



THE BULLETIN 460

THE ROYAL SOCIETY OF NEW SOUTH WALES

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MARCH 2022

For Your Diary

- 09 JAN–30 JUN
[*RSNSW Exhibition:*](#)
[*NEXUS 2022*](#)
- 17 MAR
[*RSNSW Clarke Lecture 2020*](#)
- 25 MAR
[*Frontiers of Science Forum*](#)
[*2022*](#)
- 06 APR
[*155th Annual General*](#)
[*Meeting and 1302nd Ordinary*](#)
[*General Meeting and Open*](#)
[*Lecture*](#)



Patron of The Royal Society of NSW

Her Excellency The Honourable
Margaret Beazley AC QC
Governor of New South Wales

1301ST OGM AND OPEN LECTURE

**Royal Society of NSW 2021
Student Award Presentations**

Wednesday, 2 March 2022, 6:30 PM



Zain Mehdi
ANU

Sajad Abolpour Moshizi
Macquarie University

Harry Marquis
University of Sydney

Kevin Chau
Macquarie University

Date/time: Wednesday, 2 March 2022, 6:30 PM AEDT

Venue: [Zoom Webinar](#)

Entry: No charge

Enquiries: [via email](#)

All are welcome.

See [page 3](#) for more information

From the President

More than 100 viewers attended the Society's first meeting for 2022 on 2 February, held online because of continuing COVID-19 restrictions, when Professor Mark Scott AO FRSN, Vice-Chancellor and Principal, The University of Sydney, spoke about 'What next for higher education after COVID-19'. The Q&A session, conducted by a panel of four Society Fellows explored in more detail some of the issues that Professor Scott raised. These include the tensions between educating students to be job ready graduates and giving them the skills for a lifetime of learning, achieving the aim of providing a transformational experience to students given that they are giving the University valuable years of their life, explaining to the wider community the great public benefit of research and the years that it can take for it to have impact, and, finally, how an Australian University can compete with the greater online presence of overseas institutions. If you missed this compelling event, it is available for viewing [here](#) on the Society's YouTube Channel.

That night, I also announced the winners of the [Society's 2021 Awards](#), all of whom are commended on our website. Some of the Awards involve a lecture by the recipient. Unsurprisingly, the pandemic has created a back log of lectures by previous winners that we will overcome this year. Further details are available on our website. All Society members are invited to attend.

On 17 March, our 2020 RSNSW Clarke Medal winner, [Professor Michelle Leishman](#), will address the topic 'From bulldozers, pests, and pathogens to climate change and urban futures: the tough life of plants' at Macquarie University.

[Professor Angela Moles](#), University of NSW, will deliver the 2020 Poggendorff Lecture on 11 May at the Royal Botanic Garden in Sydney. She will address the question 'Are our weeds becoming new native species?'

The Society will feature our 2021 Postgraduate Awardees at our [2 March meeting](#) to be conducted as a Zoom webinar. Each of our four winners will present a short overview of their work on an interesting spread of topics and answer questions from the

audience: Mx Zain Mehdi (Jak Kelly Award) — *Bigger than atoms, smaller than cheese: probing the mesoscopic world with table-top experiments*; Mr Sajad Abolpour Moshizi (Scholarship Winner) — *Development of a biomimetic vestibular system with miniaturized sensors to restore balance*; Mr Harry Marquis (Scholarship Winner) — *Improved imaging for targeted radiation treatments in cancer patients*; Mr Kevin Chau (Scholarship Winner) — *Decoding the platelet glycoproteome*.

Please support these rising stars by joining this webinar on 2 March.

I draw your attention to the [Call for Nomination for Council Elections 2022](#) that was emailed to all members on 14 February and uploaded to the website. Nominations are sought from motivated members who wish to make a difference by contributing to the future directions and work of the Society. If you are such a member, please submit your nomination by no later than 4 March.

Even if you do not nominate for Council, I encourage you to consider joining one of the Society's Committees, including one of its Branch Committees. We need volunteers who are passionate about the vision of the Society and have a strong, sleeves-rolled-up work ethic.

As in the previous Bulletin, I urge you to note in your calendar and watch out for your invitation to our 200th anniversary dinner on 24 June 2022 in the University of Sydney Great Hall. This will be a glittering occasion and a wonderful networking opportunity for the 300 guests.

We continue to work for the Society and for NSW because we understand the need to enhance authentic and authoritative public discourse on a wide range of topics that are crucial to our future. I look forward to your participation in person or online very soon.

Dr Susan M Pond AM FRSN
President, Royal Society of NSW



Royal Society of NSW 2021 Student Award Presentations

Zain Mehdi

ANU

Sajad Abolpour Moshizi

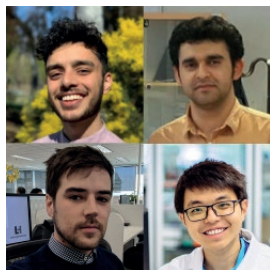
Macquarie University

Harry Marquis

University of Sydney

Kevin Chau

Macquarie University



Date: Wednesday, 2 March 2022, 6:30 PM

Venue: [Zoom Webinar](#)

Entry: No charge

Enquiries: [via email](#)

All are welcome.

Summary

The evening's program comprises four short talks presented by PhD and Masters Research Candidates who have been awarded the Society's Jak Kelly Award and the Royal Society of NSW Scholarships for 2021.

Presentation summaries and brief biographies of the presenters

BIGGER THAN ATOMS, SMALLER THAN CHEESE: PROBING THE MESOSCOPIC WORLD WITH TABLE- TOP EXPERIMENTS

*Mx Zain Mehdi, PhD Candidate,
Australian National University*

Over the course of the last century, modern physics has made tremendous strides in understanding the laws of nature at the smallest scales in the universe — called quantum physics. This has provided us with a strong understanding of the microscopic world of individual atoms, which seemingly obeys completely different laws than the macroscopic objects with which we interact



in our day-to-day lives. However, we still currently lack a detailed understanding of the mesoscopic world — the intermediate scale between the microscopic and macroscopic.

Over the past few decades, 'table-top experiments' with ultracold atomic gases have emerged as an ideal playground for studying mesoscopic systems. However, the scale of systems that can be studied with these experiments is limited by the existing techniques used to cool the atoms. In this presentation, Zain Mehdi will describe the main limitations of current experiments, and how they may be overcome using a new, proposed technique called feedback cooling.

Zain Mehdi completed their undergraduate degree in Theoretical Physics at the ANU, graduating with First Class Honours in 2019. Since then, Zain has been working on their PhD research investigating quantum physics in the mesoscopic regime — the intermediate scale between the microscopic world of individual atoms and the macroscopic world of classical objects. Their work involves theoretical investigations of exotic phenomena in cold atom systems, with two key focuses: developing new techniques for cooling atomic gases and understanding turbulent phenomena in superfluids.

DEVELOPMENT OF A BIOMIMETIC VESTIBULAR SYSTEM WITH MINIATURIZED SENSORS TO RESTORE BALANCE

*Mr Sajad Abolpour Moshizi, PhD
Student, Macquarie University*

This presentation will discuss the importance of the vestibular system in the balance of the body. Then, the pros and cons of the existing vestibular implants will be described. The main part of the presentation will introduce pioneering work in developing a biomimetic vestibular system using advanced materials, nanotechnology, and 3D printing technology. The research findings open up new avenues for the next generation of vestibular implants.



