



# THE BULLETIN 463

THE ROYAL SOCIETY OF NEW SOUTH WALES

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## For Your Diary

- 09 JAN–30 JUN  
[RSNSW Exhibition:](#)  
[NEXUS 2022](#)
- 10 JUN  
[RSNSW Clarke Memorial](#)  
[Lecture 2021](#)
- 24 JUN  
[RSNSW 200<sup>th</sup> Anniversary](#)  
[Dinner](#)
- 06 JUL  
[1304<sup>th</sup> OGM and Open](#)  
[Lecture](#)



Patron of The Royal Society of NSW

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

## Royal Society of NSW 200<sup>th</sup> Anniversary Dinner

Friday, 24 June 2022, 6:00 PM



Remaining places filling fast — [book now](#)

See [page 3](#) for more information

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1303<sup>RD</sup> OGM AND OPEN LECTURE (FACE-TO-FACE)

**Federalism, borders, and National  
Cabinet — what has the pandemic taught us?**

Wednesday, 1 June 2022, 6:00 PM for 6:30 PM



Professor Anne Twomey AO  
Sydney Law School, University of Sydney

All are welcome.

See [page 4](#) for more information

## From the President

I write this column during the final week of the Federal election campaign, a time when the standing of democracy is being challenged here in Australia and internationally. Whichever party forms Government will be laser-focused on improving the lives of all Australians and ensuring that we constantly refine and improve our own democratic systems. Australia is seen by many to be at a crossroads, with environmental, health, social and economic challenges becoming more pressing, and a political environment that makes it increasingly difficult to chart a way forward.

This year's RSNSW and Learned Academies Forum '*Australia at the Crossroads*' will explore some of the innovative interventions and solutions for addressing some of these key challenges. As Chair of the Forum Planning Committee, I am grateful for the knowledgeable input into the Forum by this year's Program Committee Members. They are Stephen Garton FRSN (Chair), Tony Cunningham FRSN (Academy of Health and Medical Sciences), Annabelle Duncan FRSN (Academy of Technology and Engineering), Bridget Griffin-Foley (Australian Academy of the Humanities), Phillipa Pattison (Academy of Social Sciences in Australia), Hala Zrieqat FRSN (Australian Academy of Science), and Robin King FRSN (Secretary, Forum Planning Committee). Please mark the whole of Thursday **3 November** in your calendar for this 2022 RSNSW and Learned Academies Forum to be held in Government House Sydney. We will be able to accommodate about 130 in-person attendees while livestreaming the event across NSW and beyond.

If you have not done so already, I urge you to accept your invitation to the Society's [200<sup>th</sup> Anniversary Dinner](#) on **24 June** 2022 at The University of Sydney. This was emailed to all 712 Society members on 3 May. Seats for this 250-guest event are filling fast. The Society returns to the Great Hall for this wonderful event because it was the venue for its 100<sup>th</sup> Anniversary Dinner. Pre-dinner drinks will be held in the new Chau Chak Wing Museum across the lawn from the Quadrangle. Some objects relevant to

the Society's history will be on display. The carillon and the Great Hall organ ring out as well as the fanfare composed by David Hush specifically to celebrate our bicentennial.

In my last column, I noted that FRSN Jude Rae, whose artistic career includes more than forty solo exhibitions, entered her [The Big Switch](#) portrait of another FRSN, Saul Griffith, in this year's Archibald Prize. I am pleased to say that the portrait was Highly Commended.

On **4 May**, I hosted The Hon Alister Henskens SC MP for a private tour of our Bicentennial Exhibition [NEXUS](#) at the State Library of NSW. He was particularly intrigued



by the Society's seal designed by Archibald Liversidge, who at the time of incorporation of the Society on 16 December 1881 was Honorary

Secretary. It occurred to me, having attended the launch by Minister Henskens of the NSW Government's [20-year R&D Roadmap](#) the evening before, that the Society's seal was in effect the R&D roadmap in 1881. Each symbol can be viewed as representing the R&D goals of that era. Note that NEXUS closes on 30 June.

Also on **4 May**, I introduced Professor Richard Payne from the University of Sydney, the Society's 2020 Liversidge Lecturer. As with the Clark Lecture, his presentation on '[Drug Discovery Inspired by Natural Products](#)' was delayed by the pandemic. The Liversidge Lecture was established under the terms of a bequest to the Society by Archibald Liversidge MA LLD FRS, a chemist and much more who was a leader at the University of Sydney and the Society for 35 years from 1872. I took the opportunity to invite Emeritus Professor Roy MacLeod and author of the



biography of Liversidge ‘Imperial Science under the Southern Cross’ to present his book in person to Richard. This book, published by the Society and the University of Sydney is still available through our [online shop](#).

