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May 2008

The Royal Society of New South Wales Bulletin and Proceedings 315

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 4 June

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

Dr Dale Dominey-Howes
School of Safety Science, Faculty of Science, University of NSW.

Wednesday 2 July

An Australian Ecological Blind Spot: rabbit impact on native plants and animals

Dr Brian Cooke
Institute for Applied Ecology, University of Canberra.

Wednesday 6 August

Alzheimer's Disease: The man, the discovery, and prospects for avoidance

Dr Bruce Warren
Former Professor of Pathology, The University of NSW.

Wednesday 3 September

Telomeres and Telomerase in Health and Disease

Professor Elizabeth Blackburn
Professor of Biology & Physiology, University of California, USA.

Tuesday 27 May 2008

6.00 for 6.35 pm

AIP-RNSW Joint Lecture

Professor Bob Clarke, UNSW

Slade Lecture Theatre, School of Physics, Sydney University

Dinner at Buon Gusto to follow

Sydney Observatory 150

Saturday 14 - Sunday 15 June

Seminars on the history of Australian meteorology and astronomy

Target Theatre, Powerhouse Museum

Lecture 4 June 2008

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

Dr Dale Dominey-Howes

**Natural Hazards Research Laboratory
Risk Management Group, School of Safety Science, UNSW**

The 2004 Indian Ocean tsunami (2004 IOT) disaster although catastrophic, only had minor effects on the coasts of Australia. Prior to this event, few had considered the risk that this hazard type might present to Australia. Since the occurrence of the 2004 IOT, the Australian Federal government has committed almost \$70 million to the development and deployment of an Australian Tsunami Warning System (ATWS) to help safeguard Australia from future potentially damaging tsunami. In addition, State and Territory Emergency Services are spending additional funds on tsunami research and community risk management. This talk will outline current state-of-the-art tsunami science being undertaken in Australia. We will examine the geological and historical record of tsunamis that have affected Australia, consider those regions capable of generating tsunamis that would be damaging to our coasts and explore the current important research questions that still need to be answered.

The talk will also describe the structure and function of the Australian Tsunami Warning System and consider how it performed following the April 2nd 2007 Solomon Island tsunami that triggered the first warning from the ATWS. The talk will conclude by asking, 'has the deployment of the ATWS made Australian coastal communities safe from future tsunamis?'

Dr Dale Dominey-Howes FGS FRGS is an expert in natural hazards, risk and vulnerability and disaster management. Dale graduated with a BSc (Honours) from London University and was awarded his PhD in natural hazards from Coventry University (UK). Dale held an European Union Postgraduate Scholarship to undertake his PhD which was on the geological and historical records and effects of tsunami in the Aegean Sea region of Greece. Dale's PhD was undertaken in collaboration with the National Observatory of Athens, Greece. Since graduating, Dale has worked on tsunami, volcanic hazards, tropical cyclones, earthquakes and coastal floods in the Mediterranean, Atlantic, Indian and Pacific Ocean areas. He is particularly interested in the interaction between risk and vulnerability and loss reduction and disaster management.

From 2000 to 2005, Dale was the elected Secretary and Treasurer of the International Society for the Prevention and Mitigation of Natural Hazards. In 1999, he was nominated and then selected as one of the Most Outstanding Young Research Scientists in the 1999 British Parliament, Showcase of the Best of British Science at the House of Commons London. Dale is presently a senior lecturer in Natural Hazards in the School of Risk and Safety Sciences at the University of New South Wales. Since 2005 he has also been providing scientific support to the state and federal governments in their development and deployment of the Australian Tsunami Warning System.

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

A program of science and literacy for primary schools

A recent press release from the Australian Academy of science announced the launch by the Deputy PM and Minister for Education, Ms Julia Gillard, of the latest unit of a world-class primary school program linking science with literacy.

The Primary Connections: Linking science with literacy program is an innovative approach to teaching and learning that incorporates the teaching of science into the teaching of literacy in Australian primary schools.

The Minister acknowledged the importance of science and students' development of scientific skills, like asking questions and knowing how to find answers.

Primary Connections builds on students' natural curiosity to nurture their sense of wonder and develop their passion for exploring how the world works. This is achieved through a professional learning program supported by quality curriculum resources that promote a hands-on approach to science.

The program was initiated by the Australian Academy of Science and is carried out through a partnership between the Academy and the Australian Government Department of Education, Employment and Workplace Relations (DEEWR).

Primary Connections is used in over 2500 schools across the nation and has produced ten units to date. Through observing small animals, the recently published unit, *Schoolyard safari*, looks at how animals move, feed and protect themselves. The diversity of animals and the adaptations that help them survive are also explored.

Speaking at the event, President of the Australian Academy of Science Professor Kurt Lambeck said:

'The Academy is concerned about education at all levels and if we had a motto about this it would be: If Australia gets education right then everything else will succeed, if we get it wrong then nothing else matters.

'To make sure that we get it right, we have embarked on the *Primary Connections* program...'

