

# THE GEOLOGICAL SOCIETY OF GLASGOW

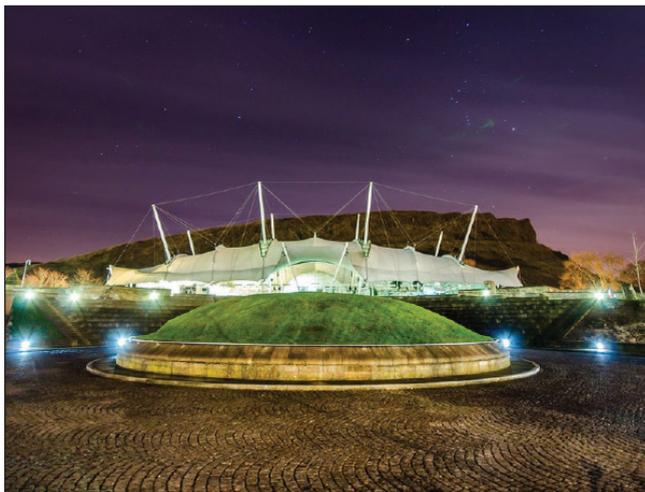
Registered Scottish Charity No. SC007013

**President: Dr Jim Morrison**

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

**September 2017**

**160/1**



Dynamic Earth: the setting for official launch of the Scottish Geoheritage Festival on the 14th October and the launch of the Scottish Geodiversity Charter on 16th November. See inside for more details.

## **In this newsletter:**

- Introduction to new session's lecture series
- Lecture details for October, November and December
- Scottish Geoheritage Festival
- Short Courses in Geology at Glasgow University

## Introduction to the Lecture Programme 2017-18 (Session 160)

Welcome to Session 160! Hopefully we have arranged a set of lectures with different themes and topics that has something for everyone. Things may change but as we go to press this is what I hope will unfold.

First up on the **12th October** is Professor Peter Doyle, a geologist who specialises in battlefield geology and he is going to give us an intriguing insight into the geology of the Western Front.

There's been a murder! **9th November** is 'whodunnit' night when we welcome Professor Lorna Dawson from the James Hutton Institute, Aberdeen 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.

Our speaker for the **14th December** lecture will be Professor Stephen Daly from UCD who will be telling us about the Palaeoproterozoic evolution of the Nuna/Columbia margin - i.e the late stages of the Lewisian, the Rhinns Complex and other Palaeoproterozoic rocks in Ireland and Rockall (This will be preceded by a **brief** AGM).

Into the New Year. On the **11th January** we are hoping to welcome Dr. Roddy Muir from Midland Valley Exploration here in Glasgow to talk about the Ben Nevis North Face Survey. **NOTE: This hasn't been confirmed and may well change.**

We welcome our well-known and learned colleague Dr Roger Anderton on the **8th February** where he will be telling all about the sea-bed geology of the Firth of Lorne. His pet topics of the Dalradian and the Quaternary glaciation will surely get a mention.

Our colleagues from the Edinburgh Geological Society are hosting this year's Joint Celebrity Lecture and awarding their C.T. Clough Medal to Professor Bob Holdsworth, of University of Durham, who will give a talk entitled 'Cracked and full of sand: insights into the development of fractured basement reservoirs west of Shetland' on the **21st February** in Edinburgh.

On the **8th March** we welcome Dr Nick Tosca from Oxford University who will give us a lecture on Precambrian ocean chemistry and new perspectives on the environmental backdrop to early life. Nick's research currently focuses on understanding the co-evolution of life and environment around the time that atmospheric oxygen first appeared in the Archaean and Palaeoproterozoic.

On the **12th April** we present our T. Neville George Medal for services to stratigraphy to Dr Tony Spencer for his work on Precambrian glaciations - in particular for his detailed study of the Port Askaig Tillite on Islay and the Garvellachs - which will be the subject of his lecture to us.

Finally don't forget the usual Members' Night on **10th May**. One of the short talks already lined up will be by students from Glasgow University's Remote Islands Expedition 2017, where they will tell us about their various integrated geological and biological projects.

**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.

Lectures usually last about an hour plus there is some time afterwards for questions and a vote of thanks. Tea and Coffee are then served upstairs where there is a chance to socialise, browse the books and publications for sale and talk to the speaker in a less formal setting.