On 11 May, the Society and UNSW hosted the Lecture in Palm House, Botanic Gardens, by our 2020 RSNSW Poggendorff Lecturer Professor Angela Moles on the subject of ‘[Are our Weeds becoming New Native Species](#)’. The Lecture was preceded by a ‘Weed Tour’ throughout the Gardens. My thanks to the Society’s Program Committee (and especially its Chair Christina Slade and Secretary Liz Deane) for orchestrating both events.

On 16 May, I represented the Society, which was a partner for the event, at the screening of the powerful 2020 documentary ‘[Picture a Scientist](#)’ followed

by a panel discussion moderated by FRSN Hala Zreiqat. Our Patron, Her Excellency the Honourable Margaret Beazley AC QC opened the meeting and joined the panel as a member. This documentary, which opened a new chapter for women scientists, is essential viewing.

You will read elsewhere in this Bulletin that our Hunter, Southern Highlands, and Western NSW Branches also have been very active. We continue to work for the Society and for NSW because we understand the need to enhance authentic and authoritative public discourse on a wide range of topics that are crucial to our future. I look forward to seeing you in person or online very soon.

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

### RSNSW Bicentennial Dinner

The Society’s Bicentennial year is culminating in a black-tie gala dinner when we celebrate the achievements of the Society over 200 years. The dinner is being held in the Great Hall, University of Sydney — the location of the Centenary Dinner — with pre-dinner drinks in the University’s Chau Chak Wing Museum opposite.

We are delighted that Dr Alan Finkel AC will present the after-dinner address: ‘All aboard — choose your flight to the future’.

It promises to be a memorable evening. Registration for this event is available until 10 June or until all places are filled: <https://royalsoc.org.au/blog/rsnsw-200th-anniversary-dinner>



## Federalism, borders, and National Cabinet — what has the pandemic taught us?

Professor Anne Twomey AO

Sydney Law School  
University of Sydney

**Date:** Wednesday, 1 June 2022, 6:00 PM for 6:30 PM

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

**Entry:** \$35 for Society members;  
\$45 for non-members; \$5 for students

**Registration:** Registration is required through  
Membes at [https://members.royalsoc.org.au/  
eventdetails/13985/1303rd-ordinary-general-  
meeting-of-the-royal-society-of-nsw](https://members.royalsoc.org.au/eventdetails/13985/1303rd-ordinary-general-meeting-of-the-royal-society-of-nsw)

*All are welcome.*



### Summary

Professor Twomey will discuss who is responsible for matters such as State border closures, quarantine and vaccine mandates, and what the Constitution has to say about it. The operation of a federal system in a national crisis, such as a pandemic, can cause confusion, but also reap benefits. The National Cabinet was supposed to provide national coordination while still allowing each State to deal with the different circumstances it faced. Has it succeeded, or is it just a mechanism for spreading a cloak of secrecy over government operations?

### About the speaker

Anne Twomey is a Professor of Constitutional Law at the University of Sydney. She has previously worked for the High Court, the Senate Legal and Constitutional Committee, and the Cabinet Office of New South Wales. She has had practical experience in the operation of federalism, when working for the NSW Government, and has written extensively on federalism in the academic sphere.

## RSNSW Clarke Memorial Lecture 2021

### The changing tide of human populations: an infertility trap

Distinguished Emeritus Laureate Professor

John Aitken FRSE FRSN FAA FAHMS

School of Environmental and Life Sciences  
University of Newcastle

**Date:** Friday, 10 June 2022, 5:00–7:00 PM

**Venue:** The University Conservatorium, Laman  
Street, Cooks Hill, Newcastle

**Entry:** No charge

**Enquiries:** Via [email to the Hunter Branch Secretary](#)

**Registration:** by 9 June 2022 through

Membes: [https://members.royalsoc.org.au/  
eventdetails/13962/hunter-branch-meeting-2022-2-  
and-rsnew-clarke-lecture-2021](https://members.royalsoc.org.au/eventdetails/13962/hunter-branch-meeting-2022-2-and-rsnew-clarke-lecture-2021)

*All are welcome.*

### The Clarke Memorial Lecture

The Royal Society of NSW and the University of Newcastle are pleased to present the Society's annual [Clarke Memorial Lecture](#). The Clarke Lecture is delivered by the most recent winner of the [Clarke Medal](#). The Clarke Medal and Lecture commemorate the memory of the Reverend William Branwhite Clarke, one of the fathers of the Royal Society of New South Wales, and an eminent geologist of his day. The Clarke Medal for 2021 was awarded to Distinguished Emeritus Laureate Professor John Aitken from the University of Newcastle — an internationally recognised researcher in the field of reproductive health.

