

# THE GEOLOGICAL SOCIETY OF GLASGOW

Registered Scottish Charity No. SC007013

**President: Dr Jim Morrison**

[www.geologyglasgow.org.uk](http://www.geologyglasgow.org.uk)

September 2016

159/1



Professor Ian Fairchild deep underground examining cave deposits in his quest to better understand Quaternary climate change. All will be revealed on November 10th when Ian talks to the Society. Welly boots not required. (Photo credit: Ian Fairchild)

## **In this newsletter:**

- Introduction to new session's lecture series
- Lectures for October and November
- Fossil Grove update - Time for Action
- Courses at the Glasgow University Centre for Open Studies

## Introduction to the Lecture Programme 2016-17 (Session 159)

This is my first year as the new Meetings Secretary and I hope you will enjoy the varied programme of lectures that I've managed to pull together for you. Several speakers were suggested by members of the Society; I hope that you will continue to help me out if you hear of or know of a good speaker. There are a couple of changes from the draft programme circulated by email in August.

First up on the **13th October** is Professor Rachel Wood from Edinburgh University. Rachel gave her talk 'The Great Dying' on the Permian-Triassic mass extinction at the Edinburgh Society last year and I was so impressed with it that I immediately asked her to repeat it for us. In the UK this event is difficult to study but in the Middle East the boundary occurs in a full carbonate sequence with nice weather to boot. Rachel makes all the technical stuff like the 'C-word' (Carbon Isotopes) and the B-word (Buffering) very easy to understand as she talks us through the relevance of her work to the current issues around ocean acidification.

More carbonates on the **10th November** as Professor Ian Fairchild from Birmingham University delves into the underworld of speleothems (cave deposits) which, as Ian will demonstrate, can now provide definitive records of regional to global environmental change in the Quaternary.

Our speaker for the **8th December** lecture is well known to many of you - Professor Tony Fallick from the Scottish Universities Environmental Research Centre in East Kilbride will give his talk on 'Planet Earth's Mid-Life Crisis' (preceded by a **brief** AGM).

Into the New Year and it's dinosaur time. On the **12th January** we welcome Dr. Stephen Brusatte from Edinburgh University – one of a team of palaeontologists who have unearthed some amazing fossils on Skye including a remarkable tracksite left by colossal long-necked dinosaurs moving through an ancient lagoon.

We welcome Dr Diarmad Campbell (Scotland's Chief Geologist at the BGS) on the **9th February** who is going to talk about the interdisciplinary mapping and modelling project of the Clyde basin known as the Clyde Urban Super-Project (CUSP). There is more information on this project further on in this newsletter.

'There's been a murder!' **9th March** is 'whodunnit' night when we welcome Dr Lorna Dawson from the James Hutton Institute, Dundee to talk about her speciality - soil forensics. Lorna has advised many of the 'noir' type detective series on TV and fans of this genre should enjoy this! A good time to invite your non-geological friends to what should be a fascinating evening.

The 'Deep Biosphere in Scotland' is the topic of our talk on **20th April** given by Dr John Parnell from Aberdeen University. John has a fantastic range of geological interests and a vast number of publications to his name. John's talk should be well worth listening too. (*Note: the date is the third Thursday of April, not the second*).

Finally don't forget the usual Members' Night on **11th May**

**David Webster** [meetings@gsocg.org](mailto:meetings@gsocg.org)

## Lecture meetings

All lectures are held in the *Gregory Building, University of Glasgow, Lilybank Gardens, Glasgow G12 8QQ* (unless otherwise noted). Meetings commence at 7.30 pm.

Details of all the lectures (and summaries where we have them) for this session can be found on the society's website - always worth checking to see if anything has changed or been updated!

### **Thursday 13<sup>th</sup> October 2016**

***Dr. Rachel Wood, Professor of Carbonate Geoscience, University of Edinburgh***

#### **'The great dying: what happened 250 million years ago?'**



About 250 million years ago Earth saw the greatest mass extinction known, where over 90% of all marine life disappeared. What was the cause of this, and can we quantify its effects? More importantly, does this shed any light on what is happening in our seas today?