### **Thursday 12<sup>th</sup> October 2017**

***Professor Peter Doyle, Freelance geological, educational & media consultant, author and editor***

#### **“Disputed Earth: Geology and the Western Front, 1914–1918”**

The Great War. Perceived as a static war, a conflict of parallel trench lines facing one another across a piece of disputed earth known to all as ‘No Man’s Land’. The trench war commenced in earnest late on in 1914, and continued almost unbroken until the spring of 1918. While trenches were nothing new, a centuries-old technique of siege, the descent into trench warfare was unexpected. If the trenches of 1914 were intended to do little more than hold the invader, they soon became an over-riding obsession. Siege conditions developed that were difficult to break by the power of an infantry assault, and new and ever-more ingenious means of breaking the lines were planned and developed – some derived from ancient techniques, others more inventive. With military engineers pitted against artillerymen, trenches and artillery pieces became ever more sophisticated. Science had its roll to play in this siege war – as it had for centuries – and it was true that the most successful military commanders had the most sophisticated understanding of terrain. As the trench lines snaked across Europe they cut through varied terrain. Every aspect of the ground conditions had a material effect on the war, from the health and well being of the men, the ability of the trenches to protect their occupants and stop attacks, and the capability of the trenches to aid in the assault. With the enduring imagery of the war presenting men mired in seemingly bottomless mud, facing hills, ridges and high ground to be taken at all cost, the significance of geology to its outcome was stark.

To assist in this war, military engineers enlisted geologists – who helped drain the trenches, to map out and combat the diversity of unsuitable ground, design and build dug-outs and pill-boxes; supply water and other resources; and to improve the lot of the frontline soldier. Not surprisingly, geology had a significant role in this defensive war; but arguably it had an even greater one in planning the offence, influencing the effects of artillery fire, naturally, but also in providing a means of undermining the enemy, of controlling the flow of poisonous gas, or in permitting the use of tanks.

This talk examines the significance of geology to, and the role of geologists in, the Great War. Using examples from the author’s new book *Disputed Earth* (Uniform Press, 2017) it takes examples of the significance of the science to the outcome of the war in British sector in Flanders and northern France.



*Peter is a geologist and military historian who specialises in the understanding of military terrain, with reference to the two world wars. Based at London South Bank University, he is also an author specialising in the British experience of war, and the material culture of war. A member of the British Commission of Military History, and secretary of the Parliamentary All Party War Heritage Group, he is the author of many works of military history and the material culture of warfare. A*

*regular keynote speaker, he is an occasional visiting lecturer at the US Military Academy, West Point (2007, 2014).*

### **Thursday 9<sup>th</sup> November 2017**

***Professor Lorna Dawson, Head of Forensic Soil Science, The James Hutton Institute, Aberdeen.***

#### **“Soil in criminal investigations: investigation and evaluation in current and cold cases”**

Forensic soil science is an increasingly important discipline involving soils, minerals, dusts, plants and rock fragments to determine provenance i.e. to provide a chronology of their ownership, custody or location. Soil materials have been used as forensic trace evidence for many years, and are often highly distinctive from one region to another. Such traces are extremely useful in a forensic context, because of their environmental specificity; their high levels of transferability; their ability to persist on items such as clothing, footwear, tools and vehicles; and their high levels of preservation after long periods of time. This resilience makes soil trace materials, frequently present at crime scenes and forensic exhibits, highly valuable forms of intelligence and evidence that can aid crime investigations and reconstructions. Significant advances in forensic geoscience over the past decade, in the development of analytical approaches, miniaturisation and also in understanding the behaviour, transfer, persistence and preservation of sediments, soils and plant material have widened their applicability. Evidence samples can be analysed using a wide range of complementary methods that address their physical, chemical and biological components with greater precision, speed and accuracy than ever before. This now permits samples of less than 10 milligrams to be accurately characterised, and permits forensic soil science to also contribute to cold case investigations, both in providing intelligence and evidence in court. Examples will be presented of case work where soil has played a pivotal role.

Sediments/soil on footwear and vehicles can indicate where a crime may have taken place, and may provide evidence of a person being at a particular place of interest. Improved analytical capabilities, coupled with the development and availability of relevant databases, allow forensic geoscientists to help police to search for unknown objects or people, prioritise areas for investigation or search, and provide robust and reliable evidence in court. Forensic geoscience has mainly been used in the past in the context of high-impact crimes such as murder, rape, aggravated burglary and terrorism

investigations, where resources allow it. However, techniques are becoming cheaper and faster, and have the potential to become regularly used. With developments in analytical technology, and an increasing understanding of how soils and sediments are distributed within natural and anthropogenic environments, forensic soil science has more power to answer questions such as: “Where did the soil material come from?”, or “Where has this item been?”. Understanding the context of a specific case is crucial to help answer such questions. In addition, being able to explain the significance of the evidence that has been analysed, and demonstrating logically and transparently how a conclusion has been reached, remains important for forensic soil science specifically and trace evidence generally.



