



The Bulletin 414

The Royal Society of New South Wales

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27 September 2017

For Your Diary:

**Southern Highlands Branch
Public Lectures**

**Prof Peter Schofield
Alzheimer's Disease**

Thursday, 28 September 2017, 6:30 pm

**Prof Dean Rickles
Quantum Gravity**

Thursday, 19 October 2017, 6:30 pm

Performing Arts Centre
Chevalier College, Bowral

Open Lecture & OGM

**Pamela Griffith FRSN
"Women in Art"**

Wednesday, 1 November 2017, 6 pm for
6:30 pm, Union, University and Schools
Club, 25 Bent Street, Sydney

Joint Event

**Em Prof Robert Clancy
"The Freedom to Use Your Own
Intelligence"**

Monday, 6 November 2017
Mitchell Theatre, Sydney Mechanics School of
Arts, 280 Pitt St, Sydney, 6:00 for 6:30



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

Wednesday, 4 October 2017

Professor Pip Pattison "The Science of Social Networks"



Professor Phillipa Pattison AO FASSA FRSN has been Deputy Vice Chancellor (Education) at the University of Sydney since 2014. For more details about Prof. Patterson and her talk, see p. 6

Date: Wednesday, 4 October 2017; 6:00 pm for 6:30 pm

Venue: Union, University and Schools Club, 25 Bent Street, Sydney

Entry: \$10 for Members and Associate Members of the Society,
\$20 for Non-Members, which includes a welcome drink.

Dress: Business

Dinner (including drinks): \$80 for Members and Associate Members,
\$90 for Non-Members.

Reservations must be made at least 2 days in advance

Reservations: <https://nsw-royalsoc.currinda.com/register/event/37>

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

All are welcome.

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From the President

Having recovered from a busy three weeks in which I attended nine (including giving one) lectures on behalf of the RSNSW, I reflect on what a vibrant organisation the RSNSW has become.

In my last month's column I described the Science Festival talks and spruiked the Poggenorff lecture. This was our first foray into the Sydney Mechanics' School of Arts (SMSA) (more later and elsewhere in the Bulletin), where our new Fellow Andrew Robson FRSN gave a fascinating lecture on how remote sensing (satellites and drones) give heaps of useful information on crops. Lots of questions and possible future collaborations followed.

The following week the first of the joint SMSA/RSNSW series of lectures on the Enlightenment was given by Susannah Fullerton FRSN. Always a delight to listen to, Susannah put the man in his time. Although we are descended from the Royal Society of Edinburgh, I was happy to take the nod when hearing that Pepys served as President of the Royal Society of London. Fact of the evening was that Pepys is credited with inventing the bookcase. For the second lecture in the series, we look forward to hearing from our own Robert Clancy FRSN on 6 November.

The Royal Australian Chemical Institute, who share the Liversidge lecture and medal with the RSNSW, turned 100 this year, and the celebrations were graced by a lecture on the history of the RACI given by Peter Southwell-Keely. The RSNSW co-habited with an early incarnation of the RACI, and we hold many of our major figures in common, not least Liversidge himself.

We are pleased to announce the signing of a Memorandum of Understanding with the SMSA. The collaboration with the SMSA is explained in this Bulletin, and the MOU itself will be on our website soon. Among the benefits to the RSNSW, we look forward to having somewhere to go in Sydney where some of our better treasures will finally be on display, a like-minded organisation to have joint activities with, and an alternative venue to the splendid, but perhaps not for all, Union University and Schools Club.



Belated congratulations to Fellows of the Society. Among them, John Vallance FRSN, has been appointed State Librarian. We look forward to renewing a very long association with the State Library and wish John much success in his new role.

<http://www.sl.nsw.gov.au/news/dr-john-vallance-head-state-library>.

Scientia Professor Justin Gooding FRSN scored a Eureka Prize for being an “Outstanding Mentor to Young Researchers.” Having worked with Justin, I can happily commend the Prize jury for an excellent choice of someone who, while being at the top of his research game, always finds time for serious mentoring of his research group. Justin is the most recent recipient of the RSNSW/RACI Liversidge lectureship and medal.

<https://newsroom.unsw.edu.au/news/science-tech/eureka-prizes-outstanding-science-mentor-and-world-first-trials>

Professor Andrea Morello FRSN found himself in the news for predicting a new way of making qubits from phosphorus atoms in silicon, with a possibility of entanglement over much greater distances than presently achievable, and robust against errors. Andrea gave the OGM talk in July “Understanding Quantum Theory”. It is nice to know someone does.

<http://www.smh.com.au/technology/sci-tech/nobody-saw-it-breakthrough-claimed-by-unsws-quantum-computing-team-20170905-gybmph.html>

The RSNSW is firing on all cylinders. If you are a member, pop along to an OGM. We have been moved to a larger room to accommodate the greater roll-ups we have had in recent months. New members are usually introduced by existing members, and I urge you all to sidle up to a friend and suggest they join the RSNSW. I am always happy to advise how to fill in the rather easy form.

And finally, for what it is worth, I have voted ‘yes’ for change in the not-needed, but now rather important, marriage plebiscite. As usual, please write with comments and suggestions to president@royalsoc.org.au.

Strategic Partnership of RSNSW and Sydney Mechanics' School of Arts

The Council of the Society is pleased to announce that it has reached agreement with the Board of the Sydney Mechanics School of Arts (SMSA) to establish a strategic partnership. This partnership reflects the similar heritage of the two organisations and their commitment to advancing knowledge and engaging with the broadest possible audience in NSW.

The Sydney Mechanics School of Arts (SMSA) was established in 1833, following the Scottish example of providing open access to education for the working classes, who, historically, had been excluded from formal, traditional education systems. The Governor at the time was Sir Richard Bourke, who was a strong supporter of it with an annual allowance of £200. In 1886, the SMSA was incorporated by an act of the NSW Parliament, similar to the act which, in 1881, formally established the Society as a body corporate.

Originally, the SMSA occupied the building that is currently the Arthouse Hotel, at 271 Pitt Street. The SMSA sold this building in the 1990s to Alan Bond's corporation for redevelopment of the site. With the proceeds, the SMSA bought a building at 280 Pitt Street that could house their activities and provide a source of rental income. The SMSA occupies three floors of this building. The third floor houses offices and meeting rooms and the Thomas Kenneally Collection, the private library donated to the SMSA some years ago by Thomas Kenneally FRSN. The second floor houses an extensive lending library and the first floor has an auditorium that seats about 130 people, some smaller meeting rooms and has facilities for limited catering.

Over the last 18 months or so, the Council of the Society and the Board of the SMSA have had extensive discussions regarding ways in which the two organisations could collaborate to gain synergies from their similar objectives and activities and to enhance the standing of both organisations. The governing bodies of both organisations formally signed off on the strategic partnership in September.

Key elements of this agreement include:

- Development of a joint program of events that will be broadly attractive to members of both organisations and the general public;
- Display of important selections of material from the Society's library;
- Reciprocal membership benefits between the two organisations when engaged in joint activities.

In addition, the Society will hold some of its own functions at the SMSA auditorium and meeting rooms, particularly when they are expected to attract larger audiences. The location near Town Hall station and one of the new Metro line stations is particularly convenient. The Society's presence in the building will be identified in the main foyer with its name and seal.

The Council believes this partnership is a very important initiative and will further consolidate our efforts to promote the Society plus increasing its influence in the intellectual life of NSW. We look forward very much to working with the SMSA in taking this arrangement forward.



SMSA, 280 Pitt St

Dr. Helen Mitchell

“Multisensory Music: Listening by Ear and Eye?”



Dr Helen Mitchell presented “Multisensory music: listening by ear and eye?” Helen has a multidisciplinary background in music, as a singer, music scholar and music performance researcher.

Although listening is the fundamental way to engage with music. However, there is a limited vocabulary for describing sound quality, which makes it challenging to form more than a global impression of a performance. Moreover, other perceptual processes are relevant, especially visually observing the performer. The visual cues may contribute to a judgments about the performance. For example, body movements frequently demonstrate additional intention and provide emotional cues.

