THE VICTORIAN GEOLOGIST

GEOLOGICAL SOCIETY OF AUSTRALIA Incorporated

February 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting: Thursday 22 February at 6.15 p.m.

Who (or what) killed Australia's giant marsupials?

Matthew Cupper

6.15 p.m. at the University of Melbourne
Fritz Loewe Theatre, Earth Sciences Building, cnr Swanston & Elgin Sts.

Preceded at 5.30 p.m. by drinks and nibbles in the tea-room, 4th floor. $2/person.

Ever since farmers began pulling bones of what they thought were rhinos, hippos and elephants from wells and creekbanks during the earliest days of European settlement of Australia, we've been intrigued by the question of what caused the extinction of the megafauna. Some blame humans, claiming that the first Aboriginal hunters swept across the continent killing off all the giant animals or that bushfires started by these hunters destroyed the habitats of the megafauna. Others contend that climate change of the last Ice Age was responsible. There is also a camp of fence sitters who think that both humans and climate played a role in the extinctions. Matt Cupper will add some new information to the debate, in particular discussing results of recent research at megafauna fossil sites on the Nullarbor Plain and from Keilor, Lancefield Swamp and Lake Menindee.

The Society notes with sadness the sudden death in Warrnambool of former Division Chairman Dr Jack Douglas on 6 February 2007.

The attached notes were prepared by Peter Kenley and others to commemorate the life of John Knight, who was well-known and respected in geological circles throughout Australia for more than sixty years. John was a dedicated Victorian geologist, a longtime member of the Victoria Division of the Geological Society of Australia (being Chairman in 1968), a former Director of the Geological Survey of Victoria, a Fellow of the GSA (2003), and a former National Secretary of the GSA (1967–68).

This tribute will also appear in the March 2007 issue of TAG.

JOHN LINDSEY KNIGHT

1920 – 2006

John Knight was a well-loved friend and colleague and will be fondly remembered by all who knew him. He had a natural warmth, was even-tempered and dependable, and led by example whenever there were demanding duties to be done. His life was one of commitment to his wife Betty (who died in 2005), his six children, his profession (geologist) and the many community interests in which he was involved.

Like the apprentice pirate Frederic in the *Pirates of Penzance,* John was born on 29th February in a leap year. He was educated at Caulfield South Primary School, Elwood Central and Melbourne High School and, in this formative period, developed a lifetime interest in model railways, steam trains and Gilbert & Sullivan light opera. He studied Geology at the University of Melbourne from 1939 to 1941 and graduated Bachelor of Science in 1942. Geological employment was scarce during WWII and in 1943 he was appointed Assistant Surveyor at the Wonthaggi State Coal Mine (at that time a reserved occupation) where he continued until 1947. He fitted in well at Wonthaggi, made many friends, and involved himself in a range of local interests (such as lifesaving at Cape Patterson) which he kept up for many years.

The Chief Surveyor at the Wonthaggi State Coal Mine, Charles Norris (a well-known local identity) became an important influence in shaping John's future career and philosophy. At the State Mine he related well to the miners and enjoyed their respect; he witnessed the conditions under which they worked and lived. These experiences influenced his ability to get on with people from all walks of life and his ongoing involvement with community issues.

In 1946 Dr D.E. Thomas, Chief Government Geologist, was given the task of rebuilding the Victorian Geological Survey (then a branch of the Mines Department) after it had languished during the Depression and WWII years. To meet the demands of the recovering economy for fuels and construction materials, geologists were urgently required. J.P.L.Kenny (a former Director) had been the expert on black and brown coal deposits in Victoria. John was ideally suited to fill this role and in 1947 was appointed as Field Geologist. In the late 1940s through to the mid-1960s, exploration for black and brown coal became his main task. He planned and supervised drilling programs in the black coal areas of Wonthaggi, Kilcunda, Korumburra and Jumbunna. Extensive exploration by drilling was also undertaken for brown coal deposits in the Bacchus Marsh, Lal Lal, Gelliondale, Winchelsea, Anglesea and Thorpdale areas. Coal had been predicted at Anglesea by W.A. Esplan and in the late 1950s John supervised a drilling program which proved a new resource of twenty million tons of brown coal. This coal is presently mined by Alcoa for power generation at its aluminium refinery at Point Henry near Geelong.

Post-war demands for construction materials (clay, sand, basalt and limestone) required extensive drilling, particularly in the Scoresby, Campbellfield and Craigieburn districts and John was heavily

involved in these investigations. Another major role he played from the late 1940s into the 1960s, drawing on his survey training and experience at the State Mine, was to update the underground surveys of the black coal mines at Wonthaggi, Korumburra, Jumbunna, Kilcunda and Outtrim. On these occasions he was usually accompanied by one of the junior geologists because his chief, Dr Thomas (a colourful Welshman) wanted 'all his young fellows to be competent surveyors'. There are many amusing tales of these times. John enjoyed the role of mentor and his advice and tuition were greatly appreciated.

By the late 1950s and early 1960s most of the black coal mines in the State had been worked out or become uneconomic. In November 1966 the State Mine closed as supplier to the Victorian Railways. John carried out a reappraisal of the remaining resources in 1967, concluding that none of the deposits were economic.

He was promoted to Senior Geologist in the early 1950s and became Assistant Director (Executive) of the Geological Survey in 1962. In this position he handled most of the administrative work of the Survey such as Crown Land alienation applications where there was a need to protect known or potential mineral resources. John acted as Director when Dr Thomas was appointed to a United Nations position in Cyprus. He retained an ongoing interest in mineral exploration programs and survey work involving coal and the extractive industries.

In 1978 he was appointed Director of Geological Survey and continued in that position until his retirement in 1982. During this time he was Chairman of the important Groundwater Advisory Committee and a member of the Extractive Industries Advisory Committee. He published many papers on the State's coal deposits and the history of the Geological Survey and early Survey geologists.

In addition to his busy professional life, John found time for a wide range of other interests. He studied for a Coal Mine Managers Certificate (1950), a Diploma of Public Administration (1958), and was selected to attend a three-month live-in course at the Australian Administrative Staff College at Mount Eliza. For many years he was an active member of the Royal Lifesaving Society (Life Member and recipient of the Service Cross of the Commonwealth Grand Council of the Society), the Puffing Billy Preservation Society, the Australian Railway Historical Society (Victorian Division), the Australasian Institute of Mining and Metallurgy and the Royal Society of Victoria. He was a Foundation Member of the Geological Society of Australia (GSA), being National Secretary from 1967 to 1968, and Chairman of the Victorian Division in 1968. Together with several of his colleagues he was made a Fellow of the Society in 2003. He rarely missed the monthly GSA meetings and attended only a few weeks prior to his final illness. He usually went on to a later meeting of the Australian Railway Historical Society. For about sixteen years he served as Chairman of the Walhalla Long Tunnel Extended (Mine) Committee of Management. He was also a regular helper at the library of the Royal Historical Society of Victoria and retained a lifetime interest in matters historical.

In retirement John travelled extensively with his beloved wife Betty, touring most continents on historical steam railways and visiting many museums on the way. In recognition of his long and dedicated service to the Puffing Billy Preservation Society he was awarded the prestigious Gold Pass Award (he was a member Executive Committee in 1962 and again in 1979; served for many years as Station Master at Belgrave and, in recent times, Manager of the Puffing Billy Museum at Menzies Creek). About 150 relatives and friends joined John "for one last train ride" from Belgrave to Emerald where the service to celebrate his life was punctuated by selections of his favourite Gilbert & Sullivan patter songs.

We will think of him often and miss his wise council and gentle humour.

D Spencer-Jones, P R Kenley and J L Neilson
(with much help from the Knight family and many friends).

December 2006

Carrying the Torch:

A Snippet from Lindsay Thomas

Many GSAV members will know and remember Marc Marsden as a colleague, lecturer, and author of papers on sedimentology Recent or Devonian. Marc has a new book out now – but on a completely different subject. In 1956 he was asked to organise the overland part of the Olympic Torch Relay, from Cairns to Melbourne, and he has written a book about his experiences and the experiences of many of the torchbearers who participated.

Although it is not so long ago, *Carrying the Torch* records a very different time. The third-ever Torch Relay and by far the longest attempted at the time, it is remarkable to compare and contrast with the recent Queen's Baton Relay. In 1956, the runners ran continuously, around the clock – but as in 2006 the crowds were there almost everywhere. Also as in 2006, there was a lot of media coverage, but Marc ran the show without the benefit of two-way radios, and in some places, from pubs with only one phone on the premises. And, when Marc was offered the task (in June, 1956!) there was one overriding rule: No Women and No Professionals! An engaging part of the book is the record of many of the nearly 3000 torchbearers' great experiences – from the welcomes of pyjama-clad spectators in the wee hours of a North Queensland morning, to the 'surprises' awaiting Ron Clarke as the last runner, lighting the Cauldron.

I think the book is a good read, as well as a fascinating snapshot of one part of our history. I recommend that members think about buying it, and perhaps passing it on to a local school or other library to keep that flame alive. Marc, unfortunately, is afflicted with severe dementia; the book was completed by his family and friends.

Carrying the Torch is available from Marsden Publishing for $36.50 including postage and packing. Email marpen@vic.chariot.net.au for more information.

Hopefully by now just about everybody has had a good look at the McNaught Comet. The photograph on the left was taken around 10 p.m. on 25 January this year from near the summit of Mt Smythe (between Mt St Bernard and Mt Blowhard on the Great Alpine Road). Mt St Bernard is silhouetted against the dying embers of the sunset. (Photograph by M.E. Moore)

To see this comet in much better detail, check out Rob McNaught's outstanding photographs on the following link:

http://msowww.anu.edu.au/~rmn/C2006P1new.htm

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

22 February	**Matthew Cupper**	**Who (or what) killed Australia's giant marsupials?**
29 March	**Latrobe University Postraduate Students Night (speakers TBC)**	
	Kate Bailue	Groundwater recharge and movement on a small (paddock) scale, Willaura area, western Victoria.
	Matthias Raiber	A multi-scale isotopic tracer study to delineate aquifer interaction and its impact on groundwater salinisation in the eastern Hopkins catchment, western Victoria.
	Sarah Hagerty	The effect of groundwater input on stream salinity of the upper Loddon catchment, central Victoria.
	Yohannes Yihdego	Relationship of climate and landuse to changes in level and salinity of lakes in western Victoria.
26 April	**AGM**	
	Stephen Gallagher	The six-million-year record of ocean change in Australia: greenhouse/icehouse thresholds, currents and climate.
31 May	**Lunchtime meeting: Combined meeting with ASEG to celebrate the International Geophysical Year** *(To be held in the Skeats Lab, Earth Sciences Department, University of Melbourne)*	
	Talk/s to be arranged.	
28 June	**2007 Howitt Lecture at 8 p.m. at the Royal Society of Victoria**	
	Mike Sandiford	TBA

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au

Copy deadline for the March 2007 issue of The Victorian Geologist is Friday 9 March

GSA (VICTORIA DIVISION) COMMITTEE

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Vice-chair:	Adrian Pittari	9905 4885 (BH)
Secretary:	David Moore	9658 4513 (BH)
Treasurer:	Lindsay Thomas	0427 354 828

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Marilyn Moore	9844 1072
Peter Pritchard	9439 9582
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Fons VandenBerg	9658 4519 (BH)
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March 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting: Thursday 29 March at 6.15 p.m.

Postgrad Night @ Melbourne Uni

GSAV-sponsored postgraduate students from Latrobe University present highlights from 2006.

6.15 p.m. at the University of Melbourne
Fritz Loewe Theatre, Earth Sciences Building, cnr Swanston & Elgin Sts.

Preceded at 5.30 p.m. by drinks and nibbles in the tea-room, 4th floor. $2/person.

Matthais Raiber

Using isotopes to delineate aquifer interaction and its impact on groundwater salinisation in the eastern Hopkins catchment, western Victoria.

Kate Bailue

Groundwater recharge and movement on a small (paddock) scale, Willaura area, western Victoria.

Sarah Hagerty

The effect of groundwater input on stream salinity of the upper Glenelg catchment.

Yohannes Yihego

Modelling lake level and salinity for Lake Burrumbeet.

The Geological Society of Australia Victoria Division

presents the

SELWYN SYMPOSIUM 2007

Thursday 27 September 2007
at the University of Melbourne

Symposium 9.00 a.m. to 5.00 p.m.

Climate change: megafaunal extinction, human impact?

Selwyn Lecture 6.30 p.m.

Professor Tim Flannery
2007 Selwyn Lecturer

Professor Patricia Vickers-Rich & Dr Tom Rich
2007 Selwyn Medallists

Foraminiferal evidence for the intensification of the East Australia current during the Last Glacial Maximum

Li Chung-Leong, Stephen Gallagher & John Bye

Li Chung-Leong received a GSAV student travel grant to attend 'Forams 2006 – International Symposium on Foraminifera' in Natal, Brazil from 10–15 September 2006, where he presented the above paper. The abstract is reprinted below. Chung wishes to thank the GSAV for assisting him to attend this conference.

Reconstructions of paleoceanographic conditions for the Last Glacial Maximum (LGM) from foraminiferal proxy data have sparse data coverage in the oceans of southern and southeastern Australia. Results from the planktonic foraminiferal analyses of sediment cores from the Murray Canyon (Core MD03-2611G) and Bass Canyon (Core FR11/98 PC-26) have been used to interpret modern and LGM paleoceanographic conditions. These results were compared with other planktonic foraminiferal data in southeast Australia to obtain an overview of paleoceanographic change from the LGM to today. The greater amount of subantarctic species and the decrease in transitional and subtropical species during the LGM suggest lower sea surface temperatures associated with the more northerly location of the Subtropical Front during the LGM compared to today, similar to other published records in the region. While there is evidence of recent upwelling in the cores from high abundances of *Globigerina bulloides*, the marked increase in this species at the LGM level suggests an increase in the intensity of upwelling. This indicates a stronger Flinders Current possibly due to the stronger Tasman outflow from the Pacific. Results from the Bass Canyon core also suggest the continued and perhaps intensified flow of the East Australia Current during the LGM, due to a stronger gyral wind field in the Pacirfic Ocean, which in turn would have been responsible for the intensification of the Tasman outflow.

- ***Copy deadline for the next issue of The Victorian Geologist is Friday 6 April 2007***
- ***Have you renewed your GSA membership yet?***

Reunion (August 2002) of early 1940s geology students from the University of Melbourne. Left to right: Maud McBriar, Ian Black, George Thomas (seated), Keith Llewellyn, Nancy Thomas (seated), Owen Singleton, and (all seated) John Knight, Sylvia Whitehead (nee Bosselmann) and Hope Black (nee McPherson). Colour photograph donated by John Knight to the H.gd.P archives.

HISTORY OF THE GEOLOGY DEPARTMENT PROJECT (H.gd.P)
School of Earth Sciences, University of Melbourne

Note No. 1 March 2007
E.B. Joyce

Memories of the Old Geology School at Melbourne Uni 1938–1942

(based on handwritten notes prepared by John Knight in February 2004, now held in the archives of the H.gd.P)

Although only reaching Leaving Certificate standard (at Melbourne Boys High School in the 1934–36 period) I had recently received a £2000 legacy from my late father's mother for my upkeep and education, so it seemed logical to obtain a good education as soon as possible. I was accepted for a science course with the possibility of becoming an Analytical Chemist.

In 1937 I began my Science Course but only passed in Physics (Natural Philosophy then) and Science French & German taught by Dorothy Everlid – a very helpful tutor. Before re-enrolling in 1938, Dr. Summers, the Dean of Science, suggested that I should pursue a full four-subject year and recommended Geology 1. This I did and was eager to study with Prof Skeats whom I had met during a Gilbert and Sullivan opera season in Melbourne. I found Skeats a good lecturer to follow and the proposed excursions and practical work appealed to me. Other students struggling with Pure Maths urged me to attend lectures and sit the final exam, as they said that it would help to reduce the marking pass level for them, however three more attempts and I failed yet again.

Our first geological excursion was to Royal Park, when a notice appeared in the Geology Practical Room that the drags (omnibuses) would leave outside the G. School the following Saturday at 9.30 A.M. After inspecting

the rock types in the Railway Cutting (see Darragh 1974) we walked back across the area adjoining the Zoo. Our group had three or four nuns in it and they always seemed to follow closely on the leader. However Prof Skeats bent down suddenly to pick up a rock specimen and one of the nuns fell over his bending body, much to the amusement and dismay of the group. However the Prof regained his composure and the group continued back to the spot to be returned to the Geology School.

Prof Skeats' lectures covered nearly all facets of Geology and whilst discussing stratigraphy maintained that the graptolytes must have followed the motto 'a short life but a gay one' because they could be useful index fossils almost world wide.

Geology students (1st year) had practical sessions on Saturday mornings, during which time we had to draw cross sections of geological maps, handle wooden models of various crystal systems and handle different types of rocks, minerals and fossils. Spencer Mann and Henry Hauser were demonstrators but also looked after the museum collections and the library and ably helped to run the department for the benefit of staff and students alike.

During the war years students were encouraged to help the war effort by occupying any spare time in such work as using the Engineering School's lathes to make the 'nose' pieces of armour-piercing bullets prior to fitting to their detonation device. In 1941–42 Prof E.S. Hills, who had followed Prof H.S. Summers, together with the Army began to construct a large scale model of the Australian topography, a plaster cast of which now can be seen on the eastern wall of the new Earth Sciences Building on the corner of Swanston and Elgin Streets.

