



# THE BULLETIN 454

THE ROYAL SOCIETY OF NEW SOUTH WALES

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AUGUST 2021

## For Your Diary

- 25 AUG  
[\*Our Energy Future: Part 1\*](#)
- 25 AUG  
[\*Hunter Branch meeting  
on the Aged Care Royal  
Commission\*](#)
- 01 SEP  
[\*1297<sup>th</sup> OGM and Open  
Lecture\*](#)
- 04 Nov  
[\*RSNSW and Learned  
Academies Forum 2021\*](#)



Patron of The Royal Society of NSW  
Her Excellency The Honourable  
Margaret Beazley AC QC  
Governor of New South Wales

1296<sup>TH</sup> OGM AND OPEN LECTURE

## The Intimate History of Evolution: The Huxleys 1825–1975

Wednesday, 4 August 2021, 6:30 PM



Professor Alison Bashford FRSN FAHA  
FRHistS FBA

See [\*page 4\*](#) for more information

## Our Energy Future: Part 1

Wednesday, 25 August 2021, 12:30 PM



Dr Saul Griffith FRSN and Dr Adi Paterson FRSN

See [\*page 13\*](#) for more information

## From the President

I am pleased to inform you that the NSW Government, through the Office of the Chief Scientist and Engineer, issued a [press release](#) on 16 July 2021 announcing \$324,000 in sponsorship from 2021–2024 to support the operations of the RSNSW (more info on [page 7](#)). The Society [published the news](#) on its website at the same time.

In announcing the sponsorship, the NSW Chief Scientist and Engineer, Professor Hugh Durrant-Whyte, said ‘The Royal Society’s stated mission is more important today than ever: “To contribute to a just, secure and sustainable society ... by providing authentic and authoritative information and enlightenment on a wide range of subjects, addressing national and global challenges, and recognising and promoting excellence”’.



The sponsorship reflects the appreciation by the State Government of the Society’s mission, which it achieves by presenting lectures and forums, awarding prizes and medals, publishing one of Australia’s oldest scientific journals, maintaining an irreplaceable library and collection of historical material, and networking across NSW, Australia and internationally. The Society’s members also provide an invaluable source of independent expertise and experience across a broad range of disciplines.

The funding will correct the current budget deficit and enable further upgrading of the Society’s ICT systems, and live-streaming and/or recording of our events. We will continue to build our valuable portfolio of YouTube videos, the most recent being from the very well attended *Ideas@TheHouse* that featured Greta Bradman reflecting on the importance of ‘Music as a Superfood’. We thank our Vice President, Judith Wheeldon AM, for convening this event and her fascinating conversation with Greta Bradman after the formal presentation. We thank our patron, Her Excellency the Honourable Margaret Beazley AC QC for ‘opening the doors’ to Government House in her elegant introduction.

This topic ‘Music as a Superfood’ is especially relevant. One of our Fellows reminded me today, as I write this report, of the quote from Leo Tolstoy’s *War and Peace* (1869): ‘Life meanwhile, people’s real life with its essential concerns of health, illness, work, rest, with its concerns of thought, learning, poetry, music, love, friendship, hatred, passions, went on as always, independently and outside of any political closeness or enmity with Napoleon Bonaparte and outside all possible reforms’. This quote speaks just as well to the challenges we face today during the current and protracted COVID-19 lockdown in NSW. I trust that each one of you is staying safe.

I am also delighted to report that at our meeting on 21 July, Council endorsed the establishment of a new Branch of the Society in Western NSW. The full proposal and business plan for the New Branch were developed by three Council members: Christina Slade, John Hardie, and George Willis, in association with Charles Sturt University and members of the community in Western NSW. We

*(continued overleaf)*

## From the President (cont'd)

thank all of them for their leadership. The names of the Office-bearers for the new Branch will be provided on our website soon. I also thank Ian Sloan for supporting the original idea for this new Branch during his tenure as President of the Society. The Western NSW Branch promises to add to the vibrancy of the Society and to its reach across the State.

In another innovation, the Society will present a two-part series featuring two of our Fellows, Saul Griffith and Adi Paterson in conversation about 'Our Energy Future: The Unrecognised Opportunity in Glasgow. Part 1: Context and Castles; Part 2: Crushed Rocks'. The first of the series will be broadcast as a 12:30–1:30 PM webinar on Wednesday 25 August, and the second on Wednesday 15 September. Saul Griffith, a World Economic Forum 'Young Global Leader', is an inventor and entrepreneur, whose company focusses on clean energy, robotics, and design and manufacturing. He will frame his presentations as a reimagining of our energy economy without carbon dioxide and other emissions. His interlocutor, Adi Paterson, has wide-ranging experience in energy policy, systems, technology and innovation.

Finally, I am delighted to report that EOFY donations to the Library Fund reached a total of \$30,900. This amount is made up of \$28,650 (from 53 donors) to help preserve the Society's archives and \$2,250 (from 8 former Presidents) to restore the President's chair. The amount raised is a considerable advance on previous calls for donations. We thank the 53 regular and new donors for their generous contributions.

We continue to work for the Society and for NSW 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.

