



The Bulletin 435

The Royal Society of New South Wales

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4 September 2019

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FRSN

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Patron of The Royal Society of NSW

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

1276th OGM & Open Lecture

‘Physicians as Public Intellectuals:

Indonesian Physicians in the Dutch East Indies’

Wednesday, 4th September 2019

Professor Hans Pols FRSN

Head, School of History and Philosophy of
Science, University of Sydney



See page 3 for more information

Date: Wednesday 4th September 2019

Time: 6:00 pm for 6:30 pm

Venue: Gallery Room, State Library of NSW
(Entrance: Shakespeare Place, Sydney)

Dress: Business

Entry: \$15 for Members, Fellows and Associate Members of the
Society, \$5 for full-time Students, \$25 for Non-Members
(including a welcome drink)

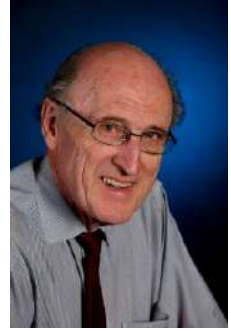
Dinner (including drinks): \$100 for Members and Associate Members,
\$120 for Non-Members, \$75 for students.

Reservations: <https://nsw-royalsoc.currinda.com/register/event/61>

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

All are welcome.

From the President



I have been reflecting today about the extraordinary series that constitutes the Journal of the Royal Society of New South Wales: it is certainly historic, yes, as it traces back nearly two hundred years to 1822, but nevertheless it is wonderfully modern, in that it is all available at the click of a mouse: just go to the RSN website at royalsoc.org.au, and look for Publications and then the Journal.

The most recent issue of the Journal (look for ‘Current Issue’, or by date look for June 2019) contains most of the papers from last November’s very successful ‘Forum’ of the RSN and the Four Academies, ‘Towards a Prosperous yet Sustainable Australia -- What Now for the Lucky Country?’, at Government House, Sydney. I think a popular favourite among the articles from the Forum will be Hugh Mackay’s elegant talk on ‘Why social cohesion is our greatest challenge’.

The current issue also contains a paper by one of our own highly distinguished historians, Ann Moyal AM FRSN FAHA, together with Editor Bob Marks FRSN, on the reception that Charles Darwin’s *On the Origin of Species* received from Australian scientists when it arrived in Australia in the mid-nineteenth century (it met plenty of polite resistance). (I am sorry to have to say that Ann Moyal died recently. She will be greatly missed.)

The earliest material in the archive, from 1822, consists of papers presented at early meetings of the Philosophical Society of Australia, and reprinted in a later edited book. I was attracted to the paper of Carl Rumker, who was the first in Australia’s long line of important contributors to Astronomy, with his observation – made at Thomas Brisbane’s observatory in Parramatta – of the return of Encke’s comet. His article, ‘On the Astronomy of the Southern Hemisphere’ begins with an apology that in Astronomy ‘the most essential points are expressed in algebraical formulæ, which to non-mathematicians are less intelligible than hieroglyphics’. As a mathematician, I can relate to his difficulty! (But worry not - his article contains no algebraic formulae.)

The archive of the Journal recovers a vast amount of material presented at meetings of the Society under its varying names. Some of the material appeared in the *Sydney Morning Herald* and other surprising publications. Later papers, from 1862, appeared in the *Transactions of the Royal Society of New South Wales*. But we are surely entitled to claim them all as part of the Journal of the Royal Society of New South Wales.

Much of the credit for this splendid resource goes to the successive Editors, and we are particularly indebted to the present Editor, Professor Robert Marks.

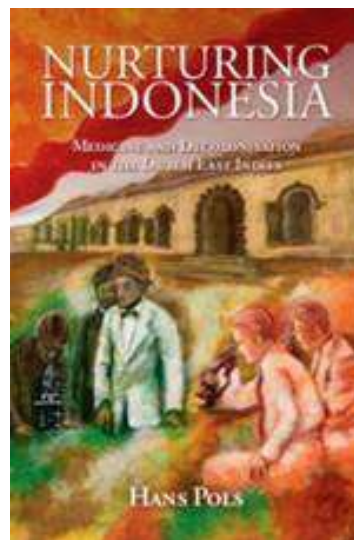
I encourage you to explore the splendid Journal and its archive.

