

AGM 12<sup>th</sup> December! Papers inside pages 9-33

———— THE —————  
GEOLOGICAL SOCIETY  
— OF —  
GLASGOW

Registered Scottish Charity No. SC007013

**President: Dr Brian Bell BSc (Hons) PhD**

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

**November 2013**

**156/2**



*Hydreionocrinus* sp. calyx base (photo – Gary Hoare)

For more on this and other crinoid fossils see the topical article by Gary Hoare on Page 4.

## Lecture meetings:

### December Meeting and AGM

The third lecture meeting of the session, which will include the **Annual General Meeting** will take place on **Thursday 13<sup>th</sup> December** at 7.30 pm in the *Gregory Building, University of Glasgow, Lilybank Gardens*.

The meeting will commence with an important event – the **signing of the Scottish Geodiversity Charter** on behalf of the University of Glasgow by the University Principal and Vice Chancellor, **Professor Anton Muscatelli**, who will be hosted and accompanied by **Dr Angus Miller**, Chair of the Scottish Geodiversity Forum, and **Miss Margaret Donnelly**, Vice President of the Geological Society of Glasgