

# THE VICTORIAN GEOLOGIST



**February 2002**

## **THE GEOLOGICAL SOCIETY OF AUSTRALIA Victoria Division**

### **MONTHLY MEETING**

**Thursday, 28th February 2002**

#### **Peter Dahlhaus**

Consulting Environmental Geologist  
Senior Lecturer, University of Ballarat  
PhD student, Center for Groundwater Studies  
(CSIRO Land and Water & Flinders University)

#### **Dryland Salinity in south west Victoria or should that be Wetland Salinity?**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)  
Drinks and nibbles at 5.30pm. Upstairs meeting room (\$2 per person)  
Meeting at 6.15pm – **Fritz-Loewe Lecture Theatre**  
Visitors and guests welcome

The National Land and Water Audit (2000) predicts that 670,000 hectares of Victoria is at risk from shallow saline watertables, and that this could rise to over 3 million hectares by 2050. To address this problem, the State and Federal Governments have committed \$314 million under the National Action Plan (NAP) for Salinity and Water Quality to six of Victoria's Catchment Management Authority (CMA) regions. In south west Victoria, the Corangamite CMA and the Glenelg-Hopkins CMA are National Action Plan regions.

Under the guidelines of the Audit, catchment classification based on groundwater flow systems is used as the technical framework to help identify appropriate salinity management options. However, research in some areas of southwest Victoria indicates that the current paradigm of rising watertables caused by land-use change does not adequately explain the expansion of salinity. In areas such as the east Dundas Tablelands, the volcanic plains, and the Heytesbury, groundwater systems and watertables have probably remained relatively unchanged since widespread landscape change. Salinity management based on revegetation to reduce recharge has not stemmed the expansion of salinity in these areas.

While defining the hydrogeological framework is an appropriate starting point, catchment classification must also include climatic factors, soil and regolith hydrology and the history of environmental change to explain the salinity processes. Management options based on discharge control and reducing soil waterlogging may be more effective.

**Minutes of the Ordinary Meeting held at Melbourne University  
Thursday 22nd November 2001**

**Opening:** Gus Bravo opened the meeting at 6.20pm welcoming 45 members and guests

**Apologies:** Peter Pritchard, Sue White, Bernie Joyce

**Previous Minutes:** Minutes of previous meeting as per earlier Newsletter

**Membership:** No membership applications this month

**Proceedings:** Another successful Meet Industry Night heard speakers Antony Manini and Teunis Kwak describe their respective projects in SE Asia. Tony Manini identified the events leading to the discovery of 3.5 m ounces of gold and 1.2 m tonnes of contained copper in six separate deposits at Sepon in south-central Laos. The discovery has defined a new mineral district in this part of the country. Likewise, the work done by Teunis Kwak and Tiberon Minerals in N Vietnam has led to the discovery of a large tungsten (Au-Cu-Bi-F) deposit in a skarn greisen system that is claimed will rival the world-class deposits in the South China Tectonic Plate.

**Meeting Closed:** 7.55 pm

**Next Meeting:** Fritz-Loewe Theatre, Earth Sciences, Melbourne University, 6.15pm on Thursday 28th February, 2002

## **Call for Selwyn Medal Nominations**

The Division is planning to have a meeting in May 2002 to commemorate the sesquicentenary of the foundation of the Victorian Geological Survey by Alfred Selwyn. We would like to present the 2002 Selwyn Medal at this meeting, so please **put in your nominations as soon as possible.**

The Selwyn Medal recognises contributions of high calibre to any field of Victorian geology. Candidates should have made a major contribution to new knowledge of the geology of Victoria, or a significant reinterpretation of it based on critical observations, or contributed importantly to a major mineral or oil discovery, and have produced outstanding geological publications or have been involved successfully in the development of the geological profession.

Nominations should include the name of the candidate, biographical data, a citation in 300 words or so of the candidate's work and its significance to the geology of Victoria, and the names of at least two geologists who support the nomination.

**Please mail nominations and supporting data to:**

Awards Committee  
GSA Victoria Division  
5 Mossman Drive  
Eaglemont, Vic. 3084

**SUPPORT FOR STUDENT ATTENDANCE AT  
16TH AUSTRALIAN GEOLOGICAL CONVENTION  
ADELAIDE, 1 - 5 JULY 2002**

As you are probably aware the 16th Australian Geological Convention – GEOSCIENCE 2002:

*Expanding Horizons* is to be held in Adelaide between the 1st and 5th July 2002.

In order to facilitate the participation of post-graduate research students the Executive of the Geological Society of Australia has undertaken to pay 50% of the registration fee for up to 8 students from each of its State and Territory Divisions provided the Divisions are prepared to pay the other half.

Research students eligible to apply for this funding must be presenting an oral and/or poster paper. They should approach their State or Territory Division to determine how they should apply for support.

The deadline for submission of abstracts and early bird registration is  
Thursday 28th February 2002.

Full details of the Convention and booking details can be found on the GSA website at [www.16thagc.gsa.org.au](http://www.16thagc.gsa.org.au) and in the latest issue of The Australian Geologist.

Conference Contact - SAPRO Conference Management. Phone: 08 8227 0252

The Victoria Division intends to participate in this program and would be interested to hear from eligible individuals who are seeking support.

***Forthcoming Events***

***BENEATH OUR FEET***

Celebrating 150 years of the Geological Survey of Victoria from 1852 – 2002

***BENEATH OUR FEET*** is an exhibition of maps, plans, photos and implements used in geological map production.

Official opening 9.30 am Friday 3rd May 2002 at ICE Theatre, Museum of Victoria

**Northern Victorian Geotraverse and Benalla Workshop 30 April – 2 May 2002**

Organised by CSIRO Exploration and Mining in partnership with Co-operative Research Centre for Landscape Environments and Mineral Exploration. GSA (Vic Division) is also a supporter.

Further details: Neil Phillips (CSIRO) 61-3- 9662 7420  
Ken Lawrie (CRC LEME) 61-3- 6249 9847

## GSA (VICTORIA DIVISION)

Please address all correspondence to the GSA, Victoria Division  
GPO Box 2355V, MELBOURNE, VIC 3001

## COMMITTEE 2001

## OFFICE BEARERS

	phone
Chair: Gus Bravo (acting)	9598 2023
Vice Chair: Paul Messenger	9523 5889
Secretary: Peter Pritchard	9439 9582
Treasurer: Lindsay Thomas	8344 6521
Promotions: Gerhard Krummei	9820 2595

## COMMITTEE MEMBERS

<i>Elected Members:</i>	phone
Monty Grover	9443 0373
Ross Cayley	9412 5042
Derek Fabel	8344 6520
Joe Zhou	9807 0701
Fons VandenBerg	9412 5122
David Giles	9905 4878

## SUBCOMMITTEES

AWARDS: Lex Ferguson	9458 4308	GEOLOGY of VIC: Bill Birch	9270 5049
EDUCATION: Noel Schleiger	9435 8408	HERITAGE: Sue White	9328 4154
MEMBERSHIP: Don Spencer-Jones	9836 1795	PUBLICATIONS: Ross Cayley	9412 5042
WEBSITE EDITOR: Jodie Miller		NEWSLETTER EDITOR:	
		Lex Ferguson	9458 4308

**GSA Inc** – Subscription and correspondence, address changes etc.

Misha Frankel, Business Manager, GSA, 706 Wynyard House, 301 George St., Sydney NSW 2000

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Print Post No. PP 381827/0025  
Registered Publication No. VBH 2135  
*If undelivered return to:*  
**The Geological Society of Australia Inc.**  
**GPO Box 2355 V**  
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# THE VICTORIAN GEOLOGIST



**March 2002**

## **THE GEOLOGICAL SOCIETY OF AUSTRALIA Victoria Division**

**JOINT MEETING GSA and AIG**  
Thursday, 21 March 2002

**GREG CORBETT**  
President 2001-2  
Australian Institute of Geoscientists

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)  
Drinks and nibbles at 5.30pm. Upstairs meeting room (\$2 per person)  
Meeting at 6.15pm – **Fritz-Loewe Lecture Theatre**

Greg Corbett is presenting his President's Lecture as a series of technical talks around Australia, commonly at joint meetings with other Societies. We welcome him to our next Monthly Meeting.

