



The Bulletin 398

The Royal Society of New South Wales

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27 April 2016

For Your Diary:

Tuesday, 10 May 2016

Joint Meeting on Planetary Parliament

6:00 pm for 6:30 pm

CSIRO Life Sciences Centre,

11 Julius Ave, North Ryde.

See page 8 for further details

Thursday, 19 May 2016

Southern Highlands Branch Lecture

Dr. Kathleen Riley

"The Science of Spontaneity:

Fred Astaire as the Consummate

Craftsman"

6:30 pm start

The Performing Arts Centre

Chevalier College, Bowral

Wednesday, 1 June 2016

1243rd OGM

Prof. Peter Hiscock

"Archaeologists in Film"

6:00 pm for 6:30 pm

Union, University & Schools Club

25 Bent St, Sydney

Fellows & Members \$5; Guests, \$20

Dress code: coat and tie

See last page for a summary of

Events scheduled so far for 2016

Royal Society of New South Wales Annual Dinner

Wednesday, 4 May 2016

Guests of Honour:

His Excellency General The Honourable

David Hurley AC DSC (Ret'd),

Governor of New South Wales

Patron of the Royal Society of New South Wales,

and Mrs Hurley

Distinguished Fellows Lecturer:

Professor Eugenie Lumbers AM DistFRSN FAA

"Science Policy and University Research"

For photo and further information on Prof. Lumbers, go to page 7

Award of Medals:

***Clarke Medal* – Professor Christopher Dickman**

***Edgeworth David Medal* – Professor Simon Ho**

***History & Philosophy of Science Medal* –**

Professor Warwick Anderson FRSN FAHA FASSA

Induction of Distinguished Fellow:

The Hon Emeritus Professor Peter Baume AC

Union, Universities, & Schools Club, 25 Bent St, Sydney

6:30 pm for 6:45 pm, Wednesday, 4 May 2016

All are welcome

*Fellows & Members \$110; Guests and Non-Members \$125; Table of 10 \$1,100; includes dinner and drinks. Please note dress code: **black tie***

To register for the event and dinner afterward, please go to:

<https://nsw-royalsoc.currinda.com/register/event/18> - final date for reservations is

6:00 pm, Wednesday, 27 April 2016



Patron of The Royal Society of NSW

His Excellency General The Honourable

David Hurley AC DSC (Ret'd)

Governor of New South Wales

Presidential Address

“Royal Society of NSW – Relevance in the 21st Century”

Dr Donald Hector FRSN

Wednesday 6 April 2016



Donald Hector was President of the Royal Society of NSW for four years from 2012 to 2016. This is an excerpt from his Presidential Address delivered immediately following the AGM. The full address will be published in the Journal and Proceedings.

Dr Hector noted the successful introduction of Fellowships of the Society and the appointment since then of well over 100 Fellows. He also referred to the importance of extending the Society's activities across all its disciplines of science, art, literature and philosophy. Of particular significance is the relationship that is developing with Australia's four learned Academies.

At the Forum held at Government House in September 2015, all the issues that were identified as the major challenges facing the world today are highly-complex, socio-techno-economic problems. How may the Society contribute to their

solution? Dr Hector set the stage with a historical perspective and then explored issues around philosophy and cognitive psychology that are important in framing these problems and identifying solutions to them.

The way in which we define and attempt to solve problems today originates in the philosophy of ancient Greece. It was rediscovered in the 14th century and was a major influence on the development of the Renaissance. Its importance can be seen in two great paintings of the Renaissance, Raphael's works *Knowledge of Causes* (or *The School of Athens*) and *Disputation over the Most Holy Sacrament*. The first is a representation of natural truth as acquired through reason (arithmetic, astronomy, rhetoric, the arts, music and poetry; the second shows the relationship between God and man. Taken together, the two juxtaposed paintings represent the thinking and belief-system of that era and upon which the Renaissance developed. The point is that art can give great insight into human thought.

The model of the world that evolved in the Renaissance and continued until the early 20th century was a mechanistic one – the great philosophers of the Renaissance and the

Enlightenment considered the universe to be like a clock. It behaves linearly, with any disturbance producing an effect in proportion to the disturbance. The Padua method, developed in the Renaissance, of breaking a problem into its component parts and finding a solution by reassembling solutions to the components work well. But by the 20th century biology, ecology and a number of other challenges were not well explained by the mechanistic model and systems theory evolved.

Systems are non-linear – a tiny disturbance in one part can result in a large disturbance in another. They are unstable – they can flip. The outcome for the whole system cannot be found by adding the responses of component subsystems together – every part influences every other.

In the last half-century, with the increasing population and complexity of the world, a new type of problem emerged – “wicked problems”. In these, there are masses of data but no clear way to analyse it. Human stakeholders hold apparently irreconcilable differences in beliefs and values and are willing to exploit power imbalances coercively to achieve their own ends.

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At the time of the Renaissance, there was a clear relationship between the value-system represented by religion and a thirst for knowledge, as represented in Raphael's painting, but today, in the Western world at least, value-systems are far less clear. Science follows a rationalist philosophy – seeking truth through rational analysis, recognising that social influences affect the outcome. Economics and politics are utilitarian – attempting to maximise public good or benefit. The legal system is deontological or duty-based. But there is no overarching value-system as there was during the Renaissance. The conflict between today's value-systems is further complicated by the limitations in human thinking.

No two individuals see a problem in exactly the same way – we all look at things through “lenses” that distort our view of reality according to our perceptions and experience. We form images of problem situations that are heavily influenced by our philosophical framework and belief-system. Our immediate response to problems is intuitive but this is subject to bias.

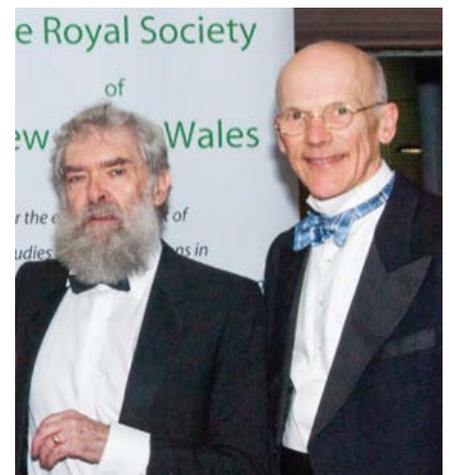
A more measured analytical approach – rational thought – is able to be learnt but we must remain aware that we can make mistakes. These two thought processes have been described as two different systems but that misunderstands the fundamental nature of cognition – they are a single system responding to different stimuli and this system exhibits all of the non-linear and unexpected characteristics that one would expect. In order to make sense of the enormous complexity we encounter, we use narrative to confabulate to make sense of

things that we do not understand to make them conform to our notions of reality.

Recognising the limitations imposed by our value-systems and our cognition, we can use our capacity for rational analysis to gain much greater insight into problems that were previously unassailable. We can imagine what futures might look like. Because we can recognise that various stakeholders in situations will approach the problem from different perspectives, we can accept this as fundamental to the human condition and that should facilitate understanding. The big challenge is to embrace the complexity of the problem – particularly the sociological dimensions – to overcome the inherent bias that we all hold to find common ground, rather than focus on the differences. Most importantly, we can write narratives. Drawing upon our diverse experience, these narratives can engage people with a wide range of worldviews and draw them along with us.

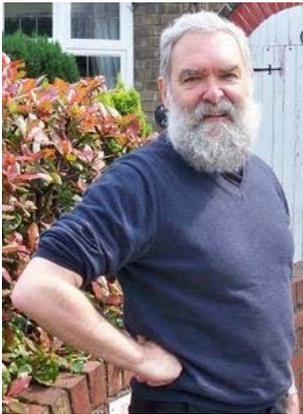
The Royal Society of NSW is uniquely placed to provide leadership in this type of complex analysis. The wisdom of the founders in defining such a broad remit of human knowledge – science, art, literature and philosophy – was truly prescient and recognised the ever-increasing complexity of modern life. But we need to change if we are to maximise our impact. Historically, the Society has focused largely on the sciences. Only recently, have we extended into the other areas of human knowledge encompassed by our charter. We need to attract Fellows and Members from all fields of human knowledge, if we are to engage in the representation and solution of the highly complex

problems that exist in the world today. We need more writers, artists, sociologists, musicians and historians. Only then, will we be able to completely engage with the community. That is not to say that we should abandon our scientific heritage – quite the opposite, most of the problems that the world faces today have enormous technological challenges. But these solutions will not be found in science and technology alone – they will require the engagement of non-scientists in terms they can understand.



