



The Royal Society of New South Wales Bulletin and Proceedings 333

ABN 76 470 896 415

ISSN 1039-1843

March 2010

Future Events 2010

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 7 April 2010 7pm Annual General Meeting and Anniversary Address for 2010

Lecture Room 1, Darlington Centre,
University of Sydney
(see details at right)

Wednesday 5 May 2010 at 7 pm A/Prof Mike Cortie from UTS The Weird World of Nanoscale Gold

Wednesday 2 June 2010 at 7 pm Dr Peter Tyler – Royal Society of NSW Historian Science for Gentlemen – The Royal Society in the Nine- teenth Century

Southern Highlands Branch

Meetings are held on the third Thursday of each month in the Drama Theatre at Frensham School, Mittagong (enter off Waverley Parade), at 6.30pm.

next talk

Thursday 15 April 2010, at 6.30pm

Membership Renewals

Thank you to all those members who have sent in their payments by return. It is most appreciated. We also very much appreciate those donations to the Library and Student-ship Fund. You will receive a receipt for tax purposes shortly.

Marian Haire

Bulletin Editor, Bruce Welch

Annual General Meeting and 1179th Ordinary General Meeting of the Society Wednesday 7 April 2010 Conference Room 1, Darlington Centre, University of Sydney

Anniversary Address for 2010

This year the President has invited a distinguished speaker to address us on a topic of interest to the Society, in lieu of the Presidential Address:

Science and Scientists in the Modern World

**Professor Jill Trehwella, Deputy Vice Chancellor (Research),
University of Sydney**

Professor Trehwella will pose some pertinent questions which she will consider during the course of her presentation: What is society asking of scientists today? How can science contribute to the betterment of society?

She will try to suggest what the modern scientist must do differently in the future compared to their 20th century counterpart. She will also explore how we prepare the next generation of scientists, given the importance of science in our everyday lives, so that they can take on the challenges and enjoy the adventure.

Professor Trehwella is the newly appointed Deputy Vice Chancellor for Research at the University of Sydney. She is a biophysicist who uses physical methods to study bio-molecular structures as a basis for understanding their function.

Professor Trehwella returned to Australia from the US in 2005 to take up a 2004 Australian Federation Fellowship in the School of Molecular and Microbial Biosciences at the University of Sydney. She also holds auxiliary appointments in the Department of Chemistry, University of Utah, and the Bragg Institute at ANSTO.

She received a Bachelor of Science (1975) degree with first class honours in Physics and Applied Mathematics and a Master of Science (1978) in Physics from the University of New South Wales. Her PhD (1981) is in Chemistry from the University of Sydney. She went to the United States in 1980 to complete post doctoral studies at Yale University in the Department of Biophysics and Biochemistry.

In 1984 Trehwella went to Los Alamos National Laboratory (America's top nuclear research facility) to begin a structural molecular biology program centred around the spallation neutron source there. She held various science leadership and management positions before being named Laboratory Fellow (1995) in recognition of sustained outstanding contributions to science and technology. She was named Fellow of the American Association for the Advancement of Science in 2000.



Patrons of The Royal Society of NSW

Her Excellency Ms Quentin Bryce AC

Governor-General of the Commonwealth of Australia

Her Excellency Professor Marie Bashir AC CVO Governor of NSW

ISOLATED CASES?

This was the theme for a conference which examined one hundred years of Australian medical research, held in the Kerry Packer Education Centre at Royal Prince Alfred Hospital on 21 February 2010. The event was organised through the Australian Academy of the Humanities, with sponsorship from a number of organisations including the Royal Society of New South Wales.

It was a busy day, with fourteen lectures delivered on a variety of topics by academic staff from the Universities of Sydney, Melbourne, Western Australia, Newcastle and Wollongong, together with other speakers from the Walter and Eliza Hall Institute and Museum Victoria as well as several independent scholars. The whole melange was neatly co-ordinated by Dr Claire Hooker, Director of the Centre for Medical Humanities at the University of Sydney.

Patricia Morison traced the history of Australian medical science before 1900. It was during this period, of course, that the Royal Society was deeply involved in medical scholarship. The Medical Section of the Royal Society began in 1876, and pre-dated other medical organisations in the colony such as the British Medical Association. Ms Morison pointed out that in the early years of settlement, the main scientific work in Australia consisted of collecting unusual specimens which were then sent 'home' to England for classification and analysis. Dr Ross Jones, an ARC postdoctoral fellow at the University of Sydney, noted that the work of early anatomists in Australia is often overlooked. Elliott Smith and F. Wood Jones created the discipline of paleo-anatomy, which they developed through practical field-work rather than the 'armchair anthropology' prevalent in Europe and the USA. Wood Jones in particular was dismissive of the narrow focus of much laboratory research. Their work with the Aborigines did much to discredit social-Darwinist notions of racial inequality.

Bringing research closer to our own times, Dr Robert Pearce, Associate Professor of Surgery at the University of Western Australia described the empirical research forced upon army medical officers in the prisoner-of-war camps in Changi and on the Burma Railway where



Conference delegates enjoying a break from lectures. Front row (L to R) - Dr Anthea Hyslop, ANU; Emeritus Professor Rod Home, University of Melbourne; Dr Ross Jones, University of Sydney; Dr Judith Godden, University of Sydney; Dr Peter Tyler, Historian, Royal Society.

nutritional deficiencies had to be tackled and new methods of wound treatment tried when minimal resources were available. Bringing the story even closer to home, Dr Nancy Cushing from the University of Newcastle spoke about the popular aversion to funnel-web spiders, especially on Sydney's north shore, and the difficulty in extracting an effective antivenom. She speculated on the role of the pest control industry in propagating fear of this arthropod, partly to serve the industry's commercial interests.

One of the highlights of the day was the address by Emeritus Professor Donald Metcalf AC, FRS describing his life-long career as a microbiologist at the Walter and Eliza Hall Institute for Medical Research. Metcalf's discovery of the factors which cause leukaemia has won him international recognition. So curious is he about cell biology that scarcely a day has passed in the last fifty years when he did not look down a microscope. This passion would have made him a fitting leader of the Royal Society Microscopical Section which flourished more than fifty years before his interest began.

Reflections on the day's proceedings were given by Emeritus Professor Rod Home from University of Melbourne, probably the doyen of Australian historians of science. He pointed out that traditional medical histories have



Conference convenor Dr Claire Hooker presenting donated copies of "Archibald Liversidge, Imperial Science Under the Southern Cross" to the speakers.

focussed on heroic doctors and their triumphs conquering disease; nowadays there is more interest in the patient's perspective and the social history of science. In 19th century Australia, researchers were attempting to adapt their existing knowledge to very different local problems. The various sciences came into prominence at different times, usually due to the significant achievements of individual researchers. Their difficulties were exacerbated by isolation from the mainstream centres of research and from local colleagues who understood their work.

To close the proceedings, Dr Hooker presented each of the speakers with a copy of Roy Macleod's biography *Archibald Liversidge, Imperial Science Under the Southern Cross* donated by the Royal Society of New South Wales.

Peter Tyler,
Historian, Royal Society of NSW

Liversidge Book Launch

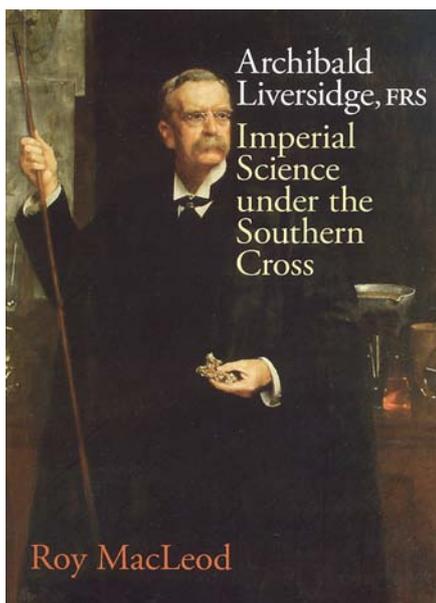
Speech delivered at the launch of *Archibald Liversidge: Imperial Science under the Southern Cross* by Roy MacLeod

John Hardie, President

Your Excellency, distinguished guests, ladies and gentlemen.

It gives me great pleasure to welcome you here today for what I see as a very important and historic occasion. We are here to witness the unveiling of nearly half a lifetime's work on one of the most influential figures in this university.

In my view, Australian science would have been held back by upwards of a generation had it not been for Professor Archibald Liversidge, first professor of chemistry and mineralogy at this university, first Dean of Science and thrice President of the Royal Society of NSW. I am welcoming you here today because Liversidge meant so much to the Royal Society of NSW and it to him.



The Royal Society of NSW is arguably Australia's oldest scientific society. It was formed in 1821 as the Philosophical Society of Australasia with Governor Brisbane as President. After a period of quiescence it was revived in 1850 by some of the original members, among others, and those seeking to establish a university in Sydney. It could be said that the Society and the University were thus spawned by the same parents.

It is fitting that even to this day this relationship persists as we have both the Society and the University working *Continued next page...*

From the President

I am pleased to report that our Annual Dinner on 12 March was a great success with about 70 diners witness to our three new medallists receiving their awards. This year we were privileged to have the NSW Chief Scientist and Scientific Engineer, Professor Mary O'Kane, as our guest-of-honour. Her Occasional Address provided insights into how the Society is perceived and urged us to look ahead with confidence that we are fulfilling an important role for science in this state. Diners said to me during dinner how impressed they were with the calibre of our medallists and how interesting their work was. I look forward to an equally successful dinner next year.

On Thursday 18 March the AGM of the Southern Highlands Branch was held. I must congratulate the Branch for the enduring efforts they are putting into the local community. It is always so pleasing to read how well supported each meeting has been. I look forward to the continuing success of the Branch.

It gives me great pleasure to report that the first face-to-face meeting to set up the Central West Branch of the Society will be held on Thursday 25 March in Orange. The level of support for the Society in the region bodes well for the success of the Branch and I wish it well. Branch reports will begin appearing in the Bulletin as it becomes established.

We have been able to secure a distinguished and interesting array of speakers for our Sydney meetings this year. This embodies our broad approach to science and how we try to bridge the gaps between the different scientific disciplines. Our Calendar of Events for 2010 is included with this Bulletin.

This year is also a Liversidge year so our bi-annual Liversidge Lecture has been scheduled for mid-November so that we can be the first to celebrate the International Year of Chemistry (2011). We have been able to secure an eminent chemist to give this prestigious lecture, which I'm sure will attract a large audience. Further details will be available later in the year.

Our proposed move to the old Law School building in the city has been put



on hold for the moment while Sydney University considers its position in relation to its proposals for the building. We should know more about it after Easter.

On 29 March our Chief Patron, the Governor-General, will be holding a reception at Admiralty House specifically for our Inaugural Fellows. This indicates the high regard with which this newly established award and the Society are held. I am looking forward to presenting our Inaugural Fellows to Her Excellency.

This year I have decided that you have heard enough from me in my previous Presidential Addresses at our Annual General Meetings so have instigated a new option, the Anniversary Address. This was a term used in the 19th century instead of the Presidential Address, but I have transformed it into something that doesn't necessarily involve the President. This year we will hear from the Deputy Vice-Chancellor (Research) at Sydney University, Professor Jill Trehwella, who will give us some insights into what is happening with science education.

As this is the last Bulletin for the Society's year I would like to thank all the current members of Council for their efforts during the past 12 months. We have seen a great deal occur during this period, including the launch of what I regard as the first in a series of biographies of important figures in the history of the Society (*Archibald Liversidge, FRS: Imperial Science under the Southern Cross* by Roy MacLeod), the announcement of the Inaugural Fellows of the Society, and the establishment of the Central-West Branch of the Society, and I would like to thank Council for supporting me with these initiatives.

John Hardie

Continued from page 3

together as joint publishers of this book. It is also fitting that the book be launched by the Chancellor of the University, who is also the Patron of the Royal Society of NSW.

Because of these connections it was with great relish that the Society took up the cudgels to enable Professor MacLeod to take the final steps to have his work see the light of day. We were also fortunate in having a revived Sydney University Press eager to partner with us, and to see the value in getting this period of great importance to the development of science in this country more widely known. My own connections with technical education are also fortuitous as Liversidge was instrumental in establishing technical education in NSW.



Marie Bashir, Chancellor of the University of Sydney, Patron of the Royal Society of NSW.



Roy MacLeod, author of "Archibald Liversidge, Imperial Science under the Southern Cross"

Over 20 years ago Professor MacLeod lighted upon Archibald Liversidge as a pivotal figure in the formation of a scientific culture in this country. Liversidge was a product of the particularly British school of scientific thought of the mid-nineteenth century

and by happy coincidence managed to bring this rigour to these shores. This book is a product of exceptional research and scholarship expended over a 25 year period, and it shows.

I would encourage those whose academic interests include the history and philosophy of science to take a leaf out of Roy's book – there is much more to be learnt about where our solid scientific foundations have come from and the key characters in the shaping of this world. We have excellent biographies of Edgeworth David and Mawson, but where are the biographies of HC Russell, Threlfall and their contemporaries? This book shows that there have been and still are enormous gaps in our understanding of the development of Australian science. Professor MacLeod has led the way and I would encourage others to follow. We would like to think of this as the first in a long line of scientific biographies published by the Society and Sydney University Press.

Thanks must go to all who have supported this project. We would not have achieved this without their help. In particular, I would like to single out the author on whose shoulders most of the burden of this project has fallen – and I would like to say a most emphatic 'well done'.

So on behalf of the Royal Society of NSW I thank you for being present at this important occasion and welcome you to the launch.

Stop press!

Liversidge to be launched in London!

The famous Australian scientist Lord May will launch *Archibald Liversidge, Imperial Science under the Southern Cross* at the Royal Society in London on Tuesday 27 April in the presence of the Australian High Commissioner to the UK.

This is a great coup for our Society and may help forge greater links between the two Societies. Any member in London at the time would be most welcome. Please let the Society's office know as soon as possible if you would like to attend.

Southern Highlands Branch

Report of March Meeting

Tridentine America: Decline, Corruption, Moral Ambiguity, Folly, Stupidity and the Refusal to Reform

Dr Michael McKinley, Political Science and
International Relations, School of Political
Sciences, ANU

The Southern Highlands Branch meeting of 18 March was held at 6.30pm in the Drama Theatre, Frensham School, Mittagong, immediately following the AGM. The lecture attracted an audience of 64, including RSNSW President, John Hardie.

The speaker, Dr Michael McKinley presented a thought-provoking and wide-ranging lecture, which clearly interested the audience. In contrast with previous lecturers, he used no computer assistance in his presentation, instead prompting himself from time to time with a stack of pages comprising an early print of his soon-to-be-released book. The data he presented to the audience included many surprising statistics, information that obviously supported the title of his lecture.

The statistics showed that one child in fifty in the USA is homeless, that 7.3 million USA citizens are either in gaol, or are somewhere in the incarceration process, and that 600,000 seniors are soon to have their homes taken from them because of financial difficulties. As for the health care system in USA, 44,000 people die each year because of lack of the simplest medicine; 50 million people have no healthcare, leading to the now common practice of 'granny-dumping'; in addition, the greatest cause of bankruptcy is due to medical bills. McKinley stated that in his view, President Barack Obama had inherited a situation where economic reform is impossible.

It is McKinley's view that the United States is in a time of peril, and he is supported by many analysts, commentators and scholars who claim that nothing short of radical reform is required. He posed the question of whether the United States - the sole remaining superpower and traditional leader of the West since 1945 - is capable of reforming itself and leading the corresponding project. He argued that although the sources of

The Society's Annual Dinner for 2010 and our Awards for 2009

peril are to be found in many categories, there are four interrelated areas within the US that need special consideration: economics, strategic guidance, politics and higher education. His belief is that failing reform in these key areas, the USA will slip further into decline. He likened the current times in the USA to the 60 year period leading up to the Protestant Reformation and the Council of Trent.

At the conclusion of the lecture, the audience responded with many questions. RSNSW President John Hardie complimented the Southern Highlands Branch of the Royal Society for hosting such a diverse range of speakers. The vote of thanks was given by Anne Wood.

Anne Wood



Don't forget, letters to the editor are always welcome.

The Society's website now has pdf copies of some speakers' slides. See the links at the end of the speakers' abstracts or on the website at http://nsw.royalsoc.org.au/talks_2009/index_2009.html



The Society's Annual Dinner was held on Friday 12 March 2010 at the Forum Restaurant, Darlington Centre, Sydney University. We were fortunate in having the NSW Chief Scientist and Scientific Engineer, Professor Mary O'Kane, as Guest-of-Honour to present the Society's Awards for 2009 and give an Occasional Address to the nearly 70 members and guests at the dinner.

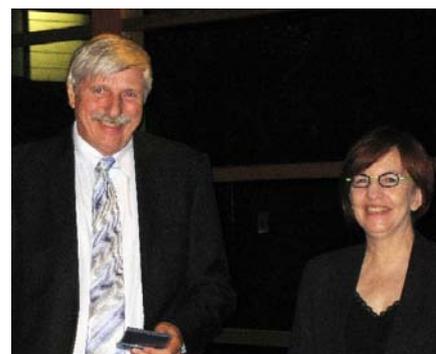
Three Awards were presented:



The James Cook Medal was awarded to Dr Michael Goldsworthy FAIP, CEO of Silex Systems, for his discovery, development and commercialisation of the world's best isotope separation techniques. Dr Goldsworthy's work is highly significant for the energy sector in that his techniques have increased isotope enrichment efficiency by a factor of 60 times over the earlier centrifuge techniques. He is now regarded as one of the leading authorities on both nuclear power and solar energy in Australia. The citation was read by Emeritus Professor Heinrich Hora.



