



The Royal Society of New South Wales Bulletin and Proceedings 336

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Future Events 2010

Lectures in Sydney are held in Lecture Room 1, Darlington Centre, University of Sydney at 7 pm on the first Wednesday of the month with drinks available from 6 pm.

Wednesday 7 July 2010 at 7 pm

**Dr Fred Watson - Anglo
Australian Observatory
Pluto and the Ueber-nerds**

(see details at right)

Wednesday 4 August 2010 at 7 pm

**Professor Peter Robinson Uni-
versity of Sydney
The Dynamic Brain: Modeling
Sleep, Wake and Activity in
the Working Brain**

Southern Highlands Branch

Meetings are held on the third Thursday of each month in the Drama Theatre at Frensham School, Mittagong (enter off Waverley Parade), at 6.30pm.

next talk

Thursday 15 July 2010, at 6.30pm

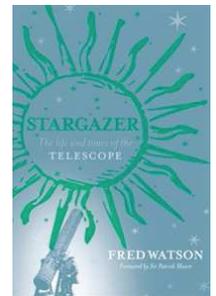
Bulletin Editor, Bruce Welch

Lecture 7 July 2010, Darlington Centre at 7pm

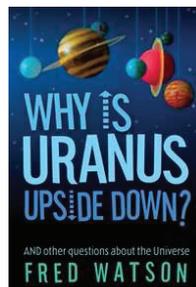
**Dr Fred Watson - Anglo Australian Observatory
Pluto and the Ueber-nerds**



Fred Watson says he has spent so many years working in large telescope domes that he has started to look like one. He is Astronomer in Charge of the Anglo-Australian Observatory at Coonabarabran, where his main scientific interest is gathering information on very large numbers of stars and galaxies. He is also an adjunct professor at the Queensland University of Technology, the University of Southern Queensland, and James Cook University.



Dr Watson is the author of "Stargazer - the life and times of the telescope", and is a regular broadcaster on ABC radio. His new book "Why is Uranus upside down?" is based on listener questions, and was published in October 2007 and won the 2008 Queensland Premier's Literary Prize for Science Writing. In 2003, Fred received the David Allen Prize for communicating astronomy to the public, and in 2006 was the winner of the Australian Government Eureka Prize for Promoting Understanding of Science. Fred has an asteroid named after him (5691 Fredwatson), but says that if it hits the Earth it won't be his fault...



Patrons of The Royal Society of NSW

Her Excellency Ms Quentin Bryce AC

Governor-General of the Commonwealth of Australia

Her Excellency Professor Marie Bashir AC CVO Governor of NSW

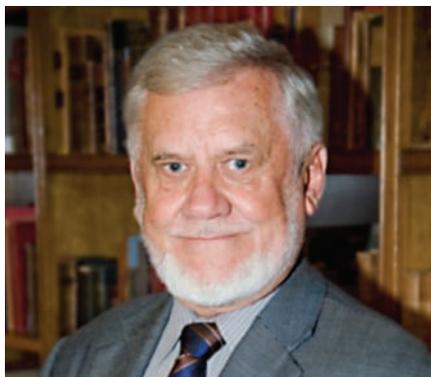
Lecture delivered for the Society's 1181st Ordinary General Meeting held on 2 June 2010

Science for gentlemen: the Royal Society of NSW in the 19th century

Dr Peter J Tyler, Historian, Royal Society of NSW

The middle of the 19th century was a time of great change in NSW. Responsible government was introduced in 1856 and full manhood suffrage followed two years later. Queensland separated from NSW a year after that. And just 10 years after the introduction of responsible government, Queen Victoria granted Royal Assent to the title of The Royal Society of New South Wales. However, as Dr Peter Tyler, the Society's Historian, explained in his lecture at the 1181st ordinary general meeting on 2 June 2010, The Royal Society of NSW traces its origins back to 1821 when The Philosophical Society of Australasia was formed. There were several early attempts to form such societies with mixed success but this should not understate the commitment of a group of progressives who wanted to see the natural history, agriculture, and culture of the nascent colony flourish.

The Philosophical Society of Australasia was established under patronage of the Governor, Sir Thomas Brisbane and he also became its first President. The founding members included Major Goulburn (the Colonial Secretary) and Edward Wollstonecraft a wealthy merchant and landowner at North Sydney. The purpose was to study the physical sciences and the mineralogy of NSW (which then, of course, included what is now Queensland and Victoria). The early society only lasted a year or so but there were other attempts to stimulate more intellectual activities in the colony in the first part of the 19th century. The first subscription library was started by Wollstonecraft in 1826 and between 1820 and 1850 other societies began, such as the Agricultural Society (which lapsed for some years and then was re-established in the 1850s), The Australian Society for the Encouragement of Arts, Science, Commerce, and Agriculture (more commonly referred to as the Australian Philosophical Society) but, like the early Philosophical Society, these early groups generally did not thrive.



But by the 1860s, with Sydney having been formally declared a city (in 1842), NSW having been granted responsible government, and the buoyant economic growth of the period created an environment where interest in science, art, and literature blossomed. The University of Sydney was founded in 1854 and the time was right for a successful society to be established.