*Lorna graduated in Geography from the University of Edinburgh and obtained a PhD from the University of Aberdeen in Soil Science in 1984. This was followed by a post at the Macaulay Institute for Soil Research where she specialised in soil-plant microbial interactions. She is a visiting professor at Robert Gordon University, a Chartered Scientist and a Fellow of the Institute of Professional Soil Scientists. She is a Fellow of the Royal Society of Arts.*

*She is a member of the European Network of Forensic Institutes, Working Group on Animals, Plants and Soil Traces (ENFS-WGAPST) and an advisor for European Union Chemical, Biological, Radio Nuclear, Generic Integrated Forensic Toolbox (CBRN GIFT). She has diplomas in civil and criminal law and is a fully trained court expert witness, regularly attending courts as an expert witness. She is a registered Expert with the UK National Crime Agency.*

*She currently sits on the British Association of Science General Committee and was recently engaged on a sabbatical working for the BBC, advising on programmes such as ‘Countryfile’, ‘Vera’ and ‘Silent Witness’ She has contributed to several books by leading UK authors such as Lin Anderson, Ann Cleeves, Val McDermid, Mark Billingham, & Stuart MacBride*

*Background Reading: Dawson, L.A., Mayes, R.W., 2015. Criminal and Environmental Soil Forensics. In: Murphy, B.L., Morrison, R.D. (Eds.), Introduction to Environmental Forensics, pp. 457–486.*

## **Thursday 14<sup>th</sup> December 2017**

***Professor Stephen Daly, University College, Dublin***

### **“Palaeoproterozoic terrane accretion on the Celtic fringe of the Nuna (Columbia) supercontinent”**

The Lewisian Complex, generally regarded as a distal outpost of the North Atlantic Craton, is made up predominantly of Neoproterozoic terranes welded by Palaeoproterozoic mobile zones, potentially providing piercing points for reconstructions of the Nuna

(Columbia) supercontinent. This talk will discuss new results from onshore and offshore outcrops in SW Scotland, NW Ireland and Rockall that shed light on terrane accretion on the southern margin of Nuna. These new data highlight the likelihood that the Nuna margin extended farther south than previously recognised. Its “southern” boundary may be marked by Palaeoproterozoic orthogneisses on Rockall Bank and the Annagh Gneiss Complex in western Ireland. On a broader scale, continental magmatism on the Celtic fringe of Nuna may correlate with the Transcandinavian Igneous Belt.



*Stephen joined University College Dublin in 1981 and has been a Senior Lecturer since 1998 and Associate Professor of Petrology since 2006. He was Head of School from September 2011 to September 2015 and was appointed Head of Subject (Geology) in November 2015. He is Director of the National Centre for Isotope Geochemistry at UCD and served as an Advisory Editor of the Journal of the Geological Society, London until December 2016. He leads the UCD Geochronology, Petrology and Isotope Geochemistry research group. His research interests include the origin and tectonic history of the lower crust, geochemical aspects of*

*geothermal energy and the application of isotope geochemical methods to sedimentary provenance, granite petrogenesis, ore genesis and mantle evolution. Geology aside he likes food, theatre, supporting Leinster and Irish rugby and staying out of the rain.*

---

## News and Topical Articles

### **Scottish Geoheritage Festival: October 2017**

The first ever national Geoheritage Festival will run nationwide from 1st to 31st October 2017, with a wide range of family events, guided walks and talks across Scotland. Tying in with the Scottish Geodiversity Forum’s latest project, highlighting the 51 Best Places to see Scotland’s Geology, the festival will take in many of our most famous and unique geological sites as well as hidden gems that you never knew existed.

Find out all about our country’s extraordinary geological journey, and its diverse rocks and landscapes, in the Geoheritage Festival. Full details on the scottish geology website; and keep your eyes open for a whole new section coming soon – the 51 Best Places to see Scotland’s Geology. The Launch Day of the 51 Best Places project is on Saturday 14 October at Dynamic Earth in Edinburgh.

Local events include (no booking needed, just turn up!

- Guided Tours of the Fossil Grove and Quarry: Sunday 8th October 12-3
- Rouken Glen: Saturday 7th October 10:30

There are a number of Edinburgh-based events and even a tour of Snowball Earth on Islay over the weekend of 21-22 October.

