

October 2010

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting for 2010

Thursday 28th October at 6:15 p.m.

Dating human origins in South Africa: caves, cliffs and clean labs

Robyn Pickering

Fritz-Loewe Theatre, Earth Sciences Building, The University of Melbourne

Preceded at 5:30 p.m. by drinks and nibbles in the tea-room, 4th floor. Cost \$2

All the earliest human fossil (hominin) remains are found in Africa, from the very beginnings of our own genus *Homo* around 2 million years ago through to the first sign of modern human behaviour at around 164 thousand years ago. The caves near Johannesburg known as the 'Cradle of Humankind' and the caves in the cliffs near Mossel Bay along the southern coast of South Africa are the two richest sources of this evidence. An accurate method of dating the fossil remains of our earliest human ancestors is vital in understanding the chronology and exact location within Africa of mankind's development. Uranium-Lead dating of the cave deposits themselves, particularly the speleothem or flowstone layers, sandwiched between the fossil bearing sediments, is currently the best method for this. Sophisticated laboratory facilities are needed for this dating and only recently have the methods become routine. New dates for cave from these two areas have had profound impacts on the placement of the South African material within the African fossil record, as well as in our own human 'family tree'. Uranium-Lead dating was also used to provide an age of 1.95 million years to the new species of hominin, *Australopithecus sediba*.



The new species *Australopithecus sediba* announced in *Science* in April 2010

TALK DETAILS CONTINUED

Biography of Dr Robyn Pickering

Robyn Pickering is a McKenzie post-doctoral fellow in the School of Earth Sciences at Melbourne University. Originally from South Africa, Robyn undertook her undergraduate and MSc studies at the University of the Witwatersrand, Johannesburg. She completed a PhD at the University of Bern, Switzerland in May 2009 and moved on to Australia to take up a position in the Isotope Group at Melbourne University. Robyn's research interests lie in using isotope geochemistry to investigate the age and palaeo-environment of mainly carbonate rocks. She uses U-Pb and U-Th dating methods to provide ages for cave deposits (speleothems) associated with early human fossils and is particularly interested in the development of the associated laboratory and analytical techniques, as well as the chronology of human evolution and the connection between Pleistocene climate change and the early hominin fossil record.



Dr Robyn Pickering

**2010 Selwyn Medal Awards Ceremony****Presentation of the Selwyn Medal and Selwyn Lecture by Brad Pillans**

By Gemma Prata

This year the Selwyn Medal was awarded to Prof. Mike Hall of Monash University. Mike has had a distinguished career spanning 50 years making significant geological discoveries on each of the world's continents and throughout Australia. One of the highlights of his career has been his contribution to the rejuvenation of the structural and stratigraphic understanding of the Otway Basin. Although technically retired from academia, he continues to supervise numerous honours



Prof. Mike Hall with the Selwyn Medal



From left to right: Prof. Mike Hall, Prof. David Cantrill (Chair of the Vic Division), Ingrid Campbell (Chair of the Awards Committee)



Previous Selwyn Medal winners
From left to right: Fons VandenBerg, Guy Holdgate, Bernie Joyce, Mike Hall and Andrew Gleadow

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MEMBER CONTRIBUTIONS

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and postgraduate students at Monash University and is active in both the petroleum and geothermal industries through his 3D-Geo geological consultancy. A summary of his support statement can be found in last month's TVG or the full statement can be read online at www.vic.gsa.org. The award ceremony on the evening of 30th of September was followed by the Selwyn Lecture, which this year was given by the new Chair of the Federal Division of the GSA, Prof. Brad Pillans. Brad gave an excellent presentation on palaeoclimate change through the Quaternary highlighting the effects of the Earth's orbital patterns on the climate system. He concluded by emphasizing the importance of understanding how the climate behaved in the past in order to better assess anthropogenic influences on today's climate. His talk was followed by some interesting discussion and debate from the audience.



In the photo:

Prof. David Cantrill thanking Prof. Brad Pillans for his talk entitled: "Climate change – a view from the Quaternary"

A Summary of the AASP Pollen and Spore Master Class

August 16-20, 2010, Utrecht, The Netherlands

By Chris Mays
Monash University

The Spore and Pollen Master Class, held in the beautiful town of Utrecht amid canals and cobblestone roads, was the first such workshop in the world. It was a global meeting of minds, with representatives from all continents, even Antarctica - one of the presenters, Jim Riding, is a member of the British Antarctic Survey! I, along with a fellow postgraduate student Jess Taglieri, represented the Australasian contingent. Having such a disparate group of researchers opened my eyes to the diversity of research techniques being applied, localities being investigated and opportunities being presented in the field of palynology. These applications include environmental interpretations, floral biodiversity, biozonation and hydrocarbon exploration. Of course, this diversity of research and researchers also raises its own challenges, especially in taxonomy ("You call THAT *Classopollis*?!");



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MEMBER CONTRIBUTIONS

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this is one reason why such open discussions are vital - to level the playing field and prevent any divergence in jargon.