The base of the model was made from many different maps (mostly National Survey maps). H.B. Hauser copied the contours shown on individual maps chosen for the model and then produced cut-out pieces of plywood which followed the chosen contour interval (I think 50ft was chosen). These individual cut-out sheets were assembled one on top of the next lower contour and glued together to form a sandwich of sheets of plywood all oriented to depict the profile of the land. Students and others were then asked to sculpt in the step between each contour line with a plastic wood material (called NEICAL I think – it was mixed with acetone to make it more fluid to mould it). An Army Sergeant (Orlando Dutton - see Joyce 2006) who was employed made any obvious adjustments to the final model before the final casting was produced.

Excursions too were occasions and highlights of student life, particularly extended ones involving two or three-day duration. The Buxton excursion involved camping out for 3 or 4 days. This excursion actually helped Prof Hills to make his map of the area: several groups actually paced along the boundary between sedimentary rocks and intrusive granitic rocks and recorded the compass direction of the contact.

The Castlemaine excursion taught us that all geologists did not agree entirely with each other in their own back yards! Even some of the boundaries shown on parish or county plans were not quite right. The use of aerial photographs many years later made identification much easier for those of us doing field surveys.

Possibly the thing that led me to becoming a geologist was the excursion to Wonthaggi in 1942 when a group of about ten senior students accompanied Dr. A.B. Edwards and George Baker visited Wonthaggi by Steam Train to see how black coal was won. During the train trip I recall being taught how to play the card games 500 and euchre. We were taken firstly to the Technical School where we met Mr. R.B. Pretty who had trained in geology and we lunched at the school with the Surveyor and officials from the State Mine Office before being taken underground at the most recent workings of the area. There were still only four working mines of the former 22 shafts and two major tunnels which comprised about 12 separate mining areas at Wonthaggi.

Dr. Edwards and George Baker continued to study this extensively faulted area and finding that the mine's Assistant Surveyor had been appointed to a position in the Bowen basin in Queensland, mentioned my name as a possible replacement and I was accepted.

And so it was that I spent the next four years as Assistant Surveyor at the State Coal Mine until it became more obvious that the working life of a very expensive coal mine would surely end before any expected retirement date for me. In 1947, when the Geological Survey began recruiting under Dr. D.E. Thomas, I became the second appointment Post-War and stayed there until 1982.

References

Darragh, T.A., 1974 (ed.): *Geology of Royal Park* by G.B. Pritchard. Victorian Naturalist 91(8) pp223-235.

Joyce, E.B. 2006: *Professor E. S. Hills' Great Relief Model of Australia.* Earth Science History Group Newsletter No. 36 June 2005 pp.23-25.

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		Talk/s to be arranged.
28 June	**2007 Howitt Lecture at 8 p.m. at the Royal Society of Victoria**	
	Mike Sandiford	TBA

Nominations for 2007–2008 GSAV Committee positions

The April general meeting will be preceded by the formal AGM, and **nominations are welcomed** for all positions on the main committee or subcommittees (including education, publications, publicity, heritage, membership, newsletter, awards ...) Amongst other vacancies, this newsletter is looking for a new Editor or Co-editor. Just think, **you could be making a difference** to your Society and your profession. If you are uncertain about what you can do to assist, talk to your Chairman, Stephen Gallagher.

I ……..……..….

nominate ……..

for the position of …….……..

on the Geological Society of Australia Victoria Division Committee for the 2007/8 year.

I …….

second the nomination.

I agree to the nomination. …….

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Annual General Meeting
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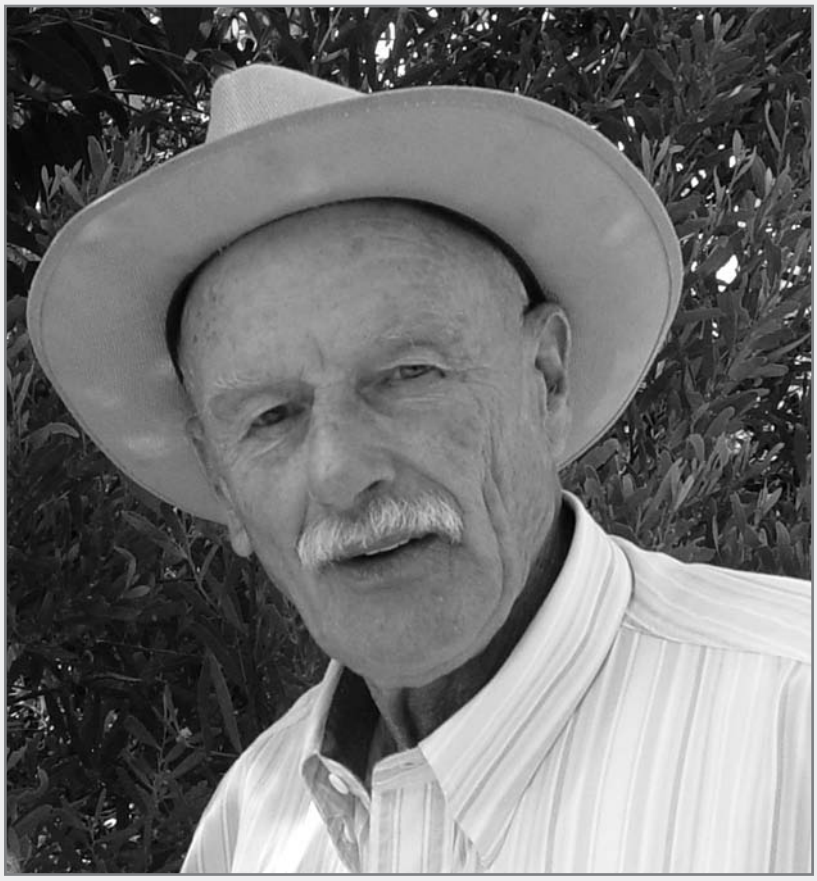
The six-million-year record of ocean change in Australia: greenhouse/icehouse thresholds, currents and climate.

Stephen J Gallagher

6.15 p.m. at the University of Melbourne
Fritz Loewe Theatre, Earth Sciences Building, cnr Swanston & Elgin Sts.

Preceded at 5.30 p.m. by drinks and nibbles in the tea-room, 4th floor. $2/person.

Palaeoclimate studies are relevant for future global warming predictions since they provide a record of long-term climate change and form the basis for interpreting future global climate change in greenhouse conditions. The Late Miocene (10 to 5 million years ago) was characterised by a period of Antarctic glacial expansion and the intensification of global wind driven and atmospheric circulation that established a cool strongly stratified ocean. Subsequently, warm conditions were established 5 to 3 million years ago (Pliocene) when average sea surface temperatures were 3°C higher and sea level was 10 to 20 m above that of today. Greenhouse CO_2 levels were 30% higher than today associated with a more intense global thermohaline circulation. Pliocene El Niño conditions were terminated by the onset of the Northern Hemisphere Ice Sheet at ≈ 2.75 million years ago. Further Northern Hemisphere Ice Sheet expansion was related to the precession dominated glacial/interglacial world of the last 1 million years. The Australian continental margin yields a superb record of oceanographic consequences of this climate change. By analysing microfossils (such as foraminifera) and facies it is possible to chart the evolution of key oceanic features such as the Leeuwin Current, the East Australian Current and the Subtropical Convergent Zone through this critical period in Australia's history. For example, in the last 6 million years the Subtropical Convergent Zone has weakened and strengthened and migrated north and south of its present position on Australia's southern margin. Presently the Leeuwin Current transports warm low salinity nutrient deficient water from the equatorial West Pacific Warm Pool southwards along the west coast of Australia. This current extends modern reefal development to 29°S and the tropical to subtropical transition as far south as Rottnest Island (33°S). However, 1.5 million years ago a vast outpouring of Warm Pool nutrient-poor high salinity water cascaded down Australia's western margin representing extreme conditions unlike the present Leeuwin. By 800,000 years ago a combination of uplift in the Indonesian Archipelago and the onset of global 100,000-year cyclicity resulted in the cessation of this flow, leading to conditions suitable for the Leeuwin Current of our present 'icehouse' world. Extra tropical reef development initiated sometime after 500,000 years ago in Western Australia. In the last 1.5 million years West Pacific Warm pool water also escaped onto Australia's eastern margin transporting diagnostic tropical microfossil assemblages via a warmer 'Eastern Australian Current'. Ultimately this led to the development of the Great Barrier Reef ≈ 500,000 years ago. The modern oceanographic configuration of Australia is therefore relatively recent and ephemeral in the geological record. The best analogue for predicting oceanic behaviour with projected future greenhouse conditions is to look to the Pliocene!



VALE Dr John Gordon George (Jack) Douglas

Palaeobotanist, sportsman, family man
2 June 1929 – 6 February 2007

Jack Douglas, renowned palaeobotanist, died of heart disease in Warrnambool while playing tennis. He was 77.

Jack's first passion was the bush. Born at Colac on 2 June 1929, his interest in nature was kindled during hikes in the Otway Ranges with his father who taught, among other subjects, nature studies at Lavers Hill. Here his knowledge of botany, especially of native plants, took root. Jack was to become a member, and eventually President, of the Field Naturalists Club of Victoria.

From St Kevin's College in Toorak he won a free place to Melbourne University, choosing Agricultural Science because 'it sounded a bit outdoorish'. He graduated in 1954 with BSc. During a year's study of forestry in Canberra, Jack furthered his knowledge of the native flora, providing a solid basis for his later career.

Sport was Jack's second passion. Always a gifted athlete, he represented St Kevin's at athletics and played football at the highest level with the Hawthorn VFL team for two years. On occasion this clashed with his undergraduate studies. When he preferred football to a geology excursion on the day of an important game, his professor, E.S. Hills, was not amused. One of Jack's proudest memories goes back to 1953 when he beat Australia's soon-to-be world mile record holder, John Landy, in a 440-yard race. Jack was in the running for a place in the 1956 Melbourne Olympics but missed being selected. In Europe he ran in international meets. Jack took up squash in his fifties and competitive tennis even later, honing his skills with colleagues Peter Kenley, Keith Bowen and Houw Tan. He even

ventured in front of the footlights, playing the Major in an amateur dramatics production of 'Separate Tables'.

Jack's third, and greatest, passion was his family. As the eldest of five children, his siblings remember him as a loving and protective brother. He married Anne Moore, his laboratory assistant, on Melbourne Cup Day in 1960. He gained great happiness from his family life, his wife of 46 years, his six children and 16 grandchildren.

Jack's passion for botany was one he eventually fashioned into a career. He became a geologist in 1955 when A.D.N. Bain, then Deputy Director of the Geological Survey of Victoria, hired him when Jack walked into his office asking for a job. A second chance event, the inspection of a lens of black coal near Traralgon that contained Cretaceous plants, kindled his lifelong interest in the Cretaceous flora. He made it the subject of his doctoral thesis in the early 1960s, later published as a Geological Survey of Victoria Memoir which earned him a worldwide reputation. He pioneered the use of plant cuticles for taxonomic purposes. He published widely on his research into palaeobotany and palynology with a record of over 70 scientific papers. Through his contributions to palaeobotany he was much in demand at both local and international conferences devoted to his specialty. He was Australia's representative of the International Organization of Palaeobotanists at their Australian conference. He gained a large circle of international palaeobotanical (and athletics) friends and colleagues, many of whom he visited in the course of his travels and who in turn stayed with Anne and Jack on their visits to Australia.

Unhappy that scientific papers were inaccessible to the general public, Jack conveyed his love for palaeobotany in a booklet titled 'What fossil plant is that?' In this he showed what these earlier plants looked like, and how plant communities developed during their 420-million-year long evolution.

Jack's passion for fossil plants took him into the public arena when it became clear that a plant fossil locality near Yea was in danger of being destroyed. This locality in central Victoria contains the earliest land plants in the world and the only ones known from the Late Silurian. They include the world-famous *Baragwanathia*. Pointing out its unique value, Jack gained the cooperation of the shire to preserve the site as a geological monument, thus saving it for study by future generations of fossil hunters and professional sleuths. The site has recently been added to the National Heritage list.

A grant from Ian Potter Foundation provided the start of many state government-funded overseas trips. He obtained a Government Scholarship from France and studied at the Sorbonne. He presented many papers at international conferences, travelling to the USSR, France, Canada, USA, China, Romania, Argentina, and Morocco to share his wealth of knowledge. He participated in a visit to the Sakhalin Island Cretaceous, making him one of the few Australians to have been there. This gave him a spot in the media when he was interviewed on TV after a plane crashed on the island.

Jack's organisational skills came to the fore when, together with J.A. (Lex) Ferguson, he accepted the task of getting the first Geology of Victoria out of the doldrums. This first comprehensive account of Victoria's rocks and geological history, to which nearly 60 earth scientists contributed, was published in 1976 and rapidly became the 'bible' for all earth scientists keen to learn about Victoria's rocks, minerals and resources, fossils and earth structures. As if that weren't enough, Jack and Lex repeated the exercise with a second edition published in 1988. Jack contributed a most readable chapter on the Victorian Division to 'Rock me hard, rock me soft', the history of the Geological Society of Australia compiled by Cooper and Branagan (1994).

Jack spent most of his working life at the Geological Survey of Victoria, mostly as Officer-in-Charge of the Regional Geology Section. During his twenty-odd years there he oversaw the completion of the first 1:250 000 scale geological mapping program. He even completed several of these maps himself, showing that drawing cross-sections was not his forte. His management style was very relaxed, letting his staff get on with their job with a minimum of interference—those chosen few that were fortunate enough to join the small mapping crew regarded him more as a friend than a boss.

In 1977 Jack was invited to join the organising committee for the Atlas of Victoria. To this atlas, published in 1982, he not only contributed the Geology chapter but also the Sport and Recreation

continued overleaf ...

chapter! This included the first account of Australian Rules Football's history in Victoria, with Country 'footy' given a prominent place.

Jack never hid his political beliefs. He was firmly on the side of the 'common man' and a long-time member of the Labor Party. He represented the Geological Survey on the Public Service Association for most of his working life, negotiating a substantial salary increase for geologists of the Survey. He fought hard, and successfully, to shift the GSV out of its totally inadequate accommodation in a converted garage on Russell Street. He was an equally devoted Christian, firmly believing that adherence to a religion was no bar to a scientist. Former colleagues will look fondly back to Christmas parties at the Douglas clan's Monbulk property—these ceased only when the Monbulk property was swapped for another at Princetown.

In retirement Jack maintained his varied interests. He spent much of his time on his beloved Cretaceous fossils, and at his block near the Twelve Apostles, where he established a significant habitat for the endangered Rufous Bristlebird. His most recent publication was *The Nature of Warrnambool* (Warrnambool Field Naturalist Club Inc., 2004) and at the time of his death he was working on a book on *The Whales of Warrnambool*. Emails asking for updates on the age of the Grampians rocks were still flying around in the months leading to Jack's death. Suffering from cancer in his final years, he nevertheless remained an active sportsman, using tennis to gauge the effect that chemotherapy was having on his body. He died on 6 February from a heart attack during his regular Tuesday afternoon tennis game (he won the point).

Jack was an Honorary Member of the Geological Society of Australia.

This obituary was compiled by Fons VandenBerg, with additional material from Anne Douglas and Paula Tovey (nee Douglas), Peter Kenley and Keith Bowen.

The Geological Society of Australia Victoria Division

presents the

SELWYN SYMPOSIUM 2007

Thursday 27 September 2007
at the University of Melbourne

Symposium 9.00 a.m. to 5.00 p.m. (registration required)

Climate change or human impact? Australia's megafaunal extinction

Selwyn Lecture 6.30 p.m. (free public lecture)

Professor Tim Flannery
2007 Selwyn Lecturer

Professor Patricia Vickers-Rich & Dr Tom Rich
2007 Selwyn Medallists

Details will be posted on www.vic.gsa.org.au

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

26 April	**GSA (Victoria Division) AGM**	
	Stephen Gallagher	The six-million-year record of ocean change in Australia: greenhouse/icehouse thresholds, currents and climate.
31 May	**Lunchtime meeting: Combined meeting with ASEG to celebrate the International Geophysical Year**	
	(To be held in the Skeats Lab, Earth Sciences Department, University of Melbourne)	
	Hugh Rutter	Changes and advances in the application and interpretation of geophysical methods over the past 40 years: where to next?
28 June	**GSA AGM**	**7 p.m. at the Royal Society of Victoria**
	2007 Howitt Lecture	**8 p.m. at the Royal Society of Victoria**
	Mike Sandiford	Australia's ancient landscapes – lessons for an uncertain future.
26 July	Malcolm Wallace	Neoproterozoic extreme climates and the evolution of metazoan life: Is it a coincidence?
30 August	Gresley Wakelin-King	Arid zone fluvial geomorphology
27 September	**Selwyn Symposium**	**9 a.m. – 5 p.m. at the University of Melbourne**
		Program and registration details TBA
	Selwyn Lecture	**6.30 p.m. Free public lecture**
		Copland Theatre, University of Melbourne
	Tim Flannery	TBA

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au

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

The University of Melbourne Earth Science Postgraduate Student Society (ESPG)

presents

Earth Science Seminars every Friday at 4.00 p.m.

in the

Fritz Loewe Lecture Theatre

Earth Science Building (cnr Swanston and Elgin Streets)

followed at 4.45 p.m. by drinks and refreshments in the tea-room, 4th floor. $2 per person.