*Rachel is professor of carbonate geoscience at the University of Edinburgh School of GeoSciences. She is also co-director of the International Centre for Carbonate Reservoirs (ICCR). Her research covers reef ecology, the evolution of reef systems, reef building and carbonate production. She is a member of the Natural*

*Environment Research Council Ion Microprobe Facility Steering Committee. She is the author of Reef Evolution (Oxford University Press) and an Associate Editor of the journal Petroleum Geoscience.*

*Background reading:* Clarkson, M.O.; Kasemann, Simone; Wood, Rachel; Lenton, T. M.; Daines, S.J.; Richoz, S; Ohnemueeller, F; Poulton, S.W.; Tipper, E.T. (2015): Ocean acidification and the Permo-Triassic mass extinction. *Science*, **348**, pp.229-232.

Also online at: [www.dailymail.co.uk/sciencetech/article-3032374/Acidic-oceans-dealt-final-blow-Great-Dying-Marine-species-wiped-chemical-changes-water.html](http://www.dailymail.co.uk/sciencetech/article-3032374/Acidic-oceans-dealt-final-blow-Great-Dying-Marine-species-wiped-chemical-changes-water.html)

### **Thursday 10<sup>th</sup> November 2016**

***Dr. Ian Fairchild, Professor of Geosystems, University of Birmingham***

#### **Cave deposits (speleothems) as archives of past environments and climates**

A clear understanding of long-term climatic change over the Quaternary has come primarily through studies of sediments in the deep ocean and cores through the major ice sheets, forming a framework to which the myriad more fragmentary and less definitive records can be related. Caves used to be thought of as complex environments unlikely to yield records of widespread significance. The search for better climate proxies on land, as well as a series of advances in technology has transformed this situation so

that well-dated speleothem records now provide definitive records of regional to global environmental change.

In this talk, an introduction to Quaternary palaeoclimates is followed by a discussion of how caves function (they have a 'physiology'!) and the manner of formation of speleothems. Next we consider the many properties that speleothems display that may be modified depending on an interaction of climate with the cave and karst system. The crucial role of good dating of the archives is illustrated with a discussion of uranium-thorium radiometric dating combined with counting of annual layers. Finally, some case examples are used as illustrations of the varied ways in which past climates and environments have been brought to life by studying the underworld.



*Ian Fairchild is a geoscientist with broad interests in the geochemistry of the Earth's surface, climate change and Quaternary and Neoproterozoic earth history. He employs this breadth of knowledge in teaching, in public outreach, and professional activities such as examining and research assessment. He is equally at home in the field and the laboratory with a wealth of experience in glacial environments, caves, rock successions and at national and international geochemical research facilities.*

*Background reading:* Borsato, A., Frisia, S., Wynn, P., Fairchild, I.J. & Miorandi, R. (2015): Sulphate concentration in cave dripwater and speleothems: long-term trends and overview of its significance as proxy of environmental processes and climate forcing. *Quaternary Science Reviews*, **127**, pp. 48-60.

