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The Bulletin 476

October 2023

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A message from the President

Dear <<First Name>> <<Last Name>>

On 14 October, Australia will vote on a proposed law to alter the Constitution to recognise the First Peoples of Australia by establishing an Aboriginal and Torres Strait Islander Voice. Members will be aware that the Society, with the Referendum very much in mind, presented an online panel on The Voice convened by Distinguished Fellow Emeritus Professor Peter Baume on 5 July 2023. The [video recording](#) is available on the Society's YouTube Channel and has been promoted widely on our social media channels.



At its most recent meeting, the Council expressed its continued support for the [Statement](#) that has been published on the Society's website since 2018, regarding the Uluru Statement of the Heart and its implementation. This is reiterated in the Society's 27 May 2018 submission to the Joint Select Committee on Constitutional Recognition relating to Aboriginal and Torres Strait Islander Peoples, which is also available on our website and will be referred to again this month in a [news item](#).

It reads "The Royal Society of NSW supports the Uluru Statement of the Heart. Our mandate, as the Royal Society of NSW, Australia's oldest peak scholarly body, is the disciplined concern for excellence in knowledge across the natural and social worlds. From this base, we reaffirm the significance of our indigenous forebears in the strength and contribution of their own culture and knowledge to Australia as a whole. Their exclusion from government endorsing and paying attention to the collective 'Uluru Voice' is both a reprehensible return to human rights violations of

the past, as well as a loss for all Australians from the indigenous culture, knowledge and voice from which we can all learn, both for now and for our sustainable future.”

Council also affirmed that truth-telling will be important and that the Society may have a role to play in this.

With the aim of ensuring that the Society is progressive, contemporary, and relevant, we are undertaking our Master Planning Project. It is well underway. At the Ordinary General Meeting in Sydney on 6 September, I reported that Poetic Thinking, an innovative design thinking group, is assisting the Society to honour our history while fundamentally interrogating and rejuvenating how we serve our membership and achieve our Aims as stated in Rule 1 of our Act and Rules.

The Society is most grateful to the Vice-Chancellors of eight Universities whose sponsorship is making the engagement of Poetic Thinking possible. They are Western Sydney University (in honour of their former staff member, Ragbir Bhathal, a former RSNSW President), Charles Sturt University, Macquarie University, the University of Canberra, the University of New South Wales (Sydney), University of Sydney, the University of Technology Sydney, and the University of Wollongong.

Poetic Thinking is currently conducting in depth interviews with a representative sample of our current, former and potential members. These will inform the first workshop in late October which will draw out how the Society can capture its next wave innovation and growth. All members received the recent call for expressions of interest to participate in the workshop. I thank everyone who has responded to this invitation.

I was also pleased, at the September OGM, to announce our newest Distinguished Fellow, Emeritus Professor Ian Sloan, a former President of the Society. I am sure that all members will join the Council in congratulating Ian on his appointment.

Finally, information about this year’s exciting RSNSW and Learned Academies Forum “[Our 21st Century Brain](#)”, to be held on 2 November, is available elsewhere in this Bulletin and on the website. To attract a national and international audience to participate using the [live streaming option](#), I encourage members to circulate the link across their respective networks and join the discussion during the day using the hashtag #21stCenturyBrain and tagging [@RoyalSocNSW](#).

We work for the Society because we understand the need to enhance public discourse on a wide range of topics that are crucial to our future. Society members have excellent ideas to contribute. In that spirit, I look forward to hearing your ideas and suggested ways to bring them to fruition.

Susan M Pond AM FRSN FTSE FAHMS
[President](#), [Royal Society of NSW](#)

For your diary

- [1316th Ordinary General Meeting and Open Lecture](#) (Wednesday, 4 October, 6.00 for 6.30 – 8.00 pm AEDT, Gallery Room, Mitchell Building, State Library of New South Wales, 1 Shakespeare Place, Sydney), *Australia's nuclear future; A new discourse of the 2040s*, Helen Cook, Principal of GNE Advisory and Dr Adi Paterson FRSN FTSE, former CEO of ANSTO
- [Southern Highlands Branch Meeting 2023-9](#) (Thursday, 19 October 2023, 6.30 – 7.30 pm AEDT, RSL Mittagong, Joadja/Nattai Room), *Are our weeds becoming new native species?* Professor Angela Moles, Ecology and Evolution Research Centre, UNSW Sydney