Ian H. Sloan AO FAA FRSN
President
Royal Society of New South Wales
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Professor Hans Pols FRSN
Head of School
School of History and Philosophy of Science
University of Sydney

**‘Physicians as Public Intellectuals: Indonesian
Physicians in the Dutch East Indies’**

Through their studies, their medical practice, and their participation in the Association of Indonesian Physicians, doctors in the Dutch East Indies developed and articulated a strong professional identity. The promises of modern medicine were important elements of this identity and motivated them to develop critical perspectives on colonial society. They participated in social and cultural movements, and became members of city councils and the colonial parliament, wrote in newspapers frequently, and published magazines. In this paper, Professor Pols discusses the social and political engagement of several generations of Indonesian physicians. At various times, they criticised traditional culture, advocated public health measures and increases in funding for health, censured income disparities between Indonesian and European physicians, found fault with traditional culture, or embraced it as a model for an alternate modernity for Indonesia. During the process of decolonisation, they transformed colonial medicine into a modern approach to maintain health, inspired by examples and connections all over the world.



Hans Pols FRNS is Professor and Head of School of the School of History and Philosophy of Science at the University of Sydney. His research focuses on the history of medicine in the Dutch East Indies. This presentation is based on his book *Nurturing Indonesia: Medicine and Decolonisation in the Dutch East Indies*, published by Cambridge University Press in 2018.

2019 Events

Royal Society – Southern Highlands Branch

Date*	Event	Speaker	Topic	Location**
19-Sep-19	Public Lecture	Dr Rebecca Carey	The 2018 Eruption of Kilauea's East Rift Zone	Mittagong RSL
17-Oct-19	Public Lecture	Prof Toby Walsh	2062 - The World that Artificial Intelligence Made	Mittagong RSL
21-Nov-19	Public Lecture	Prof Geordie Williamson	t.b.a.	Mittagong RSL

*Lectures are normally the third Thursday of each month.

** **Note this month's location:** Carrington Room, Mittagong RSL

Dr Rebecca Carey

Senior Lecturer in Earth Sciences, University of Tasmania

'The 2018 Eruption of Kilauea's East Rift Zone'



The 2018 eruption of Kilauea volcano on the Big Island of Hawaii was spectacular, a fascination for the public and scientists alike. A scientific baseline of Kilauea's volcanic activity since the formation of the Hawaiian Volcano Observatory in 1912 allowed observatory scientists to accurately decipher processes of magma supply and movement in the weeks before the 2018 eruption. Ultimately the observatory team were able to predict when and where this eruption eventually took place. Unfortunately, that location was in a popular residential estate and uphill of Big Island's 'Vacation Land' estates, where multi-million dollar houses were located.

This presentation will start with geological and social scene-setting of the affected area, followed by a multidisciplinary story of how the eruption unfolded, and finally a summary of the social, economic and environmental impacts of this eruption.

Dr Rebecca Carey is a Senior Lecturer and former Australian Research Council DECRA fellow in the School of Natural Sciences in the College of Sciences and Engineering, University of Tasmania. She is a volcanologist with expertise in the volcanology of the modern seafloor and terrestrial settings, which has proven invaluable for knowledge and understanding of ancient volcano-sedimentary successions. She is currently the Editor of *Geophysical Research Letters*.

Sydney Mechanics' School of Arts History Week 2019 Lecture Wednesday 4th September 2019

Margaret Cameron-Ash Hon FRSN 'Lying for the Admiralty'

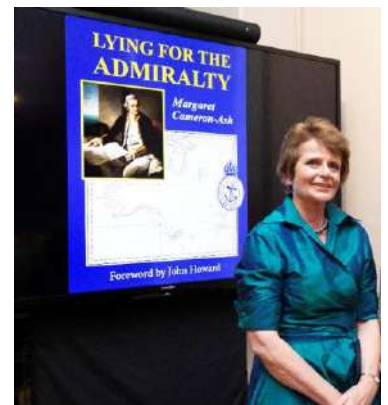


After observing the transit of Venus in Tahiti, the *Endeavour* sails on through uncharted waters, racked by tension between Joseph Banks, who believes that a Southern Continent lies between South America and New Zealand, and Cook, who does not. Cook makes important discoveries in New Zealand and Australia, survives disaster on the Great Barrier Reef, and nurses his damaged ship to Batavia.

Throughout the voyage, obeying secret orders, Cook hides all his strategic discoveries. With a detective's instinct, the forensic skill of a lawyer, and an eye for engaging detail, Cameron-Ash re-examines Cook's original journals and charts with all their erasures, additions, omissions and fabrications.

