

# THE VICTORIAN GEOLOGIST



June 2011

THE GEOLOGICAL SOCIETY OF AUSTRALIA  
Victoria Division

## The Annual A.W. Howitt Lecture

Joint meeting of the GSAV and the Royal Society of Victoria  
**Thursday 23rd June at 7:00 p.m.**

*"What Can Be Learned From Recent Earthquake Activity"*

**Dr. Gary Gibson**

**Principal Research Fellow**

**School of Earth Sciences, University of Melbourne**

**VENUE: The Royal Society of Melbourne Building  
9 Victoria Street, Melbourne, 3000 (entrance via LaTrobe Street)**

**Light refreshments served BEFORE at 6:15pm for a cost of \$20. Please RSVP to [rsv@sciencevictoria.org.au](mailto:rsv@sciencevictoria.org.au) by 12 noon, Tuesday 21st June for these refreshments. Supper AFTER the lecture free of charge.**

Earthquakes are a normal process of the Earth, and cannot be avoided. Their occurrence in space follows patterns that relate closely to geological structure. The rates of activity vary enormously with location, from active plate boundaries down to stable continental interiors. The maximum earthquake magnitudes to be expected also vary with location, but not nearly as much as most continent-dwellers would like to believe.

Their occurrence over time is harder to understand. There is almost no sign of any periodic motion, with only very weak correlation with tides. However they are cyclic, and the modern earthquake cycle may include precursory events and foreshocks, will have a mainshock, usually has aftershocks and for large events sometimes adjustment events. At any particular location, between such clusters there is a long period of quiescence. Since plate motion is fairly uniform, one might expect that the rate of activity over the Earth would be fairly constant, and for small events this appears to be the case. However large earthquakes appear to occur in cyclic but non-periodic clusters. A decade starting in the 1980s included only one great earthquake (larger than magnitude 8.0), while the past decade has included fifteen. What causes these variations, are they really non-random, and can they be predicted?

If we can't prevent earthquakes, we must learn to live with them. The most common earthquake hazard comes from ground shaking, and recent earthquakes in Chile, New Zealand and Japan have shown the value of improved building standards. However other earthquake hazards are not easy to avoid, such as the massive landslides in the Sichuan earthquake of 2008, and tsunami damage in the Chile, and Japan earthquakes. Is there anything we can do, other than avoiding construction in steep valleys or along coastlines?

---

A NOTE FROM THE EDITOR

**Dear All**

As the new editor of TVG I would just like to take a moment to introduce myself but more importantly to encourage members to contribute to TVG. TVG is here to serve the members of the GSAV, keeping them up-to-date on the society and its members.

If you've undertaken some interesting work recently, just read an intriguing article, or have a tidbit of information that you think should be shared with the society then I implore you to pass the information on to me at [mbliss@student.unimelb.edu.au](mailto:mbliss@student.unimelb.edu.au) and I will endeavor to do my best to insert it into TVG. If sent to me before the first Friday of the month it will most likely make TVG for that month, otherwise it will be placed into a later issue.

In addition if you have any suggestions for additions/changes to TVG then send me your ideas and we'll see what we can do. Remember that TVG is here to serve the members and you all have a say in how it looks each and every month.

Cheers

Matt Bliss

OBITUARY TO LEX FERGUSON

**Fons to write????? Can wait til next month**

TREASURERS REPORT 2010 (AUDITED)
----------------------------------

## GSAV BALANCE SHEET 2010

Balance sheet as at the 31 December 2010

<b>Current Assets</b>	2010	2009
<u>Cash and equivalents</u>		
Cash at bank NAB	\$4,498.61	\$22,052.30
Cash at bank JB Were 440966		\$23,033.93
Cash at bank Bank of Queensland a/c#998752674	\$8,968.61	
Bank of Queensland Fixed Term deposit	\$10,000.00	
<u>Cash receivable</u>		
Publications	\$11,337.92	
Capitation fees	\$5,700.00	
Other debtors-franking credits receivable	\$5,029.98	\$3,993.90
<u>Stock on hand 2010 figures adjusted after stock take</u>		
Selwyn symposium 1999	\$5.00	\$50.00
Selwyn symposium 2007	\$1,578.00	\$1,598.00
Extended abstracts: Selwyn symposium 2008	\$339.27	\$432.00
Extended abstracts: Selwyn symposium 2009	\$909.00	\$1,140.00
Roadside geology Melbourne-Ballarat	\$-36.12	\$37.88
Geology of Victoria	\$36,441.07	\$44,375.00
Total stock	\$39,236.22	\$47,632.88
<b>Total</b>	<b>\$84,771.34</b>	<b>\$96,713.01</b>
<u>Interest Bearing Securities</u>		
Macquarie CPS Trust	\$12,190.00	
MQG Convertible PS		\$5,375.00
National Australia Bank Income Security	\$17,451.00	\$16,443.00
Westpac Stapled Preferred Security11	\$20,962.70	\$20,494.50
<u>Shares in listed companies</u>		
Australian Foundation Investment Company Ltd	\$41,208.75	\$43,290.00
AIX Australian Infrastructure Fund stapled securities	\$33,326.76	\$31,554.06
Australian and New Zealand Banking Group	\$14,710.50	
Bendigo Bank Limited		\$20,545.92
BHP Billiton Ltd	\$51,947.00	\$49,501.76
Commonwealth Bank of Australia	\$33,914.36	
CSL Limited	\$5,806.40	\$5,198.40
National Australia Bank Ltd		\$18,495.00
Telstra		\$30,437.82
Westpac Banking Corporation	\$24,431.00	\$27,830.00
Woolworths Limited	\$19,957.80	
 Total Assets-Net Assets	 \$360,677.61	 \$365,878.47
 Loss in value of investments/assets 2010	 \$-5,200.86	
 <b>MEMBERS FUND</b>	 <b>\$360,677.61</b>	 <b>\$365,878.47</b>

---

 Trading statement for the Year ended 31 December 2010

	2010	2009
<b>SALES</b>		
Total sales	\$8,396.66	\$9,370.93
Opening stock	\$47,632.88	\$54,224.29
Closing stock	\$39,236.22	\$47,632.88
	\$8,396.66	\$6,591.41
Gross (Loss)/Profit	\$-----	\$3,354.52

**Profit and Loss Statement for the year ended 31 December 2010**

	2010	2009
<u>Income</u>		
Capitation fees		\$5,985.00
Capitation fees receivable	\$5,700.00	
Conference Selwyn symposium		\$10,168.12
Franking Credits	\$5,029.98	\$3,993.90
<u>Profit/loss on disposal of investments</u>		
Bendigo Bank Limited	\$-2,693.52	
National Australia Bank Ltd	\$-1,351.75	
Telstra	\$-6,123.06	
<u>Bank Interest</u>		
Bank of Queensland a/c#998752674	\$372.21	
<u>Dividends received</u>		
Bank of Queensland Fixed Term deposit		
Other debtors-franking credits receivable		\$4,464.93
<u>Equity income</u>		
Australian Foundation Investment Company Ltd	\$1,748.25	\$1,548.25
AIX Australian Infrastructure Fund stapled securities	\$224.37	\$345.44
Australian and New Zealand Banking Group	\$466.20	
Bendigo Bank Limited	\$584.64	\$897.84
BHP Billiton Ltd	\$1,091.98	\$1,304.53
Commonwealth Bank of Australia	\$1,135.60	
CSL Limited	\$119.55	\$64.00
National Australia Bank Ltd	\$1,036.00	\$443.11
St George Bank		\$752.71
Telstra	\$2,485.72	\$2,265.62
Westpac Bank	\$1,529.00	\$1,276.00
<u>Interest Bearing Securites</u>		
JB Were Deposit notes	\$699.30	\$1,734.49
Macquarie CPS Trust	\$632.71	
MQG Convertible PS	\$643.20	\$279.65
National Australia Bank Income Security	\$1,198.51	\$1,004.72
Westpac Stapled Preferred Security11	\$843.16	\$485.57
Gross profit/loss from trading	\$15,372.05	\$36,195.91