- [Hunter Branch Meeting 2023-4](#) (Thursday, 26 October 2023, 6.00 – 8.00 pm AEDT, Hunter Room, Newcastle City Hall, 290 King Street, Newcastle), *Electrical Energy Supply. So what's all the fuss about*, Professor Colin Waters, School of Information and Physical Sciences, University of Newcastle
- [Royal Society of NSW and Learned Academies Forum 2023](#) (Thursday, 2 November, 8.45 am – 5.00 pm AEDT, Government House Sydney (by invitation) and live streaming), Theme: *Our 21st Century Brain*; Speakers listed on the website and in the [program brochure](#)
- [1317th Ordinary General Meeting and 2022 Clarke Memorial Lecture](#) (Wednesday, 8 November 2023, 6.00 for 6.30 – 8.00 pm AEDT, Gallery Room, State Library of New South Wales, 1 Shakespeare Place, Sydney), *Caves as observatories of groundwater recharge*, Professor Andy Baker FRSN FAGU, School of Biological, Earth, and Environmental Sciences, UNSW Sydney
- [Southern Highlands Branch Meeting 2023-10](#) (Thursday, 16 November 2023, 6.30 – 7.30 pm AEDT, RSL Mittagong, Joadja/Nattai Room), *Secrets of cultural heritage revealed at ANSTO*, Dr Joseph Bevitt, Senior Instrument Scientist, ANSTO
- [Western NSW Branch Meeting 2023-4](#) (Wednesday, 16 November 2023, 6.00 – 8.00 pm AEDT, Gums Cafe, Charles Sturt University, Albury), *Thirst for power — the rivers of conflict in Southeast Asia*, Professor Lee Baumgartner, Executive Director, Gulbali Institute for Agriculture, Water, and Environment, Charles Sturt University
- [1318th Ordinary General Meeting and Open Lecture](#) (Wednesday, 29 November, 6.00 for 6.30 – 8.00 pm AEDT, Gallery Room, Mitchell Building, State Library of New South Wales, 1 Shakespeare Place, Sydney), *What do we really know about 20th and 21st-century sea-level change?* Emeritus Professor John Church AO FAA FTSE FAMS FAGU, Climate Change Research Centre, UNSW Sydney

The Society's complete events program for the year is published in the [online Events Calendar](#), which is updated regularly.

News

Society Fellow, David Young, awarded the CEFRACOR Grand Medal

The Royal Society of New South Wales was delighted to learn of the presentation of the 2022 Centre Francais de L'Anticorrosion (CEFRACOR) Grand Medal to one of its Fellows, **Emeritus Professor David Young FRSN FTSE**, from UNSW Sydney. The presentation was made at the 2023 Annual Congress of the European Federation of Corrosion (EUROCORR) held in Brussels in late August 2023.



The citation for the medal reads "[the] highest distinction awarded by the French Corrosion Society to a French or foreign personality for all of their work, having had a significant influence on studies and applications related to the durability of materials."

The Council of the Royal Society of New South Wales extends its warm congratulations to Professor Young on this recognition of a lifetime of scientific achievement.

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Society's 19th Distinguished Fellow: Emeritus Professor Ian Sloan

The Royal Society of New South Wales is delighted to announce the appointment of **Emeritus Professor Ian Sloan AO DistFRSN FAA** as the 19th Distinguished Fellow of the Society. The honour of Distinguished Fellow is awarded to internationally-distinguished contributors to science, art, literature, or philosophy, with the number of Distinguished Fellows being limited to 25 at any time.

Ian Sloan is a Melbourne-born mathematician and physicist. He was educated at the Universities of Melbourne and Adelaide and received a PhD in theoretical atomic physics from the University College London. After a short period in industry, he joined the University of New South Wales (UNSW Sydney). Subsequently, he was appointed to a Personal Chair in Mathematics, served as Head of the School of Mathematics and Chair of the National Committee for Mathematics, and was appointed a Scientia Professor at UNSW.



He began his research career in theoretical atomic and nuclear physics but later switched to computational mathematics, see [“A fortunate scientific life”](#) (pp. 19–26). In all, he has published more than 300 papers in theoretical physics and computational mathematics, with his research recognised by the Lyle Medal of the Australian Academy of Science, the Szekeres Medal of the Australian Mathematical Society, the ANZIAM Medal, and the Information Based Complexity Prize. He is a Fellow of the Australian and American Mathematical Societies and the (US) Society for Industrial and Applied Mathematics.

He has served as President of the International Council for Industrial and Applied Mathematics, the Australian Mathematical Society, and the Royal Society of New South Wales. He was elected a Fellow of the Australian Academy of Science in 1983, a Fellow of the Royal Society of New South Wales in 2014, and in 2018 was appointed an Honorary Doctor of the University by UNSW Sydney. In 2008 he was appointed an Officer of the Order of Australia “for service to education through the study of mathematics, particularly in the field of computational mathematics, as an academic, researcher, and mentor, and to a range of national and international professional associations”.

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Vale Professor Emeritus Stephen Gaukroger FRSN FAHA

The Society was deeply saddened to learn of the death of Fellow, **Professor Emeritus Stephen Gaukroger FRSN FAHA FRHistS FRSA**, on 3 September 2023 after a short illness.

Stephen Gaukroger was one of the world’s leading historians of science, mathematics, and philosophy, and in each of these fields, he was recognised as one of the most significant figures in Australasia. Educated at the University of London and the University of Cambridge, he held positions at Cambridge, Melbourne, and Sydney, as well as visiting professorships at Oxford, London, Aberdeen, and the École normale supérieure – Paris Sciences et Lettres.