The Clarke Medal for 2009 was awarded to Dr Winston Ponder of the Australian Museum for his lifetime's work on molluscs. Dr Ponder's work has focussed on phylogenetic relationships and taxonomy, and his detailed research, published in over 200 papers in refereed journals, has been essential in recognising Australia's biodiversity. The citation was read by Julie Haeusler.



Dr Winston Ponder receiving his Clarke Medal from Professor Mary O'Kane



The Edgeworth David Medal for 2009 (for a scientist under the age of 35) was awarded to Associate Professor Nagarajan Valanoor of the School of Materials Science and Engineering at the University of NSW. Professor Valanoor works on nanoscale functional materials and thin film polar oxide structures. He has put Australia on the world map in leading edge research in these areas. He has published over 60 peer-reviewed papers internationally which have been cited over 2,400 times, a remarkable achievement for a relatively young researcher. The citation was read by Associate Professor Bill Sewell.

In her Occasional Address Professor O'Kane made it clear that the Society has a unique role within the scientific community in this state and that it should be nurtured and encouraged. She offered some insights into how we might move forward strategically to build on our strengths. We hope to be able to publish the full text of her Address in a later issue of the Bulletin.

John Hardie

Inaugural Fellows honoured at Admiralty House



accepted on his behalf by Professor Stanton. In conclusion, Her Excellency called for a standing ovation by those assembled, which was undertaken with great enthusiasm and vigour. Guests were then able to mingle with the new Fellows and our Patron.

A full account of this important event with photographs and the full citations will appear in our next Bulletin.

Congratulations to our new Fellows!

On Monday 29 March Her Excellency Ms Quentin Bryce AC, Governor-General of the Commonwealth of Australia and Chief Patron of the Society, presented the Society's Inaugural Fellows with their certificates. This splendid occasion, held in the delightful surrounds of Admiralty House in Sydney in front of an invited audience of over 50 distinguished guests of the Society, honoured the achievements of these seven great scientists:

Professor Michael Archer AM FAA
 Professor Gavin Brown AO FAA CorrFRSE
 Professor Robert Clark FAA
 Professor David Craig AO FRS FAA
 Professor Jak Kelly DSc FInstP (London) FAIP
 Professor Richard Stanton AO FAA
 Professor Bruce Warren DSc FAIM FRCPA FRCPATH

The Governor-General began by noting her deep respect for the achievements of these individuals and noting the importance of awards such as these to honour them.

The President, John Hardie, then offered a Vote of Thanks to Her Excellency. Here is a brief extract:

The Royal Society of NSW has contemplated the notion of awarding Fellowships for a

considerable length of time. We watched as other learned societies and professional associations created the designation but we continued to ponder. Then along came the Australian Academy of Science, and still we pondered. The Society and its aims have moved on since then and the time has come to exercise our own judgement and in our own right. It has only been in the last few years that we have seen fit to properly consider the fact that we, as the oldest scientific society in Australia, were not giving due recognition in a public and ongoing way to those who had excelled. This has now changed.

The main aims of the Royal Society of NSW have in recent years moved towards science advocacy. We are relying on our Fellows to help in this regard by making science a field of endeavour more recognisable for what it actually is, and by helping practising scientists not to lose sight of the fact that they are part of a much broader discipline where each can learn from the other. Our Fellows will also help us realise that we can learn from other fields of endeavour – the arts, philosophy, music, history and so on.

He then read out the individual citations as each Fellow was presented with their certificate. Professor Craig's was

RACI News

Weekly E-News (including forthcoming events) of The Royal Australian Chemical Institute Inc. NSW Branch are obtainable on their web site at <http://www.chem.unsw.edu.au/raci/News.html>



Australian Institute of Physics NSW Branch



2nd General Meeting 2010
 Tuesday 27 April 2010

Dr John Lang, Macquarie University; "Mr Tompkins Goes to the Races". Talk commences at 5:30pm

Dr Chris Stewart, University of Sydney; "That'll never work in my classroom": Web 2 in Physics Education. Talk commences 7:00pm

Location of talks: Slade Lecture Theatre, School of Physics, University of Sydney. Refreshments will be available before each talk. Entrance to all events is free.

Dinner to follow at Buon Gusto Restaurant, Abercrombie St. Please contact Dr Fred Osman on 0418 444 477 to book.

Contact your office bearers

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