## **Thursday 8<sup>th</sup> December 2016**

***Dr Tony Fallick, Scottish Universities Environmental Research Centre***

### **Planet Earth's mid-life crisis: carbon isotopes, concretions and the "Great Oxidation Event"**

Around 2.2 billion years ago, the Earth experienced a series of dramatic upheavals which accompanied the transition from a reducing to an oxidising ocean/atmosphere system. The global carbon cycle was perturbed to an extent unparalleled before or since, with the changes documented in the stable carbon isotope record of carbonate ( $\delta^{13}\text{C}_{\text{carb}}$ ). From concretions in sediments, there is evidence that the manner in which organic matter is remineralised under- went radical change. However, the exact sequence of events leading to this "greatest pollution event of all time" (Lovelock) is not yet clear, and several aspects are paradoxical. It is an open question whether there was one or several excursions to high ( $\delta^{13}\text{C}_{\text{carb}}$ ); the end of the high  $\delta^{13}\text{C}$  record is reasonably well-established at  $2056 \pm 6$  Ma, but its inception is not well defined, so that only a minimum duration ( $\sim 140$  My) is known. The interplay of the records of oxidised carbon (as carbonate) and reduced carbon (as organic matter) is especially problematic. Recent drilling in Arctic Russia by the International Continental Scientific Drilling Program FAR-DEEP Consortium has produced a marvellous new archive of 3.6 km of drillcore with which these and other issues are being addressed

## News and Topical Articles

### Fossil Grove- Time for Action

At last there's a bit of progress to report on the ongoing sorry saga of the Fossil Grove. The deterioration has reached a critical point - with water seepage from soil build up against the outside wall (Fig. 1) and blocked drains leading to pooling up of water in low points adjacent to the tree roots (Fig 2.) There is evidence of shale delamination and salt efflorescence in a very damp environment which is causing damage to the fossils.



**Fig. 1** (Left) Soil and leaf build-up on south elevation. The broken gutter is dripping constantly onto the debris which is saturated. **Fig. 2** (above) The tree stump in the lowest position with pooled water and salt efflorescence (arrow). Photo credits D Webster

The City Council owns the site and its Parks Dept are responsible for its upkeep and staffing etc. The Trustees are keepers of the Trusts funds (about £350,000 which were originally a legacy from Britoil and are separate from Council monies). The Trustees believe the funds should be used for future development/new build and should not, in principle, be used to substitute for the much-reduced Parks Dept revenue budget.

At the last Trustees meeting (15/9) it was agreed that the Parks Dept would remove the soil build up and do a CCTV drain survey and turn on the heating when required to avoid frost damage. The Trustees for their part have agreed in principle to procure a new air conditioning system (with automatic control of heat and humidity) and new lighting. Hopefully these actions will stabilise the situation. SNH are overseeing a detailed mineralogical rock-decay study which will provide guidance on the optimum temperature and humidity ranges needed to conserve the fossils for future generations to enjoy.

As part of a long-term strategy the Trustees have commissioned research on the business plans of other geo-heritage sites to see if it would be even feasible to run the Fossil Grove independently from the Council (a stated aim in the Trust Deeds). There's even talk of an 'Eden Project' dome!



The Strathclyde Geoconservation Group organised a petition to raise awareness of the plight of the Fossil Grove which gained over 250 signatures. The Group also organised a working party (in April) to kick-start the process of clearing the leaves and soil from the south wall. There was so much compacted debris that they couldn't clear it all - and five months later the Council still haven't cleared the remainder.

The Society has two Trustees (Walter Semple and David Webster) and Society Members Margaret Greene, Simon Cuthbert and Alan Owen sit on the newly set-up Advisory Group. Please contact any of them for more information.

## Other Geodiversity and Geoconservation News

The Strathclyde Geoconservation Group (SGG) continues to distribute their booklets and leaflets where appropriate. A new leaflet covering the Necropolis is being prepared.

Two walks were undertaken in September based on the Building Stones of Glasgow booklet as part of 'Doors Open Day'. A further walk for the visiting group from the Geologists' Association is planned for 3rd October.

The SGG works closely with East and West Dunbartonshire, South Ayrshire, North and South Lanarkshire and North Ayrshire Councils along with the Clyde and Avon Landscape Partnership and the North Ayrshire Landscape Partnership Group to help with their Local Geodiversity Action Plans and to help and advise on proposed trails and site preservation.

On 30th July six members of SGG visited Douglas Muir Quarry near Milngavie and the group is to help Tarmac produce an information board.