Further information: http://www.earthsci.unimelb.edu.au/php/seminars_upcoming.php

GSA (VICTORIA DIVISION) COMMITTEE

Please address all correspondence to the GSA Victoria Division
GPO Box 2355V, Melbourne, Vic., 3001
Internet address: www.vic.gsa.org.au

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Chair:	Stephen Gallagher	8344 6513 (BH)
Vice-chair:	Adrian Pittari	9905 4885 (BH)
Secretary:	David Moore	9658 4513 (BH)
Treasurer:	Lindsay Thomas	0427 354 828

COMMITTEE

Adele Bear	9905 4886 (BH)
Louise Edwards	8344 7673 (BH)
Chung Leong Li	8344 9980 (BH)
Marilyn Moore	9844 1072
Peter Pritchard	9439 9582
Noel Schleiger	9435 8408
Fons VandenBerg	9658 4519 (BH)
Susan White	9328 4154

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Bicentennial Gold:	Gerhard Krummei	9820 2595
Education:	Noel Schleiger	9435 8408
Heritage:	Susan White	9328 4154
Membership:	Peter Prtichard	9439 9582
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Publications:	*vacant*	
Promotions	*vacant*	
Webmaster:	Lindsay Thomas	0427 354 828

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Newsletter deadline

First Friday of the month except Dec & Jan
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THE VICTORIAN GEOLOGIST

May 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

Thursday 31 May at 1:00 p.m.

A joint GSAV and ASEG meeting to commemorate the International Geophysical Year

Changes and advances in the application and interpretation of geophysical methods over the past 40 years: Where to next?

Hugh Rutter

1:00 p.m. at the University of Melbourne
Skeats Lab, Level 2 Earth Sciences Building, cnr Swanston & Elgin Sts.
BYO Lunch!

Please note the different time and venue for this month's meeting.

VICTORIA DIVISION
CHAIRMAN'S REPORT FOR 2006–2007
GSAV Annual General Meeting Thursday 26 April 2007

This year has been a busy one for the division most notable in that we had 23 speakers give 11 monthly talks! It has also been a year of moderate growth for the division with an increase in members up 14% from 280 to 320. We approved 42 new members this year including 25 new student members. Our growth was partly due to the initiative taken by the previous 2005/2006 committee to sponsor post-graduate students to attend the AESC 2006 and the new $10 rate for student members. As part of our ongoing commitment to encourage early subscriptions to the GSA (and get students in the habit of being members of the GSA) the committee is sponsoring several first, second, third and fourth year student memberships at universities and will sponsor field trips and barbeques. The growth figures are encouraging, however we need to ensure we retain these new members by providing them with encouragement and a sense of belonging to the geological community.

Other highlights of 2006/2007 include:

(i) Three student talks nights by Monash, Melbourne and Latrobe postgraduate students with 14 superb presentations from students sponsored to attend the AESC or other activities such as Monash University's trip to the Pilbara.

(ii) A highly successful AESC 2006 in July 2006, with a large Victorian attendance partly due to our sponsorship of 30 post-graduate attendees.

(iii) Congratulations to Prof Chris Wilson who won the 2006 Selwyn Award and was presented with this at the AESC 2006 by Tony Crawford.

(iv) Congratulations to Bill Birch (ex GSAV Chair and GOV3 Editor) was awarded an Order of Australia Medal

(v) GSAV committee members successfully spruiked geology to Geography teachers at the Geography Teachers Association of Victoria 40th Annual Conference at Camberwell High School August 2006. This attracted a lot of interest and comment. Our display boasted a range of information sheets, books, catalogues and giveaways that interested a good proportion of the 500 or so teachers present at the conference. Many geography (SOSE) teachers find themselves in the position of having to teach geological concepts to students in Years 7–10 without ever having studied geology themselves. Both Geoscience Australia and the GSA have over many years published educational materials suitable for use in schools. Helping to interest students in earth science is seen as more important than ever now that Geology is no longer a VCE subject in Victoria.

(vi) GSAV was a gold sponsor for the VUEESC (Victorian Universities Earth and Environmental Science Conference) in October 2006. This went well with lots of people and good recognition for the GSA as a major sponsor. There were also lots of food and drink between the VUEESC and GSA meeting and many people stayed on for this. However, only 13 turned up to our following meeting, partly due to an extremely long last session. The numbers turning up for the Monash talks are still discouraging, so in 2007 we will have just one Monash based GSAV talk.

(vii) An excellent Sewlyn Lecture in September 2006 given by the energetic Prof John Mylroie co-sponsored by the International Association of Hydrologists. About 60 turned up, including GSA, IAH members and speleologists.

The Education Subcommittee lead by Noel Schleiger and others as part of their ongoing activities is producing kits on various topics relevant to the Victorian secondary school curriculum. These contain information, references, links, classroom activities and excursion notes, and will be downloadable as pdf files from the GSAV website.

The Heritage Subcommittee lead by Sue White has, in combination with others, a proposal to UNESCO for the Kanawinka GeoPark, which would cover the Neogene volcanic centres between Mount Gambier and Camperdown. It will be a European-style park based on tourism but will not be a National Park. It will showcase the rocks to tourists, and be based on the existing volcanic trails.

The sales of our publications such as the Geology of Victoria remain static, we need to continually market this book while it is still "fresh". The last of the popular "Introducing Victorian Geology" volume is going out of print. Ongoing work by Sue White is making head way with a new edition of this volume.

As part of the GSAV's ongoing investment strategies we have engaged Goodman Sachs JBWeir to manage our share portfolio. Lindsay Thomas and David Moore have put a lot of time into ensuring the best investment outcomes for the division. I'd like to thank Lindsay our outgoing treasurer for his many years of superb "bean-counting" for the division. I'd also like to thank David Moore who was previously chair and secretary (who will step down from this position and still stay on the committee) for his superb selfless work in these endeavours. I look forward to working with the new Secretary (Dee Ninis) and Treasurer (Peter Pritchard).

Chung Leong Li is also taking over from Sue White as our "nibbles person", thank you Sue for this essential service over the years. Marilyn Moore continues to selflessly produce our excellent Newsletter, this year Kyle Rebryna will help her in these endeavours.

On a more solemn note, this year also saw the death of two previous chairs of the division: Jack Douglas and John Knight, their contributions to Victorian Geology and the GSAV were exemplary.

I hope to continue as chair for 2007–2008. We have a full and exciting schedule for 2007 with large variety of talks, for example our May talk will be an "experimental" lunchtime meeting jointly with the Australian Society of Exploration Geophysicists. We will continue encouraging new student members by various marketing events such as sponsoring field trips and so on. One of the highlights should be our Selwyn Symposium in September on "Climate Change or Human Impact? Australia's Megafaunal extinction", many speakers have agreed to present, including Prof. Tim Flannery, the 2007 Australian of the Year. The 2007 Selwyn Award goes to his ex-MSc supervisors Tom and Pat Rich.

If you are reading this and you have not yet renewed your GSA Membership for 2007, please remember to renew, your continued support is essential so we can effectively promote geology in Victoria.

Stephen Gallagher
Chair, GSAV

The Geological Society of Australia Victoria Division

presents the

SELWYN SYMPOSIUM 2007

Thursday 27 September 2007
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Climate change or human impact?
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Details will be posted on www.vic.gsa.org.au

Geological Society of Australia

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Financial Report to Victoria Division

April 23, 2007

I am pleased to submit this report on activities during 2006, and the audited financial summaries, to the Division.

I have attached a draft copy of the auditors' report; the full (signed) report will be delivered before the AGM. I do not expect there to be any changes from the draft.

Audit Report

The auditor's report, and audited financial statements, will be made available in full on the GSAV website. My report, however, is necessarily written before the audit is complete. The audit has not been completed earlier because of delays in receiving necessary information from the Sydney Business Office - this information was not available until after *their* audit had been completed. I do not expect any surprises in the audit report.

General Observations

I draw attention to the healthy state of the Division's capital, and compare it with the relatively static membership position. The Division has acted to manage our capital rather more proactively, beginning in 2007, but I think the Division should discuss, then resolve on a policy for the constructive use of our funds. At present, we support quality Victorian geological publications, student attendance at conferences, and regular general meetings. None of these activities, however, is likely to boost our membership numbers greatly, nor (if we expend capital) earn more (replacement) capital. (I don't think that it is even clear that there is a significant untapped pool of earth science professionals in Victoria that are not already members.) So, is there some other idea that we should take up to make use of our funds in a way that is in line with the goals of the Society? That should not be debated at this meeting - but members who have constructive ideas should share them with our Chair, if not put them into practice through the committee.

Bookstocks

We still have a significant portion of our assets in the form of stocks of the Geology of Victoria monograph. As at the end of 2006, we have recovered roughly half of the Division's own investment in the volume, and sold roughly half of the stocks. Returns on each sale are less than expected, because of odd behaviour by the Sydney Business Office. The price including postage was originally set, in 2003, at $148.50, but this seriously underestimated the postage cost. However, the GSA policy is to sell it at this price, and deduct the cost of postage before reimbursing the Division with the balance. As a result, the average return per volume is far less than the nominal value of $125 (which was based on a break-even return, as seen in 2003). I have recommended to the Business Office that they sell on a price plus post and packing basis (as is common in the business world) but the recommendation has not been accepted.

It is imperative that the Division look at continuing to publicise and promote sales of the GoV. In this connection it is notable that there have, to date, been significant sales to undergraduates at only one Victorian tertiary institution in 2004, a different one in 2005, and I am not aware of any significant sales to students at all in 2006. We should not rely on students to support the Victorian Division financially as well as in other ways, but we should also make sure that students are aware of the range of useful information in the volume, while it is current.

We are effectively out of stock of Introducing Victorian Geology now, but another edition is under way. We expect within the next year or so that the new edition of Introducing Victorian Geology will be ready for publication, and the extent to which we subsidise this, or provide web or DVD support materials, is yet to be determined. However, we should try to emulate the acumen of another Division, which has brought a full-colour, 177 page book to market for $18 +PP (!), which includes a markup of over 100%.

We are also almost out of stock of the Ballarat Roadside Geology volume. Similar general-interest books and booklets seem to be widely available in other states and countries, and there seems to be an opportunity here if someone would like to take it up.

Student Support

The Division expended over $10 000 during 2006 on support for student attendance at conferences. This was a noticable increase on the $2000-$4000 expended in previous years, although in fact the comparable support continued to be the same.

The main change came as the result of a review by the AESC2006 of progressive (student) registration figures, which led to a recommendation to Divisions that they subsidise all student registrations to reduce the cost to the student to $100. Victoria had a good presence of students at AESC2006, which resulted in a cost to the Division of $7500, paid to the AESC2006. The Division subsequently argued that the student registration cost clearly should have been set, originally, at $100, and that the subsidy by the Division was in fact a subsidy of the AESC2006. We requested a reimbursement of our subsidy in the event of the AESC2006 returning a surplus, but the request was not granted.

We should take care not to see this expenditure as an investment in building our membership, because it is unlikely to ever be recouped. If the Division were to generate 20 new members from the AESC2006 initiative, they would have to remain members for 25 years before the resulting contribution to our operating grant totalled $7500. Investment in student support should be regarded as altruism, as part of our support to the science and the profession.

Running costs

The Division incurred about $11 000 in running costs in 2006, in preparing and distributing a Newsletter ($3800), presenting a regular general meeting ($2800, including basic hospitality), audit ($2300), and other minor administrative costs. Newsletter costs have dropped slightly since 2002 (then $4800), and audit and other costs have risen, but the big increase has been in the cost of organising meetings - only $700 in 2002.

The change is the result of the policy of Melbourne and Monash Universities of charging third parties (such as GSAV) for hire of facilities and/or overtime for security staff; we paid just over $2000 in venue hire costs in 2006 for our ordinary meetings.

Ideally, the cost of these basic services should be met by the operating grant distributed from members' fees, but in 2006 this totalled only $4125 (269 members) ($4300 in 2002). I canvassed other Divisions, to see whether there was a similar mismatch between operating grant and operating expenses elsewhere, but it seems that other Divisions do not have the same high costs (especially venue costs) that we experience.

We can cover our costs, of course, with earnings from our assets, but the Division should be aware that, as we operate at present, we must keep something like $150 000 in capital to earn income to cover our basic expenses. If we decide to deploy our capital differently, then some part of our routine services will have to be cut.

Investment Initiative

The Division has formed a subcommittee to interact with our Financial Advisers, and manage our assets somewhat more proactively than previously. This initiative was got under way at the end of January, and has seen some reorganisation of our portfolio. It is presently on hold, however, while

"second-effort" queries from the Financial Advisers' legal department are managed. We have not set any specific goals for 2007, but this reorganisation means that predicting our dividend income based on previous years is more doubtful than usual. We are confident, however, that we will improve the Division's position in the short to middle term.

Budget

The following outline budget is based on our 2006 activities. Although other ventures in 2007 (for example, the Selwyn Symposium) have been discussed in committee, I have not received any budget proposals for them. I have omitted book sales as these are roughly asset-neutral.

Income:

Operating Grant	$ 4 000
Investment Earnings	$ 11 000
Total Income	**$ 15 000**

Expenditure

Newsletter production and distribution	$ 3 800
General Meetings (8 @ $350)	$ 2 800
Student Sponsorships	$ 2 500
Audit	$ 2 300
Storage	$ 600
Post Office Box and Website	$ 300
Administrative Costs	$ 500
Total Expenditure	**$ 12 800**

The Division can therefore expect a small surplus, which could be used to underwrite a promotional initiative of some kind.

Conclusion

I am not available for re-election, as I forecast at the 2006 AGM. I am certainly willing to help the incoming Treasurer find his or her feet in the job. It has been an interesting - fascinating - experience!

Lindsay Thomas
Division Treasurer

The accounts of the Geological Society of Australia (Victoria Division) for the financial year ending 31 December 2006 have been audited by Larkin Partners Chartered Accountants, of 17 Cotham Road, Kew.

The auditor's report is available for download from the GSAV website.

VICTORIA DIVISION
BICENTENNIAL GOLD 88 ENDOWMENT REPORT FOR 2006–2007
GSAV Annual General Meeting Thursday 26 April 2007

Since its establishment in 1989, the Bicentennial Gold 88 Endowment has distributed at end 2006, just over $158,000 to some 69 recipients, including individuals and tertiary institutions, in support of a wide range of projects for the benefit of economic geology in Australia. The total number of beneficiaries would rise significantly if participants in technical excursions supported by this Endowment were included in this tally.

Over the years, these activities provided material for publication in a number of scientific journals, theses and articles. Apart from their research value, these publications also serve to generate awareness and promotion of this Endowment and draw attention to the quality of applicants and the standard of work produced.

There were five successful applications for grants from this Endowment for 2007 including areas of research, technical excursions and conference attendance.

A total of $10,000 was distributed among the recipients as follows:

- **Monash University**
  To help fund field work by a M.Sc. Student on a project related to the Mt. Read Volcanics and the Owen Conglomerate in Western Tasmania.

- **University of Ballarat**
  To assist with costs associated with a technical excursion for 11 undergraduates to New Zealand.

- **The University of New England**
  To assist with costs associated with a technical excursion for 3rd year students to the Cobar-Broken Hill-Olary region.

- **The University of Melbourne**
  To assist a Ph.D. Student with costs of conference attendance.

- **The University of Melbourne**
  Assistance with a Ph.D. project.

The contribution of Prof. David Gray and Ms. Ingrid Campbell to the assessment process is gratefully acknowledged. Ms. Simone Cuzuppe is thanked for her secretarial support.

GERHARD K. KRUMMEI
Chairman, BG88 Endowment Working Group

VICTORIA DIVISION
HERITAGE SUBCOMMITTEE REPORT FOR 2006–2007
GSAV Annual General Meeting Thursday 26 April 2007

The sub-committee has continued to work for geological heritage but has had a less busy year than last year. The sub-committee has currently 10 members with a wide range of geological expertise as well as others who support our activities. I thank them for all their work.

The major work this year was support for the consultants on the VEAC River Red Gum Study for geological sites of significance. This support meant that geological heritage received important emphasis in the report. Many sites were added to our database as a result.

As well the subcommittee was instrumental in the organizing of a session in conjunction with the History Specialist group at the GSA Congress in Melbourne in July 2007. This was an important way of showing the rest of the GSA the work that Victoria has been doing, especially our documentation system.

Other major work for the year can be listed as follows:

- Further advice on significance of sites was given to various organizations. The GSA system of significance and site numbering for sites of significance is used to assist in management decisions. Close relations with the Landscape Committee of the National Trust have been mutually beneficial. Unfortunately Parks Victoria continue to use up to date assessments in their plans and continue to rely on old assessments, often over 10 years old.
- The GSA (V) database had significant numbers of sites entered from the hard copy files.
- Assessment of sites on various 250000 geological sheets continued. The issue of the database and its relation to the now very out of date Geoscience Victoria Sites of Significance Database still has not been fully addressed although the material on the DPI website now refers enquiries to us. The confusion between excursion sites and sites of significance continues to be of concern.
- The committee continues to be involved in the Committee of Management of the Council Trench Geological Reserve at Bacchus Marsh (Triassic Park!). GSA members have completed some signage and park notes and have supported successful small working bees at the site. This continues to be a significant exercise for GSA as we have often been critical of the management of important geological sites and this gives us an opportunity to make a positive contribution to and example of the best management of sites.
- The committee has also been involved in management and planning issues in a number of areas. Some have had reasonable outcomes, but others have not. Communication with the Landscape committee of the National Trust continues. Concern continues to be felt over consultation with some government departments especially Parks Victoria and VicRoads, but other agencies have been much more co-operative. We continue to work on such issues. There is potential to influence management of geological sites through Environmental and heritage planning overlays at local government level.
- We have continued to be involved in a long running VCAT issue about rock crushing and vegetation clearance problems in the Harman Valley, Southern Grampians Shire that caused damage to important volcanic features on a highly significant site. The consultation is now working and the concerns of further inappropriate revegetation exacerbating the original problem appear to have been resolved. We are fortunate that we have a member of the subcommittee in Hamilton to follow up on this matter.
- The subcommittee's guidelines on consulting work and advice to outside organizations by members of the subcommittee have been used. The National Trust has used our protocol for consulting by subcommittee members as the base for their protocol. The website material on vegetation and geological sites is appreciated by several consultants and agencies.
- We maintain contact with the Geoparks group in UNESCO through Sue Turner. The western district volcanic area (Kanawinka Geopark) proposal has been submitted to UNESCO and GSA has had input into the proposal. We will be involved in the showcasing of the areas to the UNESCO assessors in June this year.