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



## 1296<sup>th</sup> OGM and Open Lecture

### The Intimate History of Evolution: The Huxleys 1825–1975

A contribution to National Science Week

Professor Alison Bashford FRSN FAHA FRHistS FBA  
*Laureate Professor of History, UNSW Sydney*

**Date:** Wednesday, 4 August 2021, 6:30 PM

**Venue:** [Zoom Webinar](#)

**Entry:** No charge

**Enquiries:** [via email](#)

*All are welcome.*



#### Summary



At *Life Magazine*'s 1947 photoshoot, Julian Huxley self-consciously arranged himself in front of a portrait of his grandfather, Thomas Henry Huxley. In the foreground, a well-known mid-twentieth century science writer, zoologist, conservationist — that generation's David Attenborough. In the background, a mid-nineteenth century natural scientist — Darwin's most outspoken spokesman.

Between them, Thomas Henry Huxley (1825–1895) and Julian Huxley (1887–1975) communicated to the world the great modern story of the theory of evolution by natural selection. Together, they were ‘trustees of evolution’, a phrase that Julian Huxley often used to describe all of humankind, but which I use to describe the Huxleys themselves.

What is yielded by considering these two particular Huxleys together? They were driven by the same momentous questions, but in different eras. What is the nature of time and how old is the Earth itself? What is the connection and distinction between human history and natural history? How are humans animals and how are we not? What is the deep past and the distant future of humankind? Can and should we actively seek to improve future generations? What might the planet look like 10,000 years hence? Through and with these high-powered Huxleys, I can track the problems and wonders of the modern world that they themselves raised, postured, and pondered over lives that spanned 1825–1975.

*(continued overleaf)*

## 1296<sup>th</sup> OGM and Open Lecture (cont'd)

### About the speaker

**Alison Bashford** is Laureate Professor of History at UNSW Sydney, and Director of the Laureate Centre for History & Population, and Honorary Fellow, Jesus College, Cambridge. Previously she was Vere Harmsworth Professor of Imperial and Naval History at the University of Cambridge and Professor of Australian Studies at Harvard University. Bashford is best known for her work on the modern history of population and human ecology, in two books, *Global Population: History, Geopolitics and Life on Earth* (Columbia 2014) and *The New Worlds of Thomas Robert Malthus* (Princeton, 2016) with Joyce E. Chaplin. She is currently completing *An Intimate History of Evolution: From Genesis to Genetics with a Scientific Dynasty, the Huxleys, 1825–1975* (Penguin Random House). Alison Bashford is a fellow of the British Academy and the Australian Academy of the Humanities. She was awarded the Royal Society of New South Wales History and Philosophy of Science Medal in 2020 and the Dan David Laureate Prize in 2021.

## Welcome to new members

The Society is pleased to welcome the following new members to the Society. They were elected at the Ordinary General Meeting held on 7 July 2021. We hope that each of you enjoys your membership and is able to participate in all that the Society has to offer.

### Fellows

- Professor Roger William Byard
- Professor Adelle Coster
- Associate Professor Lena Joel Danaia
- Professor Judith Margaret Dawes
- Mr Jeremy Robin Eccles
- Professor Susan Lesley Forster
- Professor Geoffrey M. Gurr
- Mr Yves Pol Hernot
- Dr Carolyn Jane Hogg
- Professor Annamarie Ruston Jagose
- Associate Professor Morgan Joel Luck
- Professor Francesco Marino
- Professor Sharynne McLeod
- Professor Seumas Roderick Miller
- Dr John Gruffydd Luther Morris
- Professor Mark Daniel Morrison
- Emeritus Professor Donald Harold Napper
- Professor Chiara Neto

- Dr Ian James Oppermann
- Dr Paul David Prenzler
- Emeritus Professor Lesley Joy Rogers
- Professor Pauline Mary Ross
- Mr Robert Francis Ryan
- Professor Jason John Sharples
- Professor Glenda Anna Sluga
- Ms Georgina Amanda Spilsbury
- Dr Danny KY Wong

### Members

- Mr Stephen Berry Austin
- Mr Robert Chadwick
- Mr Bradley Spencer Hammond



## From the Archives: Science House revisited

*by Bruce Ramage (Secretary)*

*This is the second of 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 home of the Royal Society of NSW between 1931 and the mid-1970s was Science House located on the corner of Gloucester and Essex Streets in the Rocks in Sydney. It sits on land granted by the NSW Government under an Act of Parliament passed in June 1928. The Deed of Grant, completed the following year, made The Royal Society of NSW, The Linnean Society of NSW, and The Institution of Engineers, Australia (now Engineers Australia), trustees for the land as tenants-in-common — these three societies accepting responsibility for the erection of a suitable building to house the scientific and technical societies of NSW.

A design competition was held and the architectural firm Peddle, Thorp and Walker was selected as the architects for the building. Following amendments to the competition design, tenders were called for the construction of the building, the successful tenderers being John Grant and Sons Ltd.

After demolition of the existing building, the site was handed over to the contractors in March 1930. The foundation stone was laid by the NSW Governor Sir Philip Game on 24 June 1930.

The general appearance of the exterior of the building is Florentine. It stands on a foundation base of microsyenite (a coarser grained version of basalt) with the main base, top trimmings, string and dentil courses, and architraves to the top floor windows being of Hawkesbury sandstone. The second to fifth floors are of tapestry bricks with sunken joints. Inserted in the top floor are terracotta tiles, and, above, the roof is of mottled Spanish tiles.