Just six years after the granting of Queen Victoria's Royal Assent there were 122 members of the Society across a range of occupations – pastoralists, businessman, scientists, artists, lawyers, and the clergy – and by the 1890s there were nearly 500 members. In the latter half of the 19th century a number of eminent scientists (Prof John Smith (physics and medicine), Prof Archibald Liversidge (geology and chemistry), Sir Thomas Anderson Stuart (physiology) were but a few). The Society's transactions were published in a prestigious, peer-reviewed journal (which continues today) and attracted publications from such eminent scientists and engineers as Lawrence Hargrave.

The first 80 years of the society were colourful, strongly influenced by the personalities of the time when NSW was finding its feet as a society. Dr Tyler's work was made possible through his appointment as the inaugural Merewether Scholar of the State Library of NSW.

Donald Hector

Meet your new Councillors

Dr Donald Hector



Dr Donald Hector is a chemical engineer whose career has been in high-technology specialty chemical and industrial companies. He runs a specialist corporate advisory practice and is a non-executive director on ASX-listed, private, and not-for-profit boards.

Dr Bruce Warren



Dr Bruce Warren M.B. B.S. D.Phil. D.Sc (Oxford) was head of the Department of Anatomical Pathology at Prince Henry Hospital and Professor of Pathology in the University of New South Wales from 1980-1997. In these roles he developed an interest in multi-infarct dementia (i.e. vascular dementia) and in Alzheimer's disease.

New Members

Five new members were announced at the June meeting of the Society:

Peter Dowling - Full Member
Susan Richardson - Full Member
Michael Cortie - Full Member
Anthony Gordon - Full Member
Michael Elsley - Associate Member

We welcome them into the Society.

From the President



I have recently returned from a month in France and the UK and am pleased to report that I was able to take the opportunity to call on the President of the Royal Society in London in order to pass on my good wishes and those of Members and Council.

Lord Rees was keen to hear of what we are doing and expressed a wish to be kept informed of our future activities. My principal interest in the meeting was to formally establish an ongoing relationship between our Society and the Royal Society in London, and this has now been achieved. He has also expressed a wish to return to Australia in the near future to address the Society.

This year marks the 350th anniversary of the formation of the Royal Society and I was pleased to be able to visit it on this important anniversary. Special events to mark the anniversary are being held throughout the year, culminating in a special event towards the end of the year. I look forward to being able to bring more information about these events to you in forthcoming Bulletins.

My other activity in London relating to our Society was my visit to the Royal Institution of Great Britain. Chris Rofe, the new CEO, welcomed me and we spent a considerable amount of time talking about what each organisation does and how we do it. It is clear that our aims are remarkably similar, although our history and activities are quite different. We resolved to maintain an ongoing dialogue to ensure that both organisations would benefit from each other's thinking.

I expect that the development of ongoing relationships with these sister organisations will see an increased flow of information to members about relevant activities and scientific dialogue

in one part of the English-speaking scientific world. There is obviously more that can be done also to develop links and professional relationships with other organisations, particularly in the non-English-speaking world, and I see that as an additional long-term goal. I also see this as a means of achieving an increased awareness by others of the Society and its activities internationally. We cannot remain a small, unknown regional organisation if we are to grow.

During my absence the Society was ably steered by Heinz Hora and Clive Wilmot and I thank them for their efforts.

John Hardie

Southern Highlands Branch Report of May Meeting

Global Warming – The Missing Science: Why I am sceptical of human-induced climate change

*Dr Ian Plimer, Professor of Geology, University of
Adelaide. Emeritus Professor of Earth Sciences,
University of Melbourne, Victoria*

The Southern Highlands Branch meeting of 17 June 2010 was held at 6.30pm in the Drama Theatre, Frensham School, Mittagong. On a crisp Highlands evening, an audience of 86 people assembled to hear Plimer's lecture. Many arrived early with copies of his seventh book, the bestselling *Heaven and Earth – Global Warming: The Missing Science*, taking advantage of the opportunity to have their copies signed by the author. Ian Plimer happily obliged.

Ian Plimer began his lecture by presenting data on the cyclical nature of climate change throughout both the modern industrial age and the pre-industrial period, going back to 600 million years ago. Such a wide time period under consideration allowed comparison between times when man's contribution to global carbon dioxide concentrations was negligible, to more recent times when numerous scientists around the world are attributing observable changes in climate to measurable changes in man's carbon dioxide emissions. Plimer emphasised that climate has always changed and always will, and went on to comprehensively refute the widely held belief that man's contribution to carbon dioxide in the atmosphere is the cause of climate change.

Professor Plimer cited evidence from ice core work at the South Pole to demonstrate that there is no relationship

between global temperature and carbon dioxide concentrations. Warmings in the industrial age have occurred in 1860-1880, 1910-1940, and 1975-1998. However, carbon dioxide rise correlates only with the most recent warming. Industrial age coolings have occurred in 1880-1910, 1940-1975 and 1998-present. In all of these, carbon dioxide levels increased. In five of the six great ice ages, atmospheric carbon dioxide was up to 1000 times higher than today's levels.