A busy and successful year occurred and I sincerely thank all the other members of the subcommittee who have worked so hard to make it so.

Susan White
Chairman, Heritage Subcommittee

VICTORIA DIVISION
AWARDS COMMITTEE REPORT FOR 2006–2007
GSAV Annual General Meeting Thursday 26 April 2007

I wish to thank the members of the Awards Committee for the continued support during the year.

We note with pleasure that Dr Bill Birch, a past president and active member of the Victoria Division, was awarded an Order of Australia Medal for his outstanding services to the geological community.

The following awards were given:

The 2006 Selwyn Medal was awarded to Professor Chris Wilson (University of Melbourne) for his significant contribution to the understanding of the geology of Victoria This award recognizes his outstanding and continuing contribution to the better understanding of fundamental geological processes in the earth's crust, both locally and globally. Chris's detailed tectonic studies of Palaeozoic turbidite sequences have provided new insights and constraints to deformation processes, gold mineralisation and the structural evolution of Palaeozoic orogenic

The Canavan Prize was awarded to Sarah Hegarty of Latrobe University, who achieved the highest marks for second year in 2005.

The Thomas Medal was not awarded as there was no candidate that was deemed appropriate.

Ingrid Campbell
Chair, Awards Committee

Dates for your Diary

McCoy Building 30th Anniversary

When: 3:30–6:00 pm 23rd May 2007
Where: McCoy Building, Melbourne University
RSVP: NLT 18th May 2007 to Kerry Grieser
email: kerryh@unimelb.edu.au
Phone: +61 3 8344 9866
Fax: +61 3 8344 7761

Celebrations commence with a speech by John Lovering in the foyer near the plaque at the base of the stairs and are followed by afternoon tea in the 4th floor tea room.

Joint GSA-SMEDG-AusIMM Meeting

When: 5:30 pm 17th May 2007
Where: The Sydney Rugby Club (off 31A Pitt St)
Details: Adriana Dutkiewicz
email: adriana@geosci.usyd.edu.au
Phone: +61 2 9351 5192
Fax: +61 2 9036 6588

Professor Nigel Cook of the Natural History Museum, University of Oslo, Norway, will be presenting a talk titled: 'Gold-Telluride Deposits – What do we know?'

continued overleaf...

Some evening lectures at Monash Science Centre

Graeme Pearman Monash University	Climate change	15 Aug
Ray Cas Monash University	Volcanoes are a diamond's best friend	5 Sept
Ian Cartwright Monash University	Future of water resources with a changing land climate	10 Oct
Rick Squire Monash University	The transgondwanan supermountain and the origin of animals	15 Nov

When: All talks begin at 7:00 pm and run for about an hour.

Where: Monash Science Centre
Building 74 Monash University, Clayton Campus
Clayton, VIC 3800

RSVP: Jennifer Monaghan
email: jenny.monaghan@sci.monash.edu.au
Phone: +61 3 9905 1370
Bookings essential!

earth sciences history Group
heads up

The history of geology in the second half of the nineteenth century:
The story in Australia and in Victoria,
from Selwyn and McCoy to Gregory – 1853 to 1903

Thursday 29th November to Saturday 1st December, 2007.

The Earth Sciences History Group is planning a conference on Earth Sciences history, to be held at the School of Earth Sciences, The University of Melbourne, over two days, beginning with presentations on Thursday 29th November, 2007, continuing with a public Keynote Address as part of the evening Monthly Meeting of the Victoria Division of the GSA, Inc, and concluding with a dinner. Further papers and a local afternoon field trip to the historic railway cuttings in nearby Royal Park are planned for Friday 30th November. On Saturday 1st December, the conference will conclude with a one-day field trip to the historic Deep Leads of the Creswick gold field, north of Ballarat.

Major discoveries of gold in Victoria in 1851 led to the arrival of Alfred Selwyn in Melbourne in late 1852, soon to head a new Geological Survey and begin an extensive program of mapping. The arrival of Professor Frederick McCoy (left) at the new University of Melbourne in 1854 also marked the beginning of this half-century, which concluded with John Walter Gregory (facing page, right) arriving in Melbourne as the first Professor of Geology at the University, and also to become head of the Geological Survey of Victoria.

Beyond the young state of Victoria, the science of geology was progressing, both within Australia and overseas, in a period which was to prove crucial to the development of the earth sciences, and the understanding of the earth. This conference will help relate local and Australian work to this broader perspective.

A warm invitation to attend the Melbourne conference is extended to members of the ESHG, to all Australians interested in the history of earth sciences, and in particular to overseas workers.

The ESHG is interested in involving students currently working in Earth Sciences history, and the Committee will consider requests for assistance from students living beyond the Melbourne area.

Field trips

1. **Deep lead gold mines and volcanoes of the Creswick area**

This trip will visit many of the famous gold-rich mines of the Berry Deep Lead system, from the town of Creswick north to Stewart Hill.

We will also look at the Australasian Mine near Creswick where there is a memorial to the miners lost underground in 1882 – the 125th anniversary is in December this year. We will visit the Creswick Museum in the historical Creswick Town Hall to look at the deep lead mining relics and other historic displays. We will later visit Talbot and other historic goldfields towns. We will also study the many striking young volcanic scoria cones, maars and lava flows, and view the field from Mt Greenock, where in 1836 Mitchell sketched the scoria cones he called the "Mammeloid Hills". (Photo: Creswick deep lead mullock heaps, Guy Holdgate)

2. **History, heritage and urban geology of the inner city of Melbourne and its northern suburbs**

A half-day field trip will be held on the last afternoon of the conference (talks program permitting). In nearby Royal Park, the northern outskirts of the19th century city of Melbourne, Bernie Joyce and Doug McCann will demonstrate the geology (and related 19th century urban growth) of old inner Melbourne. The famous Royal Park railway cuttings, dating from 1882, are important in the history of local geology. During the 19th century many school and university students, as well as field naturalists and others, made collecting visits to the area with geologists such as T.S. Hall and G.B. Pritchard. The cuttings are now listed geological heritage sites. Details of the area and the cuttings, and reproductions of several original papers and old photographs, will be included in a manual which also featured colour geological maps of the area back to the 1860s.

Deadlines:

- Return of your Expression of Interest: 1st June 2007
- Early Bird Registration of only $50: end of August 2007
- Abstracts: end of August 2007

Full details:

ESHG web site: http://vic.gsa.org.au/eshg.htm
ESHG Secretary Guy Holdgate
g.holdgate@earthsci.unimelb.edu.au

Bernie Joyce
Chair, ESHG Committee

The Royal Society of Victoria

Founded 1854

THE ROYAL SOCIETY OF VICTORIA
and
THE GEOLOGICAL SOCIETY OF AUSTRALIA, VICTORIA DIVISION

A. W. HOWITT LECTURE
THURSDAY, 28th JUNE, 2007 at 8:00 p.m.
at The Royal Society of Victoria, 9 Victoria Street, Melbourne

SPEAKER: **PROFESSOR MIKE SANDIFORD**
ARC Professorial Fellow, The University of Melbourne

TOPIC: **AUSTRALIA'S ANCIENT LANDSCAPES: LESSONS FOR AN UNCERTAIN FUTURE**

Australia's ancient landscapes provide important clues as to the nature of past changes in climate and hydrological regimes, and the potential for alternate energy sources such as geothermal energy. As such, our landscapes provide valuable insights, the understanding of which should help us to navigate the uncertain future posed by the issue of global warming. In his talk Professor Sandiford will illustrate just a few examples of how the understanding of our landscapes informs some of the predicaments raised by the 'great unplanned greenhouse-gas experiment'.

The Royal Society of Victoria initiated this annual lecture to mark the vital role that the geological sciences have played in our development as a society and as a community: this address is the fourth in the series – don't miss it! Many geological papers have been published in The Royal Society of Victoria Proceedings since 1854 and many geologists of note have served as President of The RSV. Entry $15.00 (inc. GST) includes light refreshments to be served after the Lecture (see booking slip on facing page at bottom).

The Royal Society of Victoria ABN 62 145 872 663
9 Victoria Street, Melbourne Victoria 3000 Australia
Telephone (03) 9663 5259 Facsimile (03) 9663 2301 www.sciencevictoria.org.au email: rsv@sciencevictoria.org.au

The University of Melbourne Earth Science Postgraduate Student Society (ESPG)
presents
Earth Science Seminars every Friday at 4:00 p.m.
in the
Fritz Loewe Lecture Theatre
Earth Science Building (cnr Swanston and Elgin Streets)

followed at 4:45 p.m. by drinks and refreshments in the tea-room, 4th floor. $2 per person.

Further information: http://www.earthsci.unimelb.edu.au/php/seminars_upcoming.php

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

31 May	**Lunchtime meeting:**	**1:00 pm – Combined meeting with ASEG to celebrate the International Geophysical Year**
	Hugh Rutter	Changes and advances in the application and interpretation of geophysical methods over the past 40 years: Where to next?
	To be held in the Skeats Lab, Earth Sciences Department, University of Melbourne	
12 June	**RSV Lecture**	**6:30 pm**
	Ziggy Switkowski	Climate Change and Nuclear Power in Australia. Abstract – http://vic.aip.org.au/#bm_next
	To be held in the Prince Philip Theatre, Architecture Building, University of Melbourne	
28 June	**GSA AGM**	**7 p.m. at the Royal Society of Victoria**
	2007 Howitt Lecture	**8 p.m. at the Royal Society of Victoria**
	Mike Sandiford	Australia's ancient landscapes: Lessons for an uncertain future
26 July	Malcolm Wallace	Neoproterozoic extreme climates and the evolution of metazoan life: Is it a coincidence?
30 August	Gresley Wakelin-King	News from a dry creek: What Australia's inland has for petroleum geologists, engineers, and lawyers.
27 September	**Selwyn Symposium**	**9 a.m. – 5 p.m. at the University of Melbourne** *Program and registration details TBA*
	Selwyn Lecture	**6:30 p.m. Free public lecture** Copland Theatre, University of Melbourne
	Tim Flannery	Climate change or human impact? Australia's megafaunal extinction.
25 October	Patricia Vickers-Rich	Out of the slime – The Beginning of Animals
	To be held at the Monash Science Centre, Bld 74, Monash University, off Normanby Rd.	

The Royal Society of Victoria, 9 Victoria Street, Melbourne Vic. 3000 Tel: (03) 9663 5259
BOOKING SLIP FOR HOWITT LECTURE, Thursday, 28th June: *I/we wish to attend and enclose a cheque for $……..... ($15.00 per person). Credit Card payment below if preferred.* ***RSVP 25th June***

VisaCard / MasterCard No. ……

Name on card: .....

Expiry Date ...../..... **Signature** …….....

Name: .....

Name: .....

Tel : …….....

GSA (VICTORIA DIVISION) COMMITTEE

Please address all correspondence to the GSA Victoria Division
GPO Box 2355V, Melbourne, Vic., 3001
Internet address: www.vic.gsa.org.au

OFFICE BEARERS		
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Vice-chair:	Adrian Pittari	9905 4885 (BH)
Secretary:	Dee Ninis	8420 8946
Treasurer:	Peter Pritchard	9439 9582

SUBCOMMITTEE	CONTACTS	
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Bicentennial Gold:	Gerhard Krummei	9820 2595
Education:	Noel Schleiger	9435 8408
Heritage:	Susan White	9328 4154
Membership:	Peter Prtichard	9439 9582
Newsletter:	Marilyn Moore	9844 1072
Program:	vacant	
Publications:	vacant	
Promotions	vacant	
Webmaster:	Lindsay Thomas	0427 354 828

OTHER CONTACTS		
Geology of Victoria:	Bill Birch	9270 5049 (BH)

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Adele Bear	9905 4886 (BH)
Louise Edwards	8344 7673 (BH)
Chung Leong Li	8344 9980 (BH)
Marilyn Moore	9844 1072
David Moore	9858 4513 (BH)
Noel Schleiger	9435 8408
Lindsay Thomas	0427 354 828
Fons VandenBerg	9658 4519 (BH)
Susan White	9328 4154

Newsletter deadline
First Friday of the month except Dec & Jan
moore.me@bigpond.net.au

GSA Inc - for membership and subscription enquiries or change of address, please contact Ms Sue Fletcher
Business Office: Geological Society of Australia, Suite 706, 301 George Street, Sydney NSW 2000
Email: sue@gsa.org.au Tel: (02) 9290 2194 Fax: (02) 9290 2198

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GPO Box2355
Melbourne Vic. 3001

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THE VICTORIAN GEOLOGIST

June 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

Thursday 28 June at 8:00 p.m.

JOINT MEETING OF
THE ROYAL SOCIETY OF VICTORIA
and
THE GEOLOGICAL SOCIETY OF AUSTRALIA VICTORIA DIVISION

A.W. HOWITT LECTURE

Australia's ancient landscapes: Lessons for an uncertain future

Prof Mike Sandiford
ARC Professorial Fellow
University of Melbourne

The Royal Society of Victoria Hall, 9 Victoria Street, Melbourne

Cost: $15 (Includes light refreshments following the lecture)
Bookings are essential – see booking slip on insert.

RSVP 25 June 2007

Australia's ancient landscapes provide important clues as to the nature of past changes in climate and hydrological regimes, and the potential for alternate energy sources such as geothermal energy. As such, our landscapes provide valuable insights, the understanding of which should help us to navigate the uncertain future posed by the issue of global warming. In this talk I will illustrate just a few examples of how the understanding of our landscapes informs some of the predicaments raised by the 'great unplanned greenhouse-gas experiment'.

Please note special venue, booking requirements, and time of meeting.

Preceded at 7 p.m. by the GSA AGM, to be held in the Library at the Royal Society Hall.
All members welcome.

The Geological Society of Australia Victoria Division
presents the

SELWYN SYMPOSIUM 2007

Thursday 27 September 2007
the Copland Theatre
at the University of Melbourne

www.vic.gsa.org.au

Climate change or human impact? Australia's megafaunal extinction

Ever since farmers began pulling bones of what they thought were rhinos, hippos and elephants from wells and creek banks during the earliest days of European settlement of Australia, we've been intrigued by the question of what caused the extinction of the megafauna. Some blame humans, suggesting that the first Aboriginal hunters swept across the continent killing off all the giant animals or that bushfires started by these hunters destroyed the habitats of the megafauna. Others contend that climate change of the last Ice Age was responsible. Indeed, the cause of this extinction is subject to much debate in the current scientific literature. This Symposium brings together many of the researchers in this field from around Australia to present their views on what caused the megafaunal extinction. Talks will be presented covering all aspects of the debate, including: palaeontology, palaeoclimate, dating techniques, bone taphonomy, sedimentological and archaeological evidence.

PROGRAM

8.00-9.00	**Symposium registration:** Full delegate price: **$100** Retirees: **$50** Students: **Free.** Selwyn Lecture: **Free**	
9.00-9.15	Introduction: Dr Stephen Gallagher & Dr Matt Cupper (contact: sjgall@unimelb.edu.au to RSVP)	
9.15-9.30	Opening address: Prof Peter Rathjen, Dean of Science, University of Melbourne	
9.30-10.30	Plenary Address: Dr John Long Museum of Victoria	The Australian Prehistoric Megafauna: an overview of discoveries and controversies
10.30-11.00	**Morning Tea**	
	Chairs of session: Dr Gilbert Price & Prof Gifford Miller	
11.00-11.30	Dr Stephen Wroe, University of New South Wales	A review of the evidence for a human role in the extinction of Australian megafauna and an alternative interpretation
11.30-12.00	Dr Gavin Prideaux Flinders University	Megafauna, caves and climate: records from southern Australia
12.00-12.30	Dr Judith Field University of Sydney	Contextualizing Chronologies for the Human Megafauna Overlap in Australia
12.30-1.30	**Lunch**	
	Chairs of session: Dr Stephen Wroe & Dr John Long	
1.30-2.00	Dr Gilbert Price University of Queensland	Climatic forcing for Pleistocene megafaunal extinction: evidence from eastern Australia
2.00-2.30	Dr John Magee Australian National University	Timing and cause of *Genyornis* extinction, and duration of human-megafauna overlap in Australia
2.30-3.00	Prof Gifford Miller University of Colorado	Tracking late Quaternary environmental and climate histories using C, O and N isotopes preserved in avian eggshells, and contrasting megafaunal extinctions in Madagascar and Australia.
3.00-3.30	Julien Louys University of New South Wales	Quaternary extinctions of Southeast Asia's megafauna
3.30-4.00	**Afternoon tea**	
	Chairs of session: Dr Gavin Prideaux & Dr Judith Field	
4.00-4.30	Prof Peter Kershaw Monash University	The contribution of long pollen and charcoal records to the explanation of Late Pleistocene megafaunal extinction in Australia
4.30-5.00	Dr Matt Cupper University of Melbourne	Synopsis: Who (or what) killed the Australian megafauna?
5.00-5.30	**Forum & discussion** Chaired by Dr Matt Cupper & Dr Stephen Gallagher	
5.30-6.30	Drinks & refreshments	
6.30-6.45	**Selwyn Medal** presentation to **Dr Tom Rich** (Museum of Victoria) **and Prof Patricia Vickers-Rich** (Monash Univ)	
6.45-8.00	**GSAVIC SELWYN LECTURE** **By Australian of the Year 2007, Prof Tim Flannery** Macquarie University	A climate change update to September 2007
8.15-	Selwyn Dinner	Venue to be arranged ($40 per person, spaces limited)

Dates for your diary

2007 Evening Lectures at Monash Science Centre

Graeme Pearman Monash University	Climate change	15 Aug
Ray Cas Monash University	Volcanoes are a diamond's best friend	5 Sept
Ian Cartwright Monash University	Future of water resources with a changing land climate	10 Oct
Rick Squire Monash University	The transgondwanan supermountain and the origin of animals	15 Nov

When: All talks begin at 7:00 pm and run for about an hour.