At the time of his death, he was Professor Emeritus of History of Philosophy and History of Science at the University of Sydney. During his career, he authored sixteen books, including an internationally renowned intellectual biography of Descartes (1995). His work has been translated

in Arabic, Chinese, French, German, Italian, Portuguese, and Russian. His major work is the 4-volume study of science and the shaping of modernity: *The Emergence of a Scientific Culture, 1210-1685* (2006); *The Collapse of Mechanism and the Rise of Sensibility: 1680-1760* (2010); *The Natural and the Human, 1739-1841* (2016); and *Civilization and the Culture of Science, 1795-1935* (2020). Most recently, Stephen Gaukroger was the winner of the Royal Society of New South Wales History and Philosophy of Science Medal in 2022.

The Society extends its sincere condolences to his wife, Professor Emerita Helen Irving FRSN FASSA FAAL, family, and friends at this sad time.

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Society welcomes new Members and Fellows: September 2023

The Royal Society of NSW warmly welcomes 32 new members to the Society's ranks, effective from 6 September 2023.

Fellows

Professor Alaina Ammit
Professor Vicki Bitsika
Associate Professor Amy Cain
Professor Ben Colagiuri
Professor Andrew Condon
Emeritus Professor Rosalind Croucher
Professor Catherine Greenhill
Professor Steven Langford
Adjunct Professor Kim Lovegrove
Professor Si Ming Man
Mr Steven Miller
Professor Ainsley Newson
Professor Elaine Sadler
Professor Julianne Schultz
Professor Christopher Sharpley

New Fellows & Members



Biographical information about the new Fellows is available on the [Fellows pages](#) of the website.

Members

Ms Susan Bazzana
Mr Brian Bell
Ms Dyone Bettiga
Mr Robert Fabian
Dr Christopher Fellows
Dr Rachel Fitzhardinge
Dr Zamira Gibb
Ms Selena Griffith
Dr Michael Hedger
Mr Micheal Lynch
Mr Ed Matzenik
Ms Tracy Ryan

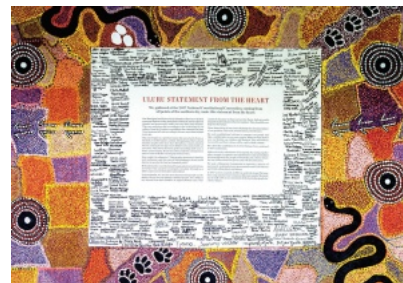
Associate Members

Ms Rebel Bailey
Mr Benjamin Chidiac
Mr Luke Hall
Mr Lorraine Pountney

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Society reaffirms its support for the Uluru Statement of the Heart

Through its then President, the Royal Society of New South Wales signed the Uluru Statement of the Heart declaration in January 2018. The Society's Statement of Support, which has been [on our website since 2018](#), included the following paragraph:



Our mandate, as the Royal Society of New South Wales, Australia's oldest peak scholarly body, is the disciplined concern for excellence in knowledge across the natural and social worlds. From this base, we reaffirm the significance of our indigenous forebears in the strength and contribution of their own culture and knowledge to Australia as a whole. Their exclusion from government endorsing and paying attention to the collective 'Uluru Voice' is both a reprehensible return to human rights violations of the past, as well as a loss for all Australians from the indigenous culture, knowledge, and voice from which we can all learn, both for now and for our sustainable future.

The Society's Council, at its recent August 2023 meeting, reaffirmed its continued support for this statement.

Members will also be aware that in July 2023, with the referendum very much in mind, the Society presented an informative panel session titled "What we need to know about 'the Voice' — before we vote". The panel, convened by Distinguished Fellow Emeritus Professor Peter Baume AC DistFRSN and featuring contributions from Scientia Professor Megan Davis FRSN FASSA, Christopher Puplick AM, and Dean Ashenden, is [available on our YouTube channel](#).

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Events

1316th Ordinary General Meeting and Open Lecture

Australia's nuclear future: a new discourse for the 2040s

Helen Cook
Principal, GNE Advisory

and

Dr Adi Peterson FRSN FTSE
Former Chief Executive Officer

Date: Wednesday, 4 October 2023, 6.00 for 6.30 — 8.00 pm AEDT

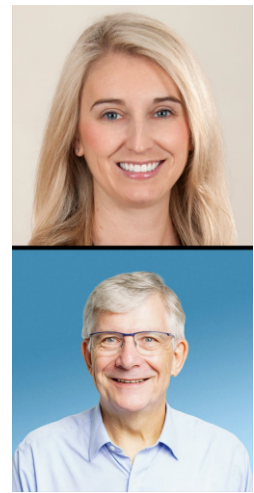
Venue: Gallery Room, State Library of NSW, 1 Shakespeare Place, Sydney

Entry: Society members, \$10; Non-members, \$20; Students, \$5

Registration: [Registration through Membes](#) is required before 2.00 pm on 4 October

Drinks: available from a cash bar from 6.00 pm

All are welcome



[Please click here to register](#)

Summary: The debate about nuclear power in Australia has been deeply divisive, with pro- and anti-nuclear lobbies failing to engage with each other. Helen Cook, the author of the canonical work on legal regulation of the rapidly-innovating nuclear industries, *The Law of Nuclear Energy*, and Dr Adi Patterson, former CEO of ANSTO, bring new perspectives and argue for a more nuanced understanding of the issues.