Plimer showed from his data that the warming effect of carbon dioxide on the atmosphere is 1.5 degrees for the first 20 parts per million, but after that, the concentration can be doubled and quadrupled with no further effect. History shows that in times when the carbon dioxide levels were 100 times the current levels, there was no global warming. Instead, there was glaciation.

The conclusions to be drawn from the presented data are that current changes in climate, sea level and ice are within natural variability. Climate has always been driven by the sun, the earth's orbit and plate tectonics. Throughout it all, humans have thrived in warm times and struggled in cool times. During a previous warm period, the warmth was such that on Greenland, barley and wheat were grown, and the land supported cattle and sheep. The hypothesis that humans can actually change climate is unsupported by evidence from geology, archeology, history and astronomy.

Carbon dioxide is absolutely vital for living on earth. Ian Plimer calls it "plant food", and adds that to demonise it shows a lack of school child science. He likens the present conflicting views on climate change to the situation in recent times when the prevailing belief was that stomach ulcers were the result of an acid stomach and stress. It took the efforts of two Western Australian scientists to prove from scientific evidence that bacteria were the cause. They ingested the bacteria, gave themselves ulcers and proved that the scientific community had been quite wrong. Ian Plimer believes that in time he too will be proven correct in his views on the disconnect between carbon dioxide concentration and climate change. He says that science must work on evidence, not consensus.

At the end of this thought-provoking and very popular lecture, Ian addressed numerous questions from the audience.

Anne Wood

One Hundred Years Ago . . .

A further extract from the Presidential Address by H. D. Walsh, delivered to the Royal Society of N S W, May 4, 1910

The widely varying conditions under which harbour works have to be designed, prevailing winds and currents, rise and fall of tides, nature of material available, etc., make marine works a particularly interesting, as well as a difficult study, and yet perhaps in connection with no other professional work do we find so many amateurs ready to give advice and criticism.

Take for example, the much discussed question of the Sow and Pigs reef, near the entrance to Port Jackson. Some advocate its removal because it disfigures our otherwise beautiful harbour; others because it is a danger to navigation, while on the other hand, we heard an interesting paper read not long ago, advocating the construction at this place of extensive wharves and jetties to accommodate the whole of our over-sea shipping. This reef is some three-quarters of a mile long, at its eastern end, where it rises in places above low water and dips towards the western channel carrying not more than twenty-six feet of water for some six hundred feet west of the beacon, its removal to give a depth of even thirty-three feet would therefore be a work of very considerable magnitude. We have no record of any vessel having grounded on this reef since the schooner "Isabel" touched there some eight or or nine years ago, and she was towed off by the Pilot steamer without damage, so that the reef has certainly not proved itself a danger to navigation, and I am strongly of opinion that its removal would from an engineering point of view be a serious mistake.

At present this natural training wall guides both the ebb and flood tide down the eastern channel, thus creating a uniform scour sufficient to keep it deep enough for our shipping requirements at a very small cost. In other harbour entrances breakwaters have been constructed at a great cost to effect. the object that this natural guide wall now serves. The removal of the Sow and Pigs reef would undoubtedly reduce the scour in the Eastern Channel, with the result that frequent dredging would be necessary to obtain the requisite depth for the safe navigation of the harbour.

Another much debated question in this State is that of the improvements of our river entrances and bar harbours. The coast line of New South Wales extends nearly north and south for a distance of some 610 miles, and marine works have, up to this time, been designed and started in connection with nineteen river entrances and estuaries, but in very few cases have any of these works been carried out to completion as rapidly or in the manner that would ensure the best results. This has not been the fault of any of the many able engineers who have had to deal with these works in the past nor of the Ministers presiding from time to time over our great Public Works Department, but is due to what I would call political expediency. The residents on each river in their, no doubt, justifiable desire for better means of communication to enable them to send their produce to Sydney and other large markets, have persistently advocated the improvement of their various waterways, with the result that the sums of money

available each year for this class of work have been divided up so as to keep a number of these river entrance works going as far as possible, but, in many cases, partly completed works have of necessity been suspended for long periods, with the result that owing to the new conditions thus created, large quantities of beach sand have been drawn into the entrance on the flood tide and deposited in the form of new bars by the ebb tide, in some instances making the entrance more difficult than before the works were started. In other cases, owing to insistent agitation, it was found expedient to start those portions of the works which could be most quickly and cheaply put in hand. Two notable instances of this might be mentioned. There is no doubt that from an engineering point of view the southern breakwater at the Manning River entrance and the northern breakwater at Cape Hawke should have been the first works undertaken at these places, but owing to the time required to construct wharves and other preliminary work and to the cost, the breakwaters nearest to the quarries, which could be carried out more rapidly and at the smallest cost, were put in hand first, with the result that so far these works have not effected the improvements anticipated, nor can good results be expected until the works as designed, with probably some additions or modifications necessary on account of altered conditions caused by the works remaining unfinished for so long, are completed.

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