<u>Expenditure</u>	2010	2009
Audit and review of financial reports	\$1,150.00	\$1,056.00
Bank charges	\$205.80	\$240.30
Conference expenses		\$17,031.03
Educational outreach	\$735.00	
Investment consultant fees	\$1,043.84	\$2,507.36
Investment commission	\$1,926.78	
Major purchases-medals	\$5,620.00	
Meeting supplies etc.	\$217.57	\$229.58
Meetings-other costs	\$1,498.99	
Newsletter printing	\$1,633.00	\$1,752.65
Newsletter posting	\$429.15	\$828.00
Other postage, printing and stationary	\$311.68	\$441.40
Prizes to students and grants	\$5,550.00	\$900.00
Storage facility	\$652.50	
Total expenditure	\$20,974.31	\$24,986.32
Profit/loss before income tax	-\$5,602.26	\$11,209.59
Profit/loss after income tax	-\$5,602.26	\$11,209.59

*Statement of appropriations for the year ended 31 December 2010*

	2010	2009
Members funds 1st January	\$365,878.47	\$326,715.72
Increase/decrease in value of investments /assets	\$401.40	\$27,953.16
Profit/loss before income tax	-\$5,602.26	\$11,209.59
<u>Income tax expense</u>		
Profit/loss after income tax	-\$5,602.26	\$11,209.59
<b>Members fund 31 December</b>	<b>\$360,677.61</b>	<b>\$365,878.47</b>

PAPER REDUCTION EFFORT

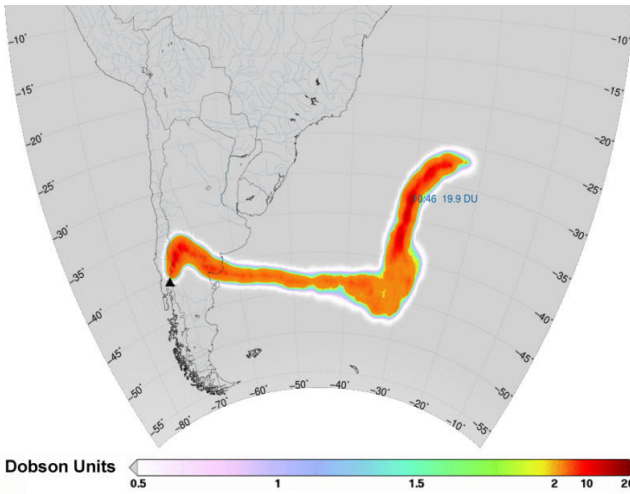
**Attention All Members!!!**

Are you still receiving a hard copy of TVG each and every month? Each month a significant number of hard-copy TVG's are printed but wouldn't it be great if we could reduce that number, lessening costs and our impact on the environment? Well the good news is you can by switching to receiving an electronic copy of TVG via email.

It's as simple as going to [www.gsa.org.au](http://www.gsa.org.au), logging in with your member number and password, and changing your preferred newsletter delivery method to electronic. Alternatively, you can email [info@gsa.org.au](mailto:info@gsa.org.au) or call 02 9290 2194 to change your preference.



**Eruption in Chile’s Puyehue-Cordon Caulle Complex Forces Evacuations, Shuts Down Airports**



On June 4, 2011 an eruption began in Chile’s Puyehue-Cordón Caulle Volcanic Complex, located within the Andes and approximately 600km south of Santiago. The opening of a fissure in the Cordón Caulle rift zone is the most serious eruption in the region since 1960 and has forced widespread evacuation of thousands in the area as the region is blanketed by falling ash and pumice. The resultant ash cloud, over 10km high, has had wide-ranging impact, blowing across both the Atlantic (pictured) and Pacific Oceans, and has forced the closure of airports throughout South America and as far away as both New Zealand and Australia. The image here shows the extent of the plume on June 6 as it spread east over the Atlantic Ocean.

Source: Science Daily ([www.sciencedaily.com](http://www.sciencedaily.com))

**Eugene von Guérard: Nature Revealed**

Take a fresh look at Australia’s most renowned landscape artist through this comprehensive exhibition, which includes many of von Guérard’s beloved studies of both familiar and exotic locations. His meticulous brushstrokes and breathtaking compositions will transport you to the magnificent natural beauty of regional Victoria, Australia, New Zealand and beyond.

Open daily 10am – 5pm at The Ian Potter Centre: NGV Australia, Federation Square from 16 April until 7 August.

\$15 Adult / \$12 Concession / \$7.50 Child (ages 5–15) / Family \$42

Visit: <http://www.ngv.vic.gov.au/whats-on/exhibitions/exhibitions/eugene-von-guerard> for further information.