Greg works as a consultant economic geologist mainly in the field of structural control and mineralisation styles related to Pacific Rim epithermal Au-Ag and porphyry Cu-Au deposits. He has travelled extensively to derive geological models using comparisons of exploration and mining projects in over 30 countries. Much of this work has been presented in short courses to the exploration industry, at conferences and in publications including Economic Geology Special Publication 6. Although most of Greg's employment has been as a contractor and consultant, he has held staff positions for Placer and Chief Geologist Austpac Gold. Greg has a BA Hons from Macquarie Uni, 1974; and PhD from UNSW Broken Hill College, 1979. He still regularly enjoys applying his international experience to older rocks in Australia.

### **Epithermal Gold for Explorationists**

Epithermal gold ( $\pm$  Cu and Ag) deposits form at shallower crustal levels than porphyry Cu-Au systems, and are distinguished by variations in gangue and ore mineralogy as either low or high sulphidation types. This talk addresses the implications for Explorationists of important distinctions between differing styles of epithermal gold deposits.

Low sulphidation epithermal Au  $\pm$  Cu  $\pm$  Ag deposits develop from near neutral dilute fluids and are divided into two groups: those derived dominantly from magmatic source rocks (arc low

sulphidation) that are divided into several end member types, and others with significant components from circulating geothermal fluid sources (rift low sulphidation), comprising the banded adularia-sericite epithermal gold-silver veins. Sediment hosted replacement gold deposits are interpreted to develop from low sulphidation fluids in reactive carbonate bearing rocks.

High sulphidation Au  $\pm$  Cu ore systems develop from the reaction with host rocks of hot acidic magmatic fluids to produce characteristic zoned alteration and later sulphide and Au  $\pm$  Cu  $\pm$  Ag deposition. One of the challenges is to distinguish mineralised systems from a group of generally non-economic acidic alteration types.

Text and many of the photos are available on the AIG website [www.aig.asn.au](http://www.aig.asn.au)

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## **ANNUAL SELWYN LECTURE – 2002**

ICE Theatre, Museum of Victoria on Thursday, 9th May 2002

### **Tom Darragh**

Curator Emeritus, Invertebrate Palaeontology, Museum of Victoria

#### **A series of beautiful maps... a credit to the colony**

Geological maps are the working tools of geologists, which present day geologists tend to take for granted. When Alfred Selwyn came to Victoria, he saw his major task as producing a series of geological maps of the colony, however, he had no base maps to work on and so had to devise his own. When his maps were eventually ready, he had no means of printing or publishing them, yet by the end of 1868, when the survey was abolished, his Survey had produced some of the best geological maps of the time using innovative technology. This lecture will reveal how this was done and the methods used, which were applied to geological map production until well into the twentieth century. The title of the talk is from the Argus newspaper of 23 July 1866. It is a long time since geological maps made the newspapers. And when they do it is likely because they include some blunder that makes lots of people lose their hard-earned cash.

We have been lucky to secure the ICE Theatre for this event, thanks to Bill Birch's efforts. The ICE theatre is in the Museum so members will be able to look at the display prior to or following the talk.

### **Last Call for Selwyn Medal Nominations for 2002 put in your nomination as soon as possible**

The Selwyn Medal recognises contributions of high calibre to any field of Victorian geology. Candidates should have made a major contribution to new knowledge of the geology of Victoria, or a significant reinterpretation of it based on critical observations, or contributed importantly to a major mineral or oil discovery, and have produced outstanding geological publications or have been involved successfully in the development of the geological profession.

Nominations should include the name of the candidate, biographical data, a citation in 300 words or so of the candidate's work and its significance to the geology of Victoria, and the names of at least two geologists who support the nomination.

#### **Please mail nominations and supporting data to:**

Awards Committee

GSA Victoria Division, 5 Mossman Drive, Eaglemont, Vic. 3084

**Minutes of the Ordinary Meeting held at Melbourne University  
Thursday 28 February 2002**

**Opening:** Gus Bravo opened the meeting and welcomed 40 members and guests

**Apologies:** Paul Messenger, Don Spencer-Jones, Monty Grover, Bill Birch

**Previous Minutes:** Minutes of previous meeting as per earlier Newsletter

**Membership:** The following applications for membership and transfer to other categories were recommended by the Committee

For Member: - Marilyn Blachley Wiber

For Transfer to Retired Membership: - Thomas Alwynne Darragh, Robert Jacomb Foster,  
David John Gilbert, Christopher Karl Steinhardt, Eric Wilkinson, John George Woodland.

For Transfer to Member: - Kathleen Bowron, Sandra Eelyn Close, Jodie Ann Miller, Sarja Van Huet.

For Student Member: - Christie Batiste, Anthony Bianchi-Rossi, Georgia Ann Boyd,  
Christian Alistair Noll, Adrian Pittari, April Jane Spearing.

For Honours Student Member:

- Julien Celerier, Catherine A. Dickens, Lauren K. Elliott, A. Flannery,  
Katherine L. Harper, John A. Miranda, Anna E. Petts, Nicole M. Raven,  
Steven Spencer, Bryden J. Tiddy, Richard B. Tully (Melbourne University)
- Penelope Burt, Mathew D. Edwards, Darin J. Evans  
Loredana Damiani, Katherine A. Potter. (Latrobe University)
- Sean A. Howman, Dale Sanderson, Denise Valdez. (Monash University)

**Proceedings:** Members and groundwater specialists heard Peter Dahlhaus of Ballarat University talk on the problem of dryland salinity as it applies to south west Victoria. Nationally, the 50 year prediction is that land at risk will treble and this also looks the case in Victoria. Heavy politics is involved and an immediate surfeit of money is to be thrown at the problem in a short space of time through the Groundwater National Action Plan (as the money won't be available again if not all spent it's not the ideal way to dispense funds for research). Under the Plan numerous Catchment Management Authority regions have been set up and Classification Workshops have been held across Australia to provide a technical framework.

Peter pointed out that the current paradigm of increased salinity caused by land-use change does not adequately explain the situation today. In south west Victoria various workers including Nathan, Fawcett and Dahlhaus have shown that: 1843 records indicate primary salinity has always been present in the area; the local environment and vegetation species have changed with time and early clearing was not a major event, rather the salinity problem grew with the scale of land tenure causing the spread of naturally occurring salinity; groundwater in the area is a discharge driven system which is slow and consequently there has been little change to watertable levels since change in land-use began; one could argue that recharge was patchy and a shallow watertable was always common to the area.

Finally, he made the point that there are more complex salinity mechanisms than the simplification of rising groundwater with clearing. In fact, salinity management based on revegetation to reduce recharge has not stemmed the expansion of salinity in the south west. Factors that should be considered include changes in hydrology in respect of soils and regolith, the effect of palaeoclimate and climatic change on soils and groundwater and the timing of land-use changes with local land usage. Peter Dahlhaus believes management options based on discharge control and reducing soil waterlogging may prove to be a more effective action plan.

**Meeting Closed:** 7.50 pm

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**April 2002**

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**ANNUAL GENERAL MEETING**

**Wednesday, 24th April 2002**

followed by

***Susan White***

GSAV Heritage Committee, Doctoral Student, La Trobe University

**Speleogenesis in Cainozoic Limestones  
Western Otway Basin Southeastern Australia**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)

Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)

**Annual General Meeting at 6:15pm - Fritz-Loewe Lecture Theatre**

**Speleogenesis in Cainozoic Limestones, Western Otway Basin, Southeastern  
Australia.**

Southeastern Australia has extensive areas of Cainozoic limestones. These include both Oligo-Miocene marine calcarenites and calcilutites and Pleistocene dune calcarenites. This talk will illustrate the factors involved in speleogenesis in these limestones and outline the relationships between speleogenesis, hydrogeology and lithology in relatively young limestones.

These limestones, whilst more extensive in area than the Palaeozoic impounded karsts of eastern Australia, are less well known especially for cave exploration. However they have both extensive and intensive cave systems including the flooded cenotes of the Mount Gambier area, large caves with important palaeontological deposits and maze-like systems in the Pleistocene dune ridges.