Richly illustrated with maps, portraits, ships and landscapes, *Lying for the Admiralty* is a cartographical thriller that reveals Cook in a fresh light.

Margaret Cameron-Ash Hon FRSN is a lawyer, a former visiting fellow at the University of New South Wales and the author of *Supreme and District Courts Practice* (1982, Law Book Co). After working and lecturing as a lawyer in Sydney and London, she widened her area of research to include early Australian history, with a special interest in cartography. She has published numerous papers about Captain Cook. Her most recent publication is *Lying for the Admiralty: Captain Cook's Endeavour Voyage* (2018, Rosenberg Publishing).



Date: Wednesday 4 September 2019

Time: 12.30-1.30 pm

Location: Mitchell Theatre, Sydney Mechanics' School of Arts, 280 Pitt St, Sydney

Entry: Free. No bookings required

Sci-Fi Series – Future Planet

With a panel of leading experts including the recipient of the RSNSW Clarke Medal

Thursday 19th September 2019

With each year bringing substantial new feats in scientific exploration and discovery, this series provides fascinating insights into how Science Fiction is fast becoming reality. Held at the Australian National Maritime Museum this event explore how ground-breaking research is providing scientific insights that empower humans to protect our planet. As the world changes, scientists are using new technology, data science and experiments to understand, predict and reduce catastrophic impacts on future environments. The panel of leading UNSW experts will present their work across reefs, weather and technology. Attendees will have the chance to participate in a Q&A session after the talks and a networking reception with refreshments will follow.

Date: Thursday 19 September 2019

Time: 6-8 pm

Venue: Australian National Maritime Museum (Tasman Light Gallery and Theatre)
2 Murray Street, Darling Harbour, Sydney

RSVP: Complimentary. Registrations are essential.

To Register: <https://royalsoc.org.au/events-news/coming-events>



Professor Emma Johnston
AO FRSN

Dean of Science, UNSW, &
RSNSW Clarke Medal

Recipient

*'The Flying Eyes: How
Ecologists are using New
Technology to See Hidden
Worlds'*

Professor Andy Pitman

Director, ARC Centre of
Excellence for Climate
Extremes, UNSW

*'The Day after Tomorrow:
What does Climate Change
Mean for Us?'*

**Associate Professor Tracy
Ainsworth**

Scientia Fellow, Centre for
Marine Science & Innovation
(CMSI), UNSW

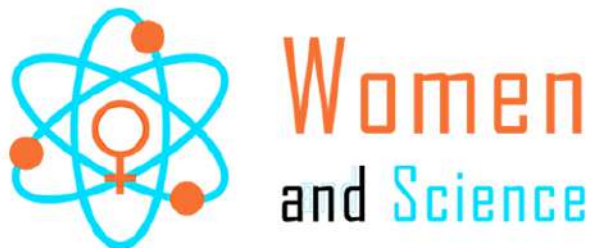
*'Deep Blue Sea: Solving the
Coral Reefs Crisis'*

Royal Society of New South Wales & Sydney Mechanics' School of Arts

Women and Science: Lecture 5

Anne Harbers

Electricity, Astronomy and Natural History: From Colonial Sydney to Royal Sweden, and a Ladies Academy of Science in Between



What did Fanny Macleay in colonial Sydney in 1826 have in common with the Dutch Golden Age painter Rachel Ruysch (1634-1750) and even the royal Queen Lovisa Ulrika of Sweden (1720–1782)? Fanny would have been welcomed to The First Women's Academy of Science – The Ladies Society of Natural Sciences in Middleburg, Holland, that met for over 100 years.

Each of these women played a role within their families and societies but also had a drive for seeking scientific knowledge through their own sense of enquiry. In this talk, the links and evidence will be examined to learn of the depth and energy these women gave to their scientific learning in parallel with the other achievements in their lives.

An experienced presenter and writer in Art History, **Anne Harbers** is currently working towards a PhD in Dutch 17th century art. Anne lectures regularly to museums, antique study groups and art history conferences in the USA and Europe as well as the Art Gallery of NSW and the National Trust. For 25 years, Anne worked in global companies in biotechnology and medical research in Australia, Asia and Europe with postgraduate qualifications in Art History, Chemistry and an MBA.



