



The Royal Society of Victoria

Promoting science



PATRON: The Hon Alex Chernov AC QC
Governor of Victoria

PRESIDENT: Dr Bill Birch AM BSc (Hons) PhD

Headlines...

14 May: Mr Christian Wallis, Principal Scientist & EPA appointed Auditor (Contaminated Land), Golder Associates Pty Ltd will present a lecture titled:

Beneath the Surface: Living with our Industrial Legacy through Urban Renewal

28 May: Dr Bill Birch AM, Retired Senior Curator, Geosciences at Museum Victoria will present the **A. W. Howitt Lecture** titled:

Victoria's Gemstones, much more than history

Advance notice...

11 June: Q & A Panel discussion titled:

Nuclear Energy: Should it be Included in the Mix?

25 June: First **lunch-time** lecture at the Society with Lead Scientist Leonie Walsh, titled:

Science in our World

May 2015 Newsletter

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May Meetings

BENEATH THE SURFACE: LIVING WITH OUR INDUSTRIAL LEGACY THROUGH URBAN RENEWAL

The first May meeting will be held on **Thursday, 14th May 2015 at 7.00 pm.**



Speaker: Mr Christian Wallis

Principal Scientist & EPA appointed Auditor (Contaminated Land), Golder Associates Pty Ltd.

Our industrial heritage, combined with lower environmental standards for much of the last 150 years has resulted in parts of our urban soil environment becoming contaminated. Healthy soils are important for the ongoing viability of our urban areas by nourishing parks/backyards, food growing, biodiversity and filtering

contaminants. The objective of this talk is to explore practices that have caused soil contamination, their impacts and the measures that can be applied to support healthy communities and urban renewal.

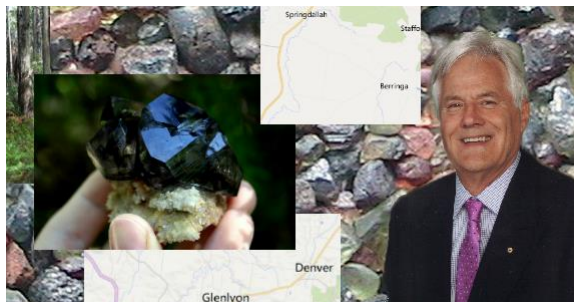
2015 A. W. HOWITT LECTURE VICTORIA'S GEMSTONES, MUCH MORE THAN HISTORY

The second May meeting will be held on **Thursday, 28th May at 7.00 pm**, a joint meeting with the Geological Society of Australia (Victoria Division)

Speaker: Dr William Birch AM

President, Royal Society of Victoria & Retired Senior Curator (Geosciences), Museum Victoria

Dr Birch will describe the main localities where diamonds and sapphires occur across Victoria, and illustrate the main distinguishing features of the gemstones from each field, including some of the modern investigative methods available. While seemingly isolated from each other, the Victorian gem-fields lie within the belt of diamond–sapphire–zircon fields extending from Tasmania to Queensland, suggesting they all must have some aspects of their origin in common.



Early interest in gemstones in colonial Victoria was inextricably linked to discoveries made during alluvial gold mining, when diggers routinely turned up brightly coloured sapphires and zircons in their pans and sluice-boxes. The discovery of rare diamonds heightened the excitement.

Three influential men, the Rev. John Bleasdale, George Milner Stephen and George Ulrich, all members of the Royal Society of Victoria, were responsible for promoting Victorian gemstones. As President, Bleasdale organised an exhibition of colonial gemstones and jewellery, open to the public in the Society's hall, for the week ending May 6, 1865, 150 years ago this month. A few years later he proclaimed Victoria to have more rare and precious gems than any other country. Nowadays, Victoria's gemstones do little more than tease occasional diamond explorers and entice hobby fossickers, yet their very elusiveness, variability and puzzling distribution excites scientific curiosity.



Book online, call or email our office on the details below. Our lectures are free with an optional gold coin donation to our science programs.

Pre-Lecture Refreshments

If you plan to join us for refreshments prior to the lectures on 14th or 28th May (6:15pm) (cost \$20 per person), please register your attendance so we can arrange appropriate catering.

Register along with your seat at <http://ow.ly/LFlwF>, or phone 9663 5259, or email rsv@sciencevictoria.org.au.