Sajad Abolpour Moshizi is a PhD candidate at Macquarie University. His work is focused on developing innovative synthetic vestibular systems to restore balance for patients with a balance disorder. Approximately 30% of the population suffers from vestibular dysfunction; therefore, new methods are urgently needed to help such patients. Sajad's project will also help elderly people to manage the consequences of vestibular dysfunction, including dizziness, imbalance, and gaze instability while walking. He has developed several novel hair cell sensory systems using advanced materials and nanotechnology with high sensitivity, very low-frequency detection, and low response time. He has designed a biomimetic vestibular system equipped with the hair cell sensor using 3D printing technology. This research paves the way for developing the next generation of vestibular implants, with the ultimate goal of restoring balance dysfunction. The research findings have been published in prestigious journals such as *Nano-Micro Letters*, *ACS Applied Materials & Interfaces*, and *Advanced Materials Technologies*.

IMPROVED IMAGING FOR TARGETED RADIATION TREATMENTS IN CANCER PATIENTS

Mr Harry Marquis, PhD Student, University of Sydney

The presentation will describe a novel approach to imaging that utilises different imaging modalities (PET and SPECT) to improve the functional SPECT image which helps to better define the amount of radiation required to treat widespread, disseminated cancer.

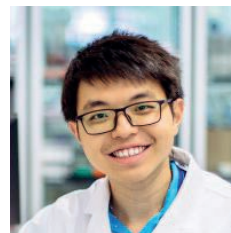
Harry Marquis is a PhD candidate in the School of Physics at the University of Sydney. His clinical translational research is based at the Royal North Shore Hospital. Harry's research project focuses on improving imaging-based dosimetry estimates in radionuclide therapy (known as "PRRT") for the treatment of patients with pancreatic and neuroendocrine cancer. Harry's research has received international recognition from the Society of Nuclear Medicine and Molecular Imaging for outstanding original work in radiation safety and dosimetry. Harry has recently accepted a post-doctoral training position



in Medical Physics at New York's Memorial Sloan Kettering Cancer Center commencing later this year.

DECODING THE PLATELET GLYCOPROTEOME

Mr Kevin Chau, MRes Student, Macquarie University



Platelets are important blood cells that play central roles in the vascular and immune systems, including in haemostasis, thrombosis, inflammation, host defence, and carcinogenesis. Tissue injury promptly activates platelets, triggering profound molecular changes including the release of pre-packaged proteins which mediate injury-related response processes outside the platelets. Whilst previous studies have documented the importance of glycosylation of these mobile proteins in platelet biology, the entire complement of glycoproteins ("the glycoproteome") in platelets remains poorly defined leaving a critical knowledge gap that hinders a more complete understanding of the biological roles that complex carbohydrates play in platelet function.

In this presentation, Chau will discuss how he used advanced mass spectrometry and innovative glycoproteomics and glycomics technologies to decode for the first time the immensely complex glycoproteome of resting and activated platelets. The unbiased high-definition map of the platelet glycoproteome arising from these efforts will serve as a useful resource for future studies of platelet glycobiology and diseases involving platelets including COVID-19 vaccine-induced thrombotic thrombocytopenia.

The Huong (Kevin) Chau obtained his Bachelor of Advanced Science degree from Macquarie University in 2019 majoring in Chemistry and Neuroscience. He received several awards and prizes for his undergraduate performance including being shortlisted as the top 1% of high-achieving students in 2018, was awarded the Le Fevre Memorial Prize for proficiency in Physical Chemistry in 2019, and was awarded a prestigious Australian AMGEN scholarship in 2020. He is currently a Master of Research student at Macquarie University under the supervision of Associate Professor ARC Future Fellow Morten Andersen, where he passionately explores the glycobiology of platelets using advanced mass spectrometry.

From bulldozers, pests, and pathogens to climate change and urban futures: the tough life of plants

Professor Michelle Leishman
Distinguished Professor of Biology
Director, Centre for Smart Green Cities
Macquarie University

Date: Thursday, 17 March 2022, 5:30–7:00 PM

Venue: Macquarie University (Arts Precinct Function Centre: C122, 25 Wally's Walk) and Live Streaming

Entry: No charge

Registration: [Registration is required](#) for both face-to-face and online attendance. Please RSVP by 5:00 PM, Friday, 11 March

Enquiries: Please email [Jenny Ghabache](#) at Macquarie University

All are welcome.

The Clarke Lecture

The Royal Society of NSW and Macquarie University are pleased to present the Society's annual [Clarke Memorial Lecture](#). The Clarke Lecture is delivered by the most recent winner of the [Clarke Medal](#). The Clarke Medal and Lecture commemorate the memory of the Reverend William Branwhite Clarke, one of the fathers of the Royal Society of New South Wales, and an eminent geologist of his day. The Clarke Medal for 2020 was awarded to Distinguished Professor Michelle Leishman of Macquarie University — an internationally recognised researcher in the field of plant ecology.

Summary

The life of plants on our planet today is tougher than ever before. The UN FAO estimates that 1 million hectares of forest globally were cut down each year over the last decade. There are over 20,000 plant species that are considered to be threatened with extinction, and the actual numbers are likely to be far higher.

In NSW alone there are 111 ecological communities and 672 plant species considered to be endangered, and yet our knowledge of their biology and ecology is surprisingly limited. Key threats to these plant species are loss of habitat, invasive species and climate change.

In this talk, Professor Leishman explores these threats and asks why some plant species 'jump the garden fence' to become serious environmental weeds and considers how climate change may be giving them some extra help. She will also look at one of the most serious recent threats to many of Australia's iconic plant species and communities — the invasive fungal pathogen Myrtle rust that infects species in the family Myrtaceae, including our eucalypts, bottle brushes and tea-trees. Even the plants in our urban parks and gardens are affected by weeds, pests, diseases and climate change. Prof Leishman will discuss the benefits provided by the plants in our urban green spaces, the challenges they face with increasing urbanisation and extreme climate, and ways forward to improve the resilience of our urban forests into the future.



Brief biography

Distinguished Professor Michelle Leishman is an internationally renowned ecologist who works in the fields of plant invasion biology, climate change impacts and adaptation, conservation and urban ecology. She is highly cited with more than 170 published book chapters and journal articles. She leads a research group in the Department of Biological Sciences at Macquarie University and is Director of MQ's Centre for Smart Green Cities. Her research leadership in invasive pests and pathogens has been a driver for national strategies such as the action plan for Myrtle rust in Australia and the Gardening Responsibly initiative. She collaborates extensively with government and industry and has led the

development of widely used online tools for weed management and climate change adaptation. She currently leads the *Which Plant Where* project which will facilitate resilient and diverse urban green spaces. Michelle is a Trustee of the Royal Botanic Gardens

and Domain Trust and Chair of the Australian Institute of Botanical Science Advisory Committee. She is also on the Board of Bush Heritage Australia and is an elected council member of the Australian Flora Foundation.

Frontiers of Science Forum 2022

Exploring major discoveries and theories in physics, mathematics, biology, and chemistry

The Hon. Alister Henskins SC MP

*NSW Minister for Science, Innovation and Technology
Minister for Skills and Training*

Prof Andrea Morello FRSN

UNSW Sydney

Prof Chris Tisdell

UNSW Sydney

Prof Johannes Le Coutre FRSN

UNSW Sydney

Prof Martina Stenzel FRSN

UNSW Sydney

Date: Friday, 25 March 2022, 5:15 PM for 6:00 PM

Venue: Concord Golf Club, 190 Majors Bay Road, Concord (onsite parking is available)

Entry: \$15 (includes light refreshments from 5:15 PM)

Registration: by Monday, 21 March 2022 through [Currinda](#)

Program flyer: [Available via this link](#)

Enquiries: [TGNSW Secretariat](#)

Phone: 02 9160 8199

All are welcome.

Ever since the Copernican revolution in the 16th century, science has been progressing at an exponential rate. Major discoveries and theories in physics, mathematics, biology and chemistry have shaped our existence and civilisation, and continue to grow exponentially. The Frontiers of Science forum will present four international experts who will speak on current and upcoming developments in their fields.



Morello: Building a Quantum Computing Lab from the Fundamental Constants of Nature

Quantum computers hold the potential to solve intractable computational tasks, thanks to their ability to encode and process an exponentially large amount of information. Their practical implementation is becoming a reality, both in academia and in industry, with many different ideas being put to the test to build the ultimate computing machine. And yet, every time we see media coverage on quantum computing, the images always look the same: a shiny refrigerator, a maze of high-frequency cables, some nanoscale device at the bottom of it. Why? In this talk, I will explain how the values of certain fundamental constants of Nature — the Planck constant, the electron charge, the speed of light, etc. — conjure up a set of inescapable constraints on the type of equipment necessary to operate a quantum computer. I will illustrate this by giving a virtual tour of the Fundamental Quantum Technologies Laboratories at UNSW, in the hope of clearing some of the ‘mysteries’ around quantum computers and how they work.

Tisdell: Beyond the Compass: Exploring Geometric Constructions via Circle Templates and a Straightedge

For thousands of years, the compass and straight-edge tools have dominated the learning and teaching of geometry. As such, these inherited, long-standing instruments have gained a lustre of naturalized pedagogical value. However, mounting evidence suggests that many learners and teachers struggle to efficiently, effectively and safely use compasses when constructing geometric figures. Compasses are difficult for learners to use, can lead to inaccurate drawings, and can be dangerous. Thus, there is value in reconsidering the role of the compass in the learning and teaching of geometric constructions and offering better tools as alternatives. The purpose of this work is to address the aforementioned need by proposing an alternative tool to the compass that is safer, more efficient and more effective. We will argue that a circle arc template forms such an alternative tool, and we will illustrate how learners and teachers can add value to their classrooms by using it in conjunction with a straightedge to establish the well-known constructions seen in geometry curricula around the world.

le Coutre: From Botanists and Butterflies to Populations and Planets

Life Sciences make up for the most stimulating and intellectually challenging endeavours of the 21st century — and there is probably little dispute with this statement. Being the Science of Life, Biology has come a long way. Having started as a purely empirical activity in the pursuit of beauty or even a *vis vitalis* (living force) early biologists catalogued plants and animals. Throughout several centuries this activity has developed into the dominating branch of all-natural sciences. Biology today is a global high-tech endeavour featuring a wealth of sub-disciplines and research fields with massive involvement of both industry and academia. Moreover, as we have seen in other sciences such as Physics or Chemistry, Biology evolves from a purely investigative science into an area of creative engineering, where the discoveries made are being put into tangible innovation. Interestingly, simple principles of biology, such as compe-

tition, collaboration and economy do apply not only to organisms but also to communities, populations and the workings of our entire planet.

Stenzel: Going small to make big impacts in medicine: nanomedicine

Life Sciences make up for the most stimulating and intellectually challenging endeavours of the 21st Century. One of the challenges in the development of new drugs is the often unfavourable biodistribution: the drug is either quickly cleared from the body, is deactivated or is accumulation in organs where they do rather harm than good. Entrapping drugs into nanoparticles has shown to improve the treatment of many diseases. The first therapeutic nanoparticles that appeared on the market were designed to enhance the treatment of cancer, but more recently nanoparticles helped to vaccinate the world as mRNA vaccines are delivered in these tiny-nano-sized carriers. In this lecture, we will briefly review the nature of various nanoparticles and discuss opportunities and challenges. We will look more in-depth at the nanoparticles already used in FDA approved formation. Finally, I will give an overview of current activities in this field in research labs.

About the presenters

Andrea Morello FRSN is the Scientia Professor of Quantum Engineering at UNSW Sydney (Australia), and a Fellow of the American Physical Society. He received his PhD from the University of Leiden in 2004, followed by a postdoc at the University of British Columbia. His group at UNSW has pioneered the use of donor spins for quantum information processing, demonstrating the first electron and nuclear spin qubits in silicon. For these contributions, he received numerous awards, including the 2017 Landauer and Bennett Award for Quantum Computing. His interests further extend to quantum chaos, quantum foundations and quantum sensing.

Chris Tisdell is an Honorary Professor of STEM and Digital Education at UQ (Brisbane). His significant and innovative contributions to the student experience have positively impacted millions of people around the world by exploring the challenges of scale, flexibility and personalized learning. For example,

he has led Australia's earliest YouTube channel dedicated to learning mathematics, now in its thirteenth year of operation with more than 15 million views; and has authored free e-textbooks that have a global audience of more than 10 million readers. He is proud to collaborate with key partners within the education industry, ensuring continuous improvement and collaborative advantage therein.

Johannes le Coutre FRSN joined the University of New South Wales (UNSW), Sydney in 2019 as a full Professor of Food and Health. He is responsible for the UNSW Food program and currently, he is developing a broad research agenda on cellular agriculture. Johannes obtained a PhD in Biophysics at the Max Planck Institute of Nutrition Physiology in Germany, where he identified intricate details of the reaction mechanism underlying light-driven bacterial proton transport. With a Human Frontiers award, he went to the Howard Hughes Medical Institute at UCLA to investigate molecular mechanisms of membrane transport. In 2000 he was asked to build a research program on taste physiology at the Nestlé Research Center in Lausanne, Switzerland. His contribution and expertise have been pivotal in making Nestlé work on taste perception and central integration

internationally valued and recognized. From 2009 to 2017 le Coutre held a visiting Professorship at the University of Tokyo, where he has been involved with teaching and with a project on taste perception in the Elderly (Mikaku). Professor le Coutre is the founding Field Chief Editor for FRONTIERS in Nutrition, an open-access journal by the Frontiers Media company.

Martina Stenzel FRSN studied chemistry at the University of Bayreuth, Germany, before completing her PhD in 1999 at the Institute of Applied Macromolecular Chemistry, University of Stuttgart, Germany. She started as a postdoctoral fellow at UNSW in 1999 and is now a Scientia Professor in the School of Chemistry at UNSW as well as an ARC Laureate Fellow. Her research interest is focused on the synthesis of functional nanoparticles for drug delivery applications. Her team is working closely with medical researchers and together they develop new nanoparticles to improve the treatment of cancer. She is the editor-in-chief of Materials Horizons and currently serves on a range of editorial boards. She received a range of awards including the 2011 Le Fèvre Memorial Prize of the Australian Academy of Science.

Welcome to new members

The Royal Society of New South Wales warmly welcomes the following new members to the Society's ranks, effective from 2 February 2022.

Fellows

- Professor Mark Griffith Evans
- Dr Peter Keegan
- Professor Charles James Lemckert
- Professor Deborah Lupton
- Mr David John van Nunen
- Professor Alistair Gary Beresford Poore
- Ms Judith Maree Rae

Members

- Ms Wendy Evenoldsen
- Dr Michael Tran

Associate Members

- Mr Kevin (The Huong) Chau
- Mr Harry Marquis
- Mx Zain Mehdi
- Mr Sajad Abolpour Moshizi

From the Archives: A rock star in the ranks

by Bruce Ramage (Secretary)

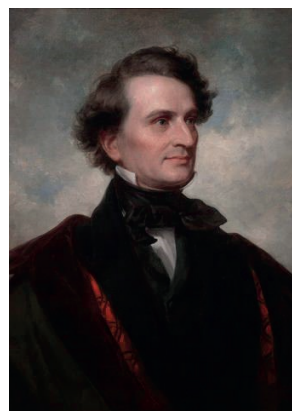
This is the eighth in a series of articles that highlights items from the Society's extensive archives, some of which are held in the State Library of NSW, the NSW State Archives and within the Society itself.

The field of geology is studded by many notable names that many would recognise in a heartbeat. One great name though that isn't heard of very often is that of James Dwight Dana. During his life, Dana made massive contributions to the field of geology, mineralogy, volcanology, and zoology. He pioneered the study of mountain-building, the origin and structures of the continents and oceans, and volcanic activity. He was a man that proved to be relentless in his desire to understand the earth.

To many of his contemporaries, James Dwight Dana (1813–1895) was the foremost American geologist of the nineteenth century. His *Manual of Geology*, in its fourth edition when he died, was on the shelf of almost every American geologist, and he used it to teach two generations of students while a professor in the Sheffield Scientific School at Yale. Dana was celebrated for his *System of Mineralogy* (1837), for his report on the geology of the US Exploring Expedition (1849), for monographs on crustaceans and corals, and for a seminal text on volcanology he wrote in his 70s.

In 1838 he accepted the post of geologist and mineralogist to the United States Exploring Expedition. Commanded by Captain Charles Wilkes, the expedition was the first commissioned by the United States government for hydrographic and scientific survey of the Antarctic, the Pacific islands and the north-west American coast. Its strong scientific corps included two civilians who, like Dana, were to publish data on Australia: Horatio Hale (1817–1896), the philologist, and Dr Charles Pickering (1805–1878), curator of the American Academy of Sciences. The expedition sailed from Norfolk, Virginia, and after sixteen months in the Pacific reached Sydney on 29 November 1839.

Dana, with other members of the scientific contingent, remained for some three months in New South Wales while the squadron carried out its Antarctic cruise. Most of this time was spent at Newcastle and in the Hunter River valley where he examined the coal measures, and made a collection of fossils. Early in 1840 he explored the Illawarra district with Rev Wil-



James Dwight Dana
(1813–1895), BA 1833, MA
1836.

Daniel Huntington. Yale
Art Gallery

liam Branwhite Clarke, a key figure in the Royal Society of NSW in the second half of the nineteenth century, and happy recollections of this journey recur in his later correspondence with Clarke: 'That Illawarra District is a perfect gem of a place for Geology ... it is one of the loveliest spots of the globe'.

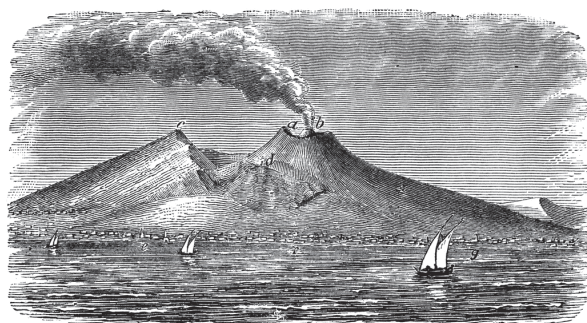
Dana presented some of his conclusions in a chapter of his report on the geology of the expedition, published in Philadelphia in 1849. It was accompanied by an *Atlas* containing fourteen plates of Australian fossils. Publishing a decade after the collection of his material, Dana was anticipated to some extent by other writers, whose findings he incorporated in his work. Nonetheless, in his detailed record of the stratigraphy and palaeontology of the coal measures, he contributed largely to understanding the great carboniferous development in New South Wales. His conclusions supported Clarke's opinion, contested at that time, that there was perfect conformity between the upper and underlying beds in the coal formations, and that all belonged lower than the coal deposits of India and Europe in the Palaeozoic period.

Dana's other important finding was the theory of valley making in the colony, later elaborated in his *Characteristics of Volcanoes* (New York, 1890). Supplementing his own observations by information

(continued)

from Hale's account of his journey across the Blue Mountains, Dana dismissed the theory of original escarpments which [Charles Darwin](#) had postulated in 1844, and attributed the deep sandstone gorges of the country to the continuing effects of running water. His chapter on the geology of the colony included also a lucid and finely illustrated description of the basaltic outcrops of the Illawarra region with an imaginative analysis of causes.

The United States Exploring Expedition sailed



Dana's sketch of Vesuvius from his 1863 New Text Book of Geology.

from Sydney on 19 March 1840, and returned to America in June 1842. The *Peacock*, which carried the

scientific corps, was wrecked and sank off the mouth of the Columbia River, but the company escaped with their equipment and records. Dana spent the next thirteen years in Washington preparing his reports. In 1840 he became editor of the *American Journal of Science*. He was the foremost American geologist of his time, writing more than 200 books and published papers, and his capacity for the meticulous marshalling of facts and for original theories that have stood the test of time was ably demonstrated in his observations on New South Wales. He died on 14 April 1895.

A number of the publications arising from these expeditions, including atlas folios, are held in the Society's collection. Some were donated by the Dana estate, while others have been acquired subsequently. One donated by Dana's estate contains the inscription *For The Royal Society of New South Wales from the Author, James D. Dana, New Haven, Connecticut, December 25, 1898*. The volume on geology is extremely rare, as a warehouse fire destroyed much of the limited print run prior to publication. The Society's copy was obtained by Professor Archibald Liversidge from the Smithsonian Institution in Washington.

Environment, histories and opportunities for the Royal Society NSW

by Heather Goodall

The Royal Society of NSW opens its mission statement with its goal: 'to contribute to a just, secure and sustainable society'. As the oldest learned society not only in Australia but in the Southern Hemisphere, the Royal Society has particularly fostered research in the physical and natural sciences. Yet for much of its early life, it was known as the *Philosophical Society of New South Wales* — a term which opens up the widest range of intellectual challenge across all bodies of knowledge.

The more recently established learned Academies, like that for the Social Sciences in Australia, of which I am a Fellow, have concentrated on a focal group of disciplines, a strategy which offers some strength

but can result in a loss of innovative cross-disciplinary collaboration. The Royal Society of New South Wales, however, has continued to have a diversity of disciplines within it. While many of the Fellows in the RSNSW have trained within the disciplines of the natural and physical sciences, there continues to be a significant number in its membership who have trained in the disciplines of the social sciences or the humanities. This range of disciplines offers exciting opportunities for researchers to build networks which cross the fields of the natural sciences, the social sciences and the humanities. The Royal Society can therefore create a more diverse and richer intellectual environment than is possible in most other organisations. This is critically important today,

(continued)

when most problems in the real world can only be solved if they are investigated by teams working collaboratively across disciplinary boundaries.

As an example, one area of potential collaboration relates to my own research: environmental history. My training has been within the Social Sciences (in history, politics and anthropology) and — to a lesser extent — within the Humanities (in literature). Yet my research interests in a number of major projects have been investigations into the histories of interactions between social and cultural groups of people and the environment around them — both in geographical and biological terms. I have found it essential — and extraordinarily fruitful and exciting — to work with biologists, archaeologists and physical geographers. Just as important, we have been able to build our investigations around collaborations with indigenous researchers and communities. Together, we have learnt far more about both the histories of people and environments and therefore about possible futures.

A wonderful example of this type of collaboration was developed last year and featured in the *RSNSW Bulletin* for August 2021, #454. The Royal Societies of Victoria, NSW and Queensland along with the CSIRO presented the webinar series ‘*The New Stewardship of Country*’ at <https://www.scienceaustralia.org.au/stewardship-of-country>. A range of experts from many fields, including Indigenous authors and researchers Jason Yunkaporta and elder Mary Graham, came together to discuss at length the engagements of contemporary sciences and Indigenous knowledges which might allow for precisely that ‘more just, secure and sustainable future’ that we are all seeking.