Speleogenesis in these lithologies is an interplay between the groundwater conditions and the lithification and diagenesis of the calcareous sediments. As such sediments are highly variable in their calcareous

content, the solution/precipitation balance also varies from site to site. This variability is combined with both high primary porosity and permeability resulting in diverse surface and underground karst features.

The caves are dependent on the ability of the calcarenites to develop sufficient structural strength in the form of an indurated layer. This "caprock" is necessary for the development of many karst forms, especially caves, as it gives the relatively unconsolidated calcarenite structural strength. The caprock develops in both limestone sequences where conditions are favourable but somewhat better in the Pleistocene dunes. The development of cave systems is also directly related to the groundwater conditions. Evidence of fluctuating groundwater conditions over time can be seen in the caves, especially the drowned cenotes of the Lower Southeast of South Australia. More than one period of speleogenesis can be found.

The Otway Basin can be divided into two quite distinct karst provinces: the southeastern South Australian and the western Victorian provinces. The more westerly extends further east than described by Marker(1975). The boundary zone of the two provinces is the narrow tectonically more active zone associated with the Portland area. Significant differences in the karst occur between the two provinces.

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## **ANNUAL SELWYN LECTURE – 2002**

***Thursday, 9th May 2002  
ICE Theatre, Museum of Victoria***

**Tom Darragh**

Curator Emeritus, Invertebrate Palaeontology, Museum of Victoria

### **A series of beautiful maps... a credit to the colony**

Geological maps are the working tools of geologists, that present day geologists tend to take for granted. When Alfred Selwyn came to Victoria, he saw his major task as producing a series of geological maps of the colony. However, he had no base maps to work on and so had to devise his own. When his maps were eventually ready, he had no means of printing or publishing them, yet by the end of 1868, when the survey was abolished, his Survey had produced some of the best geological maps of the time using innovative technology. This lecture will reveal how this was done and the methods applied to geological map production until well into the twentieth century. The title of the talk is from the Argus newspaper of 23 July 1866. It is a long time since geological maps made the newspapers. And when they do it is likely because they include some blunder that makes lots of people lose their hard-earned cash.

We have been lucky to secure the ICE Theatre for this event, thanks to the efforts of Bill Birch and Fons VandenBerg. The ICE Theatre is located in the Museum so members will be able to look at the display prior to or following the talk. The major map exhibition opens at the Museum on 3rd May and runs for 10 weeks. It is part of the 150th Anniversary of the Geological Survey of Victoria.

### **Selwyn Medal for 2002**

**It is hoped to have a presentation of the Selwyn Medal for 2002 on the occasion of the  
Selwyn Lecture**

**Attendance on the night will get you free entrance to the Exhibition  
Bring family and friends and support the efforts of the Victorian Division by  
coming along**

## **Notice of Annual General Meeting**

Dear Members

**The 2002 AGM will be held on Wednesday 24 April at 6.15 pm in the Fritz-Loewe Lecture Theatre, University of Melbourne.**

The Chairman will present his Annual Report and the meeting will elect a new Committee for 2002.

The Secretary and Treasurer have indicated they will continue on the Committee this year and one member has been nominated for Chairman. However, a number of long-standing Committee Members will be retiring and several have moved interstate creating a number of vacancies and providing an excellent opportunity to introduce new skills and new ideas to the Committee.

Positions to be filled include Vice Chairman, Promotions Officer, 6 Committee Members and a Newsletter Editor.

We strongly urge all Members interested in contributing to the on-going vitality of the new Committee to nominate for the above positions by contacting the Division Secretary as soon as possible. Only if sufficient nominations are received will we have a successful year.

Please support the Victorian Division by attending the AGM on Wednesday 24 April 2002.

Yours sincerely

Committee, GSA Victoria Division

## **Benalla 2002: Victoria Undercover**

**30 April – 2 May**

Three major multidisciplinary projects – Heartlands, Glass Earth and the Victorian Geotraverse will be presented with the support of all major geoscientific organisations.

Issues to be raised will include:

- New Geophysical data sets and salinity
- A multidisciplinary approach to landscape evolution
  - Salinity data and its relationship to mineral exploration and vice versa
  - The role of key regional, structural and tectonic features in hydrology and mineral exploration
  - Relationship of Strathbogie Granite and Violet Town Volcanics to the underlying regional magnetic anomaly
  - The significance of the late Devonian magmatism for the Victorian Gold Province

For all enquiries contact Kim Ely, CSIRO Exploration and Mining

Phone +61 3 9662 7441 Fax +61 9662 7453 Email [kim.ely@csiro.au](mailto:kim.ely@csiro.au)

**THE VICTORIAN GEOLOGIST**

**- 4 -**

**APRIL 2002**

**GSA (VICTORIA DIVISION)**

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Email: [misha@gsa.org.au](mailto:misha@gsa.org.au) Tel: (02) 9290 2194 Fax: (02) 9290 219

**Email Newsletter**

We recently suffered a system crash. The problem has now been rectified but some members' addresses have been lost. Could the following members please contact Paul Messenger with a contact email address for the Newsletter via [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au)

Patrick Benjamin, Bob Foster, Chris Bain, David Hemstridge, Greg Houseman, Mohamed Kamar, Pat Vickers-Rich, Robina Sharpe.

If any other members would like to receive the newsletter by email please contact Paul Messenger.

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# THE VICTORIAN GEOLOGIST



**May 2002**

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**SPECIAL MEETING**

**Selwyn Medal Presentation to Professor Andrew Gleadow  
and Selwyn Lecture by Tom Darragh**

**A series of beautiful maps... a credit to the colony**

**Thursday 9<sup>th</sup> May, 2002**

**ICE Theatre, Museum of Victoria**

**6 pm for 6.30**

Use main entrance to new Museum (Melway 2BJ10), then turn left  
down stairs.

## **2002 SELWYN MEDALLIST: Professor Andrew Gleadow**

Andrew Gleadow received a PhD from Melbourne University in 1974 with a thesis "*Fission track dating and the interpretation of thermal and tectonic histories*". This has been the central focus of his subsequent research, but despite his excellence in this specialised field his publications demonstrate a broad and continuing interest in the Earth and Planetary Sciences, ranging from scientific papers on the history of the moon to the origins of man to the thermal history of Victorian granites.

As Head of School at La Trobe University and Melbourne University he has established a superb environment in which to undertake basic research, and by doing so has attracted top researchers and students to Melbourne. He also co-founded VIEPS and championed the use of multi-media for students. He deserves special commendation for providing an environment in Victoria where Earth Sciences are flourishing. His activities in related national and international organizations is equally distinguished, as evidenced by his many significant awards.

**ANNUAL SELWYN LECTURE – 2002****Tom Darragh**

Curator Emeritus, Invertebrate Palaeontology, Museum of Victoria

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**Attendance on the night will get you free entrance to the Exhibition**  
**Bring family and friends and support the efforts of the Victorian Division by**  
**coming along**



**June 2002**

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**GENERAL MEETING  
Thursday, 27th June 2002**

***Guy Holdgate***  
Melbourne University

**THE KARAKORUM MOUNTAINS, NE PAKISTAN**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)  
Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)  
**General Meeting at 6:15pm - Fritz-Loewe Lecture Theatre**

**THE KARAKORUM MOUNTAINS, NE PAKISTAN**

The Karakorum Mountains of NE Pakistan form the divide between rivers flowing north into the Chinese Tarim Basin and south into Pakistan and the Indian Ocean. Of the world's fourteen 8000+ m peaks, four are located along this divide including K2, the second highest. The geology of these mountains comprises mainly Palaeozoic and Mesozoic metamorphic, igneous and sedimentary rocks intruded by younger granites. It is poorly known, difficult of access, with most geological surveys restricted to a few roads along the deeply incised Indus and Hunza Rivers. However glacier tributaries to these rivers provide trekking access deep into the mountains.



Guy's talk will focus on a personal interest in the geography, geology, glaciology and history of exploration of seven glaciers of the Karakorum, including the Baltoro, Biafo, Hispar, Chogolungma, K2, Choktoi-Nobande and Hushe systems. It will include slides taken over a ten year period on six different treks into this little travelled part of the world. The treks followed the footsteps of pioneers who explored these routes in the late 1880s through to the 1930s.