*(continued)*

## Summary

The world's population has grown at a frighteningly fast pace since 1800 and is directly responsible for many of the environmental disasters that currently beset our species. Despite the ever-present evidence of overpopulation, the world has witnessed an extremely steep decline in fertility rates that heralds the imminent collapse of population growth and a new era of depopulation. This universal decline in fertility is being driven by increasing prosperity, largely through the mediation of social factors, the most powerful of which are the education of women and an accompanying shift in life's purpose away from procreation. In addition, it is clear that environmental and lifestyle factors are also having a profound impact on our reproductive competence, particularly in the male, where increasing prosperity is associated with a significant rise in the incidence of testicular cancer and a secular decline in semen quality and testosterone levels. On a different timescale, we should also recognise that increased prosperity greatly reduces the selection pressure on high fertility genes by lowering the rates of infant and childhood mortality. The retention of poor fertility genes within the human population is also being exacerbated by the increased uptake of ART. It is arguable that all of these elements are colluding to drive our species into an infertility trap. If we are to avoid the latter, it will be important to recognise the factors contributing to this phenomenon and adopt the social, political,

environmental, and lifestyle changes needed to bring this situation under control.

## About the speaker

**Distinguished Laureate Professor John Aitken** is an internationally renowned biologist whose research focuses on reproductive science. He was formerly Director of the ARC Centre of Excellence in Biotechnology and Development and Pro Vice-Chancellor of the Faculty of Health and Medicine at the University of Newcastle. According to expertscape.com he is the world's leading authority on spermatozoa, fertilisation, and the cell biology of germ cells. He has been named as Australia's leading reproductive biologist and has published more than 600 research articles that have been cited more than 56,000 times (h-index of 121). A former NSW Scientist-of-the-Year (2012), his academic standing is evidenced by the 460 lectures he has been invited to give at major meetings and the receipt of several international awards. These include the 2016 Carl G Hartman Award, the American Society for the Study of Reproduction's highest accolade, and the 2020 Distinguished Andrologist award from the American Society of Andrology. He is author of 'The Infertility Trap' a book published by Cambridge University Press describing the forces that are serving to suppress the fertility of our species.



## Joint AIP, RACI, RSNSW, and ANSTO Presentation: Big Science of Gen IV Power Reactors

**Date:** Tuesday, 21 June 2022,

7:00 PM

**Entry:** No charge

**Registration:** [Required through Eventbrite](#)



*A joint presentation by the Australian Institute of Physics (AIP), the Royal Australian Chemical Institute (RACI), the Royal Society of NSW (RSNSW), and ANSTO. More details at <https://royalsoc.org.au/blog/joint-aip-raci-rsnew-and-ansto-presentation>*

## Summary

Globally, there is renewed interest and investment in Nuclear Power Plants. Exciting new developments include Small Modular Reactors, the research and design of six new reactor technologies (known as Generation IV), and the use of nuclear reactors in space. Join Mark Ho, Vice President of the Australia Nuclear Association, as he provides an update on these cutting-edge advanced reactor designs that have unprecedented versatility, can be paired with renewable generating sources and can be less expensive than previous reactors.



## From the Archives: White tie and tales

by Bruce Ramage (Secretary)

The 'News of the Day' columns in the *Sydney Morning Herald* of 7 October 1886 reported on the Society's *Conversazione* held the previous evening in the Great Hall at what was then simply 'the University'. It was held under the management of the Society's office bearers and several other members. One member of the management committee was Charles Moore who was the Director of the Botanic Gardens (not yet Royal) who decorated the Hall and its approaches with palms, ferns and rare pot plants brought from the Gardens. The organ was 'presided over' by Frederick Morley<sup>1</sup>.

THE annual conversazione of the Royal Society took place last evening, in the great hall of the University. There were quite 1000 guests present, and everything passed off very successfully. His Excellency the Governor and Lady Carrington were present, with a numerous party. The exhibits, especially in the microscopic section, were numerous and interesting, and there was no lack of capable demonstrators. Mr. F. Morley presided at the organ, and rendered a long programme of classical music.

It must have been a grand affair. Gentlemen wore white tie and tails, and ladies wore evening gowns. The Society's *Conversazioni* were described at the time as the social highlight of the year. There were 61 exhibits from individuals, government departments, commercial organisations and educational institutions. There were 11 demonstrations by Professor (later Sir) Richard Threlfall, recently arrived from Cambridge to take up the chair in physics. He was 25 and considered by his peers at the Cavendish Laboratory to be a 'first class experimenter'. Despite having lost several fingers while experimenting with explosives, Threlfall was an outstanding manipulator of apparatus.

There was also on display an exhibition of pure culture apparatus used in a biological research laboratory by Dr HA Ellis. Particularly mentioned were

1 Frederick Morley (arr Sydney 1879 d Lindfield 21 April 1929 aged 78), Organist and organ designer. He designed the organ in the Methodist Church (now Greek Orthodox) in Station Street, Burwood. It was built by his brother in Cambridge.

the 18 different microscopes, including two belonging to the Society.

The exhibits were many and varied.

Sir James Reading Fairfax (1834–1919), the proprietor of the *Sydney Morning Herald* lent a collection of coins. There was also a collection of Australian diamonds lent by a W Salmon. The Birmingham silver manufacturer Elkington & Co.<sup>2</sup> provided 'copies of celebrated art treasures in electroware, shields, plaques, vases etc.' which were highly regarded.

William Paling (1825–1895), musician, merchant and philanthropist, and founder of the music company WH Paling & Co. lent a bust 'Kurde Woman' by Emile Guillemin<sup>3</sup> which had been exhibited at the Paris Salon of 1884.



Maps were also on view. The Minister of Mines showed geological maps and a collection of fossils and minerals from NSW. Judge Dowling provided an old map of Sydney.

There was an extensive display of photographs of a large variety of subjects. The Picturesque Atlas Company showed a series of views of Australia by various artists. The Amateur Photographic Society<sup>4</sup> showed a

2 Founded in the 1830s, it operated as Elkington, Mason, & Co. until 1861, when the partnership with Mason was terminated. The firm operated independently as Elkington & Co. from 1861 until 1963. Over the course of history, it became very successful and was one of the prime producers of silver plating.

3 Emile-Coriolan-Hippolyte Guillemin (1841–1907) was one of the most prolific and successful French Orientalist sculptors, specialising in figurative works, and was inspired by the Middle and Far East. He went to great lengths to ensure the ethnographic accuracy of the costumes and physiognomies of his busts. His representations of Indian falconers, Turkish, Kurdish, and Algerian women, as well as Japanese courtesans firmly established his reputation as one of the foremost Orientalist sculptors from the mid-1870s.

4 The Amateur Photographic Society was formed on 19 July 1872. It was based on a similar society in London. Members were able to exchange negatives and at monthly meetings receive hints and improve their knowledge of the art. The Society had vice-Regal patronage.

(continued)

series of lantern slides of views near Sydney as well as New South Wales. Henry Russell<sup>5</sup> showed 'Photos of the Flood in the River Darling' and Charles Wilkinson<sup>6</sup> showed photos of the interior of the Jenolan Caves. He also provided boomerangs from Bourke, a carapace of a tortoise from Madagascar, a kava bowl from the Solomon Islands and a warrior's club from Santa Cruz. There were photographs of Mount Wilson and Mulgoa lent by Henry Cox<sup>7</sup>.

The optician EF Lichtner showed photographic apparatus and instruments used in photography, a miniature detective camera, a new camera for photographing on continuous rolls of sensitised paper and field developing tent lenses. William Haswell<sup>8</sup> provided a series of specimens illustrating the marine zoology of Port Jackson.

<sup>5</sup> Henry Chamberlain Russell (1836–1907), astronomer and meteorologist was appointed as government astronomer in 1870. Russell was elected a fellow of the Royal Astronomical Society in 1871 and of the Meteorological Society and a member of the Royal Colonial Institute in 1875. In 1886 he was the first graduate of the University of Sydney to be elected a fellow of the Royal Society of Edinburgh. Four times president of the Royal Society of NSW, in 1888 he was the first president of the Australasian Association for the Advancement of Science. He was a founder of technical education in the colony and a vice-president of the Board of Technical Education from 1883. He was a fellow of the Senate of the University of Sydney (1875–1907) and Vice-Chancellor (1891–92).

<sup>6</sup> Charles Smith Wilkinson (1843–1891) was a geologist. He became geological surveyor in charge in New South Wales in 1875 and was president of the Royal Society of New South Wales in 1887. In 1882, Edgeworth David was appointed assistant geological surveyor; Wilkinson delegated much responsibility to him.

<sup>7</sup> George Henry Cox (1824–1901), pastoralist and sheep breeder, was born at Mulgoa. He was a member of the Legislative Council from 1863 until his death. He was an extensive landowner in NSW and Queensland; on all his properties he experimented in the breeding of the Australian merino and did much to develop the fine, dense and elastic qualities for which Mudgee wool is famous. For many years he was a Councillor of the Agricultural Society of New South Wales and President of the Sheepbreeders' Association.

<sup>8</sup> William Aitcheson Haswell FRS (1854–1925) was a Scottish-Australian zoologist specialising in crustaceans and winner of the Society's 1915 Clarke Medal. In 1913, a chair of botany was created at the University of Sydney and he became professor of zoology. Haswell was himself a good and sound teacher; at the time of his death, in four out of the six universities of Australia, the chair of zoology or biology was held by one of his former students. Haswell Place, a residential street in the Canberra suburb of Chifley, is named after him.