Eugene von Guérard  
 Tea Trees near Cape Schanck, Victoria 1865  
 National Gallery of Victoria, Melbourne  
 Purchased with funds donated by Ian Hicks AM and Dorothy Hicks, John Higgins, Bruce Parncutt and Robin Campbell, 2006



## GSA GEOLOGICAL HERITAGE POLICY

### **GSA Geological Heritage Policy**

*Susan White, Convenor Subcommittee on Geological Heritage*

At the same time we wish to raise awareness of geology and geological sites in the general community, we need to make sure that our own processes in these matters are up to date. The GSA Heritage policy is a Federal policy, although a lot of its operations occur at division levels. It is important for the Geological Society to develop a Policy relevant to today's National legislative framework – one that is created by the membership and interested parties, and which is relevant to the Earth Sciences.

The issue of the out-of-date status of the GSA's Geological Heritage Policy has been of concern for some time. In 2010, the Standing Committee for Geological Heritage reviewed and finalised a Draft GSA Heritage Policy for wider comments. At the April 2011 GSA Executive meeting it was resolved to post the Draft Policy, together with some Background Information, on the GSA website, and to canvas the Divisions for assistance in obtaining as much feedback of the Draft Policy as possible. The website link is <http://www.gsa.org.au/heritage/index.html>. It is important that members look at this and give feedback. As convener of the Victoria division I urge all members to read the new policy draft and make comments. Comments can be emailed to the Standing Committee Convener, Margaret Brocx [geoheritage@inet.net.au](mailto:geoheritage@inet.net.au). However, as the Division subcommittee chair I am also interested in comments and can then collate a "division" response for Margaret as well. Therefore you can just copy (cc) your email to Susan White ([susanqwhite@netspace.net.au](mailto:susanqwhite@netspace.net.au)).

Below is some background. It is this current legislation that the policy must relate to, not previous situations regarding the Register of the National Estate. Since it was one of the triggers for the Policy review, some of the Commonwealth legislative background is provided here, with the legislative changes, prior to and since the enactment of the Environment Protection and Biodiversity Conservation (EPBC) Act, 1999, and its amendments, for the identification and protection of sites of geoheritage significance. The changes in Commonwealth legislation put an onus on the States to identify and conserve their geological heritage. It is therefore important for the Geological Society to develop a Policy in today's National legislative framework – one that is created by the membership and interested parties, and which is relevant to the Earth Sciences as it is important to science and education, and employment in the field of geology.

## **The Australian Constitution**

The Australian Constitution does not directly permit the Commonwealth to legislate in respect of sites other than those that fall within its own jurisdiction. However, where Australia enters into international agreements, the Commonwealth can legislate to protect sites of certain categories. Australia is a signatory to a number of important International conventions, including the Convention concerning the Protection of the World Cultural and Natural Heritage, the Ramsar Convention, the Convention on Biological Diversity, amongst others.

### **The Register of the National Estate 1976-2007**

Honouring an election promise in 1975, made by the Whitlam Government, the Australian Heritage Commission Act 1975 was enacted in Commonwealth legislation (by the Fraser Govt). Funding was made available to the States to identify (via a nomination process), and compile inventories of sites of national natural heritage significance. Australia's heritage of places and structures deriving from these inventories became known as the Registry of the National Estate. It was the first ever national survey of Australia's heritage of natural, Indigenous and historic places. Over the subsequent 30 years, the Register, better known as the RNE, came to include over 13 000 places of outstanding individual significance (with over 8000 outstanding nominations), together

with places representative of Australia's natural and cultural history. For its time, it was the most significant national inventory of natural and cultural places in Australia.

However, by 1996, there was criticism that the RNE process had created duplication of effort in some areas, and had left complete gaps in others, causing confusion and unnecessary conflict. Work to correct this commenced on a number of fronts. The first of these was the review of Commonwealth/State Roles and Responsibilities for the Environment conducted by the Council of Australian Governments or COAG, and the second was the reform of Commonwealth environment and heritage legislation.