Where: Monash Science Centre
Building 74 Monash University, Clayton Campus
Clayton, VIC 3800

RSVP: Jennifer Monaghan
email: jenny.monaghan@sci.monash.edu.au
Phone: +61 3 9905 1370
Bookings Essential!

Earth Sciences History Group (ESHG) Conference: History of Geology in Australia and Victoria – From Selwyn and McCoy to Gregory – 1853 to 1903

When: 29th November to 1st December 2007
Where: School of Earth Sciences, University of Melbourne
Details: ESHG website: http://vic.gsa.org.au/eshg.htm or
ESHG Secretary: Guy Holdgate - g.holdgate@earthsci.unimelb.edu.au
See article in May 2007 issue of The Victorian Geologist.

Announcing...

The GSA(V) is pleased to announce the winners of:

The D.E. Thomas Medal:

Aidan Trotter – Monash University

Honourable mention to Chris Davis – University of Melbourne

This medal commemorates David Evan Thomas, the well known former head of the Victorian Geological Survey who was famous for his detailed and precise mapping. The silver Thomas Medal is offered each year for the best geological map produced by a Victorian Honours level student in Victoria. Submissions are sought by the selection committee from Geology or Earth Science Departments of Victorian universities.

continued overleaf...

The Frank Canavan Award:

Erin Carswell – University of Melbourne

The Frank Canavan Award was set up in 1996 by Mrs Canavan in honour of her late husband Frank, a well known Victorian geologist who was very active in promoting geological education and was a member of the Education Subcommittee of the Division. The Award is a cash sum for the purchase of geological textbooks, and is awarded to the most promising student who has finished second year geology at a Victorian university, as judged by the student's academic performance.

Consider Contributing to TAG!

It is the 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. The June TAG is currently with the printer and will be in your letterbox soon.

The TAG September deadline for text is 31 July. Please send your news to: tag@gsa.org.au

GSA Endowment Fund

The GSA has set up an endowment fund. The objectives of the fund are to support Australian students undertaking studies in the Earth Sciences at an approved State or Federal educational institution. Support will be financial assistance for:

- Field costs
- Laboratory associated costs
- Sponsorship to attend conferences
- Overseas study tours

This fund is fully tax deductible, which means any donation to this fund, can be claimed as a tax deduction. So if you want to increase tax deductions for this financial year and support students studying Earth Sciences give now and invest in tomorrow.

The fund is fully tax deductible that means any donation to this fund can be claimed as a tax deduction. Your generosity in supporting this new initiative is highly valued. If you want to know more, please ring the business office on (02) 9290 2194.

Cheques can be made payable to: Geological Society of Australia Endowment Fund

Please send your payment to:

The Geological Society of Australia Endowment Fund
C/- Geological Society of Australia
Suite 706
301 George Street
Sydney NSW 2000

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au
• Renewing your GSA membership is easy - it can now be done on-line.

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

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	Mike Sandiford	Australia's ancient landscapes – lessons for an uncertain future.
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30 August	Gresley Wakelin-King	News from a dry creek: what Australia's inland has for petroleum geologists, engineers, and lawyers.
27 September	**Selwyn Symposium**	**9 a.m. – 5 p.m. at the University of Melbourne** See program p. 2; registration details TBA
	Selwyn Lecture	**6:30 p.m. Free public lecture** Copland Theatre, University of Melbourne
	Tim Flannery	Climate change or human impact? Australia's megafaunal extinction.
25 October	Patricia Vickers-Rich	Out of the slime - The Beginning of Animals
	To be held at the Monash Science Centre, Bld 74, Monash University, off Normanby Rd.	
29 November	**Joint meeting** with ESHG	TBA
	ESHG Conference	29th November to 1st December: Details p. 3 and May 2007 issue of The Victorian Geologist

TBA December Dinner: end of year breakup.

DON'T FORGET! THE GSA ANNUAL GENERAL MEETING IS THIS MONTH! NOTE THE DETAILS ABOVE.

The University of Melbourne Earth Science Postgraduate Student Society (ESPG) presents

Earth Science Seminars every Friday at 4:00 p.m.

in the

Fritz Loewe Lecture Theatre

Earth Science Building (cnr Swanston and Elgin Streets)

followed at 4.45 p.m. by drinks and refreshments in the tea-room, 4th floor. $2 per person.

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Treasurer:	Peter Pritchard	9439 9582

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Newsletter:	Marilyn Moore	9844 1072
Program:	vacant	
Publications:	vacant	
Promotions	vacant	
Webmaster:	Lindsay Thomas	0427 354 828

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Susan White	9328 4154

Newsletter deadline
First Friday of the month except Dec & Jan
moore.me@bigpond.net.au

GSA Inc - for membership and subscription enquiries or change of address, please contact Ms Sue Fletcher
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THE VICTORIAN GEOLOGIST

July 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

Thursday 26th July at 6:15 p.m.

Neoproterozoic extreme climates and the evolution of metazoan life: Is it a coincidence?

Malcolm Wallace

Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne

Preceded at 5.30 p.m. by drinks and nibbles in the tea-room, 4th floor, cost $2.

Climatically, the Neoproterozoic (~750–550 million years ago) is one the most extraordinary periods of Earth's history. During this time, the Earth was alternately subjected to the most severe glacial conditions the planet has ever witnessed (with ice present in equatorial latitudes), and then to widespread tropical greenhouse conditions. Even more puzzling is the first appearance of metazoan life soon after these so called snowball earth events. How is it that life could not only survive these periods of extreme cold, but seemed to prosper and undergo dramatic evolutionary advances in this time? Why didn't this evolution occur in the preceding billion years with more pleasant climates? Is there a causal link between extreme climates and metazoan evolution?

Forthcoming Events...

The 21st Annual Victorian Universities Earth & Environmental Sciences Conference 2007

When: Tuesday 25th September 2007
Where: Menzies Conference Centre, La Trobe University, Bundoora, Melbourne

Details: http://www.latrobe.edu.au/envsci/vueesc
Contact: Sarah Hagerty (Conference Convenor)
skhagerty@students.latrobe.edu.au

Abstract deadline: Tuesday 7th August

Kalgoorlie '07 - Old Ground, New Knowledge:
The Yilgarn Craton

The third in a series of international conferences that bring into focus the recent advances in our understanding of the geology and mineral deposits of the Yilgarn Craton and its margins. The conference will focus on important applied geoscience topics for the mining and exploration industry, including the broad themes of understanding the four dimensional evolution of the Yilgarn Craton and its margins, understanding of mineral systems and how they fit into the evolution, and translation of knowledge of the evolution and mineral systems into exploration models.

Prizes for best student poster! Travel grants are available. Registration form and more information is available on the website.

When: 25th to 27th September 2007
Where: WMC Centre, Macdonald Street, Kalgoorlie, Western Australia
Details: http://www.kalgoorlie07.org

Early bird registration deadline: 31st July

Earth Sciences History Group (ESHG) Conference: History of Geology in Australia and Victoria – From Selwyn and McCoy to Gregory – 1853 to 1903

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Details: ESHG website: http://vic.gsa.org.au/eshg.htm or
ESHG Secretary: Guy Holdgate - g.holdgate@earthsci.unimelb.edu.au
See article in May 2007 issue of The Victorian Geologist.

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Clayton, VIC 3800

RSVP: Jennifer Monaghan
email: jenny.monaghan@sci.monash.edu.au
Phone: +61 3 9905 1370
BOOKINGS ESSENTIAL!

Australian Earth Sciences Convention
20th to 24th July 2008
Perth Convention Exhibition Centre,
Perth, Western Australia

Call for Papers!

Speaker Abstract Dealine: 11th December 2007
Authors Notified: 8th February 2008

AESC 2008 focuses on five major themes:
- Geoscience in the Service of Society
- Resources: Foundation for our Future
- Evolution of Life and the Solar System
- Earth's Environments: Past, Present and Future
- Dynamic Earth: From Crust to Core

The convention program will include a combination of plenary sessions, panels, papers and trade exhibits.

Please see:
http://www.gsa.org.au or
http://www.lync.com.au/ice/aesc/
for more details.

REMINDER...

The October GSA(V) meeting is to be held at the Monash Science Centre.

Patricia Vickers-Rich will be presenting a lively talk entitled 'Splendid Slime - Fast food of the most ancient metazoans'.

There will be finger food, drinks, and a live demonstration of a "paleontologist at work"!

Bring family and friends! There will be a small entry fee to cover catering costs.

Booking details TBA.

GSA Endowment Fund

The GSA has set up an endowment fund. The objectives of the fund are to support Australian students undertaking studies in the Earth Sciences at an approved State or Federal educational institution. Support will be financial assistance for:

- Field costs
- Laboratory associated costs
- Sponsorship to attend conferences
- Overseas study tours

This fund is fully tax deductible, which means any donation to this fund, can be claimed as a tax deduction. So if you want to increase tax deductions for this financial year and support students studying Earth Sciences give now and invest in tomorrow.

The fund is fully tax deductible that means any donation to this fund can be claimed as a tax deduction. Your generosity in supporting this new initiative is highly valued. If you want to know more, please ring the business office on (02) 9290 2194.

Cheques can be made payable to: Geological Society of Australia Endowment Fund

Please send your payment to:

The Geological Society of Australia Endowment Fund
C/- Geological Society of Australia
Suite 706
301 George Street
Sydney NSW 2000

CONSIDER CONTRIBUTING TO TAG!

It is the 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.

The TAG September deadline for text is 31 July. Please send your news to: tag@gsa.org.au

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

26 July	Malcolm Wallace	Neoproterozoic extreme climates and the evolution of metazoan life: Is it a coincidence?
30 August	Gresley Wakelin-King	News from a dry creek: what Australia's inland has for petroleum geologists, engineers, and lawyers.
27 September	**Selwyn Symposium**	**9 a.m. – 5 p.m. at the University of Melbourne** See included flyer or June 2007 TVG. Registration details in flyer.
	Selwyn Lecture	**6:30 p.m. Free public lecture** Copland Theatre, University of Melbourne
	Tim Flannery	Climate change or human impact? Australia's megafaunal extinction.
25 October	Patricia Vickers-Rich	Splendid Slime – Fast food of the most ancient metazoans
	To be held at the Monash Science Centre, Bld 74, Monash University, off Normanby Rd.	
29 November	**Joint meeting** with ESHG	TBA
	ESHG Conference	29th November to 1st December: Details p. 2 and article in May 2007 issue of TVG.

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Fritz Loewe Lecture Theatre
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followed at 4.45 p.m. by drinks and refreshments in the tea-room, 4th floor. $2 per person.

Further information: http://www.earthsci.unimelb.edu.au/php/seminars_upcoming.php

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GPO Box 2355V, Melbourne, Vic., 3001
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THE VICTORIAN GEOLOGIST

GEOLOGICAL SOCIETY OF AUSTRALIA Incorporated

August 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

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

News From a Dry Creek: What Australia's Inland Has For Petroleum Geologists, Engineers, and Lawyers

Gresley Wakelin-King

Wakelin Associates Pty. Ltd.

Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne
Preceded at 5.30 p.m. by drinks and nibbles in the tea-room, 4th floor, cost $2.

Although continental Australia is around 75% semi-arid to arid rangeland, most Australian river research takes place along the coastal fringe or along perennial rivers flowing through the rangelands. Very little research takes place along true drylands rivers. Many people assume that dry rivers function the same way as "normal" rivers, just not so often. In fact, the hillslope surfaces, the variable flow regime, and the location of vegetation within the creek bed, combine to give drylands rivers a unique character. In a literature dominated by the Middle East and the USA, Australian drylands rivers have their own story to tell.

Arroyos, graziers, and lawyers - A climate characterised by short intense cloudbursts favours the formation of short disconnected drainages consisting of an upstream gully area, a central arroyo, and a downstream unchannelled floodout. The floodouts are valuable ecologically and economically, and are maintained by a geomorphology-ecology feedback process. Lacking channels, the floodouts mask the continuous nature of the drainage network. In western New South Wales, graziers cannot dam third- or higher-order streams. In discontinuous drainages, a dam apparently harvesting only first-order water may actually be blocking much of the catchment upon which the downstream ecosystem depends. Regulations written to suit perennial rivers are not applicable here.

continued on page 2

Tiger bush, culverts, and engineers - Unlike a temperate-climate hillslope, most rain falling on drylands hills is shed as runoff, travelling as sheetflow. In places, banded vegetation (tiger bush), develops, in which water shed from bare patches is intercepted by vegetation immediately downhill. The sheetflow remains shallow and slow. Similar hillslopes, lacking banded vegetation, have greater runoff and develop gullies. Banded vegetation marks integrated drainage systems which go unrecognised because they lack channels. Road crossings beneath hillslopes without banded vegetation may need more engineering, eg the Silver City Highway crossing at Telephone Creek, which has lost its bitumen several times recently.

Mud aggregates and petroleum exploration - In the geological record some mudrocks show signs of silts and clays travelling as mud aggregates. Australia is home to the only well-described modern examples of mud-aggregate rivers. Robust mud aggregates are derived from rangeland vertisol, can be transported as bedload, and can be deposited across an active floodplain. Unless preserved by favourable conditions, the aggregate structure is masked by consolidation, and massive mudrock or siltstone is the result. Such mudrock is known from the United States, the Devonian (Old Red Sandstone) in the UK, and from the hydrocarbon provinces in the North Sea. An understanding of mud-aggregate facies relationships will be important in predicting the tightness of mudrock seals, and in correlating them across wells.

Landscape history and insurance assessors - Australia's drylands rivers have the potential to inform Australian industry. The analysis of megaflood pathways should be part of planning infrastructure development. The relatively slow rate of geomorphic change makes dryland rivers potentially valuable in seismic geohazard assessment, a useful attribute a in a country so thinly monitored and with such a short span of written history.

Forthcoming Events...

VUEESC LA TROBE 2007

The 21st Annual Victorian Universities Earth & Environmental Sciences Conference 2007

When: Tuesday 25th September 2007
Where: Menzies Conference Centre, La Trobe University, Bundoora, Melbourne

Details: http://www.latrobe.edu.au/envsci/vueesc
Contact: Sarah Hagerty (Conference Convenor)
skhagerty@students.latrobe.edu.au
Registration: Free online at http://www.latrobe.edu.au/envsci/vueesc/registration

Registration Deadline: 4th September.

Russian Mineralogical Society Award 2007

Scientists worldwide are invited to nominate papers and monographs covering the areas of mineralogy, petrology, mineral crystallography, economic geology and geochemistry for the RMS Award 2007 for Outstanding Scientific Publications and Textbooks.

Nomination rules are published at http://www.minsoc.ru/award/call2007

Applications must be prepared online through the website of the Russian Mineralogical Society at http://www.minsoc.ru/competitions.php?id=148

Application Deadline: 15th September 2007

2007 Evening Lectures at Monash Science Centre

5 Sept	Ray Cas Monash University	Volcanoes are a diamond's best friend
10 Oct	Ian Cartwright Monash University	Future of water resources with a changing land climate
15 Nov	Rick Squire Monash University	The transgondwanan supermountain and the origin of animals

When: All talks begin at 7:00 pm and run for about an hour.

Where: Monash Science Centre
Building 74 Monash University, Clayton Campus
Clayton, VIC 3800

RSVP: Jennifer Monaghan
email: jenny.monaghan@sci.monash.edu.au
Phone: +61 3 9905 1370
BOOKINGS ESSENTIAL!

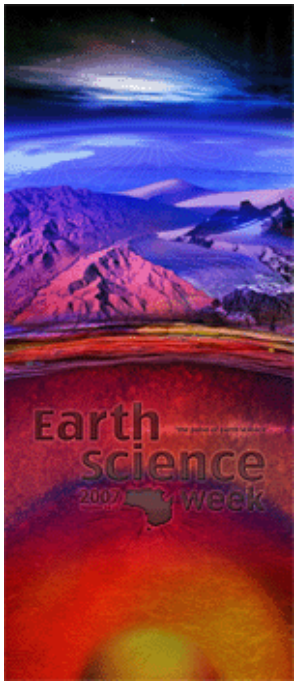
Kalgoorlie '07 - Old Ground, New Knowledge:
The Yilgarn Craton

The third in a series of international conferences that bring into focus the recent advances in our understanding of the geology and mineral deposits of the Yilgarn Craton and its margins. The premise of the conference is to provide the benchmark for practising geoscientists that will prepare them for exploration in the Yilgarn Craton and other Precambrian terranes for the next ten years. The conference will focus on important applied geoscience topics for the mining and exploration industry, including the broad themes of understanding the four dimensional evolution of the Yilgarn Craton and its margins, understanding of mineral systems and how they fit into the evolution, and translation of knowledge of the evolution and mineral systems into exploration models.