New and Immediate Past Presidents, Em Prof. Brynn Hibbert and Dr. Donald Hector

From the President



In the style of a murder mystery of a certain age, “If you are watching this video (or reading the text in the Bulletin) I shall be your President”. Thank you.

First, I should like to pay my great respects to our Past President Hector, who took this Society in hand and started its transformation into a contemporary, engaging society of ideas. His understanding of where the Society was and where it needed to go was married with a capability of how to accomplish this. I shall rely on his knowledge and insights in my coming term.

I am also grateful for the continuity of membership of Council. Our present, highly active, members of Council have been a powerhouse for change in the Society and I am pleased that they will continue their hard work for the Society.

We are now on a clear trajectory to become the go-to completely independent organisation for discussion and commentary on the complex world we live in. Traditionally scientific, our purpose is ‘to advance knowledge through ... the encouragement of studies and investigations in Science, Art, Literature, and Philosophy’, and while we can point to a Dean of Art & Design, and eminent historians as members, one of my tasks as

President will be to continue to encourage the widest possible membership of the Royal Society.

Understanding and communicating the latest scientific and technological advances will always be in our remit, but today’s society needs a comprehensive view of the impacts these advances will have on people and the environment, and this means engagement with ‘Art, Literature and Philosophy’. Our now close association with the Australian learned academies gives us access to a pool of expertise and understanding to help us achieve that goal.

I am an old white male with a beard, and should be the last person to say how the Royal Society can engage with the rest of the population who do not have beards. We are committed to encouraging membership of anyone who is willing to ‘promote the interest and welfare of the Society’, and another KPI of my presidency is to bring down the average age of members and improve both the gender balance and ethnic diversity, so that the Royal Society that purports to drive the intellectual debate of the State actually reflects its composition.

I shall be proud to say our acknowledgement of country at the start of meetings, but this needs to be backed by an inclusive approach that will encourage the membership and participation of indigenous Australians. Past President Hector points to the Royal Society of Edinburgh as our model. A major difference in this antipodean Society is an indigenous people with a tradition of understanding their land that predates the European Enlightenment by millennia. Our founders may have thought they

were bringing their enlightenment to a far land, but it is time we realised that learning and understanding must also go the other way.

Practically, we need to consolidate our administrative arrangements, get the much awaited web site up and working, and continue recruiting members and fellows, while remaining solvent. This is also the stuff of the President.

To finish. What will the Royal Society do for its members? Provide fantastic talks at OGMs, the Forum, Science Week and its named lectures. Publish the Web site, Bulletin, and Journal. Provide opportunities to meet and exchange ideas with hopefully interesting people. Give some hope that there is a group who are willing to debate issues of the time free of political cant, without prejudice, and with an independent spirit found little where else.

This is a Society worth belonging to, and of which I am proud to be President.

Good evening,

Brynn Hibbert



Report of 21 April 2016 Meeting Royal Society Southern Highlands Branch

Speaker: Professor Gordon Parker, AO,
MB BS (Syd), MD (UNSW), PhD, DSc, FRANZCP, FASSA



Topic: The World of Polar Disorders and Churchill's Gallipoli

Professor Gordon Parker delivered his lecture to an 80 person audience just three days before Anzac Day. It is not surprising then that he was able to draw a wonderful audience with this topic. He also attracts huge interest as the leading voice on bipolar conditions and research into them, and many attendees were eager to hear him speak as a follow-up to the fascinating lectures he has delivered to the Southern Highlands Branch of the Royal Society on previous occasions.

It is astonishing to relate that, of the more than 650 biographies which Winston Churchill has inspired, only three previous writers have previously made a case for Churchill suffering from polar disorder. Gordon Parker spent the first section of his lecture detailing some bipolar disorder nuances, then asked the audience to form an opinion, from the evidence he was about to present, whether Churchill suffered from a bipolar disorder or not, and if so, whether it had contributed to the fatal Dardanelles/Gallipoli campaign.

Bipolar disorder is characterized by confronting mood swings, where the patient can be on a manic high at one stage, and in the depths of depression at the next. Lloyd George described Churchill's reaction as Big Ben struck 11 and war was announced.

A radiant Churchill, words pouring out after each other, raced into the room where George and his wife were quietly sitting. He was wildly giving instructions for where telegrams were to be immediately sent. Lloyd George stated later that he did not know what was the more disquieting of the two events – war being declared or Churchill's manic behaviour. Lloyd George was later to liken Churchill to a chauffeur who is apparently sane and drives with great skill for months and then suddenly takes people over a precipice.

Newspaper proprietor Lord Beaverbrook described Churchill as either “at the top of the wheel of confidence or at the bottom of an intense depression”. First Lord Jackie Fisher described Churchill as a megalomaniac for his comments at an Admiralty dinner where he stated “This, my God, is living history. Everything we are doing and saying is thrilling – it will be read by a thousand generations. I would not be out of this glorious delicious war for anything the world could give me.”

The press described Churchill as a posturing military adventurer and emphasized that his place should be at the Admiralty day and night. Lloyd George criticized him publicly for leaving untrained men in a lurch. Asquith called it a
(Continued next page....)

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wicked folly, reporting that Churchill showed a “zigzag streak of lightning in the brain.” Captain Richmond reported from Antwerp, “I really believe Churchill is not sane” and that the Navy was in “lunatic hands” at that time. Bonar Law stated that Antwerp evidenced Churchill’s “entirely unbalanced mind”, while Hopwood and Beatty said he was off his head in directing his naval reserves.

At Gallipoli, Churchill ignored the technical issues about shelling being put to him by experts. During the Dardanelles campaign, Carden sent him five requests for specialist minesweepers. Instead, Churchill recruited inadequate trawlers manned by amateur fishermen, most being swept away by the currents or killed by the Turks. Had Churchill waited as requested, the mines would have been swept professionally and the Straits

forced. Carden predictably suffered a nervous collapse.

This wonderful lecture by Gordon Parker was followed by a lengthy session of questions and comments from the audience. It was interesting to see that the majority of the questions concerned bipolar disorders generally, rather than comments on the personality and behaviours of that legendary figure, Winston Churchill. Perhaps the underlying factor linking these questions to the lecture was “the black dog.” After all, Winston Churchill commonly talked about his “black dog” and Professor Gordon Parker as Scientia Professor of Psychiatry at UNSW is also the Executive director of the Black Dog Institute, Sydney.

Anne Wood

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Distinguished Fellows Lecture

“Science Policy and University Research”

Professor Eugenie Lumbers AM DistFRSN FAA



Emeritus Scientia Professor Lumbers

The National Innovation and Science Agenda (NISA) was launched in late 2015. Within the university sector, it was welcomed as a step forward in providing a policy that would move Australia towards achieving a globally significant level of innovation – an investment in Australia’s future productivity. Although Australian research productivity has always ranked highly internationally, its translation into innovative technologies has been limited, at best, with a few notable exceptions.

Universities are at the core of transforming Australia’s approach to innovation, through education, research, and international collaboration. The task ahead in achieving this transformation is formidable. Above all,

it requires a consistent sustained high level of funding by government, recruitment of industry to support innovative research, and a greater movement of research trained personnel into industry.

Professor Lumbers is a Distinguished Fellow of the Royal Society of NSW. She is an internationally respected authority on foetal and maternal physiology. For many years, she has worked in cardiovascular and renal physiology, with particular reference to blood pressure regulation in the renin-angiotensin system.

Prof Lumbers graduated MBBS in Adelaide in 1965 and received an MD in 1970. She was awarded a DSc at the University of New South Wales in 1986, where she was given a personal chair in 1988. She received the Vice Chancellor's Award for Teaching Excellence in 1997, became Scientia Professor in 1999 and Emeritus Scientia Professor in 2003. She received the Centenary Medal of Federation, Australia in 2001, and she was elected Fellow of the Australian Academy of Science in 2002.

In 2007, Professor Lumbers developed new research interests at the University of Newcastle and was awarded an NHMRC grant in 2008. She further expanded her research interests in 2009 with three other NHMRC grants. Among other things, she has extended her research into renal disease in indigenous communities, especially in pregnant women.