Issue 46 of **Earth Heritage**, the geological and landscape conservation magazine, is now available online at: [www.earthheritage.org.uk](http://www.earthheritage.org.uk). This latest issue carries a range of Scottish articles including:

- An initiative being taken at Gairloch High School to offer students A-level geology in lieu of the Scottish Higher;
- Innovative geodiversity promotion in North West Highlands Geopark;
- Conservation challenges at Arran's most important geological locality;
- Scotland's latest dinosaur discovery;
- SNH activity in checking and managing Scotland's geo-heritage; and
- Successful outcome to the Scottish Geodiversity Forum's Hugh Miller writing competition.

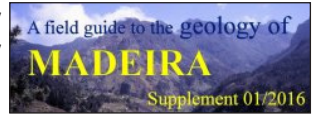


It is free to subscribe and back issues of the magazine are also available on the website.

The **Atlantic Islands Centre** on the island of Luing is a great example of a local community initiative where local geodiversity is celebrated within its wider social context, both in terms of the historical slate industry and present tourism and interactions with landscape. Its a great place for field trips - and a great jumping off point for trips around the islands including the Corryvreckan and the Garvellachs. If you haven't been, go! The Atlantic Islands Centre will be open all winter. See: [www.atlanticislandscentre.com/](http://www.atlanticislandscentre.com/)

## Madeira Guide

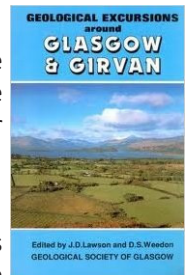
In 2008, the society published A Field Guide to the Geology of Madeira, by C.J. Burton and J.G. MacDonald, and many copies of this guide have been sold. However, the need has arisen to update some of the information contained in



the guide. The great storm of February 2010 changed some of the topography, including the area of Porto da Cruz, and in the same year a new geological map of the island was published along with a revision of the stratigraphy. These and other alterations and additions are reflected in a supplement to the guide, which was up-to-date as of June 2016. This can be downloaded from our website: [www.geologyglasgow.org.uk/bookshop/madeira-field-guide](http://www.geologyglasgow.org.uk/bookshop/madeira-field-guide)

## New Geology of Glasgow Guide

Jim Morrison has started a project to produce a new guide to the geology of the Glasgow area. The current Glasgow and Girvan Guide (published in 1992) is now out of print. More news about this in a later newsletter but see Jim if you're interested in helping out with this.



## BGS Clyde Urban Super-Project (CUSP)

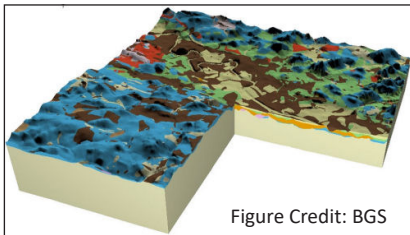


Figure Credit: BGS

To underpin Glasgow's regeneration the BGS are developing integrated and attributed dynamic shallow-earth 3D models in partnership with Glasgow City Council and other organisations. This transdisciplinary project aims to make geoscience information more accessible, relevant and understandable to the wide range of users involved in the sustainable regeneration

and development of Glasgow and the Clyde Gateway. The key research themes are 3D modelling, geothermal potential, groundwater, contaminant modelling and sustainable urban drainage. Come to Diarmad Campbell's lecture on 9th February next year to hear more about this exciting project. More info at: [www.bgs.ac.uk/research/engineeringGeology/urbanGeoscience/clyde/](http://www.bgs.ac.uk/research/engineeringGeology/urbanGeoscience/clyde/)