Date: Monday, 23 September 2019

Time: 6 pm (for registration and light refreshments), talk 6.30 to 7.30pm

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

Location: Sydney Mechanics' School of Arts, 280 Pitt St, Sydney

Registration: <https://smsa.org.au/events/event/anne-harbers-electricity-astronomy-and-natural-history/>

Report of the 1275th OGM
Wednesday 7th August 2019
Professor Peter Shergold AC FRSN
Chancellor
Western Sydney University

**‘Democracy under Challenge:
How can We Restore a Sense of Citizenship?’**

As in many liberal democracies, there is an increasing sense of concern in Australia that representative government is starting to erode from within – trust in political institutions is declining (especially amongst the young), consensus is fragmenting, populist responses are on the rise and ‘technocratic’ expertise and professional authority are increasingly decried. The public discourse that helps bind a civil society seems to be becoming ever less civil. Authoritarian leadership is more evident.

The lecture suggested how a sense of democratic purpose might be restored though public services engaging their ‘publics’ in decision-making in more substantive ways. It revealed how the speaker sought to walk his talk, by reflecting on his three decades as a ‘mandarin’ but focussing on his present role as Coordinator General of Refugee Resettlement in NSW.



Professor Shergold AC FRSN presenting, and later receiving his medal from Vice-President Judith Wheeldon AM FRSN after the talk

Report of 15 August 2019
Royal Society, Southern Highlands Branch

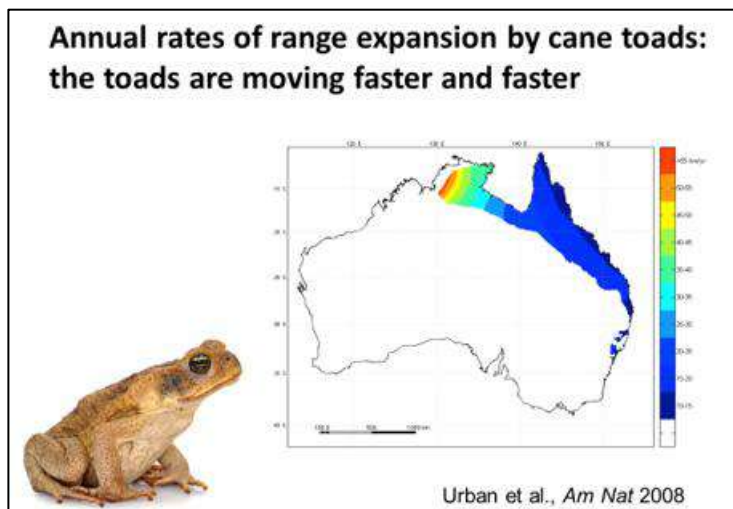
Professor Rick Shine AM FAA FRZS

Professor of Biology
Macquarie University

**‘A Gigantic Frog in a Strange Land:
The Saga of the Cane Toad in Australia’**

It was only when invasive cane toads arrived at his research site in tropical Australia in 2005 that Professor Rick Shine widened his previous research focus on the snakes of that area. The work of his team has since made the cane toad an iconic symbol of biological invasions, with numerous studies into what can be done to buffer the impact of this invasive species. In this outstanding lecture, Rick addressed many issues, including how cane toads are adapting to Australia, and how the Australian wildlife in turn is adapting to this alien amphibian. As well as documenting the toad’s ecological impacts, Rick and his team have discovered ways to control toad numbers, and to help the native fauna coexist with these toxic invaders.

Cane toads were brought to Australia in 1935 to control insect pests in sugar cane. Today they already cover much of Australia and are spreading further. Many Australian predators eat frogs, and some of them, especially the larger types, try to eat toads also. These predators are killed by the toad’s poisons, as Australia has no native toad species. But impacts are much smaller for many other native species. Some just ignore toads and instead eat animals such as rats or wallabies, some can eat toads with impunity because they are not affected by the toads’ poison, while other predators quickly learn to recognize toads and stop eating them because the toads make them feel ill. The mortality of large frog-eating predators has cascading effects through the local fauna assemblage. Because large predators are killed, many smaller species have received an indirect benefit from the toads’ arrival.



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The research is addressing conservation challenges from an evolutionary perspective, too, where the surprising finding has been made that toads have caused rapid evolution in their Australian victims. One outstanding example is the red-bellied blacksnake *Pseudechis porphyriacus*. It has been found that these creatures from toad-infested areas refuse to eat toads, tolerate the toads' poisons and have evolved very rapidly to have smaller heads, an adaptation which makes the consumption of large cane toads very difficult or even impossible.