Helen Cook discusses the proactive role that nuclear law can play in addressing key challenges for global governance of nuclear power. Adi Patterson argues that the assessment of options for power generation should be technology-neutral. It is a mistake, he argues, to focus only on renewables to achieve carbon zero by 2040. He notes that there is geopolitical pressure, in particular in our region, to be engaged in nuclear industries. Cook notes that 50 countries are currently considering or actively implementing new nuclear power programs, recognising the role that nuclear energy can play as a proven, clean, dispatchable, and economical technology to improve energy supply security and mitigate climate change.

Helen Cook is the Principal of GNE Advisory Pty Ltd., a law practice dedicated to all aspects of the civil nuclear energy sector. She has expertise advising on the establishment of legal and regulatory infrastructure for civilian nuclear power programs, as well as the negotiation of commercial contracts for new nuclear power plants, including procurement, construction, and financing. She currently advises on three of the demonstration small modular reactor projects in the United States and Canada and two of the front-runner SMR projects in Europe. Helen advises governments, such as Egypt and Estonia, on their nuclear power programs and recently drafted a national nuclear law and nuclear liability law for the Philippines. She is the author of the comprehensive legal textbook, *The Law of Nuclear Energy* which is in its Third Edition, and is recognised by the International Atomic Energy Agency as a nuclear law expert. Helen is a non-executive Director of Silex Systems Limited, an Australian-listed company commercialising laser enrichment technology together with Global Laser Enrichment LLC in the US, and an Executive Committee member of the Australian Nuclear Association. She lived and worked for 13 years in the Middle East and the United States before returning to Australia to start a family.

Dr Adi Paterson FRSN FTSE has a strong public science and senior management background, with extensive operational and strategic management expertise, in particular in nuclear programs and in the commercialisation of scientific research. He co-authored the post-Apartheid National R&D Strategy in South Africa and was Chief Operating Officer of the national Department of Science and Technology. From March 2009 to September 2020, Adi had strategic oversight and responsibility for ANSTO's multi-faceted portfolio of activities. He anchored a values-based program of positive change and growth. This leveraged outcomes based on the nexus of public science investment and practical innovation with positive impacts on health, industry, and the

environment. He also oversaw the integration of the Australian Synchrotron into ANSTO operations in 2016. Since leaving ANSTO, he has established a specialised consultancy company, Siyeva Consulting, that focuses on technology and energy futures.

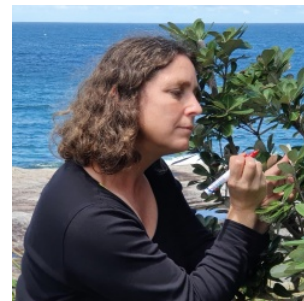
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Southern Highlands Branch Meeting 2023-9

Are our weeds becoming new native species?

Professor Angela Moles FRSN

**Ecology and Evolution Research Centre
UNSW Sydney**



Date: Thursday, 19 October 2023, 6.30 – 7.30 pm AEDT

Venue: RSL Mittagong, Joadja/Nattai Room

All are welcome

Summary: Introducing species to a new environment creates excellent conditions for evolution, as the species are released from their old enemies and subjected to new conditions. Our work has shown that 70% of the plant species introduced to Australia have changed the way they grow since arriving here. We investigated one species in detail (the South African Beach Daisy, *Arctotheca populifolia*; see picture) and found that the changes are so great that the introduced population is developing reproductive isolation from its source population. That is, at least one of our introduced plants appears to be becoming a unique new species. If Australia cannot eradicate introduced species (and it seldom can), then it seems inevitable that many more species will eventually evolve to become unique new taxa. At this point, we will have to decide whether to accept them as new native species or continue trying to control them. While most people do not like the idea yet, I think acceptance of introduced species is just a matter of time. I have been called a witch for these ideas before — bring on the arguments!



