



The Bulletin 422

The Royal Society of New South Wales

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29 June 2018

For Your Diary:

19 July 2018

Southern Highlands Branch Lecture

Dr Ken McCracken

'The Ice Ages- BIG and little'

6.30pm start

Mittagong RSL

23 July 2018

RSNSW & SMSA

Great Australians You Have Never Heard Of

Lecture 2

The Hon Em Prof Peter Baume AC

DistFRSN

6 for 6.30-7.30 pm (see p. 5)

Mitchell Theatre, SMSA, 280 Pitt St



Patron of The Royal Society of NSW

His Excellency General The Honourable
David Hurley AC DSC (Ret'd)
Governor of New South Wales

Open Lecture & OGM

'Can Art Really Make a Difference?'

Wednesday, 4th July 2018

**Associate Professor Joanna
Mendelssohn**

College of Fine Arts

University of New South Wales



See page 3 for more information

Date: Wednesday 4th July 2018

Time: 6:00 pm for 6:30 pm

Venue: Gallery Room, State Library of NSW

(Entrance: Shakespeare Place, Sydney)

Dress: Business

Entry (including a welcome drink): \$15 for Members and Associate Members of the Society, \$25 for Non-Members.

Dinner (including drinks): \$85 for Members and Associate Members, \$95 for Non-Members.

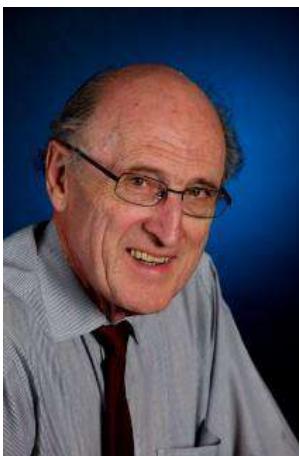
Reservations must be made at least 2 days in advance

Reservations: <https://nsw-royalsoc.currinda.com/register/event/49>

Enquiries: royalsoc@royalsoc.org.au Phone: 9431 8691

All are welcome.

From the President



This month I have had the pleasure of seeing many members of the RSNSW family receive well deserved honours. First, Graeme Jameson FRSN and Michelle Simmons DistFRSN have both been elected as Fellows of the Royal Society of London. The Royal Society of London is one of the world's oldest scientific bodies, and among the most prestigious. Second, Veena Sahajwalla FRSN has just been elected as Fellow of the Australian Academy of Science (FAA). And finally, five of our members have been honoured in the recent Queen's Birthday awards. At the top of the list is Geoffrey Harcourt FRSN, who has been appointed Companion in the Order of Australia (AC), which is the highest level in the Australian honours system now that knighthoods have disappeared. Then in the next category of Officer of the Order of Australia we have Emma Johnston FRSN and David Cook FRSN. And as Members of the Order of Australia (AM) we have Barbara Briggs FRSN and immediate Past President D Brynn Hibbert FRSN. My sincere congratulations go to all of those so honoured. If I have missed anyone do please let me know.

The June OGM was in its own way a special event, it being the first OGM to be held at the State Library of NSW, a manifestation of our developing close relationship with the State Library. A full report of the talk by Dr David Eldroyd on the extraordinary reproductive practices of Cape bees appears later in this Bulletin.

As always, if you have issues that you think should be considered by the Society's Council, please contact me: President@royalsoc.org.au.

Ian H. Sloan AO FRSN
President, Royal Society of New South Wales

Associate Professor Joanna Mendelssohn College of Fine Arts UNSW

'Can Art Really Make a Difference?'



Ai Weiwei, 'Law of the Journey', 2017.

Artists have long tackled global issues, throughout centuries of wars and humanitarian crises. Artists persist in challenging assumed knowledge in their attempts to awaken the conscience of the world. Artists can become witnesses for the prosecution of the crimes of our times, as well as enabling some viewers to see the world differently. Can we really expect it to truly make a difference in the real world? While Picasso's celebrated '*Guernica*' may not have stopped the Spanish Civil War (or any war), art still holds value, as witness and as truth teller.