The cane toads, too, have undergone remarkable evolutionary changes in Australia, in the relatively short time of just 80 years. It has been found by the team that the annual rates of range expansion of the toads show that toads are moving faster and faster. The team now describe two clearly different types of toad: 'range-core' toads which tend to settle in a limited locality, and 'invasion-front' toads where evolutionary changes enable them to travel very rapidly. The latter are better at climbing, and move by scurrying, not moving with giant leaps as the range-core toads do. Invasion-front toads are slender, with small heads and large forelimbs. There are many differences in traits observed in the two types of toad apart from the ways in which they move and their body shapes. Their physiology is also different, and studies into their 'personalities' demonstrate clearly different types.



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Rick and his team are now using the research platform they have built to describe and identify cane toad behaviour to explore the major issue of toad control. Because of the toad's amazingly high rate of reproduction, the team have proposed that in order to reduce toad numbers, methods must be found to stop the toads from breeding. They know that cane toad tadpoles are cannibals, and rapidly locate and consume toad eggs which they locate by zeroing in on toad toxins. Toxin-baited traps have been found to be very effective in the field. In some locations, community groups are now using the team's trapping methods with great success.

Professor Rick Shine closed this wonderful lecture with some encouraging remarks that many of the 70 persons present had not expected to hear when they decided to attend the lecture. He stated that cane toads have had devastating but mostly short-term effects in Australia and expressed his confidence that new research will continue to discover ways to control toads and to buffer native species against toad invasion.

Anne Wood FRSN

Latest Issue of the Royal Society of NSW Journal

The June issue of the Journal & Proceedings is now on-line:

<https://www.royalsoc.org.au/blog/new-issue-of-the-rsnsw-journal>

The printed version will be mailed out in early September, after some production delays. The issue is mainly devoted to the papers that ensued from last November's Four Academies Forum, on the topic, 'Towards a Prosperous yet Sustainable Australia—What Now for the Lucky Country?' referring to the ironic title of Donald Horne's 1964 study. There are twelve papers, as well as the Governor's introduction and Ann Williamson's summing up of the Forum, 119 pages of wisdom and contention.

The issue also contains six PhD abstracts from young academics, an obituary by Don Hector on the late Noel Hush DistFRSN (1924-2019), and an editorial on paradigm shifts.

Further, there is the final paper by celebrated historian and prolific figure at the Australian National University Dr Ann Moyal AM FRSN FAHA, who died on July 19, aged 93, on the Colonial reactions to Darwin's *On the Origin of Species*. An important independent historian, Ann pursued the history of Australian science through her numerous books and articles, and was awarded an AM in 1993 for her 'contribution to the history of Australian science and technology especially the writing of its history'. She was the first professional historian of Australian science and technology, publishing many books, including *A Bright and Savage Land: Scientists in Colonial Australia* (1986) and *Platypus: The Extraordinary Story of How a Curious Creature Baffled the World* (2001, 2010).



Schedule of RSNSW Events 2019

Date	Event	Speakers	Topics and Presentations	Location
4-Sep-19	Ordinary General Meeting	Prof Hans Pols	Physicians as Public Intellectuals: Indonesian Physicians in the Dutch East Indies	State Library of NSW
19-Sep-19	Clarke Lecture (part of Sci-Fi Series)	Prof Emma Johnston AO FRSN	The Flying Eyes: How Ecologists are using New Technology to See Hidden Worlds	Australian National Maritime Museum
23-Sept-19	Women and Science	Anne Harbers	Electricity, Astronomy and Natural History	SMSA
2-Oct-19	Ordinary General Meeting	Prof Peter Godfrey-Smith	Other Minds	State Library of NSW
17-Oct-19	Women and Science	Dr Susan Pond AM FRSN	Women at the Frontiers of Biotech	SMSA
6-Nov-19	Ordinary General Meeting	Professor Herbert Huppert	The Beginning of Weather Forecasting	State Library of NSW
7-Nov-19	RSNSW & Four Learned Academies Forum	tba	Making Space for Australia	NSW Government House
21-Nov-19	Women and Science	Em Prof Anne Green	An Accidental Radio Astronomer	SMSA
4-Dec-19	Ordinary General Meeting	Jak Kelly Award Winner	2019 Jak Kelly Award Presentation & Christmas Party	State Library of NSW

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