Professor Angela Moles runs the [Big Ecology Lab](#) in the [Evolution & Ecology Research Centre](#) at UNSW Sydney. Angela and her students work to improve understanding of: 1) species' responses to climate change, 2) the ecology and evolution of introduced species, and 3) the factors affecting global patterns in the ways plants grow and reproduce. Angela is passionate about conservation, science communication, and quality teaching. Angela is a member of the [NSW Biodiversity Conservation Advisory Panel](#), the [NSW Threatened Species scientific committee](#), and the [ARC College of Experts](#), and is a board member for the [NSW Saving our Species program](#). She has won a range of prizes, including the Nancy Millis Medal for Women in Science (from the Australian Academy of Science), the Australian Ecology Research Award (awarded by the Ecological Society of Australia), and the Frank Fenner Prize for Life Scientist of the Year (one of the Prime Minister's Prizes for Science). At home, Angela has two children and a golden retriever, and is a surf lifesaver.

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Hunter Branch Meeting 2023-4

Electrical energy supply. So what's all the fuss about

Professor Colin Waters

**Professor of Physics
University of Newcastle**



Date: Thursday, 26 October 2023, 5.30 for 6.00 — 8.00 pm AEDT

Venue: Hunter Room, Newcastle City Hall, 290 King St, Newcastle NSW

Entry: Society members, \$15; Non-members, \$25; Students, \$5

Registration: [Registration through Membes](#) is required by 5.00 pm on Wednesday, 25 October

Enquiries: [Via email](#) to the RSNSW Hunter Branch Secretary (Prof. Philip Bolton)

Society Members, Fellows, and members of the public are welcome

[Please click here to register](#)

Summary: The different technologies, uses, and costs of electricity generation are common themes in the media. The questions and government comments range from the selection of fuel mix (e.g., coal, gas, renewables), sufficient capacity, carbon net-zero targets, rooftop solar and 'renewable' energy strategies. This complex and multi-faceted topic will be tackled in three stages. These are: i) a first principles foundation explaining the language of energy generation and use, ii) a survey of electrical energy generation and conversion including coal/gas, solar, nuclear, hydro, gravity, wind, and tidal technologies, and iii) aspects of environmental and business case metrics as related to electricity generation options.

Professor Colin Waters is internationally recognised for his research in space physics which combines interests in remote sensing, multi-dimensional ground-based and spacecraft sensor data analyses, and energy conversion and transport in the near-Earth space environment. He is a director of Tentacle CMI, a data analytics company that provides data-based prediction-as-a-service and tackles difficult problems in data analytics. He has a PhD in space physics from the University of Newcastle and has taught undergraduate and postgraduate university students for 30 years. He has served in administrative roles including as Bachelor of Science convenor, Assistant Dean of the Faculty of Science, Head of School (Maths, Physics, and Statistics), in addition to serving as an Associate Editor for the Journal of Geophysical Research – Space Physics.

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RSNSW and Learned Academies Forum 2023

OUR 21st CENTURY BRAIN

Date: Thursday, 2 November 2023, live streaming from 8.45 am–5.00 pm AEDT

Venue: Government House Sydney (by invitation) and live streaming

Registration: for the [live streamed program through Humanitix](#)

Brochure and Program: for the live streamed program — [Summary](#) (0.9 MB), [Complete Program](#) (1.6 MB)

The Royal Society of New South Wales & Learned Academies Forum presents

OUR 21ST CENTURY BRAIN

Thursday 2 November 2023

8:30am–6:00pm AEDT

Government House Sydney + live streaming



Australian Academy of
Technology, Engineering
& Innovation



Please [click here to register](#)
for the live stream

Summary

The brain underpins our basic instincts and needs, and behavioural responses to the world around us. The brain mediates our compassion, reason, and imagination which are reflected in great works of the arts and sciences. Yet our brain is also the source of distress, dysfunction, and malice. Despite centuries of recurring impacts of tribalism, racism, dehumanisation, and exclusion of ‘outsiders’, we continue to inflict suffering on others.

At the same time, the 21st century brings new challenges that extend well beyond immediate threats to very complex societal challenges such as global security, climate change, massive demographic shifts, resource management, information overload, and artificial intelligence.

Have we reached the edge of our human capacity to respond effectively as either individuals or collective groups?

The context and demands on our brains have been transformed by the very tools we have created, including new information technology platforms, and rapidly developing and deployed forms of artificial intelligence. Diseases of the brain are increasingly prevalent in our ageing population, as are the increasing mental health challenges that are evident across the human lifespan.

Considerable progress across the sciences and humanities has deepened our understanding of genetic, environmental, and social factors that underpin brain development and function. Rising demands on our capacity to respond appropriately to globalised threats bring an urgent need to apply our scientific understanding to the development of just and sustainable solutions.

This year’s Royal Society of New South Wales and Learned Academies Forum focusses on recent progress in unravelling the workings of the brain and opportunities to use our emerging understanding to promote human wellbeing well beyond the 21st Century.

The Forum is held under the auspices of Her Excellency the Honourable Margaret Beazley AC KC, Governor of New South Wales. The Royal Society of New South Wales acknowledges the generous support by Her Excellency, the Academies, the Office of the NSW Chief Scientist and Engineer, and Haus Holdings.