ANNUAL GENERAL MEETING

The AGM was held Thursday, 23 April 2015 at the Society's Hall. Thank you to those Members who attended in person and to those who sent a proxy form.

Councillors for 2015-2016 are:

Dr Peter Baines
Prof. Graham D. Burrows AO
Mrs Helen Gardiner
Prof. Sandra Rees
Dr Mark Williams

President	Dr William Birch AM
Vice-President	David Zerman
Hon. Secretary	Mrs Nicola Williams
Hon. Treasurer	Norman Kennedy
Immediate Past President	Prof. Lynne Selwood
Elected 2014	Prof. Tim Entwisle

Nominations for RSV Membership

Nominations for membership of the Society have been received on behalf of:

Dennis Clifford GREEN, Retired

Mrs **Lynda Michelle HANLON**, Student

Unless Members request a ballot, they will be considered for election at the Council meeting on 14th May and if elected, will be announced at the Ordinary Meeting of the Royal Society of Victoria held that evening.

Recently elected members who have not yet signed the Society's membership book nor received their certificate are invited to attend the 14th May meeting to be formally welcomed as members.

MEMBERSHIP RENEWAL

Members who have not renewed their membership are requested to pay their subscription promptly.

Donations

Council thanks all Members who have continued to support the Society; particularly those who have renewed their membership for the 2015 year promptly.

Members are reminded that donations made to the Royal Society of Victoria are tax deductible and we are particularly grateful to Members who have already donated to support the annual Young Scientist Research Prizes and to renew

facilities in our heritage building. Please consider doing the same when renewing your membership.

Donations are very welcome and can be made at any time.

Scientists in Schools – CSIRO Partnership

The Royal Society of Victoria has partnered with **CSIRO Education & Outreach** to marry the aims of our **Science in my World** program with CSIRO's **Scientists in Schools** initiative.



Society volunteers were briefed on the evening of 16 April by CSIRO project officer Sally Ip, who outlined the key goals and methodology behind the Science in Schools program.

There are three dominant streams to the program, drawing on volunteers with expertise in either **general science**, **mathematics** or **ICT** (Information & Communication Technology). The program maps primary and secondary schools who have expressed specific interest in a relationship with a scientist or science teacher to enable a more engaging STEM curriculum that follows the interests of students and their teachers. A list of schools currently awaiting assistance can be found online at <http://www.scientistsinschools.edu.au/scientists/unmatched.htm>

Sally explained volunteers can determine which school they would like to support, and the level of support provided. Some volunteers may opt for a hands-on, co-teaching approach, while others may offer a series of science-related incursions, while some might offer a more advisory role, providing teachers with input to curriculum and pedagogy once or twice a year as a consultant.

CSIRO will facilitate school introductions, manage administrative hurdles such as Working with Children checks, and maintain a supportive presence in the partnership between volunteers and schools. Meanwhile, the Society will underpin the volunteer placement by providing backup as necessary from across the disciplines and facilitating any material assistance schools might require with educational materials and teacher training.



Our first batch of volunteers have now signed on, and will be asked to report back on their placements later in the year, at which time we will encourage as many members as possible to attend and learn from our colleagues' experiences first-hand.

Volunteering to work with enquiring young minds is an immensely rewarding experience. To sustain our outreach programs, **we always require new volunteers** to avoid overburdening people over the long term. CSIRO are keen to hear from RSV members with skills and experiences as:

- Ecologists
- Physicists
- Astronomers
- Meteorologists
- Software engineering

On this last point, the Society's **Coder Dojo** pilot program has proven to be a resounding success with our young coders and their families. To keep the momentum up – and give our first round of volunteers a bit of a break – it would be wonderful to hear from any programmers who would be **available to help out** for any length of time. The commitment is for Sunday mornings during school terms at Wooranna Park Primary School in North Dandenong. Please contact the Society office to learn more.