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## 2002 REPORT OF THE GSA VICTORIA DIVISION

*From the April 2002 meeting*

Throughout the past two years the Victorian Committee has worked hard to maintain a strong and active Division through regular monthly meetings, the Newsletter, technical presentations, joint meetings with AusIMM, AIG and SEG and the Annual Selwyn Lecture. The Division continued to actively support the Honours Student Promotion Scheme and postgraduate student activities. Recognising the lack of opportunity for study of geology in Victorian secondary schools the Divisional Committee has emphasised the need for more geoscience teaching in our schools and actively promoted earth sciences to the teaching community.

**Membership.** Falling membership remains a challenge with 2002 membership standing at 392, down almost 20% since the last Council meeting.

**Meetings** Invited speakers included a diversity of excellent presenters from industry, the Geological Survey and academia. Meet the Students Nights were held at La Trobe University. The 2001 Selwyn Lecture was organised to celebrate 150 years since discovery of gold in Victoria. Guest speaker, John Woodland, provided an historical insight into Victoria's first goldfield and elaborated on his published book *Sixteen Tons of Clunes Gold: a history of the Port Phillip and Colonial Gold Mining Company*.

### Highlights from Sub-committee Reports

**Awards (Convenor Lex Ferguson)** In October 2001 the sixth Selwyn Medal was presented to Guy Holdgate, University of Melbourne. The award recognised the contributions of Dr Holdgate to knowledge of the Victorian Tertiary stratigraphy, his work on Victoria's brown coal resources and seismic investigations of cover sequences of the Gippsland Basin reservoirs and modern sediments in Port Phillip Bay.

The Frank Canavan Prize for best second year geology student went to Darin Evans, La Trobe University (2001). The D E Thomas Medal for the best Honours year geological map was awarded to Geoff Dean, La Trobe University for his map "Igneous and high grade metamorphic geology of the south eastern Glenelg River complex, Western Victoria".

**Bicentennial Gold 88 (Gerhard Krummei)** Five high quality research projects were granted funding totalling \$10,000 for 2002.

**Education (Noel Schleiger)** Activities of the Education sub-committee were directed at providing field excursions to the Grampians, the Gisbourne-Macedon area, Trawool and the Kinglake plateau, geological talks to Field Naturalist groups and lectures to University of the Third Age as well as providing vocational advice to Educational Institutions, career advisers and secondary students. The committee also advised the Victorian Government on a job guide for geologists and provided Job Search information for CentreLink. Work also started on a revision of the Melbourne to Bendigo roadside geology booklet.

**Heritage and Conservation (Susan White)** The Subcommittee continued to work with the National Trust, Heritage Victoria Mining Sites Committee and the Federal Standing Committee promoting Geological Heritage. Work continued on documentation of heritage sites into the Filemaker Pro database. 602 sites have been entered from the Melbourne, Horsham, St Arnaud, Bendigo and Ballarat 1:250,000 scale geological map sheets.

**Promotions and Support** Through the excellent efforts of Gerhard Krummei and Bronwyn Witham the Division was actively involved in promoting the Society through support for the following organisations and institutions:

*Annual VIEPS Induction:* members manned a display stand for book sales and recruitment of honours students to the free membership scheme. Over the past 2 years an average of 40 honours students from Melbourne, Monash, La Trobe, Deakin and Ballarat joined the scheme.

*Geography Teachers Association of Victoria Annual Conference:* in association with AGSO provided guest lecturers and arranged display table to promote GSA activities and book sales. Exposure to 450 geography teachers over two days.

*GASS 2001 (Great Australian Science Show):* a large annual, partly interactive, 4-day public display attracting 16,000 to 20,000 visitors and organised school groups provided excellent exposure and the opportunity to promote geology and the GSA.

*Annual VUESSC (Student Conference):* was again supported by the Division in 2001 with sponsorship and two book prizes.

*MINING 2001 (International Mining Conference/Exhibition):* a contra deal for helping advertise the conference resulted in a large free exhibition space at this event. Geological research projects, GSA membership and publications were promoted with some success.

*STAVCON 2001 Annual Conference, November 2001.* GSAV sponsorship of this event provided excellent exposure to some 900 science teacher delegates, 200 presenters and about 50 exhibitors.

*AGTA 2002:* in association with AGSO the GSA gained 2-day exposure to 140 interstate and Victorian geography teachers and was able to promote Society books, activities, membership and services.

*Discovery Centre, Bendigo:* the Division was one of the founding sponsors of this popular exhibit. On-going sponsorship and donations towards refurbishment of the interactive Mini-Mine exhibit has provided promotion /awareness value and occasional local media mention through GSA participation.

**Publications and Geology of Victoria (Bill Birch)** Sale of Society publications was again strong. During 2001 a revised version of *Introducing Victorian Geology* was reprinted. Progress on the new volume of *Geology of Victoria* has not been as fast as hoped but illustrations editor, Mireille Slots has been appointed to help with the graphical compilation and it is anticipated this will speed up formatting and sub editing. Progress is such that completed chapters are ready for design and layout, most likely by Swinburne Design School, commencing in May 2002. It is hoped to complete the publication by the end of 2002, so that printing can take place early in 2003. A start was made to e-mailing the Newsletter and to compiling the Division's website.

**Divisional Committees** The interests of the Division have been well served by a core of dedicated committee members who were responsible for maintaining the Society's activities over the past two years.

This year will see the departure of a number of long-serving and valued committee members including Don Spencer-Jones who coordinated membership authentication for the past 10 years, Gerhard Krummei who played a major role in promoting geology and the work of the Society and John Sise who comprehensively looked after the Division's finances. As out-going Chairman I would like to acknowledge their dedication and thank them on behalf of the Victorian Division.

Gus Bravo May 2002

## GSA (VICTORIA DIVISION)

Please address all correspondence to the GSA, Victoria Division  
GPO Box 2355V, MELBOURNE, VIC 3001

## COMMITTEE 2002

## OFFICE BEARERS

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Chair: Fons VandenBerg	9412 5122
Vice Chair: David Gray	
Secretary: Peter Pritchard	9439 9582
Treasurer: Lindsay Thomas	8344 6521

Promotions:

## COMMITTEE MEMBERS

<i>Elected Members:</i>	phone
Paul Messenger	9523 5889
Ross Cayley	9412 5042
Vincent Morand	9412 5087

## SUBCOMMITTEES

AWARDS: Lex Ferguson	9458 4308
EDUCATION: Noel Schleiger	9435 8408
MEMBERSHIP: Leisa Brough	9727 4898
WEBSITE EDITOR: Jodie Miller	

GEOLOGY of VIC: Bill Birch	9270 5049
HERITAGE: Sue White	9328 4154
PUBLICATIONS: Peter Pritchard	9439 9582
NEWSLETTER EDITOR:	
Lex Ferguson	9458 4308

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**16<sup>th</sup> Australian Geological Convention**

1-5 July 2002  
Adelaide Convention Centre  
Adelaide, south Australia

Plan to be there!

If any other members would like to receive the **newsletter by email** please contact Paul Messenger. [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au)

Print Post No. PP 381827/0025  
Registered Publication No. VBH 2135

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**July 2002**

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**GENERAL MEETING  
Thursday, 25th July 2002**

***Catherine V. Spaggiari***  
School of Geosciences, Monash University

**Late Ordovician-Silurian Ophiolite Emplacement in the Western and  
Central Lachlan Orogen**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)  
Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)  
**General Meeting at 6:15pm - Fritz-Loewe Lecture Theatre**

**Late Ordovician – Silurian Ophiolite Emplacement in the Western and Central Lachlan  
Orogen**

Cambrian ophiolites, often termed ‘greenstones’, outcrop in major fault zones in Victoria. They are interpreted to have formed in a complex supra-subduction zone (SSZ) setting, resulting in the formation of a marginal basin off the east Gondwana mainland. The remnants of this marginal basin, now only found in the fault zones, include fragments of forearc, nascent arc, and backarc crust with associated sedimentary successions that are similar to those documented by ocean drilling programs in the west Pacific. These associations suggest similarities in the processes of basin development.