## Ben Nevis Partnership - North Face Project

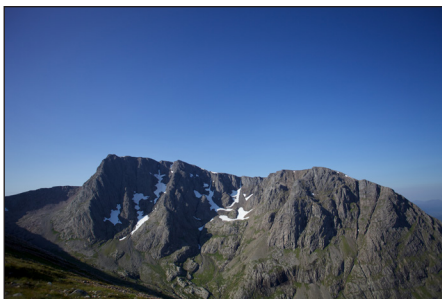


Photo credit: Dave McLeod and the Ben Nevis Landscape Partnership

The Ben Nevis Partnership is the process of finishing a three-year survey of the north face of Ben Nevis. An expedition team, led by professional climbing guides, is made up of experts in geology, botany, ecology and mountaineering; all working together to create a comprehensive geological and botanical map of the North Face of Ben Nevis. Heightened knowledge of this fragile environment will inform conservation efforts

and help tackle some of the biggest challenges Ben Nevis faces when it comes to human impact and climate change. Dr Roddy Muir (the lead geologist and Managing Director of Midland Valley Exploration) has agreed to abseil in and give a talk in the next session (160). Should be fascinating! More information at: [www.nevislandscape.co.uk/local/projects/index.php?projectID=14](http://www.nevislandscape.co.uk/local/projects/index.php?projectID=14)

## Friends of Hugh Miller Newsletter

The summer 2016 newsletter from The Friends of Hugh Miller is now available. It can be viewed and/or downloaded from our website. [www.geologyglasgow.org.uk/news/article/friends-of-hugh-miller-newsletter/](http://www.geologyglasgow.org.uk/news/article/friends-of-hugh-miller-newsletter/) The charity celebrates and promotes the legacy of the great pioneering Scottish geologist Hugh Miller, who began his working life as a jobbing stonemason, and went on to achieve great acclaim as a folklorist, national newspaper editor, church reformer and best-selling author on geology. More information can be found on The Friends of Hugh Miller website at: [www.thefriendsofhughmiller.org.uk/](http://www.thefriendsofhughmiller.org.uk/).

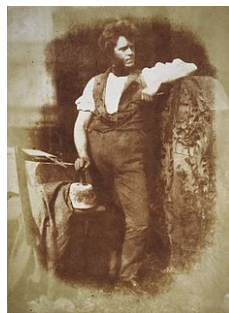


Photo Credit: Friends of Hugh Miller

## Hard-of-Hearing??

Good news for all of with hearing problems - we're going to 'insist' that speakers use a radio-mike during their presentations. Please let the speaker know at any time if you can't hear what they're saying!

## Website Archive

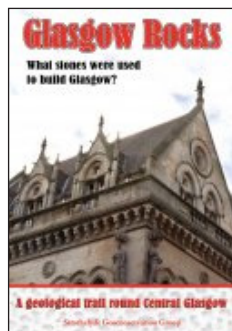
The Anniversaries page in the website's new Archive section is now complete, with entries for 1866 and every 25 years since, up to 1983. The entries consist of extracts from the society's Proceedings for the year in question, along with editorial commentary on the extracts and links to relevant documents. Our thanks are due to the society's honorary archivist, Margaret Anderson, for researching the archive, selecting the extracts and preparing them for posting on the website: [www.geologyglasgow.org.uk/archive/](http://www.geologyglasgow.org.uk/archive/).

## Excursion Itineraries on the Website

A new page has been created on the website with links to all the excursion itineraries published by the society that are available on the website. This had been done to provide a complete list of the itineraries in one place; anyone wanting to consult or download one of them can do so by clicking on the relevant link.

They cover excursions in various locations in the extended Glasgow area, from Aberfoyle to Knapdale, and include the three new itineraries for the Isle of Arran prepared by Jim MacDonald in 2015.

One item of special interest is the booklet *Glasgow Rocks*, describing a tour around the building stones of Glasgow, which was published in 2014 but is only now available on the website: [www.geologyglasgow.org.uk/geoconservation/rigs/glasgow-rocks/](http://www.geologyglasgow.org.uk/geoconservation/rigs/glasgow-rocks/).





## Notices

### Scottish Journal of Geology

This is a reminder that Geology Society of Glasgow members who are eligible to receive the paper version of the Scottish Journal of Geology now have free online access to the full content of the journal, including back issues, via the Lyell Collection. Full details about access can be found in the last Newsletter (available from the GSG website). Instructions for accessing the Lyell Collection are given directly on the website at: [www.geologyglasgow.org.uk/membership/lyell-collection/](http://www.geologyglasgow.org.uk/membership/lyell-collection/) If you have any problems with access to the Lyell Collection, please contact the Hon. Secretary, Simon Cuthbert [sec@gsocg.org](mailto:sec@gsocg.org)

### Subscriptions

Annual subscriptions for Session 159 are due from 1 October, 2016 at the following rates:-

<b>Ordinary Membership</b>	£25	Includes Scottish Journal of Geology
<b>Associate Membership</b>	£12.50	Eligible to those over 60, or spouses of Ordinary Members, or members of the Edinburgh Geological Society.
<b>Junior Membership</b>	£6.25	Eligible to those under 25, full time undergraduates, or recent (4 years) graduates. Scottish Journal of Geology is available on payment of a £6.25 supplement.

### Method of Payment

Cheques, made payable to **Geological Society of Glasgow**, should be sent to the Membership Secretary unless a Bankers Standing Order has been signed. Please indicate the Member for whom payment is being made if not apparent from the cheque e.g. a cheque from 'Anyone' paying for a member 'Someone else'. Let the Membership Secretary know at the e-mail address below if you wish to pay your membership subscription by use of a bank transfer.

### Members who currently pay by cheque

Please note that the membership card enclosed with the printed version of the newsletter indicates our expectation that you intend to renew your membership subscription for Session 159.

If you currently pay by cheque then please remember to send in your subscription to the Membership Secretary for Session 159.

Membership Secretary: Dr. R. A. Painter: email: [gsgmemsec@ntlworld.com](mailto:gsgmemsec@ntlworld.com)

### Bankers Standing Order

If you would like to make future payments by Bankers Standing Order (this is the preferred method of payment from the Society's point of view), please advise the Membership Secretary when you send in your cheque for this Session. We will send you a Bankers Standing Order form so you can arrange to make future payments via your

bank. Alternatively you can download a Bankers Standing Order form from the GSG website and forward the completed form to the Membership Secretary.

Members can download the form from the website: [www.geologyglasgow.org.uk/docs/017\\_070\\_standingordergsgmodwebsite2014\\_1388422612.pdf](http://www.geologyglasgow.org.uk/docs/017_070_standingordergsgmodwebsite2014_1388422612.pdf)

### **Members who currently pay by standing order**

If you have an existing Bankers Standing Order, payment should happen automatically on 1st October. However there are still a few members who have not notified their bank to update their existing Bankers Standing Order when we increased membership fees in Session 157. This means these members are not only in part arrears for the last session's subscriptions (158), they are now likely to be in arrears for the current session (159) as well. If you are one of these members there will be an additional note with the newsletter mailing to draw this to your attention. Please correct your payments as set out in this additional note.

### **Address changes**

The Society maintains the only mailing list of Society members and any changes should be sent by post or e-mail or communicated by telephone to the Membership Secretary.

### **Gift Aid**

Any subscription / donation made to a charity by an individual paying UK tax can be treated as a Gift Aid. This means that the Society can reclaim the tax you have already paid on amounts you pay to the Society as a subscription or donation. Currently we can reclaim 25p on every £1.00 paid, thus increasing the value of your subscriptions to the Society (e.g. we can reclaim £5.00 for a £25.00 subscription). Many members have already signed up to Gift Aid which means that we have approximately an additional £900 p.a. available to support sponsorships that promote and spread interest in geology and geodiversity.

If you are not currently signed up to support GSG through Gift Aid, a form is enclosed with the printed version of this newsletter. If you complete this form and return it to the Membership Secretary this will enable the GSG to reclaim monies from HMRC. You do not need to do anything other than complete the form and return it to us.

### **Membership Card**

The card not only gives information on the lecture programme, but can also be used to provide proof of membership when necessary. To validate it you need to add your name and reference number. This number is printed on the mailing label used for this newsletter. The number will also be repeated on the label for the next newsletter or can be obtained from the Membership Secretary at any time by phone, e-mail or post.

You can use the card to join the University Library. Proof of identity e.g. photo driving licence, passport, travel card, matriculation card (through an Adult Education Class) will also be required, in addition to the presentation of a membership card for Session 159.

## **New Members:**

We extend a warm welcome to the following new members:-

Dr C E Isherwood	Gargunnoch
Mr L Gallagher	Irvine
Prof M P Ahlstrom	California USA
Miss I Berga	Glasgow
Mr J G Hudson	Scarborough
Mr A J McCready	Glasgow
Dr F Meade	Aberdeen

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## **Courses at the Glasgow University Centre for Open Studies**

### **Introducing Geology (Ref 6887)**

Date: Wed Sep 28, 2016 - Wed Nov 30, 2016

Tutor: Simon Cuthbert

### **Introduction to the Composition & Structure of the Earth (Ref 9173)**

Date: Wed Sep 28, 2016 - Wed Mar 22, 2017

Tutor: Simon Cuthbert

### **Gold – From Stardust to Earth’s Enduring Bounty (Ref 2309),**

Date: Sat Feb 11, 2017

Tutor: Simon Cuthbert

### **Scottish Dinosaurs (Ref 2279)**

Date: Sat Dec 3, 2016 - Sat Dec 3, 2016

Tutor: Neil Clark

### **The Geology and Rocks of North America (Ref 1725)**

Date: Thu Sep 29, 2016 - Thu Mar 23, 2017

Tutor: Michael Keen

### **Geology in the Field (Ref 5847)**

Date: Wed Apr 26, 2017 - Wed May 31, 2017

Tutor: Michael Keen

For more information and to book see: [www.gla.ac.uk/study/short/book/#/category/167](http://www.gla.ac.uk/study/short/book/#/category/167)

## Events from other geological societies

### **Edinburgh Geological Society:** [www.edinburghgeolsoc.org](http://www.edinburghgeolsoc.org)

12th October - Prof Patrick Corbett, Heriot Watt University  
Fluvial Channel Reservoirs – 20 years diagnosing their reservoir engineering attributes

26th October - Dr Tim Kearsey, BGS Scotland  
Palaeosols as evidence of terrestrial climate change at major Palaeozoic vertebrate evolutionary events

9th November - Dr Charlotte Vye-Brown, BGS Scotland  
Volcanic Hazards

23rd November - Prof Brian Upton, University of Edinburgh  
Volcanoes and the Making of Scotland

### **Aberdeen Geological Society:** [www.aberdeengeolsoc.org.uk](http://www.aberdeengeolsoc.org.uk)

No information to date

### **Highland Geological Society:** [www.spanglefish.com/highlandgeologicalsociety](http://www.spanglefish.com/highlandgeologicalsociety)

5 October – Diamond-the most elusive gemstone? – Don Duncan, Duncan Geological Consulting Ltd

9 November – A Geologist’s Perspective of the Role of the Highlands and Islands in Hydrocarbon Exploration and Production – Jim Ritchie Speedwell Energy Ltd

7 December – The Real Mineral Resources Of The UK – Prof. Peter Scott

### **Westmorland Geological Society:** [www.westmorlandgeolsoc.co.uk](http://www.westmorlandgeolsoc.co.uk)

No information to date

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### **Articles for the Newsletter:**

We would like to include short topical article(s) in each Newsletter. If you have news of a recent event or discovery, opinions on geological matters, or wish to let people know about aspects of geology in the Glasgow area or the wider world, then please send your article to the Hon Secretary.

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**Dr Simon J Cuthbert, Honorary Secretary,**

**The Geological Society of Glasgow,  
email: [sec@gsocg.org](mailto:sec@gsocg.org)**

**Newsletter Coordinator  
David Webster  
email: [meetings@gsocg.org](mailto:meetings@gsocg.org)**