2006 and since that time, I have successfully implemented the Society's electronic records keeping system.

Gardening and many crafts are among the hobbies I enjoy and I keep fit through aerobics, yoga and bush walking. Four times a year I teach chemistry at a G&T program and have co-authored a set of science text books for junior science. I love being with people and am passionate about making science accessible to the community and especially young people. The varied and interesting speakers at the Society's meetings give me the opportunity to learn more about science.

### 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).

## From the President

The new political landscape federally is shaping up to provide us with opportunities to further promote the importance of science and the search for and utilisation of knowledge. The Royal Society of NSW is well placed to make an impact here and 2008 will be the best time to achieve this during the current government cycle. Your comments to Council on this issue will be welcome.

To this end the Royal Society of NSW has linked formally with other Royal Societies in Australia to form the Royal Societies of Australia (RSA), a body which will be able to have a voice in the national arena on science matters. The body will also allow us to keep in touch with what is going on in other states and to make this information available to members in a timely fashion. More information about the RSA will be appearing in this and subsequent Bulletins. **John Hardie**

## Councillors of the newly formed Royal Societies of Australia



Newly appointed Councillors of the Royal Societies of Australia at the inaugural dinner held at the Commonwealth Club, Canberra on Saturday 2 February 2008.

Front row (left to right): Dr Laurie Martinelli (RSV); Ms Marian Haire (RSNSW); Capt Bill McAuley (RSV and President RSA); Ms Camilla van Megen (RSV - observer); Mr Neville Jordan (President, Royal Society of New Zealand - observer).

Back row (l - r) Prof Jak Kelly (RSNSW); Dr Phil O'Brien (President, RSA); Dr Michael Snow (RSSA); Mr John Hardie (President, RSNSW and Vice-President RSA); Prof John Buckeridge (RSV); Mr Clive Wilmot (RSNSW); Mr David Dodd (RSV) - observer.

## Honorary Doctorate for Karina Kelly

At its Graduation Ceremony on the 21st of December 2007 the University of Wollongong awarded an Honorary Doctor of Letters to our former President and ABC Catalyst 'anchor', Karina Kelly. She also gave the Graduation Address. Karina and her family returned to Australia for the ceremony and to spend a few weeks in Sydney with her parents, Jak and Irene Kelly. She is at present living in Palo Alto CA where her

husband David Mills is Chairman of the Solar Energy Company AUSRA which he founded.



Karina Kelly delivering the Graduation address at the University of Wollongong in December 2007 when she was awarded an Honorary Doctor of Letters degree.

## Creation Geology Conference

'Creationist geologists' is surely an oxymoron, but not so for a large group of graduate geologists in the United States. They were gathered for the First Conference on Creation Geology held during 2007 in Cedarville, Ohio. They included among the hundreds of scientists with masters or PhD degrees, such luminaries as Dr Kurt Wise who, as a student of Stephen Jay Gould, graduated in palaeontology from Harvard some 20 years ago. Wise is one of those responsible for the establishment of \$US27 million state-of-the-art Creation Museum in Kentucky. Many of these people are highly talented scientists who have spent a considerable part of their careers attempting to prove 'scientifically' that radiometric dating is flawed.

All of this in a country where 54 percent of students before their studies believe the age of the Earth is less than 10,000 years.

This might explain the **Defend Science** initiative, see <http://www.defendscience.org/> which calls on scientists to sign a statement that aims to rally broad opposition and resistance to the mounting attacks on science and scientific thinking which are unfolding in the United States.

The Defend Science Statement, signed by scientists, is to be used as an ad in major newspapers, reaching millions. At this point the Statement is signed by over 2300 scientists and members of the scientific community. Perhaps we should support them. Australia also suffers from the same threat to scientific integrity.

### Members

**We are still calling on volunteers to help, please contact Val at the society's office. Also thank you all for the many donations.**

### Archibald Liversidge pre-publication offer still available

*Members of the Royal Society, the Geological Society of Australia and other affiliated societies are invited to take advantage of the pre-publication price of \$39.95 for a limited number of copies of Prof Roy MacLeod's Archibald Liversidge, Imperial Science under the Southern Cross. It is anticipated that the recommended retail price will be in the order of \$65. To reserve your copy, contact The Royal Society office now (see below).*

### Darwin Day 2009

**What plans should we of the Royal Society be making for Darwin Day 2009?**

*"Darwin Day is an international celebration of science and humanity held on or around February 12, the day Charles Darwin was born in 1809. Specifically, it celebrates the discoveries and life of Charles Darwin - the man who first described biological evolution via natural selection with scientific rigor. More generally, Darwin Day expresses gratitude for the enormous benefits that scientific knowledge, acquired through human curiosity and ingenuity, has contributed to the advancement of humanity." Darwin Day - <http://www.darwinday.org/>*

*Inspiration please? Send ideas to the Society's office (see below).*

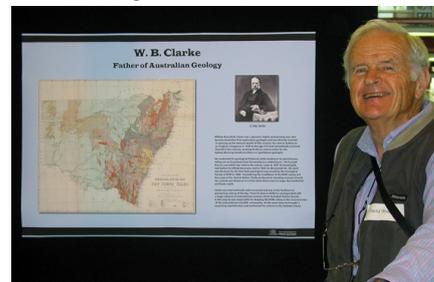
### The Eureka Prizes

*The Australian Museum's Eureka Prizes are once again up for grabs. There are some 20 prizes in the categories of Research and Innovation; Science Communication and Journalism; Science Leadership, and School Science. Why not encourage some of your talented colleagues to nominate? Better still, why not nominate yourself? Go to [www.australianmuseum.net.au/eureka](http://www.australianmuseum.net.au/eureka) email: [eureka@austmus.gov.au](mailto:eureka@austmus.gov.au) or phone Roger Muller at the Museum: 61 2 9320 6230*

**Entries close 2 May 2008**

## W B Clarke Geoscience Centre

The Royal Society of NSW was well represented at the ceremony held to rename the Londonderry core library the W B Clarke Geoscience Centre after 'the father of Australian geology'. John Clarke the great grandson of the Reverend W B Clarke was guest of honour.



*The historical significance of the event found member David Branagan in his element. Other Royal Society members included President John Hardie and Hon Secretary, Peter Williams.*

*Mr John Clarke, great grandson of the Reverend W B Clarke at the renaming ceremony*



*Councillor Robyn Stutchbury, when education officer at the Geological and Mining Museum in the '80s, prepared school geology kits at the Centre.*



### Stop press ...

Two of this year's award winners have just been announced:

The Edgeworth David Medal winner is **Dr Stuart Wyithe**, School of Physics, University of Melbourne and The Burfitt prize winner is **Professor Matthew Colless FAA**, Director Anglo Australian Observatory.

### Contact your office bearers

John Hardie President	02 9363 9360	Prof Jak Kelly Vice President	02 9419 6877
Clive Wilmot Vice President	02 4886 4199	Alan Buttenshaw Hon Sec (General)	02 9569 0236
Prof Peter Williams Hon Sec (Editorial)	02 9685 9914	Marian Haire Hon Treasurer	02 8467 3575
Christine van der Leeuw Hon Librarian	02 9680 3598	Prof Tony Baker	02 9514 1764
Trevor Danos	02 9036 5282	Jim Franklin	02 9514 2195
Prof Heinrich Hora	02 9547 1424	Dr Michael Lake	02 9036 5282
Jill Rowling (02) 9697-4484	A/Prof Bill Sewell	02 9295 8434	Robyn Stutchbury 02 9427 6747

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 Postal address: Building H47, UNIVERSITY OF SYDNEY, NSW 2006, AUSTRALIA  
 Val Gregory and Irene Kelly, Office Managers • Phone: 61 2 9036 5282; Fax: 61 2 9036 5309;  
 Email: [royalsoc@usyd.edu.au](mailto:royalsoc@usyd.edu.au) • Web page: <http://nsw.royalsoc.org.au>