This conference provides an opportunity for speakers from industry, government and academia to present much of the knowledge that has come from this work, and to encourage discussion that may question some of the commonly held views on granite-greenstone evolution and associated mineralisation.

All geoscientists are invited to attend. For the full program and information about the pre- and post-excursions and workshops, see the website at http://www.kalgoorlie07.org.

When: 25th to 27th September 2007
Where: WMC Centre, Macdonald Street, Kalgoorlie, Western Australia
Details: http://www.kalgoorlie07.org or Jocelyn Thomson - jaytee@iinet.net.au
Registration: Forms online at above address.



Earth Science Week 07: Taking the pulse of earth science

Earth Science Week is an international event which promotes awareness of and provides opportunity to celebrate the world of geoscience. Earth Science Week 2007 runs from 14 to 20 October and is celebrating its tenth year with the theme 'The Pulse of Earth Science'.

This year's theme provides an opportunity for us to consider the state of the earth sciences, identify future challenges and develop programs and activities that will increase the profile of earth science in society. It is also an opportunity to incorporate themes from other international earth science celebrations such as the International Year of Planet Earth.

For more information, see http://www.ga.gov.au/about/event/eswhome.jsp

Get on board and save the planet!

GSA Business Office Update

CONASTA/World Science Teachers Conference 07

Greg McNamara and Sue Fletcher recently represented the GSA at the CONASTA/World Science Teachers Conference '07 in Perth. The objectives of the GSA's involvement were to:

- Ensure a good geoscience content and presence
- Ensure the GSA's profile was raised amongst teachers
- Launch a new range of GSA badged educational materials (*Fact-ites* and *Quizzicles*)
- Enlist enthusiastic teachers to further assist in the development of GSA education products.

The GSA organised 5 speakers for the conference and sponsored Amanda Fleetwood from Marsden College SA and Vicky Dorgelo from Pimilco High School QLD to attend the conference and co-present in the oral session on aspects of their geoscience work in schools. The SA Division also sponsored Len Altman from Marsden College to attend. Len and Amanda gave a poster on their Geoscience Pathways website as well as their oral presentation.

The GSA booth was very popular and provided opportunities for deeper discussion and demonstration of EarthCaching and the new teacher products (*Fact-ites* and *Quizzicles*). If you want to know more please contact Greg McNamara - geoservices@geoed.com.au

If you want to view the *Fact-ites* and *Quizzicles* go to: http://gsa.org.au/resources/teacherresources.html

AGC/AESC Perth, 20th–24th July 2008

The Call for Abstracts went out in June with the four high-level themes:

continued overleaf...

Geoscience and Society (Relating to education, geo-hazards and climate change)
Resources – Foundation for our Future
The Evolution of Life, the Earth and other Planets
The Deep Earth – From Crust to Core

Abstracts are starting to come in, so register your interest in one of the themes early.
Details: www.iceaustralia.com/aesc2008
Contact: aesc2008@iceaustralia.com.

GSA Endowment Fund

The GSA launched the Endowment Fund in June and so far we have received over $2,000 in donations. Thank you to members for their generosity at the infancy stage. All donations are tax deductible and no matter how small will contribute to building a stronger Earth Science future. The Endowment Fund has been set up to provide financial assistance for students at Australian institutes for field costs, laboratory associated costs, sponsorship to attend conferences and overseas study tours.

'SGGMP' DUNEDIN 2007

2nd Biennial Conference of the Specialist Group in Geochemistry, Mineralogy and Petrology (SGGMP)

Otago University, Dunedin, New Zealand, 14th–19th October, 2007

Dunedin, New Zealand, is the venue for Australian and New Zealand researchers in the fields of geochemistry, mineralogy, and petrology. Its relatively small size and proximity to excellent exposures of volcanic, plutonic and metamorphic sequences make Dunedin and exceptional locale for the SGGMP.

The SGGMP committee is strongly supportive of students undertaking research in any of the fields of Geochemistry, Mineralogy and Petrology, and offers all students attending this conference (both undergraduate and graduate students) a 25% discount to the conference.

Extended abstracts up to 4 pages (including images, figures, tables and references) will be accepted. 25th August, 2007

For more details and for registration, please contact Ian Graham - i.graham@unsw.edu.au

Registration Deadline: 25th August

Reminder...

The October GSA(V) meeting is to be held at the Monash Science Centre.

Patricia Vickers-Rich will be presenting a lively talk entitled 'Splendid Slime - Fast food of the most ancient metazoans'.

There will be finger food, drinks, and a live demonstration of a "paleontologist at work"!

Bring family and friends! There is a small entry fee to cover catering costs.

Booking slip enclosed in this issue.

GEOLOGY COLLECTION NEEDS A HOME

The family of a deceased GSA member has asked the GSA to find a suitable home for his collection. It consists of about 500 boxed and labelled specimens (mostly Victorian samples and a few from overseas) plus notes on the terrain, sample descriptions, drawings and is very orderly and meticulously recorded. An educational institution is preferred. To express interest in acquiring this collection, please e-mail - agc_edlist@geoed.com.au

Summit on the Plight of University Geoscience Education

The Australian Geoscience Council (AGC) has called a national summit on the plight of university geoscience education and supply of geoscience graduates to be held 27th September at Geoscience Australia in Canberra.

AGC member societies have become increasingly concerned as to the capability of the higher education system to provide the appropriately trained geoscientists required by the economy and Australian society in the face of the demise of earth science educational opportunities, university earth science teaching departments and staffing levels. In order to obtain a national perspective, AGC is taking the first step by convening the Summit.

In order to provide a coherent set of data to inform the deliberations of the Summit, AGC is undertaking a survey and analysis of Tertiary Geoscience Educational opportunities and teaching capability across the sector to establish an Australian Tertiary Geoscience Education Profile. The AGC plans to publish this profile and update it regularly.

For inquiries regarding the Summit or to register your interest please contact:

Dr Trevor Powell, AGC President
02 62514128
0422 089 532; or

Mike Smith, AGC Past-President
02 92522599
0411 103 761

DO YOU HAVE SOMETHING INTERESTING TO SHARE?

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

If there are any events, happenings, or news that would be of interest to the membership, please send your details and information to Marilyn Moore at the e-mail address on the back page.

We'd be glad to hear from you.

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au
• Renewing your GSA membership is easy - it can now be done on-line.

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to be presented at

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Promotions	position vacant	
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September 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Selwyn Symposium

Thursday 27th September

Registration commences at 8:00 a.m.
Copland Theatre, University of Melbourne

The Selwyn Lecture

A Climate Change Update to September 2007

Professor Tim Flannery

6:30 p.m.
Copland Theatre, Economics and Commerce Building, University of Melbourne
Free public lecture

See enclosed flyer and July TVG for more details.

Selwyn Symposium 2007

Presented by the Geological Society of Australia
Victoria Division

Contextualizing chronologies for the human megafauna overlap in Sahul

Judith H. Field

Australian Key Centre for Microscopy and Microanalysis and School of Philosophical and Historical Inquiry, The University of Sydney, New South Wales 2006, Australia. judith.field@emu.usyd.edu.au

Discussion of the timing and causes of the late Pleistocene faunal extinctions has recently been centred on an extinction window ~50,000-40,000 years ago, wherein the arrival of humans and the final appearances of most, if not all, megafauna appear to coincide. These discussions have been fuelled by a considerable increase in publications over the last decade, which have either reinvestigated or re-dated previously identified fossil sites. On the basis of these and other studies it would appear that the dataset available for scrutiny is now much improved. Rather than resolving either the final disappearance of individual megafaunal species or establishing their co-occurrence with humans, it has effectively highlighted the paucity of data available with which to test the current popular hypotheses (i.e. humans and/or climate). The debate continues as polarized as ever before. One of the reasons for this divide is the lack of consensus on the criteria used to assess whether the ages, fossils, and in two cases, cultural material, can be linked.

Late survival of megafauna in Gippsland: dated faunal sequences from Cloggs and other Buchan caves

Josephine Flood

19 Chauvel Crescent, Tuross Head, New South Wales 2537, Australia. josephinemflood@aol.com

Megafauna has been found in deposits dating to 27,500-24,500 years ago at Cloggs Cave in east Buchan (Flood, 1973, 1974, 1980). This is one of only about four Australian mainland sites to contain dated occurrences of younger megafauna; the others are Seton rock-shelter on Kangaroo Island, South Australia, and the open sites of Cuddie Springs, New South Wales, and Spring Creek, western Victoria. Cloggs Cave is therefore important in the debate about why and when Australia's megafauna became extinct. Was it through the arrival of Aboriginal big game hunters, habitat alteration by Aboriginal burning of the vegetation, or climate change?

The contribution of long pollen and charcoal records to the explanation of Late Pleistocene megafaunal extinction in Australia

A. Peter Kershaw

Centre for Palynology and Palaeoecology, School of Geography and Environmental Science, Monash University
peter.kershaw@arts.monash.edu.au

Palaeopalynology, which includes pollen, charcoal particles and other microscopic organic material preserved in accumulating sediments, provides no direct evidence of megafauna but results of analysis have been used variously and selectively to support the major extinction models of climate change, habitat alteration and overkill in Australia (e.g. Flannery and Roberts, 1999; Miller et al., 1999, 2003; Barnosky et al., 2004; Wroe and Field, 2006). The significance of palynology is that, in contrast to megafaunal and archaeological materials, it can provide long, continuous records of change and these may inform on likely times and causes of extinction.

The Australian prehistoric megafauna: an overview of discoveries and controversies

John A. Long

Museum Victoria, Melbourne, Victoria 3001, Australia. jlong@museum.vic.gov.au

In reviewing the five major mass extinction episodes of the Phanerozoic we see the prime causes of these demises have been either sudden devastation from cosmic impact (e.g. Cretaceous/Tertiary boundary ~65 million years ago); widespread oceanic anoxia (Kellerwasser events, ~365-368 million years ago); possible climatic shifts through massive volcanic eruptions (Permian/Triassic boundary ~250 million years ago). In each case where well-documented extinction on land occurred, we see a similar event occurring within the marine realm. Where climate or ecologically-induced collapse has occurred the effects permeated all biomes. In Australia, the extinction of megafauna 46,000 years ago does not correspond with climatic extremes, so climate was ruled out as a major factor of extinction by the overkill proponents. A megafaunal extinction event around 46,000 years ago has no corroborating event of major or minor extinction in the surrounding oceans of Australasia. Extinction brought about by climatic shifts strong enough to decimate a large island continent terrestrial fauna should have some impact on alteration of surrounding sea temperatures, where even slight changes can have devastating effects on ecosystems. By taking a strictly geological view on the Australian megafaunal extinction event, the evidence would not favour a disruption by climate, but by the intervention of an agent foreign to the system before the time of extinction.

Quaternary extinctions of Southeast Asia's megafauna

Julien Louys

School of Biological, Earth and Environmental Sciences, The University of New South Wales, New South Wales 2052, Australia. louys_julien@hotmail.com

Southeast Asia evokes images of tropical rainforests, magnificently coloured birds and elusive primates, but only rarely does it evoke images of megafauna. Nevertheless, along with Africa, it is one of the few regions in the world where extant megafauna can still be found in a diversity that approaches that present during the Pleistocene. Even so, the extant megafauna of Southeast Asia are depauperate compared to that of the Pleistocene. Southeast Asia has had one of the longest continual habitations by early hominins outside of Africa, making it of intrinsic interest within the megafauna debate. In particular, the evidence from Southeast Asia can be used to address the concept of prey naivety to human hunters, as prey species co-evolved with humans in Southeast Asia for only a brief period of time. In addition, Southeast Asia is of significance in our understanding of megafaunal extinction in Australasia, as the first Australasians were almost certainly Southeast Asian in origin.

Timing and cause of Genyornis extinction and duration of human-Genyornis overlap in Australia

John W. Magee[a], Gifford H. Miller[b]

a Department of Earth and Marine Sciences, The Australian National University, Canberra, Australian Capital Territory 0200, Australia. jwmagee@ems.anu.edu.au
b Institute of Arctic and Alpine Research and Department of Geosciences, University of Colorado, Boulder, Colorado 80309, United States of America

Determining the chronology of megafaunal extinction in Australia has been problematic chiefly because bone preserves its original geochemistry very poorly under the variable wet/dry and warm/cold environmental conditions, which have prevailed over the 45,000 to 50,000 years since the last major extinction event. Under Australian conditions, bone has defied all attempts at reliable direct dating because its geochemistry is an open system for exchange, loss and uptake of components of both its organic and mineral fractions. This has resulted in a reliance on indirect or associated ages (dating material associated with the animal remains or the

sediment which encloses the remains). The duration of human-megafauna overlap is an important question as it is likely that any human-caused mechanism requires a relatively short period of overlap. However, determining the duration of overlap, purely from the chronologies of extinction and human arrival, is difficult due to the relatively low precision of both of those chronologies.

Tracking late Quaternary environmental and climate histories using C, O and N isotopes preserved in avian eggshells, and contrasting megafaunal extinctions in Madagascar and Australia

Gifford H. Miller[a], John W. Magee[b], Marilyn L. Fogel[c], Seth D. Newsome[c], Michael K. Gagan[d]

a Institute of Arctic and Alpine Research and Department of Geosciences, University of Colorado, Boulder, Colorado 80309, United States of America. gmiller@spot.colorado.edu
b Department of Earth and Marine Sciences, The Australian National University, Canberra, Australian Capital Territory 0200, Australia.
c Geophysical Laboratory, Carnegie Institution of Washington, Washington, District of Columbia 20015, United States of America.
d Research School of Earth Sciences, The Australian National University, Canberra, Australian Capital Territory 0200, Australia.

Most biological processes fractionate stable isotopes in a consistent pattern, as do many purely physical and chemical processes. The ubiquitous stable isotopes of carbon ($\delta^{13}C$), oxygen ($\delta^{18}O$), and nitrogen ($\delta^{15}N$) can be frequently isolated from fossil materials, and where they are indigenous to the animal, used to reconstruct a range of environmental variables. Our work has relied heavily on the eggshells of two of the great flightless birds of Quaternary Australia, the extant Australian emu (Dromaius), and the now-extinct giant bird, Genyornis. Eggshells of these two birds are not only the most abundant vertebrate remains across the arid and semi-arid zones, but they offer distinct advantages to most other biominerals.

Climatic forcing for Pleistocene megafaunal extinction: evidence from eastern Australia

Gilbert J. Price

Radiogenic Isotope Laboratory, Centre for Microscopy and Microanalysis, The University of Queensland, St Lucia, Queensland 4072, Australia. g.price1@uq.edu.au

The Mt Etna cave deposits preserve a biologically rich middle Pleistocene biota (Hocknull, 2005; Hocknull et al., submitted). Between ~500,000-280,000 years ago, Mt Etna was dominated by rainforest-associated vertebrate faunas (e.g. tropical frogs, striped possums, cuscuses, tree kangaroos) including several megafaunal taxa (e.g. Hill's marsupial 'lion', marsupial 'tapirs', giant forest wallabies), suggesting relative faunal stability through several glacial-interglacial cycles of that period. However, sometime between 280,000 and 205,000 years ago, a major faunal turnover occurred that reflected the local extinction of most rainforest-associated taxa and all megafauna, but with the replacement of more arid-adapted vertebrate faunas (e.g. bilbies, western-barred bandicoots, grazing kangaroos) (Hocknull et al., 2007). Such faunal turnover implies a major local habitat change from rainforest to more open conditions after 280,000 years ago.

Megafauna, caves and climate: records from southern Australia

Gavin J. Prideaux

School of Biological Sciences, Flinders University, Adelaide, South Australia 5001, Adelaide.
gavin.prideaux@flinders.edu.au

Pitfall assemblages in caves are among the least biased kinds of fossil deposit (Baird, 1991), and, in many

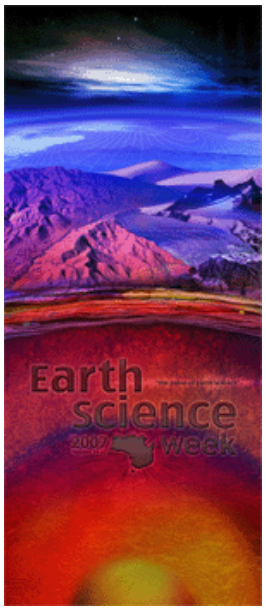
ways, serve as effective 'time capsules' for vertebrate communities. Animals fall into caves through roof openings and are unable to escape. Bones usually become encased in sediments that enter the cave the same way. Some deposits also incorporate or are mainly composed of bones derived from regurgitated owl pellets. When comparing cave deposits, an understanding of taphonomy (all processes between death and scientific collection) is essential for reducing biases in palaeoecological interpretations. Presence/absence data for species along with abundance data within one sediment layer can then be treated as a 'snapshot' of a fauna from one interval in time, and compared with those above or below in the same stratigraphic section, or with other cave deposits in the same region or different regions. Another remarkably useful thing about caves is that climatic records are preserved in speleothems, secondary calcite deposits including stalagmites and flowstones. Extended terrestrial records of climate are uncommon; those that can be related directly to faunal records are even rarer. Stable carbon and oxygen isotope ratios retrieved from the speleothems themselves and from the teeth of herbivorous mammals provide another climatic/environmental proxy, as does detailed study of the sediments themselves.