For members who were unable to attend the CSIRO briefing, but are keen to learn more: please contact Roz Holloway at the Society (roz@sciencevictoria.org.au) or Sally Ip at CSIRO (sally.ip@csiro.au). To register as a volunteer with the Scientists in Schools program, please follow these links:

Science:

<http://www.scientistsinschools.edu.au/scientists/registration.htm>

Maths:

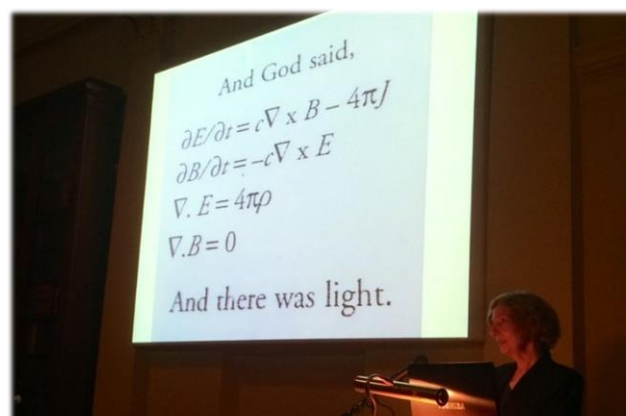
<http://www.mathematiciansinschools.edu.au/mathematicians/registration.htm>

ICT:

<http://www.scientistsinschools.edu.au/ict/ICTprofessional/registration.htm>

RECENT LECTURES

Celebrating Maxwell – and Scientific Curiosity



On **26 March** Dr Robyn Arianrhod provided a really enjoyable exploration of **James Clerk Maxwell's** remarkable contribution to science during his 48 years on the planet, and the fascinating interactions his life and work had with other 19th century luminaries such as Michael Faraday and Peter Guthrie Tait.

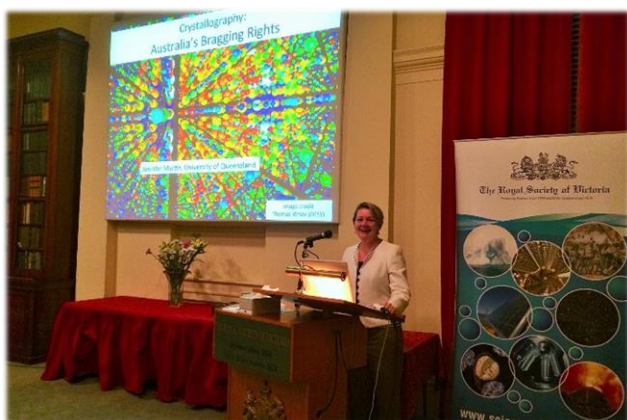
Einstein would later find himself working in his infamous patents office due to skipping too many lectures to instead study Maxwell's work, which takes in a stunning field of enquiry and discovery from electromagnetism (providing the basis of wave theory and the nature of light), to colour analysis (demonstrating the nature of white light and pioneering colour photography), to a kinetic theory of gases and thermodynamics, to foundational principles of control theory. Truly the activity of a curious

mind with clear parallels to the restless productivity of Isaac Newton.

The times were truly exciting for science in the 19th century, with an heuristic relationship between theoreticians and practical thinkers producing stunning new knowledge that challenged deeply ingrained assumptions about the nature of the universe. Maxwell was both mathematician and poet, explained Dr Arianrhod, for whom "language was reality."

Dr Arianrhod charted not just the life of Maxwell, but the trajectory his discoveries made through the subsequent 150 years **to demonstrate how integral theories such as electromagnetism are to modern life**, the technology we take for granted, and our very understanding of the universe and its origins. A figure largely forgotten and uncelebrated for too long, Maxwell's status in science is at last making a comeback among both the scientific and broader community.

Crystallography: Australia's Bragging Rights



A fun lecture on **9 April** from the University of Queensland's Professor Jennifer Martin, outlining the life and accomplishments of Australia's first - and the world's youngest - Nobel Prize winner, **William Lawrence Bragg**, on the centenary of his accomplishment.

Jenny set out Lawrence's pedigree: his father William Henry Bragg was an accomplished mathematician and physicist, his artist mother Gwendoline Todd the daughter of a successful electrical engineer, meteorologist and astronomer, Sir Charles Todd; and made it plain the young man had no choice but to be a scientist, with bedtime stories told about the key properties of atoms! Indeed, the young Bragg had his broken bones analysed by his father using X-ray photography, one of the first people

in the world to be so imaged for diagnostic purposes.