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1317th Ordinary General Meeting and the 2022 Clarke Memorial Lecture

Caves as observatories of groundwater recharge

Professor Andy Baker FRSN FAGU

**School of Biological, Earth, and Environment Sciences
UNSW Sydney**



Date: Wednesday, 8 November 2023, 6.00 for 6.30 — 8.00 pm AEDT

Venue: Auditorium, State Library of New South Wales, 1 Shakespeare Place, Sydney

Entry: Society members, \$10; Non-members, \$20; Students, \$5

Registration: Registration link to follow

Drinks: available from a cash bar from 6.00 pm

All are welcome

Summary: Much of the world relies on groundwater as a water resource, yet it is hard to know when and where rainfall actually replenishes our groundwater aquifers. Caves that are situated above the groundwater table are unique observatories of water transiting from the land surface to the aquifer. This session will show how networks of loggers deployed in Australian caves (and mines and tunnels) have helped understand when, where, and how much rainfall is needed to replenish the groundwater.

Andy Baker is a Professor in the School of Biological, Earth, and Environmental Sciences at UNSW Sydney. His research includes the investigation of the climate, soil, and groundwater processes that affect the cave and other subsurface environments. He is a Fellow of the American Geophysical Union and the Royal Society of New South Wales, and in 2022 he was awarded the Royal Society of New South Wales Clarke Medal (Geology) and Lecture for that year.

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Western NSW Branch Meeting 2023-4

Thirst for power — the rivers of conflict in Southeast Asia

Professor Lee Baumgartner

**Executive Director
Gulbali Institute for Agriculture, Water, and Environment
Charles Sturt University**



Date: Wednesday, 16 November 2023, 6.00 — 8.00 pm (AEDT)

Venue: Gum's Cafe, Thurgoona, Charles Sturt University, Albury

Entry: No charge

Registration: [Registration through Humanitix](#) is required for the face-to-face and online events

All are welcome

Please register now

This meeting is a joint presentation of Charles Sturt University and the Western NSW Branch of the Royal Society of New South Wales.

Summary: Water is life. Nowhere is this more significant than in Australia, the driest continent on Earth, and in Southeast Asia, where tens of millions of people rely on healthy rivers to provide ecosystem services. Ecosystem services include clean and safe river water, fish and other aquatic animals for protein and livelihoods, water for cultural benefits, industry, irrigation, and agriculture. However, with growing regional populations, river development infrastructure has become increasingly essential to provide these services. Storage dams, hydropower dams, storage weirs, irrigation infrastructure, and diversion systems are all ways in which water is harnessed to provide societal benefits and are now commonplace. However, it is now widely accepted that these can lead to adverse environmental outcomes. This, combined with a changing climate, is putting more pressure on freshwater resources than ever before. In recent times this has resulted in large-scale fish kills, drying rivers, dwindling town supplies, and deteriorating water quality. Without intervention, the future of water security in Australia and Southeast Asia will be dominated by increased competition for a resource that is becoming increasingly scarce. Future water management must consider scenarios that combine technical solutions, sound policy, and strategies for water sharing which consider all water users. This Provocations lecture will take a journey across Australia and Southeast Asia, exploring water security challenges and the innovative ways that communities are developing healthy rivers, in a changing climate, with growing regional populations.

Professor Lee Baumgartner, the Executive Director of Gulbali Institute for Agriculture, Water, and Environment, is a Professor in Fisheries and River Management and an applied researcher who has worked in the fisheries field for over 20 years. Lee is passionate about healthy rivers and helping fisheries worldwide, and has achieved substantial food security outcomes in countries working within the food-water-energy nexus. Lee's high-impact research focuses on developing and applying innovative technology in ecohydrology to reduce pressure on freshwater systems. Specifically, his work focuses on irrigation and hydropower sustainability, using innovation to ensure river communities can have food, water, and energy. Lee's multi-disciplinary work requires collaboration with engineers, functional ecologists, and water professionals.

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1318th Ordinary General Meeting and Open Lecture

**What do we really know about
20th- and 21st-century sea-level change?**

**Emeritus Professor John Church AO FAA FTSE
FAMS FAGU**

**Climate Change Research Centre
UNSW Sydney**



Date: Wednesday, 29 November 2023, 6.00 for 6.30 — 8.00 pm AEDT

Venue: Gallery Room, State Library of New South Wales, 1 Shakespeare Place, Sydney

Entry: Society members, \$10; Non-members, \$20; Students, \$5

Registration: Registration link to follow

Drinks: available from a cash bar from 6.00 pm

All are welcome

Summary: Accelerating sea-level rise in much of the world will result in growing impacts through the 21st century and beyond. Despite the clear identification of an accelerating rise, many uncertainties remain. Understanding historical sea-level change is a prerequisite for building confidence in useful and accurate predictions of future changes.