Ophiolite emplacement is interpreted to have taken place during closure of the marginal basin, commencing in Late Ordovician times, allowing approximately 50 My for cooling of the SSZ oceanic crust and widespread turbidite deposition. Geometrical, chronological, structural and metamorphic constraints indicate that these ophiolites did not undergo classic ‘Tethyan-style’ obduction onto the continental margin, but were emplaced during intra-oceanic thrusting by a combination of processes including accretion during offscraping, accretion as blocks in mélangé during underplating, and as duplexes or imbricate fault slivers.

Structural and metamorphic relationships indicate that the fault zones developed under conditions of low T and moderate to high P, and without development of a high T metamorphic sole beneath the ophiolite, as is commonly associated with obduction of young (and still hot) oceanic crust. The Cambrian setting, and style of development of these fault zones has implications for recently proposed tectonic models, such as large-scale strike-slip displacement followed by thrusting in an intra-plate setting, the inferred presence of continental crust beneath the Melbourne zone, and formation of ‘accretionary-style’ thrust wedges in a predominantly oceanic setting.

### **A series of beautiful maps.... a credit to the Colony.**

The 2002 Selwyn Lecture by Thomas A. Darragh

When Alfred Selwyn arrived in Melbourne in 1852, Victoria had a geologist but as no one seemed to know what he should do—this was left up to Selwyn himself. He decided his main task was to construct a geological map of the Colony accompanied by cross sections and short explanatory memoirs.

His first report, on the Mount Alexander goldfield, was ready in 1853 but, whilst printing it was easy, the map was a different matter. Fortunately for him, the young and energetic Andrew Clarke had just been appointed Surveyor General and established a lithographic branch of the Lands Department to undertake the production of maps. Selwyn's map was one of the first maps to be printed, with colours applied by hand. The lithographic stones were of Solnhofen Limestone, from the same quarry in which *Archaeopteryx* had been discovered.

With Selwyn working on his own the work proceeded slowly, leading to agitation from goldfields members of Parliament to funds being granted for proper mineralogical and topographical surveys. Selwyn engaged a draftsman and sufficient staff to mount four field parties under Norman Taylor, Christopher Aplin, George Ulrich and Richard Daintree and decided on a grid pattern at a scale of 2 inches to the mile. As the full maps were very large they were published in four portions—the famous ‘Quarter Sheet’ series. Maps were to be engraved for publication. The engraved lines included the map border, cultural features, cadastral boundaries, creeks, topographic lettering, and geological boundaries, but no representation of relief. The legend and scale were also engraved on some maps.

After engraving, Selwyn was faced with the problem of issuing coloured geological maps. Printing large numbers directly from a copperplate was impractical and hand colouring was prohibitively expensive. A faster, cheaper option was colour printing by lithography. This process involved making a print from a copperplate onto lithographic transfer paper and then putting the transfer paper on a clean lithographic stone image-side down, transferring the image to the stone which could then be used to print the map. Each colour needed its own stone. The map would be run through the press as many times as there were colours to apply to it. Registration of the colours was the main problem, and was achieved by having two marks on the stone (usually at line corners so as to be unobtrusive) to which the paper was aligned by using a stick with two pins that matched the marks. The pins were pushed through the paper and aligned with the marks on the stone.

Colour printing of maps was still in its infancy in the 1850s. Attempts had been made in France, Austria and Germany in the 1840s, with some success, but only the Austrian and French geological surveys used it to any extent. In Britain it was not applied to official geological maps until 1896 and hand colouring of older maps continued until the 1920s. There was therefore very little precedent to guide Selwyn or his staff.

By April 1858, Selwyn had eight quarter sheets ready for publication and another 13 surveyed but not fully engraved. In the same year he met Joseph Aresti who had colour printed John Mylne's Geological Map of London in 1851, the first colour printed British geological map. Aresti was given the task of printing two maps but these were not up to the standard expected by Selwyn, although they have the distinction of being the first colour printed geological maps in Australia, if not the southern hemisphere.

At the same time, John Phillips, a Cornish mining engineer, had been directed by the Surveyor General to map the Ballarat Goldfield geologically, completely independently of Selwyn's Survey. Selwyn was landed with the task of publishing the map. Printing went to the lowest tender, by Fergusson & Mitchell, but the maps were poorly printed. Most were rejected by Selwyn, who was making little progress in getting his maps printed. To break the logjam, the Lithographic Printing Branch was set up in 1858 with Thomas Ham in charge at £400 per year, a hand lithographic press was purchased as well as lithographic stones and inks, and work commenced on printing maps in colour. Although Ham's first map was available mid-1859 it was never formally issued and the first maps actually issued for sale appeared in April 1860 and comprised the four sheets making up the map of the Melbourne area. One thousand copies of each were printed, which involved passing each sheet of paper through the hand press eight times. This sheet involved 12,000 handlings, and for the four sheets making up the Melbourne map, a total of 36,000 manipulations were required. Given the backlog even this method was not speedy enough and Ham suggested a further innovation, the application of steam power to drive the press, which would not only save much hard labour, but would also increase production 4 or 5 times. A power press was purchased from England and installed in the Government Printing Office and began work in November 1860. Selwyn now had two presses working: the newly imported power press as well as the first hand press, altered to work as a power press. By the end of December 1860, five maps were printed and issued to the public and six others were at various stages of production. In addition, several plates were printed for a work on the natural history of Victoria by Frederick McCoy, Director of the National Museum of Victoria. As an indication of the pride Ham and his superior felt about these innovations, the maps carried the imprint 'Lithographic Steam Printing Executed by the Geological Survey Department at the Govt. Printing Office, Melbourne.'

However, all achievements came to an unhappy end in 1860 when the Lithographic Branch was suddenly abolished because of political changes. Ham's reward for his hard work was dismissal. During the three months in which he was retained, he managed to finish a few maps that were still in progress. Later in the year, after another change of Government, the Lithographic Branch was reconstituted with a much smaller staff. When the Geological Survey was abolished in December 1868 it had issued 59 quarter sheet maps, with the remaining maps in progress (six remaining quarter sheets, several goldfield maps, two geological maps of Victoria, two of Australia as well as many mining plans and illustrations for departmental publications) finished soon after. The Lithographic Branch had produced some of the finest geological maps ever to be printed in Australia.

### **Closure of La Trobe Department of Earth Science**

The Dean of Science at La Trobe University has announced that he intends to close the Department of Earth Sciences, citing low student numbers and the serious financial position of the entire university. We believe that there is a good chance he could reverse this decision if the Australian Earth Sciences community strongly opposes it.

#### **PLEASE SEND AN EMAIL TO THE DEAN IMMEDIATELY:**

Professor David Finlay,  
Dean, Faculty of Science, Technology and Engineering,  
La Trobe University,  
Bundoora VIC 3086

[D.Finlay@latrobe.edu.au](mailto:D.Finlay@latrobe.edu.au) with a copy to the Vice-Chancellor, Professor Michael Osborne [M.Osborne@latrobe.edu.au](mailto:M.Osborne@latrobe.edu.au) using or modifying the following points:

- you oppose closure of the La Trobe University Department of Earth Sciences;
- earth sciences is an integral part of the science taught at all reputable Australian universities, reflecting the major input of geological resources into the Australian economy, and the need for a geological background to make informed decisions on many environmental problems, e.g. dryland salinity. For earth sciences to be deleted from La Trobe University would represent a serious weakening of the science faculty;
- the department produces highly regarded graduates for all areas where geologists are employed: environmental geology, geomorphology, sedimentology, palaeomagnetism, Sr isotopes, igneous petrology, structural geology, and economic geology.

This goes beyond the fate of a single department. The strategic interest of Australia requires strong geology departments to supply graduates to the minerals and petroleum industries, which provide the top six of the country's exports. The long term future of tertiary education in geology is in jeopardy and requires defence by the profession. La Trobe is the thin end of the wedge—in the UK the infamous Oxburgh report resulted in the closure of Earth Sciences departments around the country.