In 1932, Science House won the inaugural Sir John Sulman Medal (Sulman Prize) presented by the New South Wales chapter of the Australian Institute of Architects. The medal recognises excellence in public and commercial buildings in either New South Wales or in the Australian Capital Territory.



Science House was completed for occupation in January 1931 and opened on 7 May 1931 by the Governor with the Society opening its offices immediately thereafter, having moved from 5 Elizabeth Street, Sydney. An additional 13 societies became tenants in the building.

The building was designed specifically to meet the needs of scientific and technical societies and organisations representative of important interests in the life of the community. The facilities included special up-to-date features to enhance meetings and conferences.

*Science House, 157 Gloucester Street, Sydney  
Hall and Co, 1930, State Library of New South Wales*

*(continued overleaf)*

## From the Archives: Science House revisited (cont'd)

These modern facilities were widely advertised thus:

The main lecture hall is equipped with a fire-proof projection box, with projection lantern and epidiascope. The lecture dais, furnished with a polished desk, is provided with water, gas and electricity supply, together with a sink, for demonstration purposes. Immediately behind the dais is a counter-balanced blackboard. Heavy curtains are hung in the proscenium arch and can be drawn across the projection screen when the lantern is not in use. Incorporated with the lecturer's reading desk and lamp is a hand-set telephone for communication with the lantern operator. Particular attention has been given to the seating arrangements which consist of modern theatre-type chairs, affording the maximum of comfort. The hall is heated during the winter months.

Hiring charges for the 150-seat main lecture hall were £2 for an evening meeting with a sliding scale for multiple bookings. The hire of the projection lantern was £1 including the operator fee. The fee for hiring the epidiascope was £1.10.0. The 40-seat small hall cost 15/- for an evening, and the 20-seat committee room cost 7/6 for a session.

How times have changed!

## NSW Government provides new sponsorship for the Society

The Society is delighted to announce that the NSW Government, through the Office of the Chief Scientist and Engineer, is providing a three-year sponsorship for its ongoing operations.

In announcing the sponsorship, the NSW Chief Scientist and Engineer, Professor Hugh Durrant-Whyte, said 'The Royal Society's stated mission is more important today than ever: "To contribute to a just, secure and sustainable society ... by providing authentic and authoritative information and enlightenment on a wide range of subjects, addressing national and global challenges, and recognising and promoting excellence"'.

In thanking the NSW Government for its generous sponsorship, the Society President, Dr Susan Pond AM FRSN, noted that 'it will allow Society to expand its vision of enriching lives through knowledge and enquiry, and importantly, support the Premier's Priority of making a significant difference to the quality of life of the people of NSW'.

For further information, please see the [press release](#) issued by the Office of the NSW Chief Scientist and Engineer.



## Late-Victorian science knowledge

### Recorded in early essays of the *Journal & Proceedings of the RSNSW*

by Davina Jackson

The RSNSW's 2021–2022 bicentennial commemorations include a long overdue project to compile an author-alphabetical and chronological bibliography of publications by members and fellows — beginning with papers in the first 20 annual editions of its *Journal and Proceedings*.

Citations of 316 papers by 91 authors — from 1867 to 1887 — have been listed so far, and these reveal fascinating nuances about the culture of research, thrusts of discovery, and relations among leading scientists during the New South Wales colony's gold boom decades.

By far the most prolific essayist was the Sydney Observatory-based astronomer and meteorologist Henry Chamberlain Russell, who published 60 papers in volumes 3–20, including annual rainfall maps and monthly weather observations taken atop Observatory Hill. He also analysed floods of the Darling River and Lake George, how rain evaporated from paddocks, and telescope-viewed astronomical phenomena, including double stars and Transits of Venus, Mars and Saturn.

Another prominent writer was the University of Sydney's Professor of Geology and Mineralogy (and ultimately Professor of Chemistry), Archibald Liversidge, who wrote four papers on NSW minerals and meteorites in the annual *Transactions of the RSNSW*, before he began to edit the publication in 1875 and changed its title to *Journal and Proceedings*. Liversidge also served as the society's Honorary Secretary from 1874 to 1884, and he designed the Seal required for its NSW Government Act of Incorporation in 1881.

English pastor and geologist William Branwhite Clarke published 15 papers in the journal between 1867 and 1878. These included the RSNSW's Inaugural Address, in which he argued that science, with its focus on factual evidence, was superior to the philosophy promoted by preceding NSW intellectual societies. He later published six Anniversary Addresses and research reports on minerals in north Queensland, fossils of kangaroos and extinct birds, ocean depth soundings, and some effects of forests on Australia's climate.

During Liversidge's term as the journal editor, English science educator William Adam Dixon wrote a series of worthy articles on chemistry, mineralogy and palaeontology: highlighting islands of sea-bird guano, NSW deposits of silver, nickel, cobalt and coal, and chemical aspects of orchids, ferns and native coastal species. Other writers on Australian fossils, rocks, minerals, shells, fish, fauna, plants and forests included William James Barkas, Robert Etheridge Junior, Australian Museum curator Johann Ludwig Gerard (known as Louis) Krefft, assayer Carl Leibius, botanist Charles Moore and priest-geologist Julian Edmund Tenison-Woods.