One of the outcomes of the COAG review was an agreement to rationalise existing Commonwealth/State arrangements for identifying, protecting and managing places of heritage significance. This was to be carried out through the cooperative development of a National Heritage Places Strategy — the first ever for Australia. In 1997 the Council of Australian Governments (COAG) entered into a Heads of Agreement to amend the IGAE to include 30 '*matters of national environmental significance (NES)*' which the Commonwealth could legislate to protect (see <http://155.187.3.82/epbc/publications/coag-agreement/attachment-1.html>)

These included:

*'3. Places of national significance*

Commonwealth and State Heritage Ministers (and relevant Environment Ministers) have agreed to develop a co-operative national heritage places strategy. This strategy will: (i) set out the roles and responsibilities of the Commonwealth and the States; (ii) identify criteria, standards and guidelines for the protection of heritage by each level of government; and (iii) provide for the establishment of a list of places of national heritage significance. The Commonwealth's responsibility and interest will be defined thereafter.'

Matters of national environmental significance, except National Heritage, became the basis of the Environmental Protection and Biodiversity Act (1999). With the enactment of the EPBC Act some significant changes to Australia's national heritage protection arrangements came about. Firstly, the Australian Heritage Council replaced the Australian Heritage Commission. Secondly, the protective powers of the Commonwealth were extended to include protection for sites of biodiversity and Indigenous significance, and later with the passing of the Heritage Bill (2003), sites of natural heritage significance. Thirdly, in 2003 the Register of the National Estate was frozen (at which point the Register contained 13 127 places), meaning that no new places could be added or removed. The Register of the National Estate will only continue as a statutory register until February 2012, i.e. **from February 2012 all references to the RNE will be removed from Federal heritage legislation**, and the Register will be only be maintained after this time as a publicly available archive.

The EPBC Act was founded on the 1997 COAG agreement by Commonwealth Agreements with the individual States agreeing to identify and legislate for the protection of natural heritage. However, largely, this has not occurred, and since 2004 (following the enactment of the Heritage Bill, which included natural heritage as places of national significance) the only places that are/will be transferred from the Register of the National Trust and listed on the new National Heritage have been or will be places that meet the criteria of comprising exceptional natural and cultural places that contribute to Australia's national identity, and that:

"define the critical moments in our development as a nation and reflects achievements, joys and sorrows in the lives of Australians. Also encompassing those places that reveal the richness of Australia's extraordinarily diverse natural heritage".

This includes objects, collections and intangible aspects such as community values, customs, languages,



beliefs, traditions and festivals. Heritage forms part of Australia's cultural identity. Further, a ceiling, or cap, was placed on the number of sites that would be protected.

To put this into context, the change of status and capping of the number of listed places on the National Heritage List means that only a few of the 13 000+ natural, historic and Indigenous places of **an entire continent** will be listed for protection under new criteria for legislative protection. Currently, there are some 85 sites on the National Heritage List, including World Heritage Sites, buildings such as the Qantas hangar at Longreach and places such the Melbourne Cricket Ground and the Flemington Race Course. In comparison, the US National Register of Historic Sites alone has over 60 000 places and there are over 450 000 historic places listed in the United Kingdom.

While there are some positive aspects to the enactment of EPBC Act, in that it does offer strong legislative protection to sites listed under the Act, there are several negative aspects. In general, save for Tasmania, the current legislative framework of piecemeal and *ad hoc* conservation of sites of geoheritage significance at the Commonwealth, and State level is over 30 years behind the rest of the world in relation to inventory-based conservation, and at least 10 years behind the rest of the world in recognising the link between geodiversity and biodiversity. There are much better systems overseas, especially in Europe.

### **So where to from here for the GSA in the development of a revised Heritage Policy Statement?**

The current Commonwealth framework and selection criteria for the National Heritage list are not compatible with the Geological Society of Australia's objectives to conserve sites of geological significance for science and education. If GSA is to be a real player in this situation, we need to start with an updated policy.

There is an urgent need to formulate a Policy Statement that reflects current thinking and global trends in geoconservation. We cannot continue as we are – the current policy is so out of date it does the profession of geology no benefit.

In general the following points can be used to assist in making comments on the Draft Policy:

(1) The policy must reflect GSA's concern regarding the documentation and protection of various sites and features of significance at National, State and local levels. Therefore, the State Divisions have tried to make sure this policy is sufficiently broad to cope with these situations.