### Apology

Paul Messenger was mistakenly removed from the position of Vice Chair in the listing of Office Bearers of the June newsletter. He has agreed to continue in that office. We apologise for the mistake.

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**Apollo Astronaut/Geologist Dr Harrison Schmidt**, the only geologist to walk on the moon will give a free public lecture at La Trobe University. *"My Trip to the Moon and How it Happened to Me"*, West Lecture Theatre1, La Trobe University, Bundoora Campus, Thursday July 19, 6 pm.

Review of completed chapters of new **Geology of Victoria**, 3pm 25 July, Geology Dept. Melbourne University.

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Registered Publication No. VBH 2135

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August 2002

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**GENERAL MEETING  
Thursday, 29th August 2002**

**Annette George**

*Head of Department/Senior Lecturer, Sedimentology & Basin Analysis  
Department of Geology & Geophysics, University of Western Australia*

**Integrated approach to understanding reef evolution: Devonian reefs  
of the Canning Basin**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)  
Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)  
**General Meeting at 6:15pm - Fritz-Loewe Lecture Theatre**

Integrated approach to understanding reef evolution: Devonian reefs of the Canning Basin

The Upper Devonian reef complexes of the Lennard Shelf in the Canning Basin are considered one of the best examples of Palaeozoic reefs worldwide owing to their excellent preservation of facies relationships and exposure over a strike distance of ~300 km. Previously proposed models for reef evolution have tended to utilise a lithostratigraphic or sequence stratigraphic approach which, while undoubtedly providing important insights into reef growth, have not yielded robust platform–basin correlations. This longstanding problem is being resolved by integrating a variety of techniques aimed at identification and correlation of key stratal surfaces utilising outcrop and diamond drill core. Detailed work in various platforms has led to the discovery of a number of exposure surfaces—predicted by sequence stratigraphic models but not previously identified—including a major karsted Frasnian–Famennian surface, in platform strata. Although this boundary is associated with one of the five major biotic crises in the Palaeozoic, detailed work suggests that the reef-building stromatoporoids were defunct by this time, and that tectonism may have played an important role in their demise in the Canning Basin.

## **GSA Victoria to sponsor Preparation Lab at Monash Science Centre**

The Monash Science Centre has been in operation since 1992, providing a wide range of programs. Schools are an important target (curriculum development, school presentations, specially tailored programs, mostly primary but upwards of 30% secondary, and publishing). Others include travelling exhibitions (Australia and overseas), family science and field trips. Publishing is another program, for schools, and ecotourism resorts such as Lizard Island and Dunk Island, with commercial groups such as Princeton, Indiana University Press, Allen & Unwin and with publishers in Japan, Russia and Argentina amongst others.

The emphasis of the Centre is to introduce students and the general public to science, by facilitating direct contact with research scientists in many different ways and in research scientists being involved in curriculum development at the State and Federal level. This makes the Centre rather different from many other institutions around Australia, and for that matter around the world, in that practicing scientists and their students are directly involved in almost all the programs it offers.

The Centre encourages research scientists to become involved in the communities in which they work, for example in the central Urals of Russia and the western part of Chubut Province in Argentina. Researchers working in these areas have provided significant help to the local schools and museums by providing money, books and their interaction with the students. Currently our refugee camp program is placing basic colouring books on scientific, geographic and language topics into camps (beginning with Afghanistan and Pakistan) where little if any literature or teaching material exists. The Centre is working with a number of NGOs and current refugees living in Australia. Programs vary from year to year but the aim is always the same—to encourage a scientifically literate public, giving them the resources to begin to make their own considered decisions about resources, medical treatment and matters scientific that are necessary to ensure a decent future for the world.

### *Dinosaur display*

On 2<sup>nd</sup> July, a major display entitled “**The history of life in Australia—the last 3.8 billion years**” opened at the Monash Science Centre. It is one of the most impressive displays of dinosaurs and other Mesozoic vertebrates in the world, with a great variety of excellent reconstructions and casts. The display owes much to the enthusiasm and dedication of Patricia Vickers-Rich. With a coffee bar/restaurant at the front door, it is highly recommended to all and sundry, and be sure to bring the kids!.

### *Preparation Lab*

One of the highlights of the exhibition is a glass-walled Preparation Laboratory, an interactive facility that allows geological material to be prepared in front of the people who are visiting the exhibitions. The Preparation Laboratory is sponsored by the Victorian Division of the Geological Society of Australia, so here you can see some of your money at work! The material being prepared will change over time but at present, Pat Rich managed to obtain a block of siltstone of several tonnes from the Triassic of New Mexico is being prepared—it contains the partially articulated remains of one of the most primitive dinosaurs known, *Coelophysis*. The block was excavated in the 1930s from the Ghost Ranch Quarry, worked on initially by Dr Ned Colbert of the American Museum, and eventually found its way into the collections of the Carnegie Museum. In a cooperative program between the Monash Science Centre and the Carnegie Museum of Natural History (Pittsburgh), the block will remain in Australia and any new taxa found will be worked on jointly and returned to the Carnegie. All of the *Coelophysis* material (more than 5 skeletons) will remain in Australia.

The Prep Lab is a great opportunity for our preparators to talk directly to the public, show them how material is prepared for study and discuss many different aspects of science—in particular the earth sciences.

### **Snail mail and Email Newsletters**

We have had continuing problems getting our newsletters delivered before the next meeting by Australia Post. We apologise to those members who were disadvantaged last month and may not have been advised about a very stimulating lecture. Email newsletters arrive earlier so they could be used to notify members of events which happen before our monthly meeting. In addition there are sometimes space limitations in a 4 page printed format, and items have to be left out. This does not apply to email, and they may be used to send other timely information. There are advantages in getting you newsletter by email. All our members who have an email address are urged to convert by contacting Paul Messenger at [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au) with subject heading “Newsletter Request”

Gerhard Krummei retired from the committee of our Division in April this year after a decade of dedicated service to the Society at both division and federal levels. The health of our Division today is a testament to the efforts and commitment of Gerhard. When he saw an opportunity to promote the Geological Society he never hesitated to organise our participation – collecting brochures, books and signage...and travelling long distances, at his own expense, to ensure The Society had a presence at many geological conferences around the state and country.

He made a major contribution to the Gold '88 conference and the 1988 edition of Geology of Victoria. It was a time of escalating interest rates and Gerhard ensured that funds available to the Society were always moved to accounts with maximum return. His diligence, exacting budgeting and soliciting available industry funds have continued to enrich the possibilities we have to advance the scientific interests of the Society. Funds from Gold '88, invested in the AusIMM "Education Endowment Fund" annually provide moneys to encourage university sponsored research and training and support many students.

He was also very involved in organising the successful Murray Basin Heavy Mineral Sands conference, which was again a financial success. Typically Gerhard helped bring together people related to the mining industry for mutual benefit. Gerhard has always held the encouragement of students as of first importance and has worked to recruit Honours students to the Society and to provide scholarships, awards and concessions for graduating geologists to events of significance.

He became the adviser and confidant of successive chairpersons of our Division providing them with wise counsel and well considered opinions. Thank you very much Gerhard.

(This tribute was based on submissions from Bob Dalgarno and Kerry Hegarty).

### **GSA Victoria grants to postgraduate students to deliver papers at AGC**

Six students were given help to attend the AGC in Adelaide in July – all from Monash! Abstracts of their papers are published in GSA Abstracts **67** (2002). They are:

**Caroline Forbes** 'Regional Scale variations in fold interference patterns: Implications for the Allendale Area, Broken Hill Block, New South Wales, Australia' and 'Stratigraphic omission explained by discovery of a regional folded ductile shear zone in the Euriowie Block, NSW'.

**Mark McLean** 'A three dimensional investigation of the Hiltaba granitoid suite geometry: implications for pluton emplacement mechanisms'.

**Christian Noll** 'Insights into the tectonostratigraphic development of the Owen Basin, West Coast Range Western Tasmania'.

**Gideon Rosenbaum** 'Constraints on the motion of the Adriatic Plate' and 'Evidence for co-axial flattening at deep levels of orogenic belts. (Syros, and Sifnos, Cyclades Greece).

**Wouter Peter Schell** 'Arc-perpendicular spreading ridges in the North Fiji Basin', 'Back-arc deformation in the Kuril Basin and Sea of Okhotsk: far field effect of India-Eurasia collision or the result of rollback on the Pacific Slab?' and '4D Modelling of pop-up structures during strike slip faulting: some insights from analogue modelling'.

**David Wood** 'Structural controls on the timing of gold emplacements in the Bendigo gold field'.

### **National Science Week at Melbourne Museum, August 17-25**

Leading Victorian Universities and Melbourne Museum are collaborating to present displays and lectures. Learn about important scientific research in our state, take part in activities, ask questions, discuss issues and get information on cutting edge science. Science Week will be an opportunity for students and teachers to explore a variety of career options. University staff will provide advice of courses and where they lead. Call 1300 130 152.

### **A Cover for the new Geology of Victoria**

Bill Birch, Editor of the new Geology of Victoria has been making great progress and exhibited 12 chapters in final draft form at the July meeting. He hopes to have the volume printed by mid 2003. A cover design has not yet been selected. Here is an opportunity. If you have an outstanding image, design or relevant concept email or send it to Bill at [bbirch@museum.vic.gov.au](mailto:bbirch@museum.vic.gov.au).

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Professor Mikail Fedonkin from the Palaeontological Institute in Moscow will give a public lecture entitled

**‘The Beginnings of Life: Precambrian animals from Russia and Australia’**

at the Monash Science Centre ( near the Normandy Road entrance to Monash University Clayton) at 7.30 to 8.30 pm on Thursday 22<sup>nd</sup> August 2002.

**Five minute talk:** (at August meeting) ‘My favourite Geological (Heritage) place’ by Paola Coratza of University of Modena, Italy. She is also addressing the **Special Research Seminar** at 11-12noon Aug 29, on ‘Geomorphology and slope instability in Val Gardena (Dolomite-Italy)’ and the **Baragwanath Seminar** - Theme: Landscape and Geological Heritage, at 3.15-5.15 pm Aug 30, School of Earth Sciences, University of Melbourne.  
Enquiries to Bernie Joyce ( tel 8344 6521, [ebj@unimelb.edu.au](mailto:ebj@unimelb.edu.au))

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September 2002

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**GENERAL MEETING**

**Thursday, 26<sup>th</sup> September 2002**

***David Taylor***

*Geological Survey of Victoria*

**An integrated tectonic model for the Cambrian Delamerian Orogeny**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)

Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)

**General Meeting at 6:15pm – Fritz Loewe Lecture Theatre**

The Delamerian Fold Belt in far western Victoria contains some of the oldest rocks in the state and was the first part to be converted from an oceanic setting into cratonised crust, some 500 million years ago. The inboard portion of the fold belt, exposed in South Australia, is interpreted as a passive margin that was thrust westward over the craton. This Cambrian orogenic activity—the Delamerian Orogeny—represents the first in a long series of deformational events that eventually accreted the whole eastern third of Australia onto the older cratonic core. What caused it? New work in western Victoria suggests that it was arc–continent collision, with an arc being obducted onto the edge of the continental margin and driving the whole sequence westward. The arc is nearly completely covered by younger rocks but recent remapping, combined with the incredible amount of information provided by magnetic maps and drilling, allow us to see through the extensive cover. The arc is one of the largest magnetic features in Victoria and is now known as the Dimboola Igneous Complex. It formed sometime in the Early Cambrian, shortly before the collision, as a result of subduction that began when an extremely large ancient palaeo-Pacific Ocean crust began to collapse. The Delamerian Orogeny formed a large mountain chain that provided much of the foundations and building material for the future Lachlan Fold Belt and thus provides further constraints on the tectonic models developed for that region.



## **Meetings for the remainder of 2002**

*Thursday October 31:* John Miller will give a presentation on Stawell mine geology.

*Thursday November 28:* There will be a film on the Kilauea eruptions of 1992 and 2002, with expert commentary, and of course the year end barbecue.

## **NOMINATION FOR THE SELWYN MEDAL**

The Victorian Division of the Geological Society of Australia established the *Selwyn Medal*, in honour of Sir Alfred Selwyn, the eminent Victorian pioneering geologist. The award recognises significant ongoing or former contributions of high calibre to any field of Victorian geology.

**Nominations are now being sought for the 2003 presentation of the *Selwyn Medal*.**

Candidates should have made a major contribution to new knowledge of the geology of Victoria, or a significant reinterpretation of it based on critical observations, contributed importantly to a major mineral or oil discovery, produced important geological publications or have been successfully involved in the development of the geological profession.

Nominations should include the name of the candidate, biographical data, a citation in 300 words or so of the work and its significance to the geology of Victoria, and the names of at least two geologists who support the nomination.

**Please mail nominations and supporting data to:**

**Awards Committee  
GSA Victorian Division  
5 Mossman Drive  
EAGLEMONT VIC 3084**

The Victorian Divisional committee is contemplating a presentation in May 2003, so it is necessary to have documentation on possible candidates submitted well before that time.

## **Wanted**

Do you have a copy of the "Victorian Geology Excursion Guide", and/or "Vertebrate Palaeontology of Australia", which you would like to pass on to a good home? Lindsay Thomas ([thomas@unimelb.edu.au](mailto:thomas@unimelb.edu.au) or 04 735 4828) has a couple of retired friends who would be interested in these. Contact Lindsay with your price when you can, please.

## **Victorian Universities Earth Sciences Students Conference**

(To be held at Melbourne University Wednesday September 11, sponsored by GSAV)

The agenda includes sessions on:

Climatology. Tropical climate variability  
Processes controlling Antarctic Ice Sheet  
Crustal Evolution/Geochronology/Metamorphism

Gawler Craton, Southern Canadian Shield, Broken Hill, New apatite fission track dates

Geochemistry/Ore deposit geology/Geophysics

Broken Hill halo, Eastern Goldfields playa lakes, salinized Kamaroka catchment, acid mine drainage, gas hydrates.

Sedimentology/Volcanology

Northwest shelf sonic velocity studies, Mt Hotham geology, Teneriffe ignimbrite, Batur volcano, Indonesia.

Structure/ Tectonics/ Remote Sensing

Thermal history of Skenes Creek, Stress field in Brunei, neotectonics of northern Flinders Ranges, and desert dune dynamics.

### **New Members**

Matt White, Jamie Robinson, Melissa Joy Gregory, Mark McLean, David Wood and Ivo Vos have been admitted to student membership of the Geological Society of Australia.

Timothy Fogaty and Linda Bibby have been made full members.

### **News from other Divisions of the Society**

In August the NSW division heard from Patrice Rey (University of Sydney) on “Archaean: Back then when it all began...”.

There is to be a field excursion to Barrington volcano October 5-7<sup>th</sup>, with presentations on volcanic minerals and associated gemstones.

The Division will be participating actively in Earth Science Week, October 13-19.

Two short courses are being offered :

Modern Sampling Theory and Methods, October 7-9. Contact Phillip Hellman 02 9858 3863 or [plh@hellscho.com.au](mailto:plh@hellscho.com.au)

Earth Science Applications Using Microsoft ACCESS, October 10. Contact Luke Burlet 02 9858 3863 or [luke@hellscho.com.au](mailto:luke@hellscho.com.au)

The South Australian Division had a presentation in August from Dr Solomon Buckman “Geology and gold deposits along the Silk Road, Xinjiang Province, NW China”, and in July on the Mindarie Mineral Sand Project in South Australia.

The August meeting of the ACT Division featured Malcolm Walter of the Australian Centre for Astrobiology on “Palaeobiology of a 1640 Ma hydrothermal system: an analogue for the search for life on Mars”.