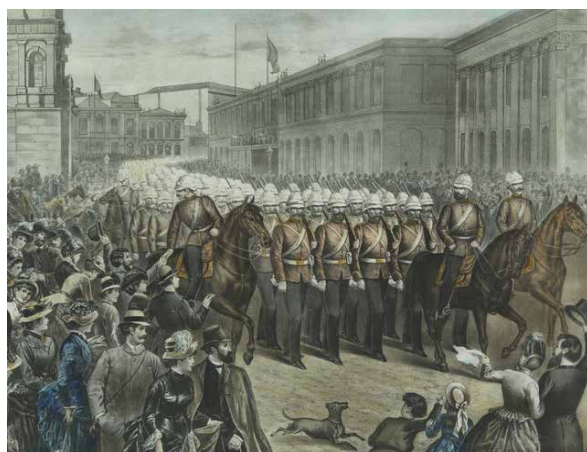
New Zealand was not forgotten. A collection of ash and scoria from a recent volcanic eruption in New Zealand was on display.

The usual suspects were well represented. Archibald Liversidge provided gold from Mount Lyall, Tasmania, gold ore from Fairfield NSW, and a collection of NSW silver minerals. Lawrence Hargrave showed his flying machines as well as the motion of fish, serpents etc. based on the principle of the trochoided plane.



Kingsbury H & Co which provided electric light to the Centenary Hall at Sydney Town Hall, displayed telephones and various electrical apparatus.

Also on show was an oil painting 'Departure of New South Wales Contingent' by HJC Michell<sup>9</sup>.



<sup>9</sup> Henry Joseph Charles Mitchell (1828–1902) was a painter, draughtsman, surveyor and mining engineer who lived and worked in the Maldon area c.1864–67. Mitchell was appointed as the first Shire Secretary for the new Shire of Maldon in 1864. While employed in this position in 1865, he proposed the conversion of the failed market building to a shire hall and offices. The painting depicts the NSW contingent departing for the Sudan in 1885.

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The experiments of Professor Threlfall covered such things as roughly measuring the resistance of insulating substances, showing a galvanometer designed in the Cavendish Laboratory at Cambridge, demonstrating a kathetmeter (sic) a telescope mounted on a graduated scale, used for accurate measurement of small vertical distances. Also listed were 'sundry toys' such as vacuum tubes, a Diamond Leyden jar (an electrical component which stores a

high-voltage electric charge) and a Holtz machine (an electrostatic induction generator that converted mechanical work into electrostatic energy, needing only an initial charge to begin operation).

The 1886 *Conversazione* was one of many held by the Society, and is the inspiration for the forthcoming Bicentennial Dinner in the Great Hall at Sydney University on 24 June.

## Report: Program Committee

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

The first *Ideas@theHouse* for 2022 hosted by Her Excellency the Honourable Margaret Beazley AC QC, Governor of NSW, and the Royal Society of NSW took place on 20 April with a lecture and performance by Richard Tognetti on the topic of '[Nothing](#)'. This involved a small audience and was live streamed to all Fellows and Members. Tognetti spoke of the fascination of silence in music.

The Liversidge lecture for 2020 was delivered by Professor Richard Payne on 4 May at 5:45 PM at the Charles Perkins Auditorium at Sydney University, on the topic '[Drug Discovery Inspired by Natural Products](#)'. The Poggendorff Lecture of 2020 was delivered by Professor Angela Moles at the Royal Botanic Gardens on Wednesday 11 May, on the topic '[Are our Weeds becoming New Native Species](#)'. A select group took a tour of weeds before the lecture. Both

of these events attracted large audiences and were very successful, in the latter case in spite of inclement weather. A third named lecture for 2021, the [Clarke Memorial 2021](#), will take place on 10 June at the University Conservatorium, University of Newcastle, to be delivered by Distinguished Emeritus Laureate Professor John Aitkin.

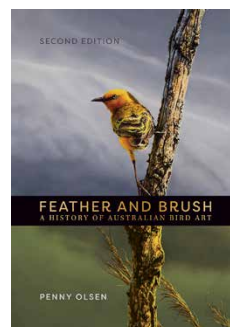
On Wednesday 1 June from 6:00 PM onwards the 1303<sup>rd</sup> OGM will take place at the State Library and will include a lecture by Professor Anne Twomey AO of Sydney University on '[Federalism, Borders, and the National Cabinet — What has the pandemic taught us?](#)'. Registration is via Membes accessible from the event notice on the Society's website.