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From sulphur chemistry to new cancer treatments

A review of the May lecture by Professor Philip Hogg

The May lecture at the Darlington Centre in Sydney was presented by Prof Phil Hogg, Director of the Cancer Research Centre of the University of New South Wales. The lecture was a marvellous example of how basic scientific discoveries can be taken from the research bench to medical application. The speaker described himself as a protein chemist whose research led into the field of cancer. The lecture began with an overview of the importance of disulphide bonds in proteins, and ways in which protein function can be affected by forming or breaking these bonds. The lecture then focussed on an arsenical compound, GSAO, that can alter such disulphide bonds. GSAO is preferentially taken up by dead and dying cells, and can be used with imaging technology to assess the efficacy of treatment of cancer patients. GSAO also has the capacity to kill cells, by changing a disulphide bond in a translocator protein in the mitochondrial membrane. Its toxic effects are highly selective on new blood vessels. In patients with cancer, new blood vessels are principally located in the cancer tissue, so GSAO has potential as an anti-cancer drug. The lecture concluded with a report on a clinical trial set up in collaboration with Cancer Research UK, and a description of the first patients treated with GSAO.

One Hundred Years Ago ...

The first of a new regular feature contributed by Councillor Dr Mike Lake

History can be interesting and sometimes slightly amusing when seen in hindsight. The following quotes are snippets taken from the Abstract of Proceedings of the Society, May 6, 1908.

"The General Monthly Meeting of the Society was held at the Society's House, No. 5 Elizabeth-street North, on Wednesday evening, May 6th, 1908.

H. Deane, M.A., M. Inst. C.E., President, in the Chair. Thirty-seven members were present. The minutes of the preceding meeting were read and confirmed. The Annual Report of the Council was then read and adopted."

The Annual Report of the Council reported on the number of members.

"The Council submit to the members of the Royal Society of New South Wales their Report for the year ended 30th April last. The number of members on the roll on the 30th April, 1907, was 350; 20 new members have been elected during the past year. We have, however, lost by death 7 ordinary (and 4 Honorary) Members, 19 by resignation, and 4 names were removed from the roll for non-payment of subscriptions. There is thus left a total of 340 on the 30th April, 1908;..."

The library acquisitions were very numerous and they were about to compile a catalogue.

"The number of Institutions on the Exchange List is 425 and the publications received in exchange for the Society's Journal and Proceedings during the past year were :- 294 volumes, 2,217 parts, 155 reports, 106 pamphlets, and 21 maps, total 2,793."

"Unfortunately the library is still very far from being in order, ... it is hoped, however that the Hon. Librarian will shortly be able to commence his voluntary labour of compiling a card catalogue."

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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

There are still outstanding membership subscription fees. Your prompt payment would be appreciated. You can now pay your membership electronically; for more details contact the Society's office. When 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.

Reminder

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.

Science for Science House

A report on this project will appear in Bulletin 316 when we hope to be able to present the favourable outcomes of the meeting to be held with science advisers in the Office of Science and Medical Research on Monday 19 May.

Robyn Stutchbury

Apologies for this shorter than usual Bulletin. It appears that all potential contributors have been overwhelmed by their workloads.

Robyn Stutchbury, editor.

One Hundred Years Ago ...

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One hundred years on and I am looking at finding time to commence a digital catalogue for the library. Perhaps we should wait for the next technology?

The Financial Statement for the year for the year ended 31st March 1908 was presented. It lists an Office Boy at £26 for the year.

During the meeting the Hon. Secretary, Mr Maiden "... referred to the Liversidge Portrait Fund, towards a portrait to be hung in the Great Hall of the University, and asked those friends who desired to subscribe, but had not already done so, to kindly take one of the circulars laid on the table."

This is the J. H. Maiden F.L.S, Government Botanist and Director, Botanic Gardens, Sydney. He was elected in 1883 and by 1908 had published 18 papers in the Society's Journal.

Mr. Henry Deane, M.A., M. Inst. C.E., then read his Presidential Address. This address concerned railway matters. The necessity of settlement, the economic construction of railways and defence of the country was covered. The following quote provides a glimpse into the concerns of the ruling classes a hundred years ago.

"We have such large uninhabited and sparsely [sic] inhabited tracts, that it is not unreasonable to expect that these areas may excite the cupidity of the yellow skinned nations to the north and north-west of us, and the only way to counteract that tendency, is to provide for the settlement of the land by desirable white people, preferably of our own race, who would thus be able to help in the defence of the country."

Mr Deane then proceeds to cover in quite some detail the economics of railway development. He briefly covers the issue that American style automatic couplings and buffers were not introduced into Australia and thus shunters here risked death by being squeezed between the buffers. The ongoing problems for Sydney-Melbourne travellers of NSW adopting a 4 foot 8 inch gauge track in 1848 when the gauge approved for Australia by Home Government was 5 foot 3 inches was also discussed. Mr Deane also covered preservation of timbers, corrugation of rails (how they formed was still subject to speculation) and noise of trains.

Most interesting was his section on "New Inventions". He mentions a few but says *"There have been many inventions ... during the past twelve months ... but none I think, so captivating to the imagination as Brennan's Monorail."*

He also mentions a couple of accidents.

"The other event to which I refer was the disastrous Braybrook accident. It would not be right to comment on the event, as the matter is sub judice, but it is not going too far to say that such an accident ought not to occur at all if the very effective modern system of signals established were properly watched and attended to."

The Presidential Address concluded with a short biography of The Right Hon. Lord Kelvin, known for so many years as Sir William Thomson, who died at the age of 83.

Michael Lake

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