### **Snail mail and Email Newsletters**

Email newsletters arrive earlier so they could be used to notify members of events which happen before our monthly meeting. In addition there are sometimes space limitations in a 4 page printed format, and items have to be left out. This does not apply to email, and they may be used to send other timely information. There are advantages in getting your newsletter by email. All our members who have an email address are urged to convert by contacting Paul Messenger at [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au) with subject heading “Newsletter Request”

## GSA (VICTORIA DIVISION)

Please address all correspondence to the GSA, Victoria Division  
GPO Box 2355V, MELBOURNE, VIC 3001

### COMMITTEE 2002

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Vice Chair:	Paul Messenger	9523 5889
Secretary:	Peter Pritchard	9439 9582
Treasurer:	Lindsay Thomas	8344 6521
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David Gray	
Ross Cayley	9412 5042

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Print Post No. PP 381827/0025

Registered Publication No. VBH 2135

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**October 2002**

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**GENERAL MEETING**

**Thursday, 31 October 2002**

***Dr John McLeod Miller***

*University of Melbourne*

**Gold mineralisation in the western-most region of the Lachlan Fold Belt – a revised geological framework for the western Victorian gold fields.**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)

Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)

**General Meeting at 6:15pm – Fritz Loewe Lecture Theatre**

The geological system at Stawell has marked differences from gold mineralisation further east at Bendigo and Ballarat. Extensive underground mapping of the gold lodes, and also the faults that dismember the mineralisation, has led to a revised model that has unravelled some major unresolved geological questions. The complexities include mineralisation occurring within the turbidites and underlying “volcanogenic rocks”, complex ductile deformation, multiple phases of mineralisation and brittle deformation both before and after the intrusion of Late Silurian dykes and Early Devonian plutons. Key questions that will be addressed in the seminar are:

- How was the Magdala system offset from the underlying Golden Rift lodes that were recently discovered beneath the South Fault by Stawell Gold Mines Pty Ltd?
- Do Tabberabberan aged structures exist?
- Does the documented geological history agree with recently published geochronological data sets?
- How do the gold lodes with mineralogy indicative of a so called “magmatic” origin fit into the story?

Three-dimensional geological models are the key to unravelling this complex system and will be visualised via some simple geological movies of the deformation history.

**My favourite geological site (October):** To be presented by Ross Cayley

### **Meetings for the remainder of 2002**

*Thursday November 28:* There will be a film on the Kilauea eruptions of the period 1992- 2002, with expert commentary, and of course the year end barbecue.

### **NOMINATION FOR THE SELWYN MEDAL**

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### **Geology of Victoria**

I have returned from seven weeks overseas and am gradually cranking up the gears on this project. Several chapter revisions were submitted in my absence. The Swinburne design and layout team has been working hard on the 12 chapters I left with them and I will see the results in a few days. I will then start feeding additional chapters into the system.

In my absence, the issue of author accreditation was raised with one chapter coordinator by members of his team. The GOV committee had discussed the accreditation of individual contributions early in the project's history. We recognised that some authors would prefer to have their contribution clearly identified, if possible. We didn't want to have authors' names attached to sections through the volume, however it was difficult to come up with an alternative and consistent approach when there was such a diversity of presentations. A few of the 27 chapters have only one contributor/author, many are joint contributions in which an individual author's contributions cannot easily be distinguished, a few are joint contributions in which are embedded sections by a single author, then there are chapters made up largely of sections prepared by individual authors.

The accreditation scheme that's been adopted has the coordinators and authors listed at the start of each chapter. In the final version, the contributing authors will be listed alphabetically after the coordinators. For those chapters where individual author's contributions can be clearly identified (for example, Palaeontology, Geological Hazards) there will be an appendix. This will be in two forms. One will be chapter by chapter, with each numbered section clearly attributed to the relevant author. The other will be arranged alphabetically by authors' names with their contributed section numbers. The appendix will be listed in the Table of Contents as 'Author accreditation' at the front of the volume.

I hope this will provide a convenient and neat solution to the problem.

Bill Birch  
14 October 2002.

### **Cover design for new Geology of Victoria**

Have you thought out your suggestion for a striking dust cover image or design for this new volume? Bill Birch ([bbirch@museum.vic.gov.au](mailto:bbirch@museum.vic.gov.au)) would like to receive suggestions for action early in the new year.

### **Snail mail and Email Newsletters**

Email newsletters arrive earlier so they could be used to notify members of events which happen before our monthly meeting. In addition there are sometimes space limitations in a 4 page printed format, and items have to be left out. This does not apply to email, and they may be used to send other timely information. There are advantages in getting your newsletter by email. All our members who have an email address are urged to convert by contacting Paul Messenger at [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au) with subject heading "Newsletter Request"

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**November 2002**

**THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division**

**GENERAL MEETING  
Thursday, 28 November 2002**

**Kilauea at close hand**

*A video of Kilauea's last ten years of activity*

**Commentary by volcanologist Ken Hon**

Earth Sciences, Melbourne University (Corner Swanston & Elgin Street)  
Drinks & nibbles at 5:30pm in the Tea Room, 4th Floor (\$2 per person)  
**General Meeting at 6:15pm – Fritz Loewe Lecture Theatre**

**Kilauea at close hand**

Kilauea volcano on Hawaii is the most active, and probably the most constantly monitored, volcano on earth. The video '**Eruption update summer 2002**' shows the best footage taken over the last ten years of activity. Commentary is by noted volcanologist Ken Hon and is mercifully brief—restricted to the type of activity shown, when it was taken, and things to look out for. All aspects of the volcano's activity are covered: eruptions, flow activity, how pahoehoe and aa form, hornitoes, lava flowing into the sea, coastal erosion, and, not least important, its impact on humans. For most of the tape's duration, the volcano is allowed to speak for itself—there is **no** background music.

To be followed by our year end barbecue at Earth Sciences, Melbourne University.

## **What's in a date? — the 2003 Selwyn Symposium**

In the bad old days, only fossils could be used to date a rock. Which left more than nine in every ten rocks undateable. With the development of absolute dating methods, the geological sciences have been transformed. This technology has arguably had the single greatest effect on our field, only second to computers. Today we would regard an undated rock as a relative rarity. We have found ever more sophisticated ways of measuring a rock's age and its history—its genesis, its deformation, its metamorphism, its burial, its exhumation, even how long it may have lain at the surface.

The implications of this work are immense, and the techniques highly specialised. If we are to effectively apply these techniques in our work (both research and industry), we must understand the origin of the data—their quality, and the uncertainties in the interpretations. This understanding is increasingly more difficult as the techniques and related interpretative schemes become much more sophisticated with seemingly smaller error bars. There is a tendency to accept the conclusions of geochronological work and as the level of sophistication has increased, the non-specialist finds little extra time to come to terms with the basics and interpretations.

The 2003 Selwyn Symposium aims to lay bare the basis of several popular geochronological techniques. The one-day Symposium, which includes a detailed evaluation of the U/Pb, Ar/Ar, fission track and (U-Th)/He techniques will emphasise not only the fundamentals of each method, but also highlight some case histories and pitfalls in applications. A special session will also be dedicated to looking over the horizon, to ensure that future applications benefit from past failures and successes, and that we as a community work better together in solving outstanding geological problems, and not generating numbers with limited apparent geological significance. This special Symposium is the premier event on our calendar, and we invite you to join us for practical and robust examples, and discussion on the place of geochronology in our work.

The symposium is a full-day affair (morning and afternoon) on Thursday May 29<sup>th</sup>, 2003. More details will be provided in future newsletters and a registration form will be printed in the March issue of The Australian Geologist and also circulated to Victorian members.

## ***Year End Barbecue***

The eruptions of Kilauea (on video) will be followed by our end of year BBQ. Cost will be about \$10 and cold drinks will be available.

### Lost member email addresses

Newsletters sent to several members who previously received them by email have bounced repeatedly – that is their addresses are no longer valid, and they have been removed from the list. They are:

Kathleen Bowron

Richard Zuccheto

Bruce McMonies

Darin Evans

Simon Shee

Would these members please update their email address by contacting Paul Messenger [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au) with the title “Email Newsletter Update”. If other members know their whereabouts, please remind them about this.

### Snail mail and Email Newsletters

Our list of members who receive the email newsletter is growing, with advantages to the Division and also to the members. We post some newsletters to overseas addresses each month, and it would seem a real advantage for these to go by email. So we urge these recipients and all our members who have an email address to convert by contacting Paul Messenger at [pmessenger@vtown.com.au](mailto:pmessenger@vtown.com.au) with subject heading “Newsletter Request”

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