Joanna Mendelssohn came to an academic career after an extensive curatorial background in art museums and as the award winning art critic of *The Bulletin*. She was for many years the coordinator of the Master of Art Administration, at the College of Fine Arts, UNSW. In 1980 she was a research assistant on the University of Sydney's Dictionary of Australian Artists project. In 2003, after Professor Joan Kerr indicated problems in publishing her new research on Australian illustrators (black and white artists), she suggested that the ideal publishing future for Australian art historical scholarship lay in online publishing. Mendelssohn was instrumental in organising the national collaboration of universities and cultural institutions that ensured the future of Kerr's research in the Dictionary of Australian Artists Online. She has been a CI on each of the successful ARC LIEF grants for this ongoing and expanding project, which has now evolved into Design and Art of Australia Online (<https://www.daao.org.au/>) and is currently Editor in Chief.

She has published several books, e.g., on Sydney Long and the Lindsays, and for the last five years she has been the lead researcher in an ARC Linkage Project in collaboration with the National Gallery of Australia, National Gallery of Victoria, Art Gallery of New South Wales, Art Gallery of South Australia and Museums Australia. The principal results of this research is about to be published by Thames and Hudson as *Australian Art Exhibitions: Opening our eyes*, co-written with her fellow researchers, Catherine De Lorenzo, Alison Inglis and Catherine Speck.

2018 Events

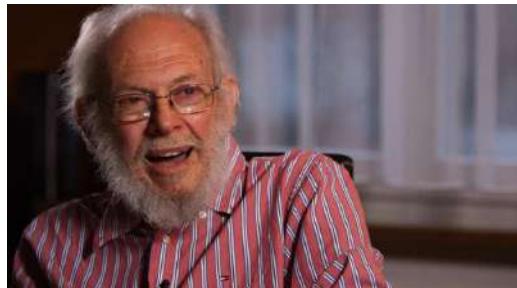
Royal Society – Southern Highlands Branch

Date*	Event	Speaker	Topic	Location**
19-Jul-18	Public Lecture	Dr Ken McCracken	The Ice Ages- BIG and little	Mittagong RSL
16-Aug-18	Public Lecture	Dr Philip Cam	Philosophy in Schools	Mittagong RSL
20-Sep-18	Public Lecture	Prof Bert Roberts	Aboriginal Art from 65,000 years ago	Mittagong RSL
18-Oct-18	Public Lecture	Hugh Mackay	The State of the Nation Starts in Your Street	Mittagong RSL
15-Nov-18	Public Lecture	t.b.a.		Mittagong RSL

*Lectures are the third Thursday of each month.

**1st Floor, Room Joadja/Nattai.

Dr Ken McCracken ‘The Ice Ages- BIG and little’



For many millions of years the Earth has experienced a series of periods of glaciation that reoccur every 100,000 years, each persisting for about 90,000 years. During these periods the northern polar ice sheet extended to about the locations of London and Los Angeles, and the sea level was 100m lower in the rest of the world. In between these ‘ice ages’ (‘glacial epochs’) there have been warmer periods of duration 10,000 to 15,000 years (‘inter-glacials’) similar to the climate the Earth has experienced for the past 10,000 years. The speaker will outline the characteristics of the climate during the glacial periods, and also outline the ‘Milankovitch’ theory that attributes the glacial and interglacial epochs to the wobbles and deviations of the Earth in its orbit around the Sun.

In addition to these ‘big ice ages’ there have been twenty six ‘little ice ages’ during the 10,000 year interglacial era we live in. Each has persisted for 40-150 years. The best known are the ‘Spoerer’ and ‘Maunder’ little ice ages of 1428-1540 and 1645-1715, respectively, and they caused much starvation and death in Europe. Our present understanding is that these ‘little ice ages’ are the consequence of small variations in the amount of heat radiated by the Sun, each corresponding to a period when there were very few sunspots. Right now, the sun is not making many sunspots, and we are in a very weak ‘little ice age’. As in any active area of research, not everyone agrees with much of this. In conclusion the speaker will outline two theories that he has contributed to, that attribute the ‘little ice ages’ to the relative positions of the planets in their orbits around the Sun. If either theory is correct, we will be able to predict the occurrence of ‘little ice ages’ far into the future.