A review of the evidence for a human role in the extinction of Australian megafauna and an alternative interpretation

Stephen Wroe[a,c], Judith H. Field[b,c]

a School of Biological, Earth and Environmental Sciences, The University of New South Wales, New South Wales 2052, Australia. swroe@unsw.edu.au
b School of Philosophical and Historical Inquiry, The University of Sydney, New South Wales 2006, Australia
c Australian Key Centre for Microscopy and Microanalysis, The University of Sydney, New South Wales 2006, Australia

Arguments that megafaunal extinctions in Australia were anthropogenically mediated have focused on establishing terminal appearance ages. We review the evidence for human causation and note mounting evidence suggesting that the past 400,000-300,000 years in Australia has been characterised by escalating aridity and climatic variability, culminating in the breach of a hydrological threshold within the last glacial cycle. We argue for a falsifiable model of staggered extinction in which most megafaunal extinctions predated human arrival and with the influence of people as a minor superimposition on broader trends in train since middle Pleistocene times.



Earth Science Week 2007: Taking the pulse of earth science

Earth Science Week is an international event which promotes awareness of and provides opportunity to celebrate the world of geoscience. Earth Science Week 2007 runs from 14 to 20 October and is celebrating its tenth year with the theme 'The Pulse of Earth Science'.

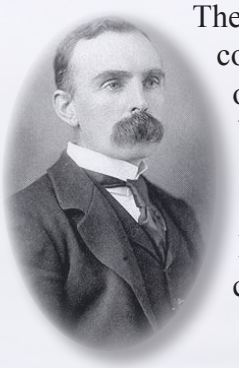
This year's theme provides an opportunity for us to consider the state of the earth sciences, identify future challenges and develop programs and activities that will increase the profile of earth science in society. It is also an opportunity to incorporate themes from other international earth science celebrations such as the International Year of Planet Earth.

For more information, see http://www.ga.gov.au/about/event/eswhome.jsp

Get on board and save the planet!

The history of geology in the second half of the nineteenth century:
The story in Australia and in Victoria,
from Selwyn and McCoy to Gregory – 1853 to 1903

Thursday 29th November to Saturday 1st December 2007



The Earth Sciences History Group is holding a conference on Earth Sciences history at the School of Earth Sciences, The University of Melbourne, beginning with a series of paper presentations and displays on Thursday 29th November 2007.

Professor Geoffrey Blainey AC will give the conference Keynote Address:

A Bird's Eye View of the Victorian Goldfields:
From the First Rushes to the First World War

6:15 p.m. on Thursday 29th November at the evening meeting of the Victoria Division of the GSA. (Open to the public)

Further papers and a free afternoon field trip to the historic railway cuttings in nearby Royal Park will follow on Friday 30th November. On Saturday 1st December, the conference will conclude with a one day minibus field trip to the historic Deep Leads of the Creswick area, a notable area of young volcanic activity, first identified by Major Mitchell in 1836.

Enrolment & Deadlines

- Early Bird Conference Registration of only $50 - by 15th October 2007.
- Short Papers - due by 15th October 2007 (see web site on how to submit a Short Paper).
- Enrolment for the Creswick Deep Leads field excursion at a cost of $50 to be paid by 15th October 2007.

For the latest details:

ESHG website:

http://vic.gsa.org.au/eshg.htm

ESHG Committee Secretary Guy Holdgate:

g.holdgate@earthsci.unimelb.edu.au

Geography Teachers' Conference

Noel Schleiger

The committee of the Society manned a display table at the Geography Teachers' Association of Victoria 41st Annual Conference at Camberwell High School on Sunday 12 August and Monday 13 August 2007. Sue Fletcher provided a selection of useful handouts to Stephen Gallagher for distribution during the conference.

'Factite' sheets, which deal with natural disasters such as earthquakes, tsunamis, volcanoes and the mining of copper and gold, proved very popular with conference attendees. Excursion reports on selected areas including the Dandenongs, Bacchus Marsh, and Coburg Lake (Merri Creek) were provided in addition to 'Factite' sheets.

Stephen and Noel Schleiger manned the display on the Sunday. Noel sought the assistance of Dorthy Mahler of the FNCV (Geology Group) on the Monday. On both days we were kept busy. The Factite sheets were completely used up and we brought home a lot less than we started with. Book marks with the geological time scale and fridge magnets were popular as well.

We felt that the display table was well worth the effort and did much to raise the reputation of the Society.

Forthcoming Events...

VUEESC LA TROBE 2007

The 21st Annual Victorian Universities Earth & Environmental Sciences Conference 2007

When: Tuesday 25th September 2007
Where: Menzies Conference Centre, La Trobe University, Bundoora, Melbourne

Details: http://www.latrobe.edu.au/envsci/vueesc
Contact: Sarah Hagerty (Conference Convenor)
skhagerty@students.latrobe.edu.au

Reminder...

The October GSA(V) meeting is to be held at the Monash Science Centre.

Patricia Vickers-Rich will be presenting a lively talk entitled 'Splendid Slime - Fast food of the most ancient metazoans'.

There will be finger food, drinks, and a live demonstration of a "paleontologist at work"!

Bring family and friends! There is a small entry fee to cover catering costs.

Booking slip enclosed in this issue.

AGC/AESC Perth, 20-24 July 2008

The overarching theme of the conference is New Generation Advances in Geoscience with five particular areas of thematic focus that are most relevant to cutting-edge geoscience in the early 21st Century:

Geoscience in the Service of Society

A theme which focuses on the increasing number of ways that Geoscience is becoming integral to the effective functioning of our communities. This theme includes geohazards, environmental management, land-use planning, education and geoscience information provision.

Resources – Foundation for our Future

A theme which recognises the central role that the resource industry plays in the Australian economy and how innovative geoscience is making a critical contribution to maintaining its international competitiveness. Resources are broadly defined to include petroleum, coal and groundwater together with minerals. Important sub-themes will include a focus on exploration targeting and prospectivity analysis, and a mineral systems approach to economic geology.

The Evolution of Life and the Solar System

This theme seeks to synthesise the recent exciting scientific developments relating to the geological record of early life on the earth and the explosion of geological data from other planets, particularly Mars. An important objective of this theme is to put the evolution of the earth and its life-forms into a broader comparative perspective.

Earth's Environments – Past, Present and Future

This theme seeks to draw together a geological perspective on what is perhaps the most important global issue of our time – Climate change. This objective of this theme is to integrate the "deep time" perspective on earth's environmental changes and its drivers, particularly those of a geological nature, with the current explosion of knowledge in this field. The role that geoscience fulfills in providing proxies for paleoclimate will be a significant focus of this theme.

The Dynamic Earth – From Crust to Core

This theme emphasises our emerging understanding, driven by critical new data sets such as global seismic tomography, of the earth as a single, linked dynamic system that has evolved over geological time in a systematic way. Some areas of focus for this theme will include: mantle processes and the generation of mantle melts; plate tectonic processes and the dynamic mantle; the supercontinent cycle; time, tectonics and the evolving landscape; orogens and basins: indicators of continental processes; formation and evolution of crust and crustal melts; and regolith and landscape evolution.

In addition to the above themes, the Plenary sessions at the convention will recognise that 2008 is the International Year of Planet Earth (IYPE) through a series of invited keynote speakers who will address major themes of the IYPE. For more information about the program, contact:

http://www.iceaustralia.com/aesc2008
aesc2008@iceaustralia.com

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

27 September	**Selwyn Symposium**	**9 a.m. – 5 p.m. at the University of Melbourne** See short abstracts in this issue or June 2007 TVG. Registration details in flyer.
	Selwyn Lecture Prof. Tim Flannery	**6:30 p.m. Free public lecture** Copland Theatre, University of Melbourne A Climate Change Update to September 2007
25 October	Patricia Vickers-Rich	Splendid Slime – Fast food of the most ancient metazoans
	To be held at the Monash Science Centre, Bld 74, Monash University, off Normanby Rd. See enclosed registration form.	
29 November	**Joint meeting** with ESHG	**6:15 p.m. Free public lecture**
	Prof. Geoffrey Blainey AC	**A Bird's Eye View of the Victorian Goldfields: From the First Rushes to the First World War**
	ESHG Conference	29th November to 1st December: Details p. 6

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au

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

The University of Melbourne Earth Science Postgraduate Student Society (ESPG) presents Earth Science Seminars every Friday

4:00 p.m. in the
Fritz Loewe Lecture Theatre
Earth Science Building (cnr Swanston and Elgin Streets)

followed at 4.45 p.m. by drinks and refreshments in the tea-room, 4th floor. $2 per person.

Further information: http://www.earthsci.unimelb.edu.au/php/seminars_upcoming.php

GSA (VICTORIA DIVISION) COMMITTEE

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GPO Box 2355V, Melbourne, Vic., 3001
Internet address: www.vic.gsa.org.au

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Newsletter deadline
First Friday of the month except Dec & Jan
moore.me@bigpond.net.au

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THE VICTORIAN GEOLOGIST

GEOLOGICAL SOCIETY OF AUSTRALIA Incorporated

October 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Next General Meeting

Thursday 25th October at 6:15 p.m.

Splendid Slime: Fast Food of the Neoproterozoic and the Rise of Animals

Professor Patricia Vickers-Rich

Monash University

DON'T FORGET TO BOOK - SEE BLOCK ADVERTISEMENT P. 8 AND BOOKING SLIP P.9

Monash Science Centre, Bld 74, Monash University, off Normanby Rd.

Preceded at 5:45 p.m. at this location by drinks and nibbles (available throughout the night).

Pat's talk will summarize the wealth of new data that has amassed over the past decade and a bit concerning the world's oldest animals from the Ediacaran - some of whom loved to feast on the microbial mats that covered the shallow (and possibly deep) sea floors of this time. Macdonalds would have done well to serve slime burgers with chips (opps, fried microbes!). What brought about the prospering of these first metazoans and what then led to their acquisition of shells by 520 million years ago may relate to the rise and erosion of a lengthy mountain chain which shed its contents in the shallow, equatorial seas that lapped onto the supercontinent that coalesced at the time, as suggested by Rick Squire and collegues last year.

I would suggest some sushi for the evening snacks and be sure there is plenty of algae for grazing!

Selwyn Symposium 2007

Presented by the Geological Society of Australia
Victoria Division

The Symposium was a success!

The Geological Society of Australia Victoria Division and the School of Earth Science, Melbourne University, presented a successful symposium on "Climate or humans? Australia's megafauna extinction" on Thursday 27 September. After an introduction by the Dean of Science Professor Peter Rathjen (University of Melbourne), John Long (Museum of Victoria) gave a plenary address. This set the scene for ten invited speakers from the geological and archaeological fields to discuss the controversies surrounding this contentious issue. Discussions were animated especially in the forum near the end of the day.

The symposium attracted 215 delegates (including 100 free student delegates), many of whom were from interstate (WA, NSW, QLD, ACT).

The symposium was followed by the annual Selwyn Lecture and award ceremony in the Copland Theatre, which attracted over 450 people. The Selwyn Medals were awarded to Professor Patricia Vickers-Rich (Monash University) and Dr Tom Rich (Museum of Victoria). Professor Tim Flannery, Australian of the Year 2007, followed with a superb Selwyn Memorial Lecture on "A climate change update to September 2007". After an initial controversial question from the LaRoche Group of sceptics in a question time chaired by Professor David Karoly (Melbourne University, pictured in the middle with Tim Flannery and Stephen Gallagher), the question time was informative and revealing. The presenters and many others then relaxed at the Selwyn Dinner at Graduate House.

To purchase copies of the Selwyn Symposium extended abstracts (many with colour figures) for $20 each, please contact Stephen Gallagher:
sjgall@unimelb.edu.au

Selwyn Medal Citation

This year's Selwyn Award was given to Professor Patricia Vickers-Rich (at left) and Dr Tom Rich (at right) by Ingrid Campbell (at centre), chair of the GSAV Award Committee.

Tom and Pat's achievements include:

- Discovery of oldest fossil mammals in Australia (Nature 1985, Science 1997).
- Recognition of likely Early Cretaceous placental mammals in Australia.
- Recognition of a monotreme with the most

primitive structure known for a middle ear in mammals (Science 2005).

- Discovery of the most diverse polar dinosaur assemblage anywhere on Earth.
- Discovery of the youngest temnospondyl amphibian that spotlights the early isolation of the Australian biogeographic region.
- Functional analysis of polar vertebrates.
- Twenty seven years of successful excavation of fossils under extreme conditions.
- Authorship of seven books on the vertebrate palaeontology of Australia; creating most of the prime literature from textbook to popular for this continent.
- Writing of dozens of in depth articles about polar dinosaurs and mammals for popular magazines (eg. Scientific American, Qantas Inflight Magazine, Natural History).
- Organising exhibitions centred on polar biotas, dinosaurs and vertebrate faunas of the Phanerozoic (The Great Russian Dinosaur Exhibition, Wildlife of Gondwana, Dinosaurs of Darkness).
- Involvement in more than a dozen documentaries relating to the polar dinosaurs and the polar Mesozoic biotas of Victoria (BBC, ABC, Channel 4 UK). These include contributions to When Dinosaurs Ruled the Earth and a film entitled The Terrible Lizards of Oz and to the BBC series Walking with Dinosaurs. Tom's work digging up dinosaurs in the frozen permafrost of northern Alasaka is being made into another full length international documentary presently.
- Supervision of Australian scientists who began their careers as students of Tom and Pat, including Tim Flannery, John Long, Andrew Constantine, Robert Baird, Charles Meredith, Sanya Van Huet, Erich Fitzgerald.

They have won several awards including:

The 1991 and 1993 Eureka Award for their books "The Dinosaurs of Darkness" and "Wildlife of Gondwana," respectively. They also won the Committee for Research and Explorations Chairman's Award from the National Geographic Society in May 2000.

In 1993 Dr Rich and Professor Vickers-Rich were asked by Australia Post to provide advice on a major stamp issue focused on Australian dinosaurs.

In summary no two people, working as a team, have had such a powerful impact on the study of Australian palaeontology, and its dissemination to the general public as have Tom and Pat done. Their contributions to putting Victorian geology and palaeontology into the international arena are unsurpassed, and they are most deserving recipients of the 2007 Selwyn Medal.

Dr John Long, February 2007

The 21st Annual Victorian Universities Earth & Environmental Sciences Conference 2007

The VUEESC 2007 was a great success - the presentations were very interesting and everyone had a good time with ample opportunity for early career networking. The full list of winners has been posted on the website: http://www.latrobe.edu.au/envsci/vueesc/awards.htm.

We would especially like to note the two GSA prize winners and their talks:

Linden Ashcroft - Polar Outbreaks in Southern Australia: Synoptic Mechanisms and Planetary Links

Matthias Raiber - Lake water-mass balance modelling as a predictive tool for water quality management

THE GSA(V) IS PLEASED TO ANNOUNCE THE 2007 WINNERS OF:

The D.E. Thomas Medal:

Chris Davis – University of Melbourne

This medal commemorates David Evan Thomas, the well known former head of the Victorian Geological Survey who was famous for his detailed and precise mapping. The silver Thomas Medal is offered each year for the best geological map produced by a Victorian Honours level student in Victoria. Submissions are sought by the selection committee from Geology or Earth Science Departments of Victorian universities.

The Frank Canavan Award:

Erin Carswell – University of Melbourne

The Frank Canavan Award was set up in 1996 by Mrs Canavan in honour of her late husband Frank, a well known Victorian geologist who was very active in promoting geological education and was a member of the Education Subcommittee of the Division. The Award is a cash sum for the purchase of geological textbooks, and is awarded to the most promising student who has finished second year geology at a Victorian university, as judged by the student's academic performance.

2007 GSA(V) Student Grant Recipient Abstracts

John Giddings - Presented at Goldschmidt (Germany), August 2007

Chung Li - Presented at ICP9 (Shanghai), September 2007

Estee Woon - To be presented at GSA (USA), October 2007

A $\delta^{13}C$ depth gradient from a mid-Cryogenian platform margin: Evidence for Neoproterozoic ocean stratification

J.A. Giddings and M.W. Wallace
[1]School of Earth Science, University of Melbourne, Parkville, Victoria, 3010, Australia

A $\delta^{13}C$ depth gradient of at least 8‰ between shallow and deep water is evident in Neoproterozoic carbonates from the Umberatana Group in the northern Adelaide Fold Belt, South Australia. The progradation of an extensive mid-Cryogenian platform margin allows direct isotopic comparison between shallow-water reef carbonates and synchronous deep-water slope and basinal sediments. With over 1 km of relief this platform margin allows an estimation of seawater $\delta^{13}C$ in the upper 1000-1400 m of the water column.

We suggest that the observed $\delta^{13}C$ gradient is the result of poor ocean circulation brought about by salinity stratification that persisted at least for the progradational history of the Oodnaminta platform margin. Such conditions enhanced the effect of the 'biological pump' by drawing ^{12}C out of the surface ocean and accumulating it in the deep ocean. After prolonged stratification, the vertical $\delta^{13}C$ gradient increased to the observed magnitude.

Furthermore, we propose that stratification was persistent throughout Neoproterozoic time, and can explain many of the unusual features that characterise this era – large-scale $\delta^{13}C$ variation, extreme climatic fluctuations, and the presence of cap carbonates. Stratification creates an unstable climate system in which gradual accumulation of CO_2 in deep waters eventually leads to global glaciation due to the lack of deep ocean venti-

lation. Subtle changes in ocean circulation ventilate the deep ocean and rapidly transfer large amounts of CO_2 to the surface ocean and atmospheric reservoirs, leading to greenhouse temperatures, and facilitating rapid global deglaciation and cap carbonate deposition. Additionally, oxygen accumulated in the surface ocean and atmosphere during prolonged periods of stratification may have triggered the evolution of the Ediacaran fauna during the terminal Neoproterozoic.

The results also imply that the use of carbon isotope chemostratigraphy as a high-resolution chronostratigraphic correlation technique for the Neoproterozoic may be invalidated by evidence for strong facies-dependant $\delta^{13}C$ variation.