Liversidge also encouraged articles about Aboriginal knowledge and culture. He published Peter MacPherson on Aboriginal astronomy, language, oven-mounds and stone implements; Peter Beveridge on Aborigines of the Murray-Darling basin; and 'Notes' by John Fraser and James Manning. These followed *Transactions* articles on Polynesian and New Guinea populations, reported by Scottish educator John Dunmore Lang.

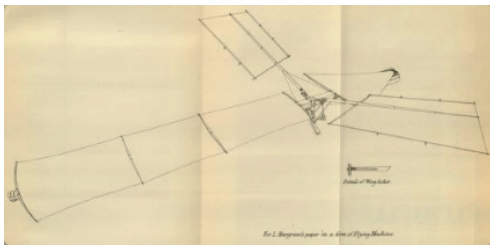


## Late-Victorian science knowledge (cont'd)

Despite the RSNSW's stated objectives to further knowledge in Science, Philosophy, Art and Literature, no articles on philosophy or literature, and only a few on arts and crafts, were published in the first 20 years of the journal. These included: several papers by Ludovico Wolfgang Hart on 'the rise and progress of photography' as a matter of importance to Australian education; John Plummer on art instruction; Italian pianist Jules Meilhan on the transformative power of classical music; Emerich Reuter Roth on rational construction of chairs and desks; and William Henry Warren on the strength and elasticity of ironbark timber for construction projects.

As the gold boom boosted Australia's population and prosperity, Liversidge introduced some far-sighted concepts for public welfare, infrastructure and economic development. Frederick Norton Manning, director of the asylum at Gladesville, illuminated journal readers on 'causes and prevention of insanity', while Alfred Roberts discussed 'pauperism' and hospital accommodation. Engineers James Manning, Charles Mayes, John Smith and A. Pepys Wood wrote on how to improve the colony's water supply and sanitation. NSW Auditor-General Christopher Rolleston assessed crime statistics and new post office, banking, credit and insurance systems.

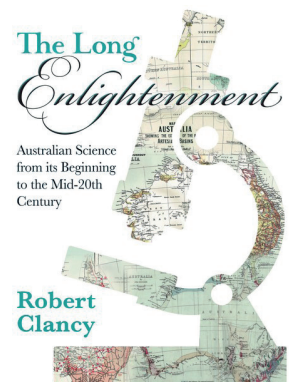
Several RSNSW writers presciently highlighted nascent technologies that would underpin modernity through the 20<sup>th</sup> century: Edward Charles Cracknell highlighted international advances with the 'electric telegraph'; George Denton Hirst focused on new optical lenses made by Carl Jeiss (Zeiss) in Germany; and Lawrence Hargrave presented his prescient ideas and designs for 'flying-machines'.



Lawrence Hargrave's late-1880s design for a flying machine (pencil sketch)

Hargrave's first RSNSW *JProc* articles were published in 1885 and 1886 — 17 years before American inventors Orville and Wilbur Wright flew the world's first successful motorised aeroplane in December 1903. Yet Hargrave was only one example of how many young, well-educated British immigrants pioneered worldwide advances after they resettled down under in the mid-19<sup>th</sup> century. The Royal Society of New South Wales, via its annual *Transactions* (then *Journal and Proceedings*), was a vital conduit for their intellectual pursuits.

Robert Clancy, historian, map collector, and Emeritus Professor in Immunology, has compiled an extensive volume [\*The Long Enlightenment: Australian Science from its Beginnings to the Mid-20<sup>th</sup> Century\*](#) (Halstead Press, 2021) about the early years of the Society and the work of colonial sciences which may be of interest to readers. You can obtain a copy through the Royal Societies of Australia via this [link](#).



## Report: Southern Highlands Branch

by Anne Wood

Unfortunately, our lecture scheduled for 15 July had to be cancelled by the speaker, Dr Helen Maynard Casely, due to the lockdown provisions in greater Sydney. The lecture was entitled '[Neutron scattering and the WOMBAT project](#)'. It is hoped that it becomes possible for this lecture to be delivered by Dr Casely sometime in 2022.



Another event which we look forward to, and which is proudly sponsored by the Royal Society of NSW Southern Highlands Branch, is the [annual Essay Competition held by The Philosophy in Schools Association of NSW](#). Invitations are open to all secondary students in years 10–12 in NSW. Despite the COVID-19 restrictions in place this year, the event is still progressing, but the outcome will be delayed due to prevailing COVID-19 restrictions.

Our committee will present the awards as in previous years, but perhaps not at a scheduled Sydney event as before.

The Essay Question for this year 2021 was set as: *What is friendship and what is it to be a good friend?*

A teacher from Meriden, Priscilla Curran, has submitted her general observations:

As a teacher who runs Philosophy Club, I really value the opportunity that the Philosophy Essay Competition gives to students to consider a philosophical question or issue in greater depth, and to conduct their own independent reading and research into this area. In the two years that we have entered, I find that the Essay Competition gives a voice to those students who are not always confident to speak readily or respond quickly in a Community of Enquiry, but this competition gives them time to reflect deeply and compose a response that is relevant to them and their lives.

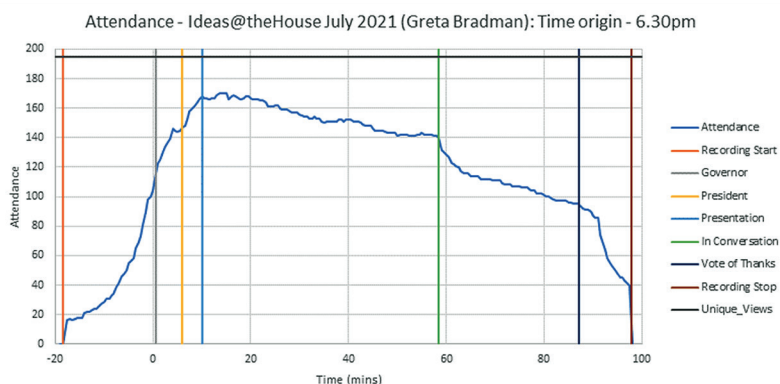
It is to be noted that no more than three submissions can be made per school, and that the submissions are judged by an assessing panel of (unpaid) academic philosophers. The best three entries are selected, plus honourable mentions made for up to three more deserving entries. The Southern Highlands Branch in its sponsorship of this event is again demonstrating its support for the next generation as they pursue the ideals of the RSNSW.

## Report: Events Committee

by Christina Slade (Chair of Events) and Lindsay Botten (Webmaster)

The Royal Society of NSW hosted a range of events over July.

The 1295<sup>th</sup> Ordinary General Meeting was held on 7 July and Dr Erik Aslaksen discussed ‘Society as an information processing system, and the influence of the media’. This wide-ranging talk gave rise to a number of very varied questions and was well viewed. [This talk](#) is now available on our YouTube channel.



*Ideas@theHouse* featured the writer, broadcaster, psychologist, and performing artist Greta Bradman, on 22 July discussing ‘Music as Superfood: How music can help us live longer, sleep better, calm down, find flow, and feel happier’. According to Zoom, there were 195 individual viewings (the horizontal line at the top of the graph). The maximum number of viewings was 170, occurring just after the start of Greta Bradman’s presentation, dropping to 141 at the end. The maximum number of 170 significantly exceeds the capacity of the Government House Ballroom, had we been able to conduct the event live; by this measure alone, the event was a great success. [This presentation](#) is available on YouTube, but only until 21 October 2021 due to rights restrictions.

Professor Alison Bashford, FRSN, FAHA, FRHistS, FBA, the Laureate Professor of History at UNSW will address the society on 4 August on the topic of ‘The Intimate History of Evolution: The Huxleys 1825–1975’. This will be held online, as will the September OGM, due to the ongoing uncertainties caused by the COVID-19 lockdown of Greater Sydney.

Professor Alison Bashford, FRSN, FAHA, FRHistS, FBA, the Laureate Professor of History at UNSW will address the society on 4 August on the topic of ‘The Intimate History of Evolution: The Huxleys 1825–1975’. This will be held online, as will the September OGM, due to the ongoing uncertainties caused by the COVID-19 lockdown of Greater Sydney.

The opening of the Society’s Exhibition, NEXUS, which was planned for 26 June continues to be delayed by the ongoing COVID-19 lockdown of Greater Sydney. Please check the [Society events pages](#) for updates, consequent upon the easing or lifting of current restrictions by the State Government.



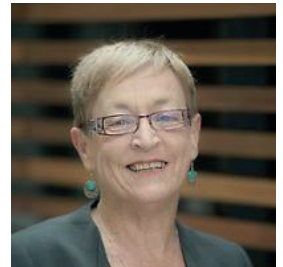
## Report: Hunter Branch

*by Eugenie Lumbers (Branch Secretary)*

The Hunter branch of the Royal Society of New South Wales was forced on **30 June** to change from a face-to-face meeting to Zoom meeting due to COVID-19. Professor Jason Sharples from the School of Science (UNSW Canberra) gave a lecture called '[Extreme bushfires and the age of violent pyroconvection](#)'. This excellent lecture ([now on YouTube](#)) provided scientific insights into the mechanisms underlying extreme bushfires and a horrifying glimpse of the future which, based on events over the last decade, show an exponential rise in extreme bushfire events and describe a grim future. It was a strong reminder of the changes that are being induced by climate change.

The next Hunter branch event on **25 August** provides a provocative glimpse into the findings of the Royal commission into the Quality and Safety of Aged Care. Professor Kathy Eagar (University of Wollongong) shall present '[Did the Aged care Royal Commission provide a blueprint to fix Australia's aged care system? If not, what else needs to happen?](#)'.

The Royal commission determined that there was considerable neglect, lack of oversight and transparency, and elder abuse in the current system which is managed by the Department of Health. The two Commissioners recommended different pathways to overcome these problems, noting that the current aged care system:



is insufficiently system-responsive to the experiences of older people. The oversight of home care is particularly underdeveloped. There is a poor track record — in both home care and residential care — on enforcement and the approach to monitoring

and

The regulatory arrangements lacked the transparency, accountability and responsiveness that would be expected of a contemporary regulatory regime. Overall, the system has not provided the insurance of high quality and safe care that older people and the community reasonably expect.

Two experts in issues surrounding aged health care, Dr Max Thorpe and Ms Marie Coleman, will join a panel hosted by Professor Steve Weller. Join this meeting and learn about the problems facing the future management of aged care.

## Our Energy Future: a two-part event from RSNSW

### Our Energy Future: The Unrecognised Opportunity in Glasgow — In Two Acts

Part 1: Context and Castles; Part 2: Crushed Rocks

Dr Saul Griffith FRSN

*including a conversation with*

Dr Adi Paterson FRSN

**Date:** Wednesday, 25 August 2021 (Part 1)

and 15 September 2021 (Part 2), 12:30 PM

**Venue:** Zoom webinars — [Part 1](#) and [Part 2](#)

**Entry:** No charge

**Enquiries:** [via email](#)



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

This year, from 1–12 November 2021, Glasgow, Scotland will host the 26<sup>th</sup> session of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change. ‘Glasgow’ is the current shorthand for this meeting — which may etch it into our consciousness for a generation as Rio de Janeiro did in 1992 with the Rio 21 Principles.

Saul Griffith presents a future for our energy system and economy in the context of Glasgow. For Australia, understanding what we know (and why) about our energy economy allows us to think deeply about reimagining an energy economy without carbon dioxide and other emissions. The two sessions explore the Australian energy economy: domestic — ‘Our Castles’, and global — ‘Our Crushed Rocks’. Using a new analysis of our emissions data and a cross-sectoral analysis, he will contextualise our machines (hardware in the economy) and climate targets (1.5 degrees, with and without negative emissions) to show why we now need nearly perfect execution of new solutions.

#### **Part 1: Context and Castles — 25 August 2021**

**The Talk (Saul Griffith):** Households as a political and economic unit are a natural focal point for climate policy. To win, we must transform household economics by ‘Electrifying Everything’. This includes near-term cost trends, a new study on Australian household economics, and why our electric vehicle (EV) policies and gas recovery policies are not commensurate with our goals.

**The Conversation (Saul Griffith and Adi Paterson):** The conversation will explore themes and outcomes from the research and the new opportunities and challenges of ‘Electrifying Everything’.

#### **Part 2: Crushed Rocks — 14 September 2021**

The second session will start with responses to questions and comments from the first session, and will allow people who did not see session 1 to get the background that will give context to the second talk.

Questions may be submitted by [email](#) up until 14 September 2021.



## Our Energy Future: a two-part event from RSNSW (cont'd)

**The Talk** (*Saul Griffith*): Given we can win the battle for our Castles in the domestic economy (Part 1), what about the export economy, given the fear of lost rural and regional jobs and export value that has traditionally driven Australian climate politics? This discussion has to deal with our hydrogen demons and global trade and economic security. It needs a very honest look at our primary exports in the context of a carbon-constrained world. Is Australia's enormous opportunity (still) in metals? If it is, the processes need to be electrified, and we need to produce primary metals and not just ores. There is also an agricultural opportunity.

**The Conversation** (*Saul Griffith and Adi Paterson*): Saul and Adi will explore the export economy and the technologies that we don't yet have, but which are predictably going to exist, to decarbonize the 'hard to decarbonise' sectors such as steel, aluminium, cement, agriculture, forestry, paper, and pulp.

**The Wrap**: Saul Griffith will provide recommendations for what Australia could advance at the COP in Glasgow — if we aspire to be a country that wants to win the carbon Olympics as badly as we wanted to win at the Tokyo Olympics.

### About the Speakers

**Saul Griffith** PhD (MIT) ME (Syd) BMetEng (UNSW) is an engineer and energy entrepreneur. Saul has been a recipient of the Macarthur Fellowship, MIT TR35, World Economic Forum Young Global Leader, Tallberg Foundation Global Leadership Award, and Lemelson MIT Inventor Award. He has founded multiple technology companies including [www.otherlab.com](http://www.otherlab.com), [www.instructables.com](http://www.instructables.com) (sold to Autodesk), [www.makanipower.com](http://www.makanipower.com) (sold to Google), [www.sunfolding.com](http://www.sunfolding.com), [www.gradientcomfort.com](http://www.gradientcomfort.com), [www.voluteinc.com](http://www.voluteinc.com) (sold to Linamar/McLaren), [www.roamrobotics.com](http://www.roamrobotics.com), and [www.canvas.build](http://www.canvas.build). Saul has been Principal Investigator on government research contracts from NASA, DOE, ARPA-e, DARPA, NSF, NIH, SOCOM, ONR and others, and has converted many of the resulting technologies into valuable businesses. He has studied national and global energy systems in detail, including [www.energyliteracy.com](http://www.energyliteracy.com), an unprecedented look into the details of energy flows and dependencies. Saul is the co-founder of [RewiringAmerica.org](http://RewiringAmerica.org), an advocacy group for rapid electrification of the US economy as a climate solution commensurate with UN 1.5 degree goals. Through Otherlab, Saul works with top-tier universities, government research agencies, and Fortune 1000 businesses, but retains his independence as a private R&D enterprise.

**Dr Adi Paterson** has wide-ranging experience in energy policy, systems, technology, and innovation. He has had policy and management experience related to nuclear energy, hydrogen as an energy vector, energy in development settings, and battery innovation and industry potential. His current focus: energy sovereignty, security and low carbon energy options for established economies and the developing world, based on environmental sustainability to 2121. During his tenure as CEO of the Australian Nuclear Science and Technology Organisation (ANSTO), Australia joined the Generation-IV International Forum — a treaty-level nuclear organisation developing nuclear reactor designs to be available from 2035. Prior to joining ANSTO, he was Chief Operating Officer of the Pebble-Bed Modular Reactor (PBMR) Company in South Africa, including responsibility for international outreach (primarily in the USA and Canada).

