



The Bulletin 378

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June 2014

Future Events

Wednesday 2 July 2014

New Fellows Cocktail Party

followed by

1222nd Ordinary General Meeting

What Causes MS?

Speaker:

Professor Graeme Stewart AM
Union, University & Schools Club
25 Bent St, Sydney

From 5:30 pm

Wednesday 6 August 2014

1223rd Ordinary General Meeting

**Science education and the role of the
Australian Academy of Science**

Speaker:

Emeritus Scientia Professor
Eugenie Lumbers FAA FRSN(Dist)
Union, University & Schools Club
25 Bent St, Sydney

6:00 for 6:30 pm

SOUTHERN HIGHLANDS BRANCH

Thursday 17 July 2014

Sustainable Iron and Steel Making

Delivered by:

Professor Veena Sahajwalla
Centre for Sustainable Materials,
Research and Technology
University of NSW

*The Performing Arts Centre,
Chevalier College, Bowral*

6:30pm

For more upcoming events see website

www.royalsoc.org.au

Patron of The Royal Society of NSW

Her Excellency The Honorable Pro-
fessor Dame Marie Bashir AD CVO
Governor of NSW

Wednesday 2 July

**Join the Society for a special Fellows cocktail party
followed by the 1222nd Ordinary General Meeting**

What Causes MS?

Professor Graeme Stewart AM

Director of Clinical Immunology

Union, University & Schools Club

25 Bent St, Sydney

Cocktail reception from 5:30 pm

The past 5 years has seen a remarkable revolution in the discovery of the genetic factors that contribute to the cause of many of the major unsolved diseases of humankind, with advances unimaginable just 15 years ago. Multiple Sclerosis (MS) provides a clear example : the first MS gene (HLA) was discovered in the early 1970s, with the second (IL7R) confirmed 35 years later in 2007. In 2011, the International MS Genetics Consortium (IMSGC), with strong Australian input, reported (in Nature) discovery of 57 MS genes ; in September 2013, the IMSGC, using a platform known as ImmunoChip and involving nearly 30,000 people with MS, increased this to 110 (Nature Genetics). A large majority of these genes influence immune function further confirming an autoimmune pathogenesis for MS, the most common chronic neurological disease of young adults.



Each MS gene provides a road map for the next phase of discovery : how these genes alter immune function to result in MS and through this, the development of new and better therapies and simple blood tests

(Continued on page 2)

(Continued from page 1)

(biomarkers) that guide best use of existing and future treatments. We are pursuing both pathways to clinical translation with a novel drug target identified from the gene list and with the development of blood tests as early predictors of drug efficacy.

ImmunoChip was also used by consortia studying all of the other major autoimmune diseases allowing detection of genes that influence more than one. For example, 16 of the MS genes are also susceptibility genes for type 1 diabetes.

Apart from assisting understanding of autoimmunity more broadly, this unprecedented example of international co-ordination has ensured that translation of gene discovery into better clinical practice in one disease will be tested for benefit in others.

Examples of improved clinical practice through gene discovery in immune states other than autoimmunity are emerging including a genetic test to assist treatment decisions for patients with hepatitis C infection based on the effect of IL28B genotype on treatment benefit, of which we were co-discoverers (Nature Genetics, 2009) and for which we now provide a routine test service.

For MS and many other diseases, genes are half the story ; the other half is environmental triggers. The prevalence of MS increases with increasing distance from the equator due to the effects of reduced UV exposure, including increased risk of Vitamin D deficiency. Amongst the list of MS genes is one that controls

the metabolism of Vitamin D, a finding that joins the two halves of MS causation and underpins the current Australian trial of high dose Vitamin D treatment for MS.

The genetic revolution has provided a giant step forward ; but it is just the first step. The challenge now is to convert basic discovery into a better life for people living with MS and the many other diseases of complex genetics.

Professor Graeme Stewart AM BSc (Med) MBBS PhD FRACP FRCPA is clinician scientist. He is Director of Clinical Immunology at Westmead Hospital, a major teaching hospital of the University of Sydney where he is a Clinical Professor of Medicine. He is also Director of the Institute for Immunology and Allergy Research within the Westmead Millennium Institute. His clinical responsibilities are both as a Physician and as a Pathologist in Immunology. He has had a 30 year active research interest in how minor variations in human genes influence susceptibility to disease with a particular focus on the autoimmune disorder, Multiple Sclerosis (MS) for which he is a member of the 5 person Governance Group for the 19 country International MS Genetics Consortium (IMSGC) with colleagues from Harvard, Yale, UCSF and Cambridge (UK). Exploiting the current revolution in genetic technologies and biostatistics, IMSGC experiments published over the past 3 years have largely defined the genetic architecture of MS providing a solid platform for translating gene discovery into better care for people living with MS, the most common chronic neurological disease of young

adults. From his position at the interface between patient and laboratory, he has a passion to expedite this. This work has further contributed to a globally co-ordinated effort to understand inherited susceptibility to all of the major autoimmune diseases. His research group has also made substantial contributions to the immunogenetics of two of the world's most important chronic viral infections, HIV and Hepatitis C.



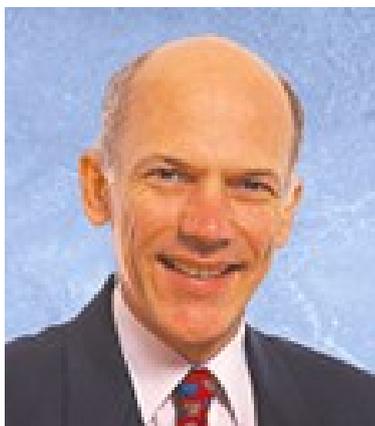
A note from the office.

Thank you to all the members who have renewed their membership. If you haven't yet renewed now is a great time, before the end of the financial year.

Donations to the Society's Library and Scholarship funds are fully tax deductible. Your contributions before 30 June 2014 are most welcome and will help the Society in it's education and research initiatives and endeavours.

If you would like to see a transcript of Professor Marks' talk please see <http://www.agsm.edu.au/bobm/papers/RSNSW-talk2014pr-3.pdf>

From the President



The events for the second half of the year will soon be underway. On Wednesday 2 July, there will be a complimentary cocktail party to welcome a number of new Fellows to the Society and present them with their Fellowship certificates, followed by a most interesting presentation on the underlying causes of multiple sclerosis by Professor Graeme Stewart AM.

I mentioned in my report last month that the Council is starting to plan events with a much longer future horizon. The aim is to significantly structure an events programme which will be of relevance and value to all our members. One important aspect is to give longer notice of our events programme so that members have the opportunity to plan further forward. We have a proud tradition of over 150 years of providing a forum for intellectual interests to be discussed by anyone who is interested in seeing knowledge advance and broadening their intellectual horizons. The events committee would welcome any suggestions that you might have

for a broad and stimulating programme for the next two years.

I also mentioned last month that we are very pleased by the rapid uptake of the new Fellow membership category and encourage existing members who meet the criteria for Fellowship to consider upgrading to Fellowship. (The criteria for Fellowship may be found in the Rules and By-Laws – see the membership page on the Society’s website for further information.) Nonetheless, the Council sees it as most important that the Society serves the interests of all our Members, not just the Fellows.

We would like to see general membership and associate membership increase with the same momentum – we believe that our long-term success can be measured by the engagement of the full spectrum of members that we have proudly served for well over a century.

If there are any issues you would like to raise with me, I am easily contacted by e-mail at president@royalsoc.org.au and would like to hear from you.

Donald Hector

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Please let the office know if your contact details have changed.

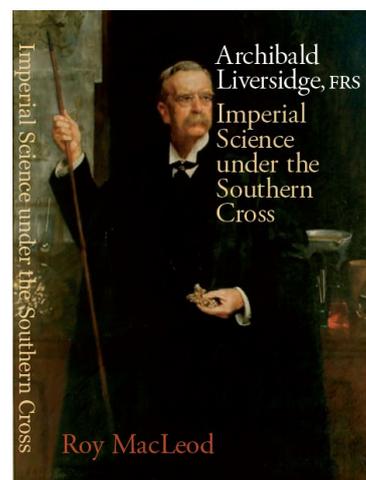
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IT’S TAX TIME AGAIN

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What Lessons Have We Learned from the Global Financial Crisis?

Report of Presentation by Emeritus Professor Robert Marks

at the May Ordinary General Meeting 2014

The meeting of RSNSW on the 4th of June had a somewhat different-from-usual flavour when the meeting considered a topic not in traditional science but rather located in the sphere of economic history. Emeritus Professor Robert Marks (Economics, University of New South Wales and University of Melbourne) presented a talk on “What Lessons Have We Learnt from the Global Financial Crisis?”

The talk presented the highlights of his recent paper in *The Journal and Proceedings of the Royal Society of New South Wales* published in June 2013. The talk and paper emerge from a larger project of Professor Marks’ – a detailed timeline of the GFC – which documents the unfolding of the events that caused the worldwide meltdown of the financial system. The talk highlighted the critical path and underlying events of the GFC. In particular Professor Marks showed that the seeds of the GFC were sown long before it began, with regulatory changes in the USA banking system dating back to 1977. These changes removed many of the regulatory safeguards that had prevented the US and world’s banks

from becoming too interconnected and prevented overleveraging. The talk was particularly enlightening because it focussed on this broader sweep of history rather than the minutiae of the nature of emerging financial products and services, thereby making an understanding as to the causes of the GFC accessible to the non-economist.



Professors Louise Young & Robert Marks

The talk and accompanying paper make it plain that the banks acted in individually rational ways given their evolving competitive space. However their collective actions were irrational (i.e. the Tragedy of the Commons) and resulted in an increasingly unstable system. The real individual culprits, if there are any, appear to be those that lobbied for and actively

implemented the ever-increasing deregulation. It is speculated that motives of self-interest and/or ideology drove their intent and actions. The latter in particular explains the failure to heed the warnings of prominent commentators in the years leading up to the event – as early as the mid-1990s but in increasing numbers from 2004 onwards.

The concluding part of the talk and the question and answer session that followed it highlighted what was perhaps the most concerning aspect of this historical review. It does not seem that sufficient lessons have been learnt from this extended and catastrophic seizing up of the world’s credit system. Few people have publically at least taken much responsibility for it, the banks remain quite interconnected, i.e. they remain “too big to fail” and perhaps of greatest concern, there has been virtually no redress to the regulatory environment that allowed the GFC to occur.

Louise Young

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