Much of the content was dedicated to examining the index pollen and spore taxa throughout geological history, ever since plant colonization of the land in the Ordovician. These index taxa are not only important for biostratigraphy and biozonation, but they also reflect the fluctuating conditions of the environment and the long-term evolutionary trends of land plants. The presenters, including Carlos Jaramillo, Thomas Demchuk, Andy Lotter, Robert Morley and Jim Riding, were almost as diverse as the taxonomy, each with their own specialty within the field. However, there is a major trend in the palynological community to apply the techniques of Quaternary palynology as a key to the past. By analyzing abundance and diversity data through an array of statistical approaches, a dazzling amount of detail can be gleaned for all aspects of sedimentary geology, especially in regards to past environments.

The workshop included a trip to Maastricht, a town best known in geological circles as the namesake for the latest stage of the Cretaceous, the Maastrichtian. Here we visited the Natural History Museum, featuring a range of fossils, most notably the exquisite Mosasaurs that have been found in the nearby Late Cretaceous fossil beds. After this, we headed underground into some of the extensive limestone caves that riddle the region. This is where we were shown a newly discovered locality of the Cretaceous-Paleogene boundary, as well as given a brief summary of the research undertaken on the sequence.

One of the shortcomings of the workshop was an overall lack of students, and the content tended to be aimed at folks with a few years of palynological research under their belts. This makes it hard for entry-level students in the field to gain a foothold, although the emerging consensus from the workshop was that this issue will be addressed in future meetings. As mentioned above, this was the first workshop of its kind, and feedback for improvements was graciously accepted. Most researchers recognise the need to promote interest in the next generation. That being said, this shouldn't be a reason for the young ones to shy away from these meetings; on the contrary, a greater interest by students would sway the organizers and presenters to cater the content accordingly. I heartily recommend this master class to any students interested in sedimentary basin studies, terrestrial biodiversity and palaeoenvironmental interpretations.

As all students realise, it's not cheap to attend such events, and it was only through the kind financial contributions by the Geological Society of Australia (Victoria), the Palynological Society (AASP) and The Society for Organic Petrology (TSOP) that I could afford the trip. The trip was also partly funded by a Research Initiatives grant awarded to Dr. Jeffrey Stilwell, Monash University. Once again, this goes to show how researchers in palynology, and geology in general, are eager to promote science through the students in the field, and I'm inspired by their generosity and their long-term scope.

Chris's trip was partially funded by the GSAV Student Research Scholarship

FORTHCOMING EVENTS

**IUGG2011: “Earth on the Edge: Science for a Sustainable Planet”****Melbourne Convention and Exhibition Centre, 28th June – 7th July, 2011**

- *Registrations opened 16th August, 2010*
- *Abstract submission period 16th August, 2010 – 17th January, 2011*
- *Conference website now open: <http://www.iugg2011.com>*
- *Scientific program of symposia, workshops, fieldtrips, together with symposia convenors, plenary and keynote speakers already available on website*

The major, international IUGG2011 General Assembly conference will be held at the new Melbourne Convention and Exhibition Centre from 28th June to 7th July, 2011. IUGG (or the International Union for Geodesy and Geophysics) is a collaborative grouping of eight scientific learned societies or associations, as follows:

- International Association for **Cryospheric Sciences** (IACS)
- International Association of **Geodesy** (IAG)
- International Association of **Geomagnetism and Aeronomy** (IAGA)
- International Association of **Hydrological Sciences** (IAHS)
- International Association of **Meteorology and Atmospheric Sciences** (IAMAS)
- International Association for the **Physical Sciences of the Ocean** (IAPSO)
- International Association of **Seismology** and Physics of the Earth's Interior (IASPEI)
- International Association of **Volcanology and (geo)Chemistry** of the Earth's Interior (IAVCEI)

Each association has organised its own comprehensive, discipline specific program of symposia, which is already available on the conference website at www.iugg2011.com. In addition, there will be many joint symposia organized by two or more associations on topical, inter-disciplinary themes, there is a conference plenary speakers program, most symposia will have invited keynote speakers, and some associations are organizing **fieldtrips** (e.g. volcanology fieldtrips to Philippines, Indonesia, Rabaul, PNG, Vanuatu, New Zealand and Australia), and **workshops** on topical issues. Details are again available on the website.

The general conference theme for the IUGG2011 conference is “**Earth on the Edge: Science for a Sustainable Planet**”. IUGG2011 will be the largest multi-disciplinary geophysical meeting to be held in Australia, and in excess of 3,000 delegates are expected to attend. So, in addition to the discipline specific program of symposia that each association has organised, the scientific program will address many of the environmental, sustainability and hazard issues facing Australia,

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New Zealand and the Earth at large, including climate change, extreme weather events, melting glaciers and ice-caps, rising sea-levels, water in arid countries, earthquake hazards and tsunamis, and volcanic hazards, processes and natural resources.