Our recent work has explored the sensitivity of global and regional sea-level reconstructions to poorly known land motions and the factors causing temporal and regional variations in the rate of rise. With this knowledge, existing reconstructions of global mean sea level are mostly not significantly different from each other from 1900 to the present, both in the time-averaged rate and the temporal variability. However, while the average rate from 1900 to the present is similar to that from the sum of contributions, the rate of reconstructed GMSL rise is significantly smaller/larger than the sum of contributions prior to 1940/after 1970. Why is this? What do we really know? What are potential explanations for this continuing enigma?

And what can we project about future sea levels, both for the 21st century and beyond? And can we constrain projections for the 21st century and beyond?

Dr John Church is an Emeritus Professor in the Climate Change Research Centre, University of New South Wales. He has published across a broad range of topics in oceanography. His area of expertise is the role of the ocean in climate, particularly anthropogenic climate change, and the oceanic storage of increased heat in the World's oceans. He is recognised as a world leader in understanding historical and projected global and regional sea-level rise, having provided historical estimates of sea-level change since the late 19th century, robust explanations for the rise, its attribution to greenhouse gas emissions and improved projections of global and regional sea-level rise. He is the author of over 180 refereed publications and over 110 other reports and has co-edited three books. He was the co-convening lead author for the Chapter on Sea Level in the IPCC Third and Fifth Assessment Reports. His expertise has been recognised nationally and internationally with a number of highly significant awards: the Roger Revelle Medal by the Intergovernmental Oceanographic Commission (2006), a CSIRO Medal for Research Achievement (2006), the Eureka Prize for Scientific Research (2007), the AMOS R.H. Clarke Lecture (2008), the AMOS Morton Medal (2017), a joint winner of the BBVA Frontiers of Knowledge Climate Change Category Prize (2019), the AAS Jaeger Medal (2021), the Royal Society of New South Wales James Cook Medal (2022), and the Prince Albert I Medal of the International Association for Physical Sciences of the Ocean (2023). He is an Officer of the Order of Australia, a Fellow of the Australian Academy of Science, the Australian Academy of Technology and Engineering, the American Geophysical Union, the American Meteorological Society, and the Australian Meteorological and Oceanographic Society.

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Branch and Committee Reports

Program Committee Report

The Society provides an active program of events through its Hunter, Southern Highlands, and Western NSW branches, and in Sydney.

With events held recently by the branches reported on separately in this Bulletin, this section

focuses on recent events held in Sydney.

Report on the September event held in Sydney

Following the online Ordinary General Meeting on 6 September, Professor Alan Davison, Dean of the Faculty of Arts and Social Sciences of the University of Technology, Sydney spoke on '[Challenges for Open Enquiry and Scholarship in a Divided Age](#)'. His presentation raised controversial issues of the capture of parts of the academy



by ideological biases. Davison suggests that ideology can impede critical debate and all academics to dismiss well-founded evidence. Ably chaired by Professor Lewis Bizo of Charles Sturt University, the presentation was itself an example of a view rarely voiced in the academy.

A recording of this event is [available on YouTube](#).

Finally, as Chair of the Program Committee, I would like to thank Professors Lindsay Botten and Elizabeth Deane, and our Zoom master Guy Loucks, for ably managing the program while I was travelling.

Christina Slade FRSN
Chair, RSNSW Program Committee

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Southern Highlands Branch Report

Presentation Report — 21 September 2023

Gender dysphoria: emerging teen challenges

Clare Rowe

Principal Psychologist and Director
Rowe and Associates

Clare Rowe is an educational and developmental psychologist specialising in paediatric psychology, including the assessment and diagnosis of childhood disorders such as ADHD, Autism Spectrum Disorders, learning disorders, and giftedness. Over the past ten years, she has witnessed an exponential rise in the diagnosis of Gender Dysphoria in children and adolescents, many of them going on to identify as Transgender. Over that time, the treatment deemed best practice has been "gender-affirming therapy" which Clare stated had been used with little evidence behind it.



According to Clare, further research into this condition is urgently needed. She is frequently called upon as an expert witness in various court jurisdictions to assist in cases where the parents of an

affected child are arguing about which treatment should or should not be attempted. Clare agrees with Victorian family law Barrister Belle Lane who contends that recent research is undermining many of the assumptions that have dominated gender medicine for the past decade.

The fascinated 80-person audience was clearly appreciative of Clare's presentation. So many questions were pending when the time came to move to dinner. Many had requested copies of Clare's slides as well as copies of her lecture recording which had been made while she was speaking. She was more than happy to have these emailed to people who had given their email contacts to the committee. She also referred readers to the latest writings on this very complicated subject by noted authors in the field.

At a time when this subject matter has reached particularly high prominence in our media, education, medicine, and politics, the Southern Highlands Branch was indeed fortunate to be able to present this latest balanced research to its people. Thank you, Clare Rowe.

Anne Wood FRSN
Chair, Southern Highlands Branch

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Western NSW Branch Report

Event Report

In conjunction with the Western NSW Branch of the Royal Society of New South Wales, Charles Sturt University is conducting its Provocations Public Lecture series that celebrates research at the University.