Dr. Mitchell’s experiments separated performances into audio only, visual only, and audio-visual. By displaying various examples, the audience could experience the fusion of sensory information across modalities. Her experiments also demonstrated that participants are more likely to recognise performers by ear after they have seen them perform.



For training assessors for formal examinations of performers, making the assessors aware of their potential unconscious biases and their general fallibilities may improve the quality of the judgments. Among other things, role plays of auditionees and auditioners are advantageous. In addition, blind auditions, such as playing behind a screen, are also used on occasion for avoiding such things as gender bias.

In the engaging question-and-answer, it was pointed out that there are other factors that play a role in experiencing music, such as having eaten, being comfortable, the surrounding colours, or seating locations. Subsequently, there was a discussion about the criteria used for selecting examiners and how to ensure the use of appropriate criterion for assessment.

Southern Highlands Branch – Up-Coming Lectures

28 September 2017

Professor Peter Schofield

“Biomarker changes in inherited Alzheimer’s Disease”



Professor Peter Schofield, FAHMS PhD DSc is the Executive Director & CEO of Neuroscience Research Australia (NeuRA) and is Professor of Medicine, UNSW. His research focuses on bringing molecular, cellular, and especially genetic approaches to bear on understanding brain function and disorders. He has applied these approaches to the understanding of the brain by studying neurotransmitter receptors and their signaling mechanisms, especially in the causes of mental illness such as bipolar disorder and early onset of familial Alzheimer’s disease and dementia. In his talk, he will describe his findings that there is a defined sequence of brain changes which can be seen up to 20 years before clinical symptom onset. Based on this knowledge, clinical trials can commence targeting the prevention of symptoms in Alzheimer’s Disease.

19 October 2017

Professor Dean Rickles

“The Renaissance of General Relativity: The Role of Private Patronage and Anti-Gravity”



This talk will tell the remarkable story of how general relativity (Einstein’s theory of gravitation and spacetime) went from a neglected backwater in the 1930s and 1940s to a central part of modern physics. The transition was aided by two unlikely philanthropists, the (impossible) promise of anti-gravity, and a military keen to get the gravitational equivalent of the atom bomb.

Dean Rickles is Professor of History and Philosophy of Modern Physics at the University of Sydney where he is also an Australian Research Council Future Fellow and co-director of The Centre for Time. His research focuses on quantum gravity and the physics of spacetime and he has written several books in this area. He is a pianist and amateur musicologist in his spare time.

... Continued from Page 1

“The Science of Social Networks”

We are social animals and what we think, feel, and do is affected by the social networks in which we live work and play. In this talk, I discuss the problem of understanding structure in social networks: its potential origins; how we can model it; and its consequences. I begin with a brief account of the theory of networks and then describe ways we can model their behaviour.

The approach construes global network structure as the outcome of dynamic, interactive processes occurring within local neighbourhoods of a network. I describe a hierarchy of models and how they may be applied to real social networks using data obtained through various types of network sampling schemes.

Using several illustrative problems, I demonstrate how the models can be used to enrich our understanding of network structures in a variety of contexts, including how they shape the processes taking place within them, such as the transmission of infectious diseases. The value of the approach includes a capacity to quantify uncertainty and assess the extent to which a model captures key social network features.

In addition to the transmission of infectious diseases, recent applications of Prof. Patterson’s models have included the evolution of the biotechnology industry in Australia and community recovery following the 2009 Victorian bushfires.

Professor Philippa (Pip) Pattison is Deputy Vice-Chancellor (Education) at the University in Sydney, responsible for the University’s strategy and vision for teaching and learning and students’ educational experience. A quantitative psychologist by background, Professor Pattison began her academic career at the University of Melbourne, and has previously served as president of Melbourne’s Academic Board and as Deputy Vice-Chancellor (Academic).

Professor Pattison was elected a Fellow of the Academy of the Social Sciences in Australia in 1995. She was named on the Queen’s Birthday 2015 Honours List as an Officer of the Order of Australia for distinguished service to higher education, particularly through contributions to the study of social network modelling, analysis and theory, and to university leadership and administration.