In one of my projects, *Talking Fish*: making connections with the rivers of the Murray-Darling Basin (2010–2015), I was able to work closely with historian Jodi Frawley, aquatic biologist Scot Nichol and others in the MDBA and Fisheries NSW and Fisheries Qld in engaging the memories and experiences of recreational fishers with the insights of ecologists and hydrologists, at 12 reaches of the Murray Dar-

ling system, across four states. By recognising from historical research the continuing fishing done by Aboriginal men and women — and we were aware too of the memories of non-Indigenous women fishers as well as men — we were able to contribute to the knowledge held by aquatic ecologists about the changes in populations and distribution of riverine species. The ecologists we were working with were able to draw out the significance of the oral histories we historians gathered, so together we could build a stronger analysis of the causes of changing river conditions. Outcomes can be found on the [NSW Department of Primary Industries site](#).

Another long-term environmental history program I have been involved in has been about the Georges River in south-western Sydney. We carried out a number of focussed research projects, some conducted between 2005 and 2009, while others, such as the River Advocacy work, are continuing, with one publication, *Georges River Blues*, currently in press. Working with cultural archaeologists and ecologists from the NSW National Parks service, fellow historians and I have undertaken a series of projects which have investigated how people and the environments have continued to be entangled in urban areas. Each of these projects has involved working in teams, as our publications explain. Here are some:

- [Rivers and Resilience](#) (about Aboriginal People on Sydney’s Georges River)
- [Waters of Belonging](#) (about Arabic Australians on the Georges River), and
- [Place-Making in National Parks](#) (about all of the groups along the river)

In my current research — *Water, Climate Change and Urban Wetlands* — I am working in partnership with the Bankstown Cultural Centre, the Canterbury Bankstown City Council and the Burruga Foundation to investigate the environmental history of Salt Pan Creek, a large waterway which flows south from Bankstown through Riverwood and Mortdale to Lugarno and into the Georges River. The name

(continued)

'salt pan' is misleading: this creek had many wetlands along its length, and it is probable that its name derived from these saline marshes, rather than from any salt-making works there. The water and living resources of Salt Pan Creek were important sites of early conflicts between Aboriginal owners and British settlers. Then the wetlands along its length became places of refuge for Aboriginal survivors and the increasing number of Aboriginal people coming to the city from rural areas. In the mid twentieth century, some wetlands were 'reclaimed' for social housing, migrant hostels and the many factories of the post-WW II era, making it one of the most crowded and culturally-diverse areas of Sydney. At

the same time, the surviving wetlands continue to support biodiversity despite the heavy population load. It is all these low-lying places — including the social housing and factories — which are now facing flooding as sea levels rise with climate change.

I am hoping to hear from others in the Royal Society — in all fields but particularly those interested in environmental sciences, climate change and riverine ecology — so that we might bring history and the natural sciences together to build a stronger picture of environmental change in this urban river of wetlands. In this way, we can work towards the Royal Society mission of contributing to a just, secure and sustainable future.

RSNSW Council Elections 2022: call for nominations

by Bruce Ramage (Secretary)

The Council is the Society's governing body, and together with its Committees, is responsible for the planning and delivery of the Society's programs and the initiatives of an ambitious triennial Strategic Plan. Amongst these initiatives are the successful delivery of the Bicentenary celebration during 2021–22, increasing the visibility, reach and influence of the Society through events and other programs, and improving the Society's financial position.

Nominations for the 2022 Council are now sought from committed and motivated Members and Fellows of the Society who wish to make a difference by contributing to the future directions and work of the Society. Nominations are particularly sought from younger members of the Society, and from women and other underrepresented groups, in line with the Society's Diversity and Inclusion Policy.

Please note that it is expected that all Councillors of the Society are willing to become a [Committee](#) Chair or to take on other active roles for the Society, in addition to their contributions as members of Council.

Information sessions are envisaged to ensure that personal expectations regarding time commitment and activities required are suitably aligned with

the goals of Society. If you would like to participate in such a session, please contact the Society's Secretary Officer by [email](#) to register your interest.

At this election, nominations are sought for the positions of:

- Four (4) ordinary members of Council for a two (2) year term.

Nominations open on Monday, 14 February and must be submitted by [email to the Society's Secretary](#), using the [linked form](#), by 5:00 PM (AEDT) on Friday, 4 March 2022.

You are encouraged to take advantage of the invitation on the nomination form to submit a paragraph setting out the experience and attributes you will bring to the position, if elected. That statement will be made available to all electors.

I thank you for your ongoing commitment and encourage each of you to consider nominating for a Council position so that you can make a valued contribution and real difference to the Society.



Report: Events Committee

by Christina Slade (Chair, Events Committee)
and Lindsay Botten (Webmaster)

The Events committee takes responsibility for organising the open lectures that follow the monthly general meetings. Our plan this year is to alternate face-to-face and virtual meetings where possible. Due to the ongoing pandemic restrictions and resulting uncertainty of the availability of the venue at the State Library, first meeting of the year, scheduled for 2 February following the 1300th OGM, was held online. Professor Mark Scott, the Vice-Chancellor and Principal of the University of Sydney talked of the challenges to higher education. [His talk is now available](#) on our YouTube channel. On 2 March, as is traditional, the PhD and Master's research candidates who have been awarded the Society's [Jak Kelly Award and the Royal Society of NSW Scholarships](#) for 2021 will address the society following the OGM. This event will also take place virtually.

The Events Committee is also responsible for coordinating the named lectures, the Clarke, Liversidge, Poggendorff, and Pollock Lectures, generally in collaboration with the University where the recipient is based. This year we are arranging the delayed award lectures from 2020. The first of these, the Clarke Lecture will take place at 5:30 PM–7 PM on 17 March. Professor Michelle Leishman's topic is 'From bulldozers, pests, and pathogens to climate change and urban futures: the tough life of plants'. This will be a hybrid event, held face-to-face event at Macquarie

University Arts Centre Precinct, and simultaneously available online. Those wishing to attend in person or participate online should register as indicated on the [event notice](#) on the Royal Society of NSW website. The website also provides details of [the Frontiers of Science Forum 2022](#) to be held on 25 March, sponsored jointly by the Australian Institute of Physics, the Teachers' Guild of NSW, the Royal Australian Chemical Institute, and the Royal Society of NSW.

The Events committee includes Judith Wheelon, who is responsible for the programming of the [Ideas@theHouse](#) events, in conjunction with Government House, and representatives of the Western, Hunter, and Southern Highlands branches. We are endeavouring to stagger meetings and ensure that all meetings are recorded. The Annual General Meeting of the Western NSW Branch will be held at the Ponton Theatre, on the Bathurst campus of Charles Sturt University on 15 March at 1 PM, to be followed by a panel discussion on 'Trust and Science'.

The Events Committee is working with the Community Engagement Committee (assisted by Adi Paterson who is a member of both Committees) and we hope to support excursions, should circumstances permit.

The [complete annual calendar of events in 2022](#) for the Society and its Branches is available on the website, as are [detailed descriptions of individual events](#) that include talk summaries and speaker biographies.

Royal Society of NSW Awards Presentation

On Wednesday 23 February our Patron, Her Excellency the Honourable Margaret Beazley AC QC, Governor of NSW, presented twenty Society Awards from the years 2019, 2020 and 2021, some of which had been unable to be presented due to the pandemic. Her Excellency very graciously hosted the event at Government House Sydney. The full list of 2021 awardees is given on [page 16](#) of this Bulletin.