Presents



PLANETARY PARLIAMENT

You don't need to be an astrophysicist to appreciate the Universe's infinite beauty. But it does help to have a panel of experts to explain its fascinating science and bizarre mysteries.

Join the Planetary Parliament at this year's combined AIP, RACI, Royal Society and ANSTO meeting and have your questions answered on the universe and beyond.

Panel includes:



Professor Andrew Hopkins
Head of Research and Outreach at the Australian Astronomical Observatory



Dr Ragbir Bhathal
Director, OZ Optical SETI Project, Western Sydney University



Dr Helen Maynard-Casely
Planetary Scientists who replicates the surface of Titan in her lab

FREE
SCIENCE
EVENT

Program

6.00pm - 6.30pm
Refreshments

6.30pm - 7.30pm
The Planetary Parliament

8.00pm
Optional Dinner at **Fourna Café** -
56 Delhi Road, North Ryde
(across the road from CSIRO)

Details

When
Tuesday 10 May 2016

Where
CSIRO Life Sciences Centre, 11 Julius Ave,
North Ryde NSW 2113

Cost
FREE
Optional dinner is \$50p.p.

RSVP
Friday 6 May

Parking
Free and onsite parking

Bookings
www.planetaryparliament.eventbrite.com.au

Enquires
02 9717 3090 or tours@ansto.gov.au

Schedule of RSNSW Events 2016

| Date | Event/Location | Speaker | Topic |
|-----------|---|--|--|
| 04-May-16 | Annual Dinner Union, University & Schools Club | Prof. Eugenie Lumbers | Science Policy and University Research |
| 01-Jun-16 | 1243rd OGM Union, University & Schools Club | Prof. Peter Hiscock | Archaeologists in Film |
| 06-Jul-16 | 1244th OGM Union, University & Schools Club | Prof. Itai Ianev | From Sand and Rice Bubbles to Earthquakes and Volcanos |
| 03-Aug-16 | 1245th OGM Union, University & Schools Club | Mr Jimmy Turner, Royal Botanic Garden | TBA |
| 07-Sep-16 | 1246th OGM Union, University & Schools Club | Mr Richard Neville, State Library of NSW | History of the Society |
| 05-Oct-16 | 1247th OGM Union, University & Schools Club | Mr Rob Young | WB Clarke Biography |
| 02-Nov-16 | 1248th OGM: Jak Kelly Award Union, University & Schools Club | Prof. E. James Kehoe | Courses for Horses: Advances in Instructional Design |
| 17-Nov-16 | AIP Postgraduate Awards Day Slade Theatre, University of Sydney | TBA | TBA |
| 07-Dec-16 | 1249th OGM: Jak Kelly Award Union, University & Schools Club | TBA | TBA |

Southern Highlands Branch - 2016

| Date | Event/Location | Speaker | Topic |
|-----------|---|--------------------|--|
| 19-May-16 | Lecture The Performing Arts Centre, Chevalier College, Bowral | Dr. Kathleen Riley | "The Science of Spontaneity: Fred Astaire as the Consummate Craftsman" |
| 21-May-16 | Lecture Chevalier College, Bowral | TBA | TBA |
| 16-Jun-16 | Lecture Chevalier College, Bowral | TBA | TBA |

Future lectures and other events will be scheduled, usually for the third Thursday in each month

Letter to the Editor

Letter submitted to the *Sydney Morning Herald* on behalf of the Society:

The fact, demonstrated by many studies, is that greatest private profits emerge from "public good" research. The CSIRO was set up to benefit Australia through science via such research, and is admired world-wide for its success. Destroying this ethos for a very short-term saving is misguided and wrong. The lack of a shared vision among senior members of CSIRO, as evidenced by the recently published emails, should be of concern to its board. Australia should be feeding, rather than killing, this precious goose that has already laid so many golden eggs.

D. Brynn Hibbert FRSN
Emeritus Professor
President of the Royal Society of New South Wales

Opinions expressed in letters to the editor are not necessarily those of the Royal Society of New South Wales.

Subject to conventional editorial discretion, letters received by the 15th of each month will be published on or about the 24th of that month. Letters of 250 words or fewer are preferred.