## Our Energy Future: a two-part event from RSNSW (cont'd)

In the 1990s he led the Materials and Energy Division at the Council for Scientific and Industrial Research, South Africa, including the development of high-temperature battery systems and licensing of IP for lithium batteries. He is the Principal and Founder of Siyeva Consulting. He was recognised as Professional Engineer of the Year (Sydney Division) in 2012 and is an Honorary Fellow of Engineers Australia. He has an Honorary Doctorate from the University of Wollongong.

## New Stewardship of Country Proceedings

During February and March of 2021, the Royal Societies of Australia in partnership with Inspiring Victoria presented an online symposium in three parts titled [Stewardship of Country](#). These presentations aimed to elevate a broad range of perspectives, generating discussion on landscape and environmental management that bridges Indigenous, agricultural, scientific, economic, and social perspectives, with support for practical action and the public good.



Eleven presentations were delivered across multiple domains of land management practice and scholarly expertise, representing a historic collaboration between Aboriginal and Torres Strait Islander experts, industry practitioners and thinkers, and convened under the auspices of the Royal Societies of Victoria, Queensland, and New South Wales, with support from the CSIRO. Of these eleven presentations, six were submitted for publication and now comprise a Special Issue of the Proceeding of the Royal Society of Victoria, which is now [online](#) and available at no cost.

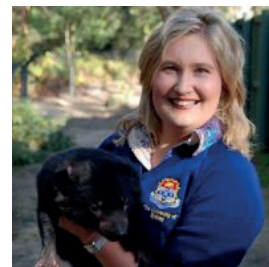
These papers are well worth reading and, in the words of Dr Nelson Quinn of the Law Futures Centre of Griffith University:

We do not need to wait until everyone has accepted and understood the obligation of custodianship or until all our laws and institutions are reformed. We can act now, collectively and individually. Every small change we make adds to all the others — forming, eventually, big changes. We can act collaboratively, immediately magnifying the changes any one of us can make.

For a more complete summary of the webinar series and the articles, refer to the relevant Royal Society of Victoria [web page](#).

## Society Fellow awarded the GSA MJD White Medal

The Council of the Royal Society of NSW warmly congratulates one of its Fellows, **Professor Kathy Belov AO FRSN** of the University of Sydney, on being awarded the MJD White Medal of the Genetics Society of Australasia (GSA). The award, which commemorates Michael White who proposed the formation of the Genetics Society in 1953, recognises excellence and a lifetime of achievement in genetics research.



Professor Belov, who is the Professor of Comparative Genomics and Pro-Vice-Chancellor (Global Engagement) at the University of Sydney, and a current member of the Council of the Royal Society of NSW, has guided the University's Australian Wildlife Genomics Group for 15 years.

Her team is leading the genetic rescue of our most iconic and loved native animals, starting with Tasmanian devils, which suffer from a transmissible and deadly cancer called devil facial tumour disease. Professor Belov's group is also responsible for steering the world-first full sequencing of the koala genome following the recent completion of the mapping of the echidna genome and improving the information available on the platypus genome. Such genetic data is particularly valuable in advancing conservation efforts, aiding in the treatment of diseases and helping to ensure the long-term survival of our native animals.

For further information about Professor Belov's research, please see the [University of Sydney website](#).

## Vale Lieutenant Colonel (ret.) Emeritus Professor E James Kehoe FRSN

The Royal Society of NSW records with great regret the passing of one of its valued Fellows, Emeritus Professor Jim Kehoe FRSN, on 15 July 2021.

A senior academic from the School of Psychology at UNSW, Jim became a Fellow of the Society in 2012 and contributed in many ways to the expansion of the society in the mid-2010s. He was an enthusiastic member of the Council (2016–2018) and offered his publishing skills to the Society by editing the Bulletin from 2015–2017. He continued and nurtured our association with the Chief Scientist and Engineer of NSW and the yearly meeting of Deans of Science and Engineering to advise the Awards Committee as Chair of the Awards Committee from 2016–2019. Professor Kehoe's activities for the RSNSW were recognised by the Citation of the Society in 2019.



Jim was a behavioural neuroscientist who researched associative learning, instructional design, using neural network models, and computer-based learning. He was a senior officer in the Australian Army Reserve, advising on character and values, and teamwork and leadership development. He had a black belt in, and was a teacher of, karate.

## Society Fellow awarded Ecological Society of Australia Gold Medal

The Council of the Royal Society of NSW warmly congratulates one of its Fellows, **Professor Richard Kingsford** FRSN of UNSW Sydney, on being awarded a Gold Medal by the Ecological Society of Australia (ESA) for 2021. The Gold Medals awarded each year by the ESA recognise the impact of the work of leading Australian ecologists.



Professor Kingsford, who is a river ecologist and conservation biologist, and Director of the Centre for Ecosystem Science at UNSW Sydney, has made a significant contribution to understanding the impact of water resource developments on rivers and wetlands. He has worked extensively across the wetlands and rivers of the Murray-Darling and Lake Eyre Basins, and leads the Eastern Australian Waterbird Survey, running since 1983 and spanning approximately one-third of the continent. This survey provides one of Australia's most important long-term datasets on the health and biodiversity of the country's river and wetland areas. Recently, he has also led a study on the impact of dams on downstream platypus populations, resulting in a submission for threatened species status for the platypus.