Completing his BA at the University of Adelaide at the age of 18, Lawrence was a 22 year old scholar at Cambridge when Max von Laue showed that X-rays could be diffracted by crystals and established their wave nature. It was 1912, the year the Titanic sank.

Building on von Laue's work, both Braggs - father and son - set to work, the elder constructing an X-ray spectrometer, the younger formulating Bragg's Law, relating the location of maxima of the diffraction pattern to the wavelength of the radiation and the distance between the appropriate planes of atoms in the crystal. He also realized that analysis of X-ray diffraction patterns provided a means of locating the atoms in crystals. Joining forces, **father and son initiated the entire field of X-ray crystallography**, for which they jointly won the 1915 Nobel Prize. Lawrence was 25 years old.

Jenny remarked on the sombre expressions of the two prize winners, who had only recently lost brother and son Bob in the conflict at Gallipoli, and were themselves immersed in the war effort.

A stellar career in the sciences unfolded for Professor Sir William Lawrence Bragg from this point, ending in a curious stint as "Willy the Gardener" in retirement, attacking the manicured grounds of some of London's finest town-houses as a contract worker to provide an outlet for his love of gardening.

Urging us to 'brag about Bragg,' Professor Jennifer Martin claims Lawrence as her "crystallography grandfather," having being supervised in turn by his last PhD supervisee, Professor Dame Louise Johnson.



CBD Parking

The cost for members to park at the Society remains very cheap - **free** for the first two hours and **\$15.00 for the day** for parking between **8.00am and 5.00pm**. Please just call into the office when you arrive so that we are aware of your vehicle.

To accommodate our commercial parking leases, **please avoid parking in the numbered bays** adjacent to the building.

After hours or weekend parking is by arrangement only.

Parking is **not available** on **Tuesday evenings** due to bookings for the entire building.

Parking for non-members is also available and the Society can accommodate daily, weekly, monthly or yearly arrangements at commercially competitive rates.

Trust for Nature (Victoria)

The Minister for Environment and Climate Change is seeking expressions of interest for up to three positions on the board of Trust for Nature.

Trust for Nature is a statutory authority established under the Victorian Conservation Trust Act 1972 to enable people to donate land, or funds, and encourage and assist in the preservation of areas of ecological significance on privately-owned land. The Trust works with communities and private land holders to permanently protect and enhance the diversity of our natural flora and fauna.

Applicants should have a demonstrated interest or expertise in one or more of the following areas: conservation and the environment, senior corporate business planning/financial management, corporate directorships, agribusiness, fundraising, philanthropy, marketing and public relations, law and indigenous and cultural heritage.

Members are encouraged to consider taking on a position. Application forms and further information is available on the Department of Land, Water & Planning website at <http://www.delwp.vic.gov.au/about-us/current-board-vacancies>.

Publish in The Proceedings: Invitation to Members

To broaden the scope of our journal *The Proceedings of the Royal Society of Victoria* at the international level, we are inviting members to submit a paper as sole author or in collaboration with colleagues. In addition, we urge you to encourage your research students to submit a research article or review. We seek contributions in all areas of science.

This year we have a very healthy rate of contribution for both editions of the 2015 volume, which is now entirely published and distributed online through CSIRO publishing. **Copies will be accessible through the Royal Society of Victoria's website** once the first electronic edition is released in late May/June.

Open House Melbourne: Volunteers Required

This year the Royal Society of Victoria will once again open its heritage building to tours by members of the public on the weekend of **25th and 26th July**.

We are seeking members with an interest and expertise in the rich history of the Society, its rooms, the provenance of the various objects on display, and the biographical details of its prominent historical figures to guide small groups around the building. Melbourne Open House is a wonderful opportunity to engage those curious yet apprehensive members of the community who may not otherwise make an approach.

If you are interested and available to take on a morning or afternoon shift, please contact the office at rsv@sciencevictoria.org.au or on 9663 5259.

Former Bureau of Meteorology Site

The Society needs to repurpose the triangle of land vacated by the Bureau of Meteorology last year and is considering a public Expression of Interest process to engage with potential users. Purposes that accord with the mission of the Society as a proponent of the sciences and respond appropriately to the heritage character of our site are open for consideration. **Members with interesting ideas for this high-visibility site are invited to discuss these with the Executive Director**, Mike Flattley: ed@sciencevictoria.org.au or 9663 5259.