Scientia Professor Rose Amal AC FRSN receiving the James Cook Medal for 2021 from the Governor of NSW

Report: Southern Highlands Branch

by Anne Wood (Branch Secretary)

Nuclear power: Australia's secure energy and climate solution 2022

Robert Parker

Founder, Nuclear for Climate Australia

Dr Robert Barr

Electric Power Consulting

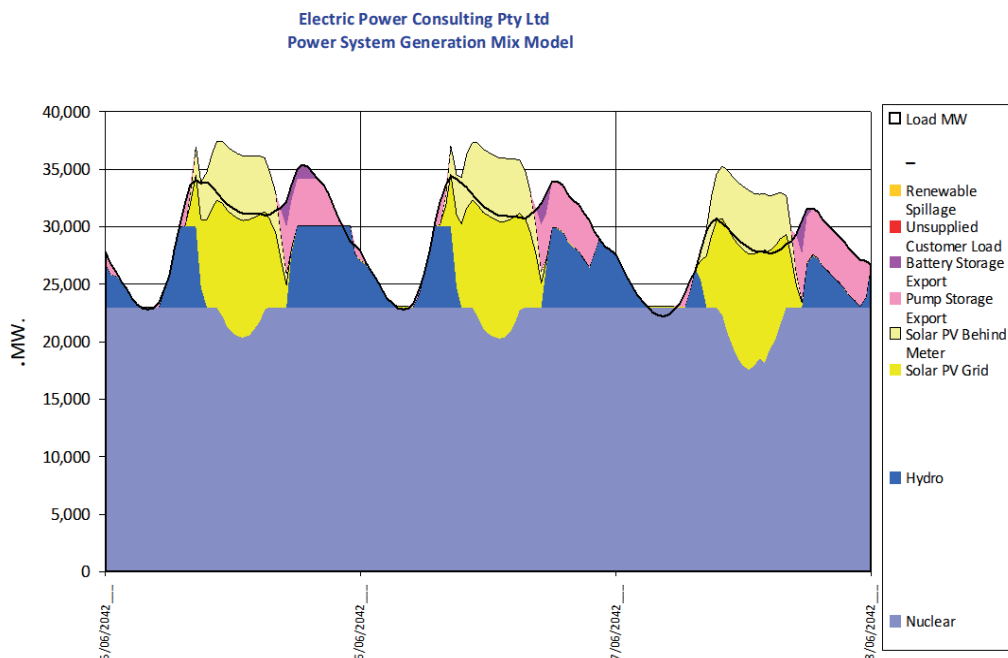
This lecture was the first face-to-face held by our Branch in 2022. The very topical subject drew an audience of 77 persons to the Mittagong RSL Carrington Room. The speaker, Rob Parker, was formerly President and Vice-President of the Australian Nuclear Association, and has visited nuclear power plants, fuel manufacturing facilities, power plant fabrication facilities and waste disposal sites in the USA, France and South Korea. Dr Robert Barr assisted at the lecture detailing his own design of energy modeling carried out for Australian conditions.

One of the initial points made by Parker was that when we scrutinise our periodic electricity bills, it is clear that the greater part of the costing is based not on the cost per unit of the electricity used, but

rather on transmission and distribution, plus system services and storage. He showed detailed calculations and graphics by Barr of how the transmission costs skyrocket once renewables are added to the energy mix in our present system.

Barr presented calculations and modeling for a future Australian electricity system which produces good baseline power results from the incorporation of renewables with a nuclear power system, while reducing consumer costings. It will be noticed in the accompanying diagram of this proposed system that *wind power does not play a part*. Barr's calculations have shown that the huge variability associated with wind power, and the unpredictability of that variability, make its inclusion in the model unacceptable as its use would require expensive gas backup or storage.

In the accompanying diagram, Barr's integrated system plan uses solar 11%, roof top solar 6%, existing hydro 7% and nuclear 76%. The demand curve in black shows all requirements from users being met. Any solar in excess of demand goes to battery and pumped storage. This graph is based for convenient presentation here on a three-day plot of the nuclear integrated plan for 5–7 June 2042.



The conclusions drawn by the speakers at the end of this lecture were:

- Variable wind and solar generation (VRE) does not have a track record of achieving deep carbon emissions reductions or providing low cost energy on a system wide basis
- VRE drives up costs of the most expensive part of our energy delivery — namely transmission and distribution plus system services and storage. These costs significantly exceed the low-cost benefits of wind and solar generators

- At high levels of emissions reductions, nuclear energy with VRE runs into problems
- A system where nuclear energy provides the dominant source of generation is the least cost option providing energy at around half the cost of a 100% renewable system.

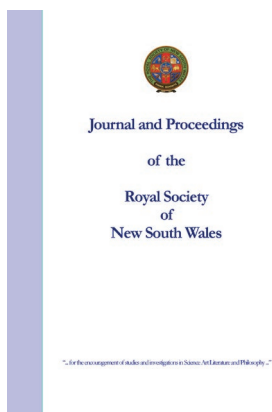
Rob Parker emphasised how greatly he had been assisted in his research by Dr Robert Barr's energy model.

The views and position expressed in this lecture do not necessarily reflect the Society's as a whole.

December 2021 Issue of the *Journal* now available

The December 2021 issue of the *Journal and Proceedings of the Royal Society of NSW* is now available online. The hard copies will be mailed out during the first week of March.

Members of the Society who subscribed to two issues of the hard-copy edition for 2021 will receive their December 2021 copy in the mail in coming weeks once it is printed. Members who did not renew their subscription to the printed copy of the *Journal* when they paid their annual membership subscription are reminded that they may purchase the June and December 2022 issues from the [Online Shop](#) before 30 April 2022, should they wish to receive these issues in hard-copy format.



Papers in the [current issue](#) include:

- *A marriage made in heaven — mathematics and computers* by Ian Sloan
- *The Moyal-Dirac controversy revisited* by Basil Hiley
- *The discovery, origins, and evolution of SARS CoV-2 (COVID-19)* by Edward C Holmes
- *Taking humour and laughter seriously: The multi-disciplinary field of humour studies* by Jessica Milner Davis
- *Revivalistics — a new comparative, global, transdisciplinary field of enquiry* by Ghil'ad Zuckermann
- *With the falling of dusk* by Stan Grant
- *Behind the scenes of the 1957 Chapel Hill Conference on the Role of Gravitation in Physics* by Dean Rickles
- *The art of finding and discovering fossils: a personal perspective* by Malte C Ebach and Patrick M Smith

Statement by the Royal Society of NSW on the Ministerial Veto of 2022 ARC Grants

The Royal Society of New South Wales expresses deep concern over the recent decision, announced on 24 December 2021, by the Acting Minister for Education and Youth, The Honourable Stuart Robert MP, to veto six Australian Research Council (ARC) grants recommended by its peer-based College of Experts. This follows similar interventions by two previous Ministers over the past four years.

Independent peer review within the criteria and rules of a grant program is the backbone of rigorous and outstanding research. The Minister has not provided any substantive explanation as to why the grants were rejected. His actions devalue the work of the College of Experts and undermine Australia's reputation as an attractive environment for world-leading research.

The fact that all six rejected projects are in the humanities and social sciences is particularly concerning. A richer understanding of our region, our

diverse cultures, our history, global challenges, and democratic institutions through research in the humanities and social sciences is critically important.

The Minister's actions also cut across the principles of liberal democracy and the free exchange of ideas, including encouraging diverse and inclusive engagement as a means of advancing the best interests of society.

Under current legislation, the Minister has the discretion to veto grants that he/she regards as not being value for money or in the national interest. If the Minister chooses to exercise this discretion, the reasons for the decision should be explained and made available publicly.



Royal Society of NSW Awards for 2021

The Royal Society of NSW announced its Awards for 2021 at the 1300th Ordinary General Meeting on Wednesday, 2 February 2022. These prestigious awards, awarded by Australia's oldest learned society, recognise outstanding achievements and excellence in science, engineering, philosophy and the arts.