The event program for the year in [Sydney](#), the [Hunter region](#), the [Southern Highlands](#), and in [Western NSW](#) is available on the Society's website at the preceding links.

## CSIRO publication features artwork by Society Fellow Pamela Griffith

The second edition of Penny Olsen's *Feather and Brush: A History of Australian Bird Art* contains over 400 images from 158 artists. It also includes two contributions from Society Fellow Pamela Griffith FRSN: Australasian Darter *Anhinga novaehollandiae* (oil on canvas, page 230); Australian Magpies *Gymnorhina tibicen* and Silver Gulls *Chroicocephalus novaehollandiae* over Botany Bay (intaglio etching, page 231).

The book is available as a hardback, as well as ePDF and ePUB formats; these can be purchased from CSIRO's online shop: <https://www.publish.csiro.au/book/7993/>



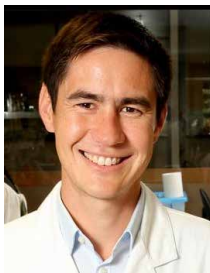


by Anne Wood (Branch Secretary)

### Longer Life and Fertility: the promise of ageing research

Dr Lindsay Wu

*Laboratory for Ageing Research  
in the School of Medical Sciences,  
UNSW Sydney*



Dr Lindsay Wu is a metabolic biochemist who heads the Laboratory for Ageing Research in the School of Medical Science at UNSW. In this wide-ranging lecture, Wu spoke of the ongoing projects in the search for understanding the fundamental mechanisms and interventions that could maintain healthy ageing. He described how these findings are having immediate applications in other conditions, including our understanding of why older people are so much more susceptible to coronavirus infection, the prevention of the long-term adverse effects of chemotherapy treatment, and examination and explanation of the decline of human fertility with age. Wu went on to explain how a recent study in mice is contributing to our understanding of reproductive ageing, with the aim of improving IVF success rates in humans.

Couples today are increasingly delaying parenthood until later in life, largely for reasons of careers and financial goals. The chances of conceiving naturally at 19–25 years of age fall by half at the ages of 30–35. Not surprising then that the demand for IVF is growing at a massive pace across the world. Despite this huge demand for the procedure, its success is far from guaranteed. In Australia and New Zealand, the success rate of each cycle in women under the age of 30 is only 29%, rapidly dropping to only 16.5% between the ages of 35–39, and 5.2% between the ages of 40–44.

The reason behind these low success rates in IVF procedures is that reproductive ageing in female animals is an irreversible process associated with declining oocyte or egg cell quality, which is a rate-limiting factor to fertility. Oocytes in the ovary are laid down *in utero* during development in humans, where they form a finite pool that does not undergo self-renewal. Oocytes are therefore highly susceptible to age-related dysfunction. Oocyte quality is defined as the capacity of the oocyte to support meiotic maturation, fertilisation and subsequent embryonic development. Research has now shown that this loss of oocyte quality accompanies declining levels of the prominent metabolic cofactor nicotinamide adenine dinucleotide (NAD<sup>+</sup>).

Current research work is now exploring treatment in older animals with the NAD<sup>+</sup> metabolic precursor, nicotinamide mononucleotide (NMN). Findings so far have shown the oocyte quality is rejuvenated, leading to restoration in fertility. These benefits of NMN also extend to the developing embryo, where supplementation reverses the adverse effect of maternal age on developmental milestones. These results suggest that late-life restoration of NAD<sup>+</sup> levels may be an opportunity to rescue female reproductive function in mammals.

Lindsay Wu made the suggestion that based on these findings, the next step in this research may be to consider applying these findings to the IVF process in the six-day period when the extracted oocyte has been fertilised and is awaiting implantation into the female. In other words, the developing embryo itself would be treated with NAD<sup>+</sup> before implantation. Success in this field could completely transform the present unsatisfactory situation where IVF treatment is in huge demand, is stressful for the couple, is very expensive, yet still yields unacceptably low favourable outcomes.

## Society Fellows elected as 2022 Fellows of the Australian Academy of Science

The Royal Society of NSW is delighted to learn of the recognition of four of its Fellows as new Fellows of the Australian Academy of Science, elected in May 2022.

They are **Professor Katherine Belov** AO FRSN FAA (Biologist, University of Sydney), **Professor Marcela Bilek** FRSN FAA (Physicist, University of Sydney), **Professor Emma Johnston** AO FRSN FAA FTSE (Marine Biologist, formerly of UNSW Sydney and now the University of Sydney), and **Professor Albert Zomaya** FRSN FAA (Computer Scientist, University of Sydney). As Fellows of the Australian Academy of Science, they are among Australia's most distinguished scientists, elected by their peers for ground-breaking research.