For more information go online to: [www.scottishgeology.com/geoheritage-festival](http://www.scottishgeology.com/geoheritage-festival)

# DOORS OPEN DAYS

*Get into buildings!*

## Doors Open Day

As well as all the wonderful buildings open during the week of the Doors Open Day initiative there are some geological events you might be interested in going to:

**13th September 10-12. Building Stones of Central Glasgow.** A look at the stone used to clad the buildings and see which ones are of local stone and which come from further afield, and in doing so learn something of their geology. This is a short walk round the centre of Glasgow looking at which rocks were used to clad the buildings, much of which comes from quarries in and around Glasgow. Other cladding comes from further afield, some of it quite exotic. Meet at the Scott Monument in George Square.



**16th September 10-4 Fossil Grove, Victoria Park** Guided tours, childrens activities such as volcano making, fossil rubbing, mask making, plaster cast making of fossils, a geological quiz and general colouring in. This will be suitable for all age groups. The new excursion guide, produced by Iain Allison and David Webster will be 'launched' at this event. Come along and get a copy.

## Arran Geological Festival

**Sept 15-17 2017**

Come and experience Arran's fantastic geology! The Arran Geology Festival will take place on September 15, 16 and 17 and will be aimed at all ages and knowledge levels. It will include fun hikes, more serious walks, various family events, and evening talks.

Most events require booking and full details are available on [www.scottishgeology.com/event/arran-geology-festival/](http://www.scottishgeology.com/event/arran-geology-festival/)

**Arran Geofest 2017!**  
Friday 15th — Sunday 17th Sep

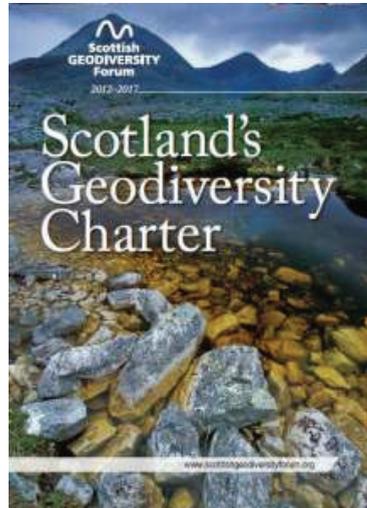
Celebrate Arran's spectacular geology with us at this year's Geofest!

The Arran Geopark project has been created to promote and conserve Arran's unique geological heritage. We hope you can all join us in helping Arran become Scotland's fourth Geopark and gain United Nations Global Geopark status.

All events are **free!** Limited spaces available so please book your spot at [www.arrangeopark.co.uk](http://www.arrangeopark.co.uk)

## Launch of new Scottish Geodiversity Charter: 16 November

Scotland's Geodiversity Charter was launched in June 2012 and attracted the support of 61 signatory organisations. Various initiatives have helped to take forward the vision of the Charter: that Scotland's geodiversity is recognised as an integral and vital part of our environment, economy, heritage and future sustainable development, to be managed appropriately and safeguarded for this and future generations. The Scottish Geodiversity Forum has worked with partners to revise and update the Charter during 2017, ready for the launch of the renewed Charter at a conference on 16th November at Dynamic Earth in Edinburgh.



Scotland has world-class geodiversity that provides the foundation of our remarkable geoheritage and essential benefits for people and nature. It has a profound influence on landscape, the economy, historical and cultural heritage, habitats and species, education, health and well-being. The Charter encourages the promotion and management of Scotland's geodiversity and better integration of geodiversity into policy and guidance, consistent with the economic, social, cultural and environmental needs of Scotland. This will help to protect a crucial aspect of our natural heritage and deliver more sustainable management of Scotland's natural resources.

The Charter has encouraged varied and innovative public engagement projects organised by small voluntary organisations working in partnership: voyages in homage to Hugh Miller, a writing competition, workshops, conferences and festivals. Two of Scotland's community-led Geoparks have gained UNESCO Global Geopark status and are actively contributing to their local economies. Engagement with and support for Scotland's Local Authorities has encouraged better awareness of local geodiversity, with several Local Authorities developing geodiversity audits and Geodiversity Action Plans (often included in Local Biodiversity Action Plans). Over 100 Local Geodiversity Sites are now designated in central Scotland.

The Scottish Geodiversity Forum and other partners have worked the tourism industry has showcased the value of Scotland's geodiversity in promoting Scotland internationally. The Charter was established and is being taken forward by the Scottish Geodiversity Forum, with support from the Scottish Government, Scottish Natural Heritage, the British Geological Survey, GeoConservationUK and other partner organisations. These organisations will continue to promote the Charter through conferences and the sharing of best practice and support further developments by signatory organisations..