A Pliocene sea surface temperature reconstruction for southeastern Australia using the modern analogue technique

C.L. Li[1], S. Gallagher[1], and J. Bye[1]
[1]School of Earth Sciences, University of Melbourne, Parkville, Victoria 3010, Australia

The Pliocene (5.3 – 1.8 Ma) was the last epoch during which earth's climate was significantly warmer than the present day, while climatic boundary conditions were essentially the same. Planktonic foraminifera were picked from sidewall cores from exploration well Flounder 5 located in the Gippsland Basin, Southeastern Australia (38º18'19.5, 148º27') for a Sea Surface Temperature (SST) reconstruction using the Modern Analogue Technique (MAT). Census counts of the planktonic foraminifera were compared to 1274 coretops from the MARGO database located in the Southern Hemisphere using the Squared Chord Dissimilarity measure for the mid-Early to Late Pliocene (4.4- 2 Ma). Weighted averages of SSTcool and SSTwarm from the 10 closest analogues of each sample were used to give SST estimates. Reconstructions show that SST fluctuations throughout the Middle to Late Pliocene were relatively stable. More specifically, results indicate that SSTcool were 3.1º and SSTwarm 2.3º warmer than present day values. Seasonality during the Pliocene at this site was 0.6º less than present day seasonality.

For comparison, SST estimates were reconstructed from planktonic foraminifera census counts picked from ditch cuttings from exploration well Mackerel 1, also located in the Gippsland Basin (38º28'48.45, 148º21'30.56) spanning the same time interval (3.7 – 2 Ma). Using the same Modern Analogue Technique, SSTcool and SSTwarm gave estimates of 1.7º and 0.4º warmer than present day respectively, around 1.5º cooler than the previous reconstruction from Flounder 5 for the Pliocene interval. Seasonality reconstructed from Mackerel 1 shows a 1.5º less than the present day.

Though there are differences in magnitude of temperature reconstructions from the two types of cores, the trends in SST variation and fluctuations in planktonic foraminifera assemblages do show similar variability. Both cores record the evidence of upwelling events throughout the mid-Early to Middle Pliocene, through the intermittent increases in abundance of Globigerinoides bulloides, despite the warmer oceanic conditions prevalent in this time period.

Studies of Pliocene Southern Ocean conditions report a reduced Antarctic Ice Sheet and hence a more southerly Polar Front. The position and intensity of the Subtropical Front during the Pliocene is contentious. Results from this study seem to agree with other studies on the mechanism for Pliocene warmth that an enhanced meridional heat flow, perhaps in this instance, an enhanced East Australia Current, operated during the mid-late Pliocene, bringing warmer tropical waters from the Coral Sea down into the Gippsland Basin. This contributed to the estimated 2-3º increase in SST at this site throughout much of the Pliocene, despite intermittent upwelling events during this interval.

Microbial framework builders of a Cryogenian Reef: The persistance of evolution toward the Cambrian

E. Woon[1] and M.W. Wallace[1]
[1]School of Earth Sciences, University of Melbourne, Vic., 3010, Australia

The reef building communities of the Precambrian were dominated byvstromatolites with contributions from calcified microfossils (calcimicrobes). Reefsvdominated by calcimicrobes began to occur in the mid to late Proterozoic. However, they display similar ecological homogeneity to stromatolite reefs. Studies of Cryogenian carbonates of the northern Flinders Ranges in Australia reveal the presence of a unique and diverse community of non-stromatolitic microbes. It is clear that these microbes interacted to form a rigid framework that ultimately produced a large biological reef. These framework building microbial textures have affinities with calcimicrobes. They consist of clots or films of carbonate (dolomite or calcite) micrite and have a variety of morphologies. In order of volumetric importance, they include: a dendritic clotted micrite structure; a columnar network structure; an encrusting lobate structure; and bulbous textures consisting of aragonite pseudomorphs. Each of these textures is morphologically diverse but have a common elementary structure. They occur together in different combinations to form a biological framework with abundant cavities lined with marine cements. Stromatolite dominated facies occur in this reef but were not essential to the development of the reef.

This study reveals that microbes were able to form skeletal structures and complex ecosystems in the Cryogenian. These microbes potentially represent a link between Proterozoic and Cambrian reef building biota. This suggests that there was a level of continuity in the evolution of reef ecologies toward the Cambrian.

Welcome to our new members!

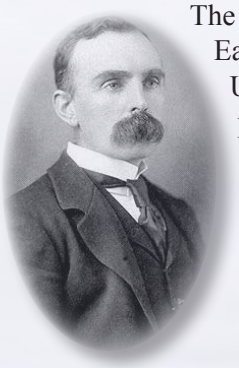
John Miranda
Yihdego Woldeyohannes
Benjamin Tinney
Michael Ellis
Michael Fenton
Anna McAllister
Patrick Hayman
Sarah Misev
Dang Phong Ngo
Sarah Wright
Rachel Badlan
Claire Johnsen
Christian Seiler
Melinda McKenzie
Kristen Naismith
Estee Woon

Jonathan Giddings
Thomas Fromhold
Alison Fairmaid
Victoria Murphy
Tess Reynolds
Tudor Bartas
Terence Beattie
Jock Richardson
Sharon Honicke
Linda Halls
Mark Hocking
Kyle Rebryna
David Horwood
Peter Johns
Kerrie Taylor Jones
Lynette Hogan

Introducing Victorian Geology (eds. Cochrane, Quick and Spencer-Jones), a widely used text now out of print, has been scanned for uploading onto the GSAV website. The contents of the 1991 edition will be freely available for downloading while the second edition is being prepared. Check the website for more information: www.vic.gsa.org.au

The history of geology in the second half of the nineteenth century:
The story in Australia and in Victoria,
from Selwyn and McCoy to Gregory – 1853 to 1903

Thursday 29th November to Saturday 1st December 2007



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From the First Rushes to the First World War

6:15 p.m. on Thursday 29th November at the evening meeting of the Victoria Division of the GSA. (Open to the public)

Full details will be in the November Victorian Geologist

Conference enrolments & deadlines:

- Conference registration fee $50 - due by 15th October 2007.
- Short papers - due by 15th October 2007 (see web site on how to submit a Short Paper).
- Enrolment for the Creswick Deep Leads field excursion at a cost of $50 - due by 15th October 2007. (Note that only limited space is available!)

To register and pay see ESHG website: http://vic.gsa.org.au/eshg.htm

Major Mitchell's sketch of the volcanoes north of Creswick, as he saw them from Mt Greenock in 1836. Those attending the Creswick Deep Leads field trip on Saturday 1st December will climb Mt Greenock and be able to see an essentially pre-European landscape. Little has changed in 171 years.

Contacts:

Bernie Joyce	Registration and general enquiries	ebj@unimelb.edu.au
Roger Pierson	Short paper enquiries	rogerp@deakin.edu.au

(Note that Guy Holdgate, formerly advertised as conference contact, will be away this month)

2007 Evening Lectures at Monash Science Centre

15 Nov	Rick Squire Monash University	The transgondwanan supermountain and the origin of animals

When: All talks begin at 7:00 pm and run for about an hour.

Where: Monash Science Centre
Building 74 Monash University, Clayton Campus
Clayton, VIC 3800

RSVP: Jennifer Monaghan
email: jenny.monaghan@sci.monash.edu.au
Phone: +61 3 9905 1370

BOOKINGS ESSENTIAL!

DO YOU HAVE SOMETHING INTERESTING TO SHARE?

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

If there are any events, happenings, or news that would be of interest to the membership, please send your details and information to Marilyn Moore at the e-mail address on the back page.

We'd be glad to hear from you.

Don't forget to book for our regular monthly meeting on October 25th
"Splendid Slime" by Professor Pat Vickers-Rich
at the Science Centre, Monash University

Cost: $15 for finger food & refreshments

Please use bookling slip on facing page.

The University of Melbourne Earth Science Postgraduate Student Society (ESPG) presents
Earth Science Seminars every Friday

4:00 p.m. in the
Fritz Loewe Lecture Theatre
Earth Science Building (cnr Swanston and Elgin Streets)

followed at 4.45 p.m. by drinks and refreshments in the tea-room, 4th floor. $2 per person.

Further information: http://www.earthsci.unimelb.edu.au/php/seminars_upcoming.php

FORTHCOMING TALKS

to be presented at

GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2007 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

25 October	Patricia Vickers-Rich	Splendid Slime – Fast food of the most ancient metazoans
	To be held at the Monash Science Centre, Bld 74, Monash University, off Normanby Rd. See enclosed registration form.	
29 November	**Joint meeting** with ESHG	**6:15 p.m. Free public lecture**
	Prof. Geoffrey Blainey AC	**A Bird's Eye View of the Victorian Goldfields: From the First Rushes to the First World War**
	ESHG Conference	29th November to 1st December: Details p. 7

Visit the GSAV on www.vic.gsa.org.au or the GSA on www.gsa.org.au

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

BOOKING FORM for "Splendid Slime" lecture on Thursday 25 October 2007: I/we wish to attend & enclose a cheque for $15 payable to The Geological Society of Australia (Victoria Division).

Credit Card payment below if preferred. (Cost GST inclusive)

Name & affiliation: _____

e-mail: _____

Tel: _____

Visa / Mastercard No. _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Name on card: _____

Expiry Date: _ _ / _ _ Signature:_____

SEND TO: "Splendid Slime" October talk, Geological Society of Australia (Victoria Division)

c/- Dr Stephen Gallagher
School of Earth Sciences
University of Melbourne, Victoria 3010

GSA (VICTORIA DIVISION) COMMITTEE

Please address all correspondence to the GSA Victoria Division
GPO Box 2355V, Melbourne, Vic., 3001
Internet address: www.vic.gsa.org.au

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GSA Inc - for membership and subscription enquiries or change of address, please contact Ms Sue Fletcher
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THE VICTORIAN GEOLOGIST

GEOLOGICAL SOCIETY OF AUSTRALIA Incorporated

November 2007

THE GEOLOGICAL SOCIETY OF AUSTRALIA
Victoria Division

Last General Meeting for 2007

Thursday 29th November at 6:15 p.m.

Victorian Gold: A Bird's Eye View of the Victorian Goldfields from the First Rushes to the First World War

Professor Geoffrey Blainey AC

Jointly hosted by GSA(V) and Earth Sciences History Group (ESHG)

Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne
Preceded at 5.30 p.m. by drinks and nibbles in the tea-room, 4th floor, cost $2.

Expect a wide ranging address covering the life and times of the Victorian goldfields, especially discussion of

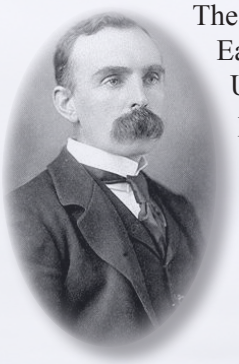
- The early gold-finders;
- Patterns in gold discovery;
- The magnetism of gold for overseas immigrants;
- How the early goldfields were operated;
- A word about Eureka;
- Two prophets urgently probe below the ground;
- The rise of the company mines and stock exchanges;
- When golden Victoria dominated the nation;
- The long decline of gold output followed by revival in the 1890s;
- The king cities – Ballarat and Bendigo – and their hallmarks; and
- The influence of Victorian gold on other mining fields

Finally, Professor Blainey asks the question: Did gold and its importance give Victoria distinctive social and political characteristics for several generations?

Come along for a fascinating talk!

The history of geology in the second half of the nineteenth century:
The story in Australia and in Victoria,
from Selwyn and McCoy to Gregory – 1853 to 1903

Thursday 29th November to Saturday 1st December 2007



The Earth Sciences History Group is holding a conference on Earth Sciences history at the School of Earth Sciences, The University of Melbourne, beginning with a series of paper presentations and displays on Thursday 29th November 2007.

Professor Geoffrey Blainey AC will give the conference Keynote Address detailed on the cover of this month's TVG.

For details, see the ESHG website:
http://vic.gsa.org.au/eshg.htm

Some submitted papers:

Bill BIRCH	Gemstones in the Forest - Rev. John Bleasdale's journey to William Wallace Creek.
Charles BUTT	Archibald Liversidge and the origin of gold nuggets, 100 years on.
David BRANAGAN	Preparing for Victoria: Alfred Selwyn in Wales.
Tom DARRAGH	Robert Brough Smyth (Smith): a mystery solved. (presented by title only).
Rob GLENIE	Earliest geological exploration of Otway coast and inland ranges in 1863–64 by C.S. Wilkinson and R.A.F. Murray.
Guy HOLDGATE	Gregory and the Creswick Deep Leads.
Bernie JOYCE & Doug McCANN	Introduction to the state of geological understanding of Australia, 1853 to 1903 – a timeline.
Bernie JOYCE	The young volcanic features of Australia: from first recognition to growing understanding between 1853 and 1903.
Charles LAWRENCE	The role of geologists, engineers and practitioners in developing and understanding groundwater in Victoria, 1853–1903.
Bob MAJOR	Charles Darwin: Geologist.
Doug McCANN	Selwyn and McCoy, and on to Gregory: 19th century British experience applied in SE Australia.
Ken McQUEEN	The joint border prospecting party of 1897: Victorian and NSW Geological Surveys.
John TALENT	James Stirling in Victoria.

Contacts:

Bernie Joyce	Registration and general enquiries	ebj@unimelb.edu.au
Roger Pierson	Short paper enquiries	rogerp@deakin.edu.au

NEWS FROM TRIASSIC PARK, BACCHUS MARSH

Roger Pierson

The Committee of Management of Triassic Park (Bacchus Marsh Council Trench Crown Land Reserve) in central Victoria held an Open Day on the morning of Sunday 14th October as an Earth Science Week function.

The new information shelter was the main attraction at Triassic Park.

The open day at the 2.1 ha park was very well supported. Forty-five visitors from both the local area and Melbourne were welcomed by the committee of management on a cool, blustery morning. The event had been well advertised in regional newspapers as well as through GSA and Geoscience Australia web pages.

The main attraction of the morning was the launch of a new information shelter at the park. The steel shelter, damaged in the bushfires of last summer, was donated free to the committee by Parks Victoria. After the shelter was renovated, two information posters, designed by management committee members, were installed. One poster details the geological and palaeontological history of the park and its fossiliferous, sedimentary Triassic outcrop that was exposed when quarrying the 'Council Trench' in the 1870s. This exposure is unique in Victoria. The second poster highlights the plant and animal communities of the present-day reserve and compares them with species that may have populated the area during the Triassic. Because the park has never been cultivated or extensively grazed, it still supports remnant vegetation that is rare in this intensively farmed area.

Visitors moved into the Council Trench quarry where they were introduced to its characteristically Triassic plant fossils.

The open day concluded with a climb to the highest point of the park to take in the spectacular views of the surrounding countryside and to hear a discussion of the landscape's geological evolution.

Visitors get a geologist's-eye view of the Triassic plant fossils in the Council Trench Quarry.

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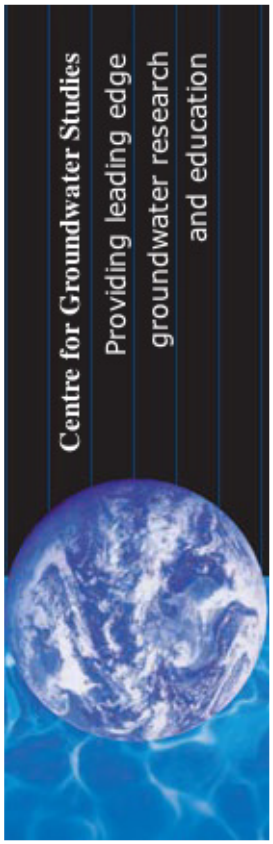
New Scholarship Opportunity



Coca-Cola Amatil, in conjunction with the Centre for Groundwater Studies (CGS), is pleased to announce the offering of a $5000 scholarship for a highly qualified student entering his or her final or Honours year in a science and/or engineering degree at a CGS member university.

For full conditions of the award, please see website at:
http://groundwater.com.au/images/stories/education/cca-scholarship-for-2008.pdf

Application Deadline: Close of business Friday 29th February 2008
Address your application to

Coca Cola Amatil Scholarship
c/- Centre for Groundwater Studies
GPO Box 2100
Adelaide SA 5001

Please note: This offer is only open to Australian Citizens & Permanent Residents.

Further Details:

Professor Craig Simmons craig.simmons@flinders.edu.au

Dr David Reynolds david.reynolds@uwa.edu.au

Forthcoming Events...

5th Sprigg Symposium - Regolith: Mineral Deposits & Environment

Thursday 29th November 2007 - University of Adelaide
Enquiries to: Graham Taylor grahamandcarol@bigpond.com
(08) 8339 2138

4th South Australian Explorers Conference

Friday 30th November 2007 - AMF Centre, Conygham Street Glenside
Enquiries to: Kevin Wills kwills@flindersdiamonds.com
(08) 8362 5900

International Year of Planet Earth (IYPE) Student Contest

Australia's National Committee for the International Year of Planet Earth is seeking two students to represent Australia at the International Year of Planet Earth (IYPE) global launch to be held on 12th and 13th February, 2008 at UNESCO Headquarters in Paris. Two Australian winners will be chosen and flown to Paris for the global launch. Plenary discussions will be lead by top international scientists, industry CEOs and politicians.

Students aged 18-27 are invited to participate in the Australian IYPE student contest by submitting an original piece of work relating to "Earth Science for Society", or one of the 10 IYPE themes.

For more details, visit:
http://www.gsa.org.au/pdfdocuments/events/IYPEstudentcontest_1710071.pdf

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