The Academy citation for Professor Kathy Belov states that '[she] is acknowledged for her ground-breaking work using genetics and genomics to trace the evolution of mammalian immunity to overturn the paradigm that marsupials and monotremes have primitive immune systems. She has shown that lineage-specific evolutionary innovations provide marsupials and monotremes with additional defence mechanisms and that these offer exciting drug leads for humans and other animals. After determining the role that the Major Histocompatibility Complex plays in the spread of Tasmanian devil facial tumour disease, Belov led the genetic management of the recovery program to successfully increase the immune fitness of wild populations through genetic rescue. She continues to work with government agencies to boost the immunogenetic resilience of native species threatened by disease'.

The Academy citation for Professor Marcela Bilek notes that '[she] is internationally known for contributions to the science and technology of plasma processes for surface engineering of materials, particularly utilizing energetic ions to control intrinsic stress and microstructure and to create a



versatile new technology platform for the fabrication of advanced bio-interfaces. Her work has enabled new capabilities in a range of settings including magnetic storage devices, solid fuel plasma thrusters, implantable biomedical devices, in-vitro cell culture systems, diagnostics, stem cell and gene therapy, and nanomedicine'.

The Academy citation for Professor Emma Johnston notes that '[she] is a leader in the field of marine ecology, whose pioneering research has been widely adopted into policy by governments in Australia and overseas. She is also a highly influential leader, advocate and 'voice' for Australian science. Johnston is the immediate past President of Science and Technology Australia (STA). She previously led one of the largest science faculties in the country at the University of New South Wales and serves as Director of the Great Barrier Reef Marine Park Authority Board. Combined with her extensive track record of science communication and outreach, Johnston is an exceptional role model and science champion'.



The Academy citation for Professor Albert Zomaya states that '[he] a world-renowned computer scientist who has made significant contributions to the field of parallel and distributed systems. He stands out as a researcher with an exceptionally large and diverse set of high-quality contributions. He has published on aspects of parallel and distributed systems in the top venues of several research communities. His work is influential, of high impact, and of great practical value. Zomaya is also an excellent leader, passionate educator, skilled communicator, and committed mentor'.



The Council of the Royal Society of NSW extends its warmest congratulations to Professor Belov, Professor Bilek, Professor Johnston, and Professor Zomaya on this recognition of their outstanding scientific achievements.

## Society Fellow elected as IUPAC Emeritus Fellow

The Council of the Royal Society of NSW is delighted to learn that **Emeritus Professor Brynn Hibbert AM FRSN**, of UNSW Sydney and a former President of the Society, has just been recognised as an Emeritus Fellow of the International Union of Pure and Applied Chemistry (IUPAC). His appointment reflects his standing as a scientist and his continuing service to the Analytical Chemistry Division of IUPAC.



Brynn Hibbert occupied the Chair of Analytical Chemistry at the University of New South Wales after arriving from England in 1987 until his retirement in 2013. His research interests are in metrology and statistics in chemistry and electrochemistry, but he also has sideline activities in providing expert opinion on matters of drugs (of abuse, and sports), scientific fraud, and presenting science to the public.

Professor Hibbert was recruited to IUPAC in 2001 and became an Associate Member, Titular Member, Secretary, Vice-President and President of the Analytical Chemistry Division, and subsequently the Australian National representative. He is presently Secretary to the Interdivisional Committee on Terminology, Nomenclature and Symbols. He has been associated with 38 IUPAC projects, twelve of which are ongoing. His major long-term project is editing the 4<sup>th</sup> edition of the IUPAC Orange Book (Compendium of Terminology in Analytical Chemistry), which was conceived at the 2009 General Assembly and is about to be sent to the publisher (the Royal Society of Chemistry) in April 2022. Each of the 13 chapters has been published as a Recommendation or Technical Report (or both), and the book itself has been extensively reviewed by the Division and by ICTNS. It is hoped that the nearly 4000 terms will be taken into the new Gold Book expeditiously.

Congratulations Brynn on this recognition of your work and achievements with IUPAC.

## Recent events now on YouTube: May 2022

Most face-to-face events and all online events conducted by the Royal Society of NSW are recorded and made available for subsequent viewing on our YouTube channel, [youtube.com/royalsocnsw](https://youtube.com/royalsocnsw). There were three events, for which recordings are available, held in April and May 2022.

On 6 April, the Society marked its return to face-to-face events at the State Library of NSW after two years of restrictions caused by the COVID-19 pandemic with the 1302<sup>nd</sup> Ordinary General Meeting at which Professor Ben Eggleton FRSN FAA FTSE of the University of Sydney delivered a stimulating talk on '[New frontiers in smart sensor technology for a healthier, safer and sustainable future](#)', with the recording of his talk now [available on YouTube](#).