In a lecture titled '[Murray-Darling Basin turmoil: past, present, and future](#)', Professor Kingsford spoke on these very topics at a recent online meeting of the Royal Society of NSW. [A recording of this presentation](#) is available on the Society's YouTube channel.

To learn more about this award, please see the [announcement on the UNSW Sydney Newsroom website](#).

## *Journal & Proceedings of the Royal Society of New South Wales*

*by Robert Marks (Editor)*

The pandemic, the lockdown, and the impacts of vaccination have slowed publication of the June issue of the *Journal & Proceedings*, but it will be published online this week. As well as the presentations and discussions from last year's Forum ([After COVID-19: Creating the Best of Times from the Worst of Times](#)), the issue has papers on the role of Adrian Lee and Thomas Borody in the *Helicobacter* story, three submitted papers, and PhD abstracts.



"...for the encouragement of studies and investigations in Science, Art, Literature and Philosophy."

## List of proposed events for 2021

Kindly note that this is a provisional list and will be subject to change. Updates will be reflected in future issues of the Bulletin and on [our website](#).

Date	Event
Wednesday, 4 August 6:30 PM AEST	1296 <sup>th</sup> Ordinary General Meeting and Open Lecture <i>The Intimate History of Evolution: The Huxleys 1825–1975</i> Professor Alison Bashford FRSN FAHA FRHistS FBA, UNSW
Wednesday 25 August 12:30 PM AEST	Our Energy Future: The Unrecognised Opportunity in Glasgow — In Two Acts Part 1: Context and Castles Dr Saul Griffith FRSN and Dr Adi Paterson FRSN
Wednesday 25 August 6:00 PM AEST	(Hunter Branch) Lecture — Did the Aged Care Royal Commission provide a blueprint to fix Australia's aged care system? If not, what else needs to happen? Prof Kathy Eagar, University of Wollongong
Wednesday, 1 September 6:30 PM AEST	1297 <sup>th</sup> Ordinary General Meeting and Open Lecture <i>Taking humour and laughter seriously: Exploring the multi-disciplinary field of humour studies</i> Dr Jessica Milner Davis FRSN
Wednesday, 15 September 12:30 PM AEST	Our Energy Future: The Unrecognised Opportunity in Glasgow — In Two Acts Part 2: Crushed Rocks Dr Saul Griffith FRSN and Dr Adi Paterson FRSN
Wednesday, 29 September	(Hunter Branch) Lecture — exact topic t.b.a. Nathan Towney, University of Newcastle
Wednesday, 6 October 6:30 PM AEDT	1298 <sup>th</sup> Ordinary General Meeting and Open Lecture <i>Privacy and Identity in an AI world</i> Scientia Professor Toby Walsh FRSN FAA FACM FAAAAS
Thursday, 4 November 9:00 AM–4:30 PM AEDT	Royal Society of NSW and Learned Academies Annual Forum <i>Power and Peril of the Digital Age</i> Venue: Government House, Sydney, Live Streaming and subsequent availability on YouTube
Wednesday 1 December 6:30 PM AEDT	1299 <sup>th</sup> Ordinary General Meeting and Open Lecture <i>Managing Psychological Distress in Times of Stress: Handling the Stress of COVID-19 and All That</i> Scientia Professor Richard Bryant AC FASSA FAA FAHMS — James Cook Medal Winner 2020



## 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

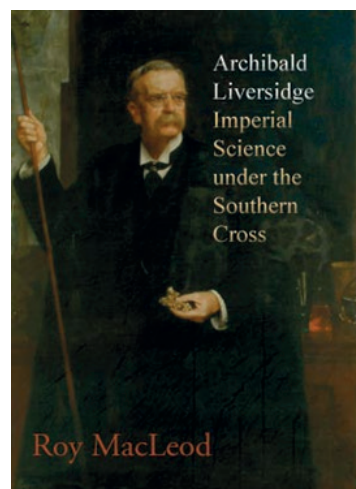
Crows Nest NSW 1585

Australia

or contact the Society:

Phone: +61 2 9431 8691

Email: [info@royalsoc.org.au](mailto: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](#) 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	<a href="#">Dr Susan Pond AM FRSN FTSE FAHMS</a>
Vice-President	<a href="#">Ms Judith Wheeldon AM FRSN</a>
Past President	<a href="#">Emeritus Professor Ian Sloan AO FRSN FAA</a>
Secretary	<a href="#">Mr Bruce Ramage MRSN</a>
Treasurer	<a href="#">Mr John Cameron MRSN</a>
Librarian	<a href="#">Mr John Hardie AM FRSN</a>
Webmaster	<a href="#">Emeritus Professor Lindsay Botten FRSN</a>
Councillors	<a href="#">Professor Katherine Belov AO FRSN</a> <a href="#">Ms Pamela Griffith FRSN</a> <a href="#">Dr Donald Hector AM FRSN</a> <a href="#">Dr Davina Jackson FRSN</a> <a href="#">The Hon. Virginia Judge FRSN</a> <a href="#">Professor Eric Knight FRSN</a> <a href="#">Emeritus Professor Robert Marks FRSN</a> <a href="#">Emerita Professor Christina Slade FRSN</a>
Hunter Branch Representative	<a href="#">Professor George Willis FRSN FAA</a>
Southern Highlands Branch Representative	<a href="#">Mr Mike Jonas MRSN</a>

Editor: [Jason Antony](#)

