

# THE VICTORIAN GEOLOGIST

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THE GEOLOGICAL SOCIETY OF AUSTRALIA

October 2014

Victoria Division

General Meeting

Thursday 30th October at 6:15 p.m.

## **Architectural controls on Palaeozoic porphyry Au-Cu, Cadia Valley, NSW**

**Dr Anthony Harris**  
**Newcrest Mining Limited**  
**Principal Geologist (Exploration)**

**Fritz Loewe Theatre, School of Earth Sciences, University of Melbourne**  
Talk will be preceded by drinks from 5:30 pm in the 4th floor tearoom, cost \$2

Anthony is Principal Geologist (Exploration) for Newcrest Mining Limited. He considers himself privileged to have spent the past 18 years working together with memorable geologists on world-class porphyry and epithermal deposits.

He completed his undergraduate and postgraduate studies at the University of Queensland before commencing as a research fellow at the Centre of Excellence in Ore Deposits, University of Tasmania. It was here that he began work on the giant Cadia deposits, the subject of today's presentation. This work that brought together industry and academic professionals led to his current role in Newcrest.

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**REPORT ON THE SELWYN SYMPOSIUM**

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**Selwyn Symposium, Lecture and Medal 2014**  
***The Nullarbor Plain: Recent Advances***

A successful Selwyn Symposium was held on Friday October 3, 2014, at the University of Melbourne. The Symposium is held every two years, although the medal and lecture are annual.

Although this theme is not often associated with Victoria, several Victorian karst workers and speleologists have been involved over the past 15 years with new discoveries and their associated science. As the international meeting, The Karst Record 7, was being held earlier that week in Melbourne, it seemed an excellent opportunity to link the recent work on the Nullarbor with karst workers from overseas and interstate. Karst science has changed and progressed immensely in the past 15 years, especially the improvements in dating, the discovery of the megafauna 'Thylacoleo' caves in 2002, and the use of ultra light aircraft for documenting new caves and karst features. A wide range of ideas were presented by the speakers with lively discussion and questions. Copies of the abstracts will be available from the GSA Sydney Office.

Just over 45 years ago, John Dunkley and Tom Wigley edited for the Sydney University Speleological Society (SUSS) and the Cave Exploration Group (South Australia) (CEGSA), the first review of the speleological work of the Nullarbor Plain, *The Caves of the Nullarbor*.



*John Dunkley and Tom Wigley catch up over their original publication **Caves of the Nullarbor***

Photo courtesy of Nicholas White

Although work has continued for the past 47 years, no replacement has ever been produced. John and Tom were both present (see photo). It was a great opportunity for people who have not met for many years to catch up again and for speleologists and researchers to meet and discuss aspects of the fascinating geology. As the Plenary Lecturer (John Webb) stated, the Nullarbor might be flat but it is far from boring.

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## REPORT ON THE SELWYN SYMPOSIUM

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The Selwyn Lecture was delivered by Professor Paul Williams (University of Auckland), *Downstream Reflections of an Upstream Environment*, a really thoughtful discussion on the role of water and climate, important in the development of karst, in what is now an arid environment.



*Symposium attendees socialising before the Selwyn Lecture*  
Photo courtesy of Nicholas White

Dr Ian Duddy, (Geotrack International) is the 2014 Selwyn Medal recipient for

his extensive work developing and using apatite fission-track thermochronology in thermal history assessment in hydrocarbon exploration, especially the thermal effects of fluid flow in sedimentary basins.

The Division thanks all those who helped make this a very successful Selwyn. A really great day, finishing a great week of karst science.



*Lively discussion and socialising before the Selwyn Lecture*

Photo courtesy of Estephany Marillo



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## THE 2014 SELWYN MEDALLIST

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### Dr Ian Duddy

Dr Ian Duddy, Geotrack International, was awarded the 2014 Selwyn Medal at the recent Selwyn Lecture.

Ian Duddy has made important contributions to the Earth Sciences community in Victoria, the geology of Victoria, and many other parts of the world. He has played a key role in establishing the locally-developed technology of apatite fission track analysis (AFTA) as a leading contributor to the field of thermochronology and to the international petroleum industry.



Ian's Ph.D. research at The University of Melbourne involved geochemistry and the diagenetic evolution of the Early Cretaceous Otway Group volcanogenic sediments. He developed the systematic application of AFTA in a sedimentary basin setting. During his time at the Melbourne fission track laboratory, he recognised that fission track annealing closely parallels hydrocarbon generation in sedimentary basins and thus helped establish AFTA as a rigorous tool for thermal history assessment in hydrocarbon exploration.

His fundamental fission track research and development work allowed for the prediction of fission-track parameters in geological settings, and the thermal effects of fluid flow in sedimentary basins, based on the use of fission track analysis and vitrinite reflectance data. This work led to Melbourne being acknowledged as a leading world centre in the field of Thermochronology.

In 1987 Ian was one of the co-founders of Geotrack International Pty Ltd, an international consulting company based in Melbourne, specializing in the application of AFTA to hydrocarbon exploration problems in a range of sedimentary basins worldwide. The company is export focused and leads the world in this particular field. Recognition of its expertise is clearly demonstrated in that all of the world's major hydrocarbon exploration companies are listed amongst their clients. Ian has played a central role in the company since the earliest origins within the Melbourne Fission Track Research Group and has written many hundreds of reports for clients from around the world. He continues as a director and manager in the company today.

Ian has also contributed more broadly to advancing our understanding of the geology of Victoria and southern Australia, for example through his writing of Chapter 9 on the 'Mesozoic' in the most recent 'Geology of Victoria' volume in 2003.

Ian Duddy has maintained his close association with the Otway Basin and has played a leading role in its use in education and demonstration of fundamental basin concepts. He enjoys showing other geoscientists, and especially students, the important lessons that can be learned in this important basin and has led numerous field excursions around the basin over many years.

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**STUDENT SCHOLARSHIP RECIPIENT**

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**Mathias Egglseder****Ph.D. Candidate****Department of Earth, Atmosphere and Environment, Monash University**

The awarded travel grant from the Victorian Division of the Geological Society of Australia helped cover parts of my travel expenses, which allowed for the participation at two international conferences. I successfully presented a poster at each conference to researchers and geologists from both academia and industry.

The first conference “GeoMod2014” took place at the GFZ - German Research Centre for Geosciences in Potsdam, Germany from the 31 August - 5 September 2014. The GFZ is the flagship of Geoscience research in Germany and the conference attracted numerous international scientists who presented their research in different fields of geological modelling. My poster “Upscaling of micro- and meso-scale structures to local- and regional-scales: implications for 3D implicit and explicit models of structurally complex deformation of multi-layered rocks” showed the application of different structural geology techniques from classical field geology to state-of-the-art 3D modelling to create a coherent model, which accounts for most of the micro- to regional-scale observations. The mainly academic audience was very interested in my approach to combine a wide variety of datasets and the consecutive implications into the complex polyphase deformation of multilayered sequences of rocks with different rheological behaviours.

The second conference “SEG 2014 – Building Exploration Capability for the 21st Century” in Keystone, Colorado took place from the 27 – 30 September 2014 with attendees from all fields of economic geology. My poster “Upscaling of micro- and meso-scale structures to the deposit-scale: implications for 3D models of complex, structurally controlled mineralisation” focussed on the importance of having a clear spatial and temporal understanding of the structural framework of structurally controlled mineralisation of “BIF (banded iron formation) – hosted high-grade iron ore deposits (BID)” of the Hamersley Province, Western Australia. Conversations with various geologists showed that the implications of my research may not be restricted to BIDs, but may be of significance to understanding the general interaction of deformation, fluid flow and mineralisation.

I would like to thank GSA Victoria for supporting my research by providing financial support to attend both conferences. Numerous conversations with researchers and geologists from different fields underlined the relevance of my research project and promising contacts were made, allowing for future collaborations.

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**STUDENT FUNDING OPPORTUNITIES**

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## **Geological Society of Australia (Victoria Division) Student Research Scholarships**

The scholarship is valued at up to \$500 for travel within Australia and \$700 for travel outside of Australia. The number of and value of the scholarships awarded each year is made at the discretion of the GSA(Vic) committee.

Funding will not be granted retrospectively and applicants are asked to submit forms no later than 6 weeks prior to their trip to give the committee time to consider the application.



### **Eligibility**

Applicants must be members of the GSA and enrolled in a full-time degree at a Victorian Tertiary institution and undertaking research in Geology. The scholarship will be awarded to assist with conference travel for honours and postgraduate students, who are presenting (either poster or talk) at the conference.

Honours and postgraduate students that receive this scholarship will be required to submit a report for publication in 'The Victorian Geologist' newsletter following to their trip. A presentation may also be requested by the committee, which will consist of a short 10-15 minute presentation prior to the monthly seminar.

Students who have previously received a GSAV research scholarship are not eligible. Scholarships and bursaries from other sources are acceptable.

Applications forms can be scanned and emailed to: [secretary@vic.gsa.org.au](mailto:secretary@vic.gsa.org.au)

or mailed to:

Geology Research Scholarships Victoria  
Geological Society of Australia (Victoria Division)  
GPO Box 2355  
Melbourne VIC 3001

More information can be found by contacting Barbara Wagstaff ([wagstaff@unimelb.edu.au](mailto:wagstaff@unimelb.edu.au))

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### **Something interesting to share? Want to see your name in print?**

Don't be bashful, contribute to the GSA(V) monthly newsletter!

If there are any events, happenings, news, or views that would be of interest to the membership, please send your details and information to Kieran Iles at [kiles@student.unimelb.edu.au](mailto:kiles@student.unimelb.edu.au)

**We'd be glad to hear from you**

## FORTHCOMING SEMINARS AND EVENTS

to be presented at  
GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2014 talks will be held in the  
Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

October 30th:

**Monthly Meeting:** Anthony Harris

Architectural controls on Palaeozoic porphyry Au-Cu, Cadia Valley, NSW

November 27th:

**Monthly Meeting:** Peter Trusler

Illustrating for Science and Culture

Please welcome our newest members

Martin Schwindinger

Visit the GSAV on [www.gsavic.org](http://www.gsavic.org) or the GSA on [www.gsa.org.au](http://www.gsa.org.au)  
• Renewing your GSA membership is easy - it can now be done online. •

### CONSIDER CONTRIBUTING TO TAG!

It is member contributions which make TAG a member magazine – please keep the contributions coming and assist with informing all of the membership (not just your Division) about your activities.

Please send your news to: [tag@gsa.org.au](mailto:tag@gsa.org.au)



### GSA (VICTORIA DIVISION) COMMITTEE

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#### Newsletter deadline:

First Friday of the month except Dec & Jan  
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