In May, there were two events. The first of these was the Poggendorff Lecture for 2020, delayed by one year due to the pandemic. Presented jointly by the Society and UNSW Sydney at the Palm House of

the Royal Botanic Garden, Sydney, Professor Angela Moles FRSN from UNSW Sydney delivered a fascinating talk titled '[Are our weeds becoming new native species?](#)', which is now [available on YouTube](#).

Later that month, on 18 May, the Western NSW Branch of the Society presented its second lecture for the year from the Wagga Wagga Campus of Charles Sturt University, which was also live-streamed via Zoom. Dr Colin Pardie FRSN, a biological anthropologist and archaeologist, delivered a most engaging talk on '[Making a living on the plains — Stone tools and archaeology of Aboriginal societies](#)', which is now [available on YouTube](#).

### Recorded Events



[youtube.com/royalsocnsw](https://youtube.com/royalsocnsw)

## List of proposed events for 2022

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

Date	Event
Wednesday, 1 June 6:30 PM AEST	1303 <sup>rd</sup> OGM and Open Lecture Federalism, borders and National Cabinet: What has the pandemic taught us? Professor Anne Twomey AO, University of Sydney
Friday, 10 June 12:00 PM AEST	[Hunter] RSNSW Clarke Memorial Lecture 2021 and Hunter Branch Meeting 2022-2 The changing tide of human populations: an infertility trap Distinguished Emeritus Laureate Professor John Aitken FRSE FRSN FAA FAHMS, University of Newcastle
Tuesday, 21 June 7:00 PM AEST	Joint AIP, RACI, RSNSW, and ANSTO Presentation Big Science of Gen IV Power Reactors Dr Mark Ho, ANSTO
Wednesday, 6 July 6:30 PM AEST	1304 <sup>th</sup> OGM and Open Lecture This is going to be different: Learning to live with Chinese power Emeritus Professor Hugh White AO FASSA, Australian National University
Wednesday, 27 July 6:30 PM AEST	Ideas@theHouse: July 2022 Topic: to be advised Rachel Perkins
Wednesday, 3 August 6:30 PM AEST	1305 <sup>th</sup> OGM and Open Lecture Marsupials: the secrets are all in their genes! Professor Kathy Belov AO FRSN, University of Sydney and Dr Elizabeth Deane FRSN
Wednesday, 7 September 6:30 PM AEST	1306 <sup>th</sup> OGM and Open Lecture Is Fairweather an Australian artist? And does it matter? Claire Roberts, University of Melbourne and Nick Jose, University of Adelaide
Wednesday, 5 October 6:30 PM AEDT	1307 <sup>th</sup> OGM and Open Lecture An interactive discussion on the global economic outlook and Australia's place in the world Dr Don Russell and Ms Jane Drake-Brockman
Thursday, 3 November 9:00 PM AEDT	Royal Society of NSW and Learned Societies Annual Forum Australia at the Crossroads Presenters: to be advised
Wednesday, 7 December 6:30 PM AEDT	1308 <sup>th</sup> OGM and Open Lecture Topic: to be advised Scientia Professor Rose Amal AC FRSN FAA FTSE, UNSW Sydney



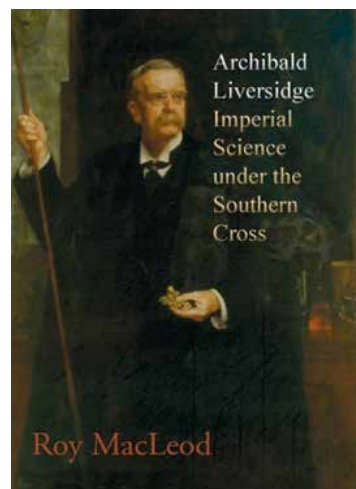
## Archibald Liversidge: Imperial Science under the Southern Cross

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



## Current Council and Office-Bearers

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

Patron	<a href="#">Her Excellency The Honourable Margaret Beazley AC QC, Governor of New South Wales</a>
President	<a href="#">Dr Susan Pond AM FRSN</a>
Vice-President	<a href="#">Ms Judith Wheeldon AM FRSN</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="#">Professor Sean Brawley FRSN</a>
	<a href="#">Dr Jessica Milner Davis FRSN</a>
	<a href="#">Professor Philip Gale FRSN</a>
	<a href="#">Ms Pamela Griffith FRSN</a>
	<a href="#">Dr Davina Jackson 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>
Western NSW Branch Representative	<a href="#">Professor Mark Evans FRSN</a>

Editor: [Jason Antony MRSN](#)

THE VIEWS EXPRESSED IN THIS PUBLICATION DO NOT NECESSARILY REFLECT THOSE OF THE SOCIETY.