The conference website is now open at <http://www.iugg2011.com>, with information about the conference, the scientific program of symposia, workshops and fieldtrips. On-line registration for the conference opened on the website on 16th August, as well as for fieldtrips, social touring, and accommodation.

The call for abstract submission has also now opened, with the deadline for abstract submission being 17th January, 2011.

Six reasons to come to IUGG2011:

1. Opportunity to participate in an exciting, multi-disciplinary conference on cutting edge geoscience.
2. Take part in an outstanding Scientific Program of plenary speakers, keynote speakers, symposia, fieldtrips and workshops.
3. Participate in the dedicated, interactive poster presentations, exhibitions and sponsors displays that will be valuable and stimulating.
4. The new Melbourne Convention Centre, completed in late 2009, is one of the most modern convention centres in the world. The whole conference will be held under the one roof, in a building that is purpose built for large conferences and conventions.
5. Visit one of the most live-able cities in the world. Melbourne is a beautiful city with fine buildings and spacious parks. Immigrants from many, many countries have given Melbourne a multi-cultural, cosmopolitan outlook, and the city has developed as the cultural, fashion, shopping, sporting and culinary centre of Australia.
6. Take that holiday in Australia and New Zealand that you've always wanted to take. Visit the rugged coastal scenery, vineyards and ski fields of southern Australia and New Zealand, or the warm beaches, the Great Barrier Coral Reef system and arid inland of the "Red Centre" of northern, tropical Australia, at the most perfect time climatically to visit the tropical north.

The Joint Australia and New Zealand Organising Committee of IUGG2011 looks forward to welcoming international geoscientists to the 2011 IUGG General Assembly in Melbourne.

(Professor) Ray Cas,
On behalf of the Joint Australian and New Zealand Organising Committee,
IUGG2011 General Assembly,
Melbourne, Australia,
28th June – 7th July, 2011.

BE THERE !

FORTHCOMING EVENTS

Monash University upcoming seminars

Fri 22nd October 2010, 1pm, S2, Building 25, Clayton Campus:

Dr Mark Quigley, Univeristy of Canterbury, New Zealand:

"The September 4th Canterbury Earthquake: What happened and what next?"

Fri 29th October 2010, 12 noon, S10, Building 25, Clayton Campus:

Dr David Jones, Univeristy of Bristol / Monash University:

"Synchrotron-based Paleontology"

For more information contact:

Simon Jowitt (simon.jowitt@monash.edu) or Ph: 9905 1119

Or go to:

<http://www.geosci.monash.edu.au/seminar/index.html>

STAVCON - CALL FOR VOLUNTEERS

STAVCON is the annual conference of the Science Teachers' Association of Victoria. The conference is open to any person involved or interested in science education; this includes student teachers, laboratory technicians, primary, secondary and tertiary educators.

29 - 30 November 2010 at La Trobe University, Bundoora

Theme for 2010: Understanding science in a changing world

The Victorian Division of the GSA will have a table displaying rock specimens and fact sheets, with the aim of promoting geology (and the GSAV!) and making it feature more prominently in schools.

If you would like to volunteer some time at this conference on either day, please contact Noel Schleiger on (03) 9435 8408 or email secretary@vic.gsa.org.au

For more information, see the STAVCON website: <http://www.sciencevictoria.com.au/STAVCON.html>

STUDENT FUNDING OPPORTUNITIES

Geological Society of Australia (Victoria Division) Student Research Scholarships

The GSAV are pleased to offer up to \$10,000 per year in scholarships available to honours and postgraduate students for assistance with travel costs associated with conferences and field work. The number and value of the scholarships awarded each year is made at the discretion of the GSA(Vic) committee.



Funding for travel within Australia is capped at \$500 and funding for international travel is capped at \$700.

Students that receive this scholarship are required to submit a report for publication in the newsletter, "The Victorian Geologist", following 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.

Applications forms can be scanned and emailed to: 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 including eligibility criteria can be found on the form and by contacting Barbara Wagstaff (wagstaff@unimelb.edu.au)

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 Gemma Prata (gemma.prata@monash.edu)

We'd be glad to hear from you!

GSA (Victoria Division) meetings

October 28	Robyn Pickering The University of Melbourne	Dating human origins in South Africa: caves, cliffs and clean labs
November 25	TBA	



More details in the November issue of TVG

Francis Dams-Konkol
Matthew Bliss
Valeria Murgulov

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- Renewing your GSA membership is easy - it can now be done online. •

Please send your news to: tag@gsa.org.au

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