Erratum: Latest issue of the Society’s Journal

In the September edition of this publication, I, your editor, mistakenly inserted an out-of-date link for a previous issue of the *Journal and Proceedings of the Royal Society of New South Wales*. That edition had many articles that were hopefully of interest to you, dear readers. Here now are two correct links to the issue of June 2017 (Vol. 150, No. 1). (Both go to the same place.)

<https://royalsoc.org.au/society-publications/current-issue>

<https://royalsoc.org.au/council-members-section/254-v150-1>

You will find the Distinguished Fellow’s Address to the Society’s dinner by Prof. Peter Baume “Don’t blame the unemployed.” In addition, the complete text of papers delivered at the 2016 Forum: “Society as a Complex System” may be found, plus papers on neuronal modelling, econometrics, disability, counselling, and vitamins.



Fellow Bob Marks Witnesses Eclipse

Em. Prof. Bob Marks FRSN recently travelled to Madras, Oregon, where he witnessed the total eclipse of the sun on 21 August. The photo above was taken by a friend of Bob's, Karen Nashold. The path of totality was about 112 km wide and stretched diagonally across the United States from Oregon to South Carolina.

For those you who wish to stay at home, a total solar eclipse will occur over Sydney on 22 July 2028. It will stretch from the Kimberley region through Western Australia, the Northern Territory, south-west Queensland, and New South Wales, close to Wyndham, Tennant Creek, Birdsville, Bourke, and Dubbo, before reaching Sydney, where it will last over three minutes. It will also cross Dunedin, New Zealand.

HOLD this Date:

Wednesday, 29 November 2017, 9 – 5:30 pm
for

The Royal Society of NSW and Four Academies Forum

“The Future Of Rationality In A Post-
Truth World”

Government House, Sydney

The Forum's participants will examine the societal implications of “post-truth” appeals to personal belief, in which opinion and the cherry picking of “facts” – true or false – are used to reach desired conclusions. This approach starkly contrasts to modern rationality, which is rooted in ancient Greek philosophy, the Renaissance, and the Enlightenment. Rationality assumes that the human mind has the capacity to analyse systematically-collected data and build logically-consistent knowledge that is continually subject to refinement through critique and empirical testing.

Schedule of RSNSW Meetings 2017

Date	Event	Speaker	Topics and Presentations	Location
4-Oct-17	Ordinary General Meeting	Prof. Pip Patterson	Science of Social Networks	Union, University & Schools Club
1-Nov-17	Ordinary General Meeting	Pamela Griffith FRSN	Women in Art	Union, University & Schools Club
29-Nov-17	2017 Forum	Many Distinguished Scholars	The Future of Rationality in a Post-Truth World	NSW Government House
6-Dec-17	Ordinary General Meeting	Jak Kelly Award Winner	2017 Jak Kelly Award Presentation & Christmas Party	Union, University & Schools Club

RSNSW - Southern Highlands Branch

Date*	Event	Speaker	Topic	Location**
28-Sep-17	Public Lecture	Prof Peter Schofield	Alzheimer's Disease	Chevalier College, Bowral
19-Oct-17	Public Lecture	Prof Dean Rickles	Quantum Gravity	Chevalier College, Bowral
16-Nov-17	Public Lecture	Yik Lung (Jeremy) Chan	Effects of Maternal Cigarette Smoke Exposure	Chevalier College, Bowral

*Lectures are usually the third Thursday of each month, except September. **Location may change

RSNSW & The Sydney Mechanics School of Arts

Date*	Event	Speaker	Topic	Location**
6-Nov-17	Public Lecture	Em Prof Robert Clancy	The Freedom to Use Your Own Intelligence	Sydney Mechanics School of Arts***
1-Feb-18	Public Lecture	Kim McKay	Learning, Adaptation and the Enlightenment: The Museum	Sydney Mechanics School of Arts***
1-Mar-18	Public Lecture	Paul Brunton	Learning, Adaptation and the Enlightenment: The Library.	Sydney Mechanics School of Arts***
5-Apr-18	Public Lecture	George Paxinos	Sophistry: "Global Deflation: The Enlightenment has Failed!"	Sydney Mechanics School of Arts***

***Mitchell Theatre, Level 1, Sydney Mechanics School of Arts, 280 Pitt St, Sydney

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