Anne Wood FRSN

Great Australians You Have Never Heard Of

Lecture 2

The Hon Em Prof Peter Baume AC DistFRSN



Background Image:
*Swanson Street,
Melbourne, circa 1944.*
*Shirley Jones collection
of Victorian postcards,
Rose series; P. 3276;*
from the State Library
of Victoria

Join The Hon. Peter Baume to learn the identity of another remarkable Australian who has helped create the extraordinary society we live in. This eminent man was born in Ballarat, and then grew up in South Australia. During WWII, he helped Australia to win the War in the Pacific. After the war, when there was public concern about myxomatosis, he and two other scientists injected themselves with myxoma virus to prove that it did not affect humans.

He also chaired the group that eliminated an infectious disease from the world – the first and only time this has been done. In recognition of this he received many international awards, and much international recognition. As an old man he was a beloved figure in academe, and is still held in high regard by those in his field.

The Honourable Emeritus Professor Peter Baume AC is a Distinguished Fellow of the Royal Society of New South Wales. He is a physician who holds a doctorate, two honorary doctorates, and several fellowships and is a Companion in the Order of Australia. He was Professor of Community Medicine and Head of School, University of New South Wales, from 1991-2000. He was a Senator for New South Wales between 1974 and 1991; was successively Government Whip, Minister for Aboriginal Affairs, Minister Assisting the Minister for National Development and Energy, Minister for Health, Minister for Education, and a Minister in Cabinet. He was Chancellor of the Australian National University from 1994-2006, and chaired various agencies and committees. He has published extensively, reviews for a number of journals and has received a number of competitive grants.

Date: Monday 23 July 2018, 6pm for 6.30 to 7.30pm. Light refreshments will be served.

Cost: \$15 members of RSNSW and SMSA, \$20 non-members and guests

Location: Mitchell Theatre, Level 1, Sydney Mechanics School of Arts, 280 Pitt St, Sydney (near Town Hall Station)

Registration: <https://smsa.org.au/events/event/great-australians-youve-never-heard-of-2/>

Report of the 1263rd OGM

Wednesday 6th June 2018

Professor Ben Oldroyd

School of Life and Environmental Sciences, University of Sydney

'No Sex Please: We're Cape Bees'



Prof Ben Oldroyd delivering his address in our new venue of the State Library

Professor Ben Oldroyd described the genetics and evolution of a remarkable honey bee subspecies from South Africa, *Apis mellifera capensis*. Capensis is unique because when an unmated worker lays an egg it develops as a female – a clone of the worker. In their experiments scientists sampled swarm and emergency cells, analysing their DNA to find who are the mothers of the new queen. They found that parasitising of queen cells happens and most of the parasitising workers from other colonies kill the queen and take over.

The Capensis calamity began in the 1990s in South Africa. In the nests of *Apis mellifera scutellata*, Capensis become social parasites: essentially black bees took over from yellow host bees, killing the host colony and resulting in some 100,000 infested colonies having to be burnt. For their investigation, they sampled 1-10 workers from each of 50 infested colonies and used DNA fingerprinting. Identifying 79 DNA fingerprints they detected a clone in 39 of the 50 colonies. This means that billions of workers descended from just one worker in the 1990s. They found that thelytoky, a parthenogenesis in which females are produced from unfertilised eggs, occurs and allows workers to be reincarnated into the queen. Multiple factors must fall into place for thelytoky to emerge as an effective reproductive strategy. In order to investigate if the clone is becoming more inbred with each generation they used genome sequencing. They also found that Capensis males are able to change the gene transcription in their sperm using DNA methylation to enhance their daughters. He concluded that thelytoky predisposes social cancers and social parasites and there is only one clone centre, retaining low levels of inbreeding. When asked, Ben stated that cape bees are very aggressive: bee keepers have to live with these parasitic bees, but their own bees will not die out because of this.

Report of the 21st June 2018 Meeting Royal Society Southern Highlands Branch

**Associate Professor David Soggett
Climate Change Cluster (C3), University of Technology, Sydney**

'Coral Bleaching: The Delicate Interface between Corals and Their Algal Symbionts Driving Future Coral Survival'



In the past few decades, coral reef ecosystems across the world have suffered unprecedented degradation which has been attributed primarily to natural and anthropogenic factors. These include climate driven warming and acidification of the oceans as well as localized pollution, all of which result in bleaching of the reef-building corals. Mass coral bleaching has led to major losses of reef worldwide in the last decade, including the Great Barrier Reef during the 2016-17 heatwave.

Coral bleaching is a generic term used to describe loss of pigmentation from corals. Typically this reflects the rapid loss of colour and/or cells of the corals' algal endosymbionts (zooxanthellae), the tiny plant-like organisms living in the coral. These microscopic algae capture sunlight and provide essential nutrients to the coral. Much of this lecture was focused on the factors causing these zooxanthellae to succumb to stresses, leaving the coral in a bleached condition.

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Dr David Suggett is a core member of the Climate Change Cluster (C3) at UTS where his research team focuses on improving primary productivity estimates using advanced active fluorometry approaches. The outcome of this research will provide more accurate information on the health of Australian coastal waters. This information in turn will be used to improve Global Climate Models. Suggett is also the leader for the C3 Future Reefs research program, investigating how the environment shapes coral functioning and development. In this program, novel technological solutions are being applied to the monitoring and management of healthy reef corals. Of major importance is the team's innovative approaches to enhancing reef resilience to climate change.



Research in the C3 Lab, UTS

An amazing example of coral resilience has been found in the Gulf of Aqaba, west of the Arabian mainland. Specimens of the coral there have been placed into tanks where they are exposed to rising temperatures and sub-optimal pH levels. Scientists reported that most of the variables measured, such as energy metabolism or the building of a skeleton were actually improved. One explanation for these surprising results where such corals are observed in the stress tests to be not only surviving, but thriving, is that coral in the Gulf of Aqaba is highly evolved due to historical extreme changes in the climate of the region. The ramifications of such discoveries may be significant. Associate Professor David Suggett suggests that events such as these teach us that corals are surviving in waters that are really hot, very acidic and have very little oxygen. He reminded his 40 person audience that these are the same conditions that have been predicted under climate change.

David Suggett currently leads expeditions to the Great Barrier Reef in the hope of discovering similarly resilient forms of coral in Australian waters. The ability to re-seed part of the dying reef with more resistant coral is so far untested, but it opens the door to more optimistic views on coral reefs of the future. What a contrast that would be to the numerous press reports of 2016 concerning Australian corals, where 99% of the reports were negative.

Anne Wood FRSN

The Royal Society of NSW Supports the Uluru Statement from the Heart

The Society made a submission to the Parliament of Australia's Joint Select Committee on Constitutional Recognition Relating to Aboriginal and Torres Strait Islander Peoples with regards to the Uluru Statement from the Heart:

The Royal Society of NSW supports the Uluru Statement from 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 of the indigenous culture, knowledge and voice from which we can all learn, both for now and for our sustainable future.

New Fellows and Members

At the June OGM fellowships were awarded to Em Prof Diane Austin-Broos, Prof Richard Kingsford, the Hon Michael Kirby, Sir Anthony Mason, Prof Ben Oldroyd and Prof George Willis, as well as welcoming new Member, Ian Bryce. Congratulations to all!

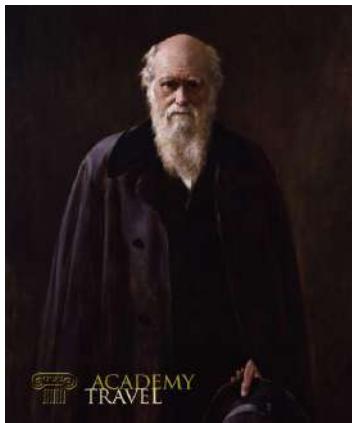


Anthropologist Professor Emeritus Diane Austin-Broos of the University of Sydney receives her certificate of fellowship from RSNSW Vice-President Judith Wheeldon AM FRSN

The History of Science: Padua – Florence – Paris – London

A tour for the Royal Society of NSW in conjunction with the State Library of NSW Foundation

19 September – 4 October 2019



Overview

Explore the history of science from Vesalius in Padua, to Galileo in Florence and the flourishing of modern science in Paris and London. This 16-day private tour for the Royal Society of NSW in conjunction with The State Library of NSW Foundation includes guided visits to many exceptional museums, rare access to collections, libraries and archival material, and the expert guidance of specialists and curators. It follows the great story of modern science, taking you from Padua, to Florence, Paris and London and includes day trips to Bologna, Siena and Cambridge. A four-night pre-tour extension to Venice is also available.

Discover

- The birth of modern science, from Galileo's telescopes to Darwin's theory of evolution
- The history of medicine: Vesalius in Padua, Pasteur in Paris and the medical collections of London
- The transmission of knowledge, from rare books and manuscripts to the modern museum
- The history of the university at Padua, Bologna, Paris and Cambridge
- Interaction between the arts and sciences in moments of great change from the Renaissance to the modern world.

Tour Details

Dates: 19 September – 4 October 2019

Price: \$9,270 pp. twin share; \$2,280 single supplement

For more information and to register your interest contact: Academy Travel, 9235 0023
info@academytravel.com.au.

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The History of Science (contin.)

Tour Highlights

- Padua: the world's first anatomy theatre, the oldest botanic garden and Giotto's Scrovegni Chapel
- Special access to library collections in Florence, Paris and London
- Private tour of the Pompidou Centre, Paris' modern art museum
- Day trips to Siena, Bologna, Cambridge and Greenwich
- Specialist museums dedicated to Pasteur, Curie, Galileo & Darwin
- London science: from the manuscripts of the Wellcome Library to the National Science Museum.

Itinerary



Days 1–3: Arrive Padua; visit the world's oldest anatomy theatre and oldest botanic garden, visit Scrovegni Chapel, Giotto's masterpiece; day trip to Bologna.

Days 4–6: Explore Florence, including the Galileo Museum, Uffizi, and special access to rare collections; day trip to Siena and the wonderful cuisine of Chianti.

Days 7–10: Discover a different side of Paris, from special museums dedicated to Pasteur and Curie to a private tour of the Pompidou Centre.

Days 11–15: Arrive London. Enjoy visits to Down House, the home of Charles Darwin, the National Observatory and prime meridian at Greenwich, and a range of museums from the Museum of Natural History, to the private collection of the Royal College of Physicians; day trip to Cambridge.

Day 16: Departure.

Tour Leader

Emeritus Prof Robert Clancy AM FRSN has a distinguished career in medical research and has published books on the early mapping of Australia. He has led many similar successful expeditions. Expert guides will meet the group in each destination.

Maximum Group Size: 20

Schedule of RSNSW Events 2018

Date	Event	Speakers	Topics and Presentations	Location
4-Jul-18	Ordinary General Meeting	A/Prof Joanna Mendelssohn	Can Art Really Make a Difference?	State Library of NSW
23-Jul-18	Great Australians Lecture 2	Hon Em Prof Peter Baume	Great Australians You Have Never Heard Of	SMSA
1-Aug-18	Poggendorff Lecture	Prof Brent Kaiser	tba	
8-Aug-18	Ordinary General Meeting	Prof Muireann Irish	The Final Frontier - on the Complexity and Frailty of Human Memory	State Library of NSW
13-17 Aug-2018	National Science Week		RSNSW & SMSA ScienceTalks (https://royalsoc.org.au/news-events/2018-events-programme)	SMSA
5-Sep-18	Ordinary General Meeting	Prof Richard Kemp	Eyewitness Evidence	State Library of NSW
6-Sep-18	Great Australians Lecture 3	Em Prof Brynn Hibbert	Great Australians You Have Never Heard Of	SMSA
3-Oct-18	Ordinary General Meeting	Prof Gordon Wallace	3D Printing of Body Parts	State Library of NSW
7-Nov-18	Ordinary General Meeting	A/Prof Tara Murphy	Gravitational Waves	State Library of NSW
12-Nov-18	Great Australians Lecture 4	Prof Alison Bashford	Great Australians You Have Never Heard Of	SMSA
29-Nov-18	RSNSW & Four Learned Academies Forum	TBA	Towards a prosperous yet sustainable Australia. What now for the Lucky Country?	NSW Government House
5-Dec-18	Ordinary General Meeting	Jak Kelly Award Winner	2018 Jak Kelly Award Presentation & Christmas Party	State Library of NSW

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