To book a place and for more information see: <https://scottishgeodiversityforum.org/charter/conference/>

## 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, Walter Semple [sec@gsocg.org](mailto:sec@gsocg.org)

Note that the Scottish Journal of Geology is only sent to Ordinary Members and to those Junior Members who pay an annual supplement of £6.25.

### Subscriptions

Annual subscriptions for Session 160 are due from 1 October, 2017 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 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 this newsletter indicates our expectation that you intend to renew your membership subscription for Session 160. If you currently pay by cheque then please remember to send in your subscription to the Membership Secretary for Session 160.

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 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 (157 and 158), they are now likely to be in arrears for the current Session (159) as well. Please correct your payments if you are still in part arrears.

### **Address changes**

The Society maintains the only mailing list of Society members\* and any changes should be communicated to the Membership Secretary.

\* Labels for all mailings, including the Scottish Journal of Geology are produced by the Society from the membership record.

### **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 £6.25 for a £25.00 subscription).

Many members have already signed up to Gift Aid which means that we have approximately an additional £900 pa available to support sponsorships that promote and spread interest in geology and geodiversity. Please contact the Membership Secretary if you wish to sign up for Gift Aid or if you are uncertain if you have already done so.

### **Membership Card**

The enclosed 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.

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 160.

**Membership Secretary:** e-mail: [memsec@gsocg.org](mailto:memsec@gsocg.org)

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

Mr A Christison    Glasgow  
Mrs V Christison   Glasgow  
Ms L Martin        Dundee  
Mr P MacInnes    Glasgow

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

### **Evolution Of The Earth, Life and Environments**

This is one of a pair of linked courses in Earth Science and is a modified version of the existing full-time undergraduate Earth Science module. This course covers geological surface processes, climate, economic and environmental geology, fossils, geological maps, and the geological history of Britain during the past 3,500 million years.

Dates: Sept 27, 2017 - Mar 14, 2018

Tutor: Mike Keen

### **Geology in the Field**

Field studies and examining rocks in the field are the basis of all geology. We will examine the geology and geomorphology of a series of areas within easy reach of Glasgow. There will be five full-day excursions by private car. Walking will generally be easy and no prior knowledge of geology needed.

Date: Apr 25 - May 30, 2018

Tutor: Michael Keen

### **Introducing Geology**

Geology is the study of our planet, Earth. Earthquakes, volcanoes, climate, rivers, glaciers and life have all shaped the Earth during its 4.5 billion year history. Scotland has some of the most diverse and accessible geology in the world, and you will see many examples in our classes.

Date: Sep 27 - Nov 29, 2017

Tutor: Simon Cuthbert

### **Ophiolites**

Fragments of oceanic lithosphere found within the continents, termed ophiolites, have revealed much about the formation and destruction of oceanic lithosphere and have provided key evidence for plate tectonic theory.

Date: Sat Nov 18 and 25th, 2017

Tutor: Samuel Rice

### **Our Fragile Earth**

This course offers a geological perspective on catastrophic events such as volcanic eruptions, earthquakes, megafloods, asteroid impacts, mass extinctions, ice ages and climate change. We will study particular events in the geological record and examine associated rocks and fossils in selected case studies. The Earth has been fairly stable for 4,500 million years, so how fragile is it? Debate!

Date: Sep 28, 2017 - Mar 15, 2018

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)

A varied programme of illustrated geology lectures runs from October to Easter, usually on Wednesday evenings at 7.30 pm. See website for updates

First lecture will be on 11th October

A public lecture on “Recent Scottish Fossil Finds” is being held on 1 November. See website for more details. There will be dinosaurs!

The **Joint Celebrity Lecture** is this year being hosted by the Edinburgh Geological Society and is to be held on Wednesday 21st February 2018. Professor Bob Holdsworth, from the University of Durham will deliver the Clough Memorial Lecture entitled “Cracked and full of sand: insights into the development of fractured basement reservoirs west of Shetland”

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

No information to date, see website for updates

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

No information to date: see website

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

No information to date

---

### 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.

---

*The Newsletter of the Society is published four times each session. The September issue contains an overview of the session’s lectures with details of the autumn lectures. The November edition includes the AGM papers, officers’ reports and details of the spring lecture programme. In February we usually publish the excursion programme and a final edition in April contains any updates on the excursion programme and information about Members Night.*

---

**Hon. Secretary:** Walter Semple

email: [sec@gsocg.org](mailto:sec@gsocg.org)

**Newsletter Coordinator:** David Webster

email: [meetings@gsocg.org](mailto:meetings@gsocg.org)