Forthcoming Event

The next event in the Provocations Public Lecture series, titled [*Thirst for power — The Rivers of conflict in Southeast Asia*](#), will be presented by **Professor Lee Baumgartner**, Executive Director of the Gulbali Institute for Agriculture, Water and Environment, at the Charles Sturt University Albury Campus on Thursday, 16 November (6.00 pm AEDT).



[Detailed information](#) about this talk, and of the speaker, is presented in the event notices of this Bulletin. Registration for this event is available through [Humanitix](#) and a recording of the event will be made available on the Society's YouTube channel.

Other news from CSU

Leading up to the referendum on 14 October, Charles Sturt University will be conducting a panel discussion: **Countdown to the Referendum — a panel discussion on the Voice**, to be held at the CSU Barton Campus (The Chapel, Building 852) at 6.00 – 7.00 pm AEDT on Wednesday 11 October 2023.

The panel, to be moderated by Professor Mark Evans, CSU Deputy Vice-Chancellor (Research), will feature:

- Michelle Grattan, Chief Political Correspondent at The Conversation
- Professor Sue Green, a Wiradyuri woman, and Fellow at Yindyamarra Nguluway at CSU
- James Blackwell, Research Fellow in Indigenous Diplomacy, ANU College of Asia and the Pacific, and a proud Wiradjuri man
- Professor Kim Rubenstein, Australian legal scholar, legal practitioner, and Professor at the University of Canberra
- Paul House, a senior Ngambri-Ngunnawal custodian of the Canberra region with Wiradjuri, Walgalu, and Ngunnawal ancestry, and Senior Community Engagement Officer, Office of the Vice-President, First Nations Portfolio, ANU.

[Registration](#) is available through Humanitix and the [live stream](#) will be shown on Vimeo.

Nilima Mathai

Treasurer

Western NSW Branch

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The Society and Social Media

The Society's presence on social media platforms is growing strongly, particularly following the appointment of the Society's part-time communications Officer. Our [Facebook page](#), [LinkedIn channel](#), [X/Twitter feed](#), and [YouTube channel](#) are engaging an increased following, and we continue to build our repository of events on YouTube. Our YouTube channel now has over 630 subscribers, while the 129 videos online have received over 77,000 viewings.

The social media icons at the end of this newsletter will take the reader to our pages on these platforms, from where you can follow, subscribe, and be notified of new content.

As a Society member, please consider subscribing to our social media channels to support the Society's outreach, and also please encourage your friends and colleagues to do similarly.

YouTube recordings of recent events

All online presentations and all face-to-face presentations, held in Sydney and by the Western NSW Branch, are recorded and uploaded to the Society's YouTube channel. These can be accessed directly from [YouTube](#) or from the website [Presentations](#) page of the website.

For convenience, the video links below provide access to recordings from the most recent three months. We hope that these will be of interest to members.



YouTube recording of the presentation at the 1315th Ordinary General Meeting held on 6 September 2023 on the subject of *Challenges for open enquiry and scholarship in a divided age*, presented by Professor Alan Davison, Dean of the Faculty of Arts and Social Sciences at the University of Technology Sydney. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).



YouTube recording of the lecture delivered at the Society's Western NSW Branch 2023-3 meeting by Professor Ganna Pogrebna, Executive Director of the Artificial Intelligence and Cyber Futures Institute at Charles Sturt University, on the subject of *Behavioural data science as a game changer*. An abstract of the talk and the biography of the presenter are available from the [online event notice](#).



YouTube recording of the 10 August 2023 presentation delivered at Ideas@theHouse on the subject of *Ideas for marine stewardship and sustainability in a time of acceleration* by Professor Emma Johnston AO FRSN FAA FTSE, Deputy Vice-Chancellor (Research) at the University of Sydney. An abstract of the talk and the biography of the presenter are available from the [online event notice](#).



YouTube recording of the presentation at the 1314th Ordinary General Meeting held on 2 August 2023 on the subject of *Convergence: the hybridisation of the future*, featuring a conversation between Associate Professor Catherine Ball, futurist, author, and researcher, and Maria MacNamara, Director of Government Affairs and Innovation Strategy at Kyndryl. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).



YouTube recording of the RSNSW Online Presentation 2023-2 held on 5 July 2023 on the subject of *What we need to know about the 'Voice' — before we vote* — an informative panel session featuring Emeritus Professor Peter Baume AC DistFRSN, Scientia Professor Megan Davis FRSN FASSA, Pro Vice-Chancellor (Indigenous), UNSW Sydney, Christopher Puplick AM, and Dean Ashenden. A summary of the panel and a brief biography of each of the presenters are available from the [online event notice](#).

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Edited by: [Lindsay Botten](#) FRSN, Webmaster, Royal Society of New south Wales

Disclaimer: Positions expressed in this publication by authors of articles and event presenters do not necessarily reflect those of the Society.

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