The [awards and their recipients](#) announced at this meeting were:

- James Cook Medal — Scientia Professor Rose Amal AC FRSN FAA FTSE
- Clarke Medal and Lecture — Distinguished Professor Emeritus Robert John Aitken FRSN FAA FAHMS FRSE
- Edgeworth David Medal — Dr Arnold Lining Ju
- History and Philosophy Medal — Professor Dean Rickles
- Poggendorff Lectureship — Professor Richard Trethowan
- Pollock Memorial Lectureship — Professor Geraint Lewis FRSN FLSW
- Warren Prize (Medal and Lectureship) — Dr Noushin Nasiri
- Jak Kelly Award — Mx Zain Mehdi
- Royal Society of NSW Scholarships — Mr Sajad Abolpour, Mr Harry Marquis, and Mr Kevin (The Huong) Chau
- Royal Society of NSW Citation — The Honourable John Dowd AO QC FRSN
- Royal Society of NSW Citation — Mr Hubert Regtop MRSN
- Royal Society of NSW Citation — Mr Richard Wilmott MRSN

**RSNSW
Awards
2021**



Society Fellow Emma Johnson to be next DVC (Research) at the University of Sydney

Society Fellow, Professor Emma Johnston AO FRSN FTSE, has just been named as the incoming Deputy Vice-Chancellor (Research) at the University of Sydney. She joins the University in July 2022.



Professor Johnston, who is currently the Dean of Science and previously Pro-Vice-Chancellor (Research) at UNSW (Sydney), is a leading authority in marine science and conservation, a sustainability and diversity champion, and a chief author of the Australian State of Environment Report 2021. Serving previously as President of Science and Technology Australia during 2018–2019, she is recognised for her strong advocacy of research and industry engagement.

In announcing her appointment on 8 February 2022, the Vice-Chancellor of the University of Sydney, Professor Mark Scott AO FRSN, noted that Professor Johnston is a highly influential figure in the Australian higher education and research sector who brings

considerable higher education leadership experience at a senior level, having led the development of multiple research centres and institutes of cross-faculty multi-million dollar initiatives with strategic support funding. Professor Johnston has also led major research projects for industry, government, the Australian Research Council, and the Australian Antarctic Science Program, and has contributed to the development of international and national research strategies, priorities, and plans.

An elected fellow of the Australian Academy of Technology and Engineering (ATSE) and the Royal Society of New South Wales, Professor Johnston was made an Officer of the Order of Australia (AO) in the 2018 Queen's Birthday honours for 'distinguished service to higher education, particularly to marine ecology and ecotoxicology, as an academic, researcher and administrator, and to scientific institutes'.

The Royal Society of NSW extends its warmest congratulations to Professor Johnston, a former Clarke Medallist of the Royal Society of NSW, on her appointment as Deputy Vice-Chancellor (Research) at the University of Sydney.

Recent Events now on YouTube: February 2022

All online events from the Royal Society of NSW are recorded and are made available for subsequent viewing on our YouTube channel, youtube.com/royalsocnsw.

In our first event of 2022 (2 February) that was held online, Professor Mark Scott AO FRSN, Vice-Chancellor and Principal of the University of Sydney, discussed '[Where next for higher education after COVID-19?](#)', addressing the dramatic changes in teaching, research, and revenue sources for Australian universities that were forced by the COVID-19 pandemic.

At the Annual Meeting of the Four Societies (Australian Nuclear Association, Australian Institute of Energy, Sydney Division of Engineers Aus-

tralia, and Royal Society of NSW) held on 16 February, organised this year by the Australian Nuclear Association, Adjunct Professor Stephen Wilson of the University of Queensland addressed issues entailed in '[Engineering and related challenges in decarbonising the electricity system](#)'. [Slides for the talk](#) are also available.

The primary links above are to the videos on the respective YouTube channels.

**Recorded
Events**



youtube.com/royalsocnsw



BOOK REPORTS

for Members and Fellows of
THE ROYAL SOCIETY OF NEW SOUTH WALES

FEB
2022

Announcing a new service for Society members

As a means of creating greater collegiality among members of the Society, the Publishing Committee, in conjunction with Halstead Press, has created a mechanism for all members to be made aware of some of the interesting, published works of your Society colleagues on a regular basis. Conversely, this is also an opportunity for members to make their work known to other members they may not know.

Having briefly explored some of what members have written it is wonderful to see the range

and extent of the subject matter covered. And it's not all non-fiction. Many of our members contribute to other creative genres.

Works in the catalogue are offered at prices that are discounted from the recommended retail price.

The Society obtains a small percentage benefit from all purchases.

The Society will trial this initiative for 12 months to determine the extent of the tangible and intangible benefits members might obtain. As part of the project, the Society will compile a bibliography of members' books which will be available from the Halstead Press website.

Here's how it works:

- Members can use the [form provided to supply information about their books](#), so they can be entered in the bibliography and considered for the catalogue. Note that we reserve the right not to include books offered by members
- The Society will supply members from time to time with a descriptive catalogue of selected books available to buy at members' prices, below recommended retail prices
- Members can select books they wish to [purchase from the catalogue](#) and order them direct from Halstead Press
- Books ordered from the catalogue are posted to the postal address supplied by the member
- Please refer to the [advance sample catalogue](#) to see how books will be described and how to order them
- The scheme operates as an **opt-out** arrangement. Please [alert Halstead Press by return email](#) if you do not wish to receive any material directly from Halstead Press relating to this scheme.

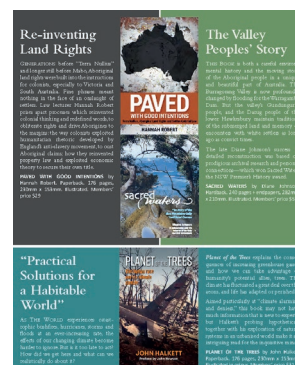
We hope you find that this new member service is beneficial.



THE MAKING OF MARTIN SPERRY by Martin Sperry. Foreword by John Sperry. Member price \$25.
Pete Sperry's career began, and for the stimulus to give his readers a sense of the world, he wrote a book about a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW.

DAWKINS AUSTRALIAN by Dawkins. Foreword by John Sperry. Member price \$25.
The concept of 'Dawkins' is a tribute to a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW.

LA TOIBA by La Toiba. Foreword by John Sperry. Member price \$25.
The concept of 'La Toiba' is a tribute to a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW. Sperry's book is a tribute to a man who was a member of the Royal Society of NSW.



Society Fellow Davina Jackson's new book *Australian Architecture*

Dr Davina Jackson explores how early colonial building designers like James Bloodworth, Francis Greenway and John Lee Archer interpreted classical European styles using local stone and timber. She examines how medieval and Renaissance monuments influenced leading architects during the 19th century, until the fresh winds of modernism and demands for a unique Australian style took over in the 20th century, with environmental challenges and technological innovations driving change in recent years.

Over two and a half centuries, our architects and builders have responded to the fierce Australian sun with verandas, porticos, colonnades, screens and Asian-inspired shade pavilions. Jackson explores these and other distinctive aspects of Australian design, why gold-boom architecture consistently impressed Victorian visitors, and the achievements of modern luminaries like Walter and Marion Griffin, Harry Seidler, Jorn Utzon, John Andrews, Glenn Murcutt and John Wardle.



Illustrated throughout, *Australian Architecture* traces our distinctive and internationally acclaimed domestic, commercial and institutional buildings, with overviews of the main design influences and key examples to visit. This is the essential guide for designers, architects, students and anyone interested in the story of Australia's unique and fascinating architecture.

About Davina Jackson



Dr Davina Jackson is an international writer of books, exhibitions and websites on architecture, technology and urban geography themes. She edited *Architecture Australia* from 1992 to 2000, and was a founder of annual city light

festivals in Sydney and Singapore. After a multi-disciplinary design professorship at the University of New South Wales, she has guest-lectured at MIT, Cambridge, TU Munich and other universities in America, Europe and Asia. Her publications earned a PhD from the University of Kent in 2019 and fellowships of the Royal Geographical Society, the Royal Society of Arts and the Royal Society of New South Wales.

More information

<https://www.allenandunwin.com/browse/books/general-books/history/Australian-Architecture-Davina-Jackson-9781760878399>

List of proposed events for 2022

Kindly note that this is a provisional list and will be subject to change, due to the prevalence of COVID-19 during early 2022. Updates will be reflected in future issues of the Bulletin and on [our website](#).

Date	Event
Wednesday, 2 March 6:30 PM AEDT	1301 st OGM and Open Lecture 2021 Jak Kelly Award and RSNSW Scholarship Award Presentations Zain Mehdi (Jak Kelly Award); Sajad Abolpour Moshizi, Harry Marquis, Kevin Chau (RSNSW Scholarship Winners)
Tuesday, 15 March 1:00 PM AEDT	Western NSW Meeting 2022-1 Annual General Meeting followed by a panel discussion on Trust and Science Ponton Theatre, Charles Stuart University (Bathurst Campus)
Thursday, 17 March 6:30 PM AEDT	Clarke Memorial Lecture (2020 — delayed) of the Royal Society of NSW From bulldozers, pests, and pathogens to climate change and urban futures: the tough life of plants Distinguished Professor Michelle Leishman, Macquarie University
Friday, 25 March 6:00 PM AEDT	Frontiers of Science Forum 2022 Exploring major discoveries and theories in physics, mathematics, biology, and chemistry The Hon. Alister Henskins SC MP; Prof Andrea Morello FRSN (UNSW Sydney); Prof Chris Tisdell (UNSW Sydney); Prof Johannes Le Coutre FRSN (UNSW Sydney); Prof Martina Stenzel FRSN (UNSW Sydney)
Wednesday, 6 April 6:30 PM AEST	1302 nd OGM and Open Lecture New frontiers in smart sensor technology for a healthier, safer and sustainable future Professor Ben Eggleton FRSN FAA FTSE, University of Sydney
Thursday, 21 April 6:30 PM AEST	Ideas@theHouse: April 2022 Topic: to be advised Richard Tognetti AO, Australian Chamber Orchestra
Wednesday, 4 May 6:30 PM AEST	Liversidge Lecture (2020 — delayed) Topic: to be advised Professor Richard Payne FRSN, University of Sydney
Wednesday, 11 May 6:00 PM AEST	Poggendorff Lecture (2020 — delayed) of the Royal Society of NSW Are weeds becoming a new native species? Professor Angela Moles FRSN, UNSW Sydney
Wednesday, 18 May 12:00 PM AEST	Western NSW Meeting 2022-2 Making a living on the Plains — Stone tools and Archaeology of Aboriginal societies Dr Colin Pardoe FRSN MAIATSIS Wal Fife Theatre (Building 14, Room 212) Charles Stuart University (Wagga Wagga Campus)

Date	Event
Wednesday, 1 June 6:30 PM AEST	1303 rd OGM and Open Lecture Federalism, borders and National Cabinet: What has the pandemic taught us? Professor Anne Twomey AO, University of Sydney
Wednesday, 6 July 6:30 PM AEST	1304 th OGM and Open Lecture This is going to be different: Learning to live with Chinese power Emeritus Professor Hugh White AO FASSA, Australian National University
Wednesday, 27 July 6:30 PM AEST	Ideas@theHouse: July 2022 Topic: to be advised Rachel Perkins
Wednesday, 3 August 6:30 PM AEST	1305 th OGM and Open Lecture Topic: to be advised Professor Kathy Belov AO FRSN, University of Sydney
Wednesday, 7 September 6:30 PM AEST	1306 th OGM and Open Lecture Is Fairweather an Australian artist? And does it matter? Claire Roberts, University of Melbourne and Nick Jose, University of Adelaide
Wednesday, 5 October 6:30 PM AEDT	1307 th OGM and Open Lecture Topic: to be advised Presenter: to be advised
Thursday, 3 November 6:30 PM AEDT	Royal Society of NSW and Learned Societies Annual Forum Topic: to be advised Presenter: to be advised
Wednesday, 1 December 6:30 PM AEDT	1308 th OGM and Open Lecture Topic: to be advised Presenter: to be advised

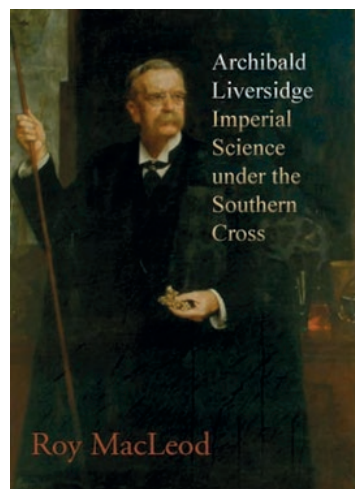
Archibald Liversidge: Imperial Science under the Southern Cross

When Archibald Liversidge first arrived at Sydney University in 1872 as reader in geology and assistant in the laboratory, he had about ten students and two rooms in the main building. In 1874, he became professor of geology and mineralogy; by 1879, he had persuaded the senate to open a faculty of science. He became its first dean in 1882. In 1880, he visited Europe as a trustee of the Australian Museum and his report helped to establish the Industrial, Technological and Sanitary Museum which formed the basis of the present Powerhouse Museum's collection. Liversidge also played a major role in the setting up of the Australasian Association for the Advancement of Science which held its first congress in 1888.

One of his greatest contributions was to science education. He worked tirelessly to secure proper recognition of science in both secondary and tertiary education. In the preface of his book, Professor MacLeod comments: 'Liversidge remained confident that Australia's path would follow the route of the "moving metropolis", strengthened by the bonds that tied Australia to its British heritage. In that heritage lay his life, and through that heritage, flowed the genius of imperial science in New South Wales'. To order your copy, please complete the [MacLeod: Liversidge order form](#) and return it to:

The Royal Society of NSW (Liversidge book)
PO Box 576
Crows Nest NSW 1585
Australia

or contact the Society:
Phone: +61 2 9431 8691
Email: info@royalsoc.org.au



The Society and social media

The Society's presence on social media platforms is slowly but surely growing. Our [Facebook page](#), [Twitter feed](#) and [YouTube channel](#) continue to attract and engage followers and viewers, and we continue to build a repository of online events conducted recently on YouTube. The icons on the right will take the reader to the platforms' respective pages, from where they can follow and subscribe to the Society, and be notified of new content.



Current Council and Office-Bearers

The current Council and office-bearers of the Society are:

Patron	Her Excellency The Honourable Margaret Beazley AC QC, Governor of New South Wales
President	Dr Susan Pond AM FRSN FTSE FAHMS
Vice-President	Ms Judith Wheeldon AM FRSN
Past President	Emeritus Professor Ian Sloan AO FRSN FAA
Secretary	Mr Bruce Ramage MRSN
Treasurer	Mr John Cameron MRSN
Librarian	Mr John Hardie AM FRSN
Webmaster	Emeritus Professor Lindsay Botten FRSN
Councillors	Professor Katherine Belov AO FRSN Dr Jessica Milner Davis FRSN Ms Pamela Griffith FRSN Dr Donald Hector AM FRSN Dr Davina Jackson FRSN Professor Eric Knight FRSN Emeritus Professor Robert Marks FRSN Emerita Professor Christina Slade FRSN
Hunter Branch Representative	Professor George Willis FRSN FAA
Southern Highlands Branch Representative	Mr Mike Jonas MRSN
Western NSW Branch Representative (interim)	Dr David Nash FRSN

Editor: [Jason Antony MRSN](#)