(2) At the State (Division) level, the policy needs to be clear as to who can speak for GSA on geoheritage matters. Sometimes the issues are controversial, particularly in an industry where there are competing values, i.e., where extraction of economic geological material is a major activity. Some Divisions have very successful subcommittees, which work well with their Division committees; other Divisions have no such structures. In the latter case it therefore falls to the Division committee to fulfil this role. At least we do have a division subcommittee, even if we sometimes feel overwhelmed with the task

(3) The GSA heritage policy is only in draft form compiled in 2010 and after discussion and feedback, it is intended to provide a revised Policy for ratification by the GSA Council at Brisbane in 2012. Opportunity to comment on the GSA heritage policy will be open till 31<sup>st</sup> July 2011.

While the current policy has been a very robust and workable one its general thrust has been one that most members find acceptable, but now, the wording is dated. The policy needs to be updated without losing its advantages. One of those advantages is that it is focused on geoheritage, and not on all aspects of geotourism, geoconservation, or science and education.

The Standing Committee and division subcommittee therefore ask you to go to read the Draft Policy (The website link is <http://www.gsa.org.au/heritage/index.html>) critically, and send your comments to the National Convenor (Margaret Brocx) [geoheritage@iinet.net.au](mailto:geoheritage@iinet.net.au) and copy to the Division Convenor, [susanqwhite@netspace.net.au](mailto:susanqwhite@netspace.net.au). This will assist in putting together a division response as well.

## STUDENT FUNDING OPPORTUNITIES

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

The GSAV are pleased to offer up to \$10,000 per year in scholarships available to honours and postgraduate students for assistance with travel costs associated with conferences and field work.

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



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

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

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

or mailed to:

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

More information including eligibility criteria can be found on the form and by contacting Barbara Wagstaff ([wagstaff@unimelb.edu.au](mailto:wagstaff@unimelb.edu.au))

---

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

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

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

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

## FORTHCOMING SEMINARS AND EVENTS

to be presented at  
GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2011 talks will be held in the  
Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

---

July 28      TBA

August 25    TBA

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

### CONSIDER CONTRIBUTING TO TAG!

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

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



### GSA (VICTORIA DIVISION) COMMITTEE

Please address all correspondence to the GSA Victoria Division  
GPO Box 2355, Melbourne, VIC, 3001  
Internet address: [www.vic.gsa.org.au](http://www.vic.gsa.org.au)

#### OFFICE BEARERS

Chair: David Cantrill 9252 2301 (BH)  
Vice-chair: position vacant  
Secretary: Adele Seymon 9658 4523 (BH)  
Treasurer: Barbara Wagstaff 8344 6537 (BH)

#### COMMITTEE

Erin Matchan 8344 7672 (BH)  
David Moore 0409 977 120  
Noel Schleiger 9435 8408  
Lindsay Thomas 0427 354 828  
Stephen Gallagher 8344 6513 (BH)  
Susan White 9328 4154  
Matthew Bliss 8344 9980 (BH)  
Syed Amir Mahmud 9902 4206 (BH)

#### SUBCOMMITTEE

#### CONTACTS

Awards: Ingrid Campbell 9486 7160  
Bicentennial Gold: Gerhard Krummei 9820 2595  
Education: Noel Schleiger 9435 8408  
Heritage: Susan White 9328 4154  
Newsletter: Matthew Bliss 8344 9980  
Webmaster: Lindsay Thomas 0427 354 828

#### OTHER CONTACTS

Geology of Victoria: Bill Birch 9270 5049 (BH)

#### Newsletter deadline:

First Friday of the month except Dec & Jan  
[mbliss@student.unimelb.edu.au](mailto:mbliss@student.unimelb.edu.au)

GSA Inc - for membership and subscription enquiries or change of address:  
Business Office: Geological Society of Australia, Suite 61, 104 Bathurst Street, Sydney NSW 2000  
Email: [info@gsa.org.au](mailto:info@gsa.org.au) Tel: (02) 9290 2194 Fax: (02) 9290 2198

Print Post No. PP381827/0025  
Registered Publication No. VBH 2135

If undelivered return to:  
The Geological Society of Australia Inc.  
GPO Box 2355  
Melbourne VIC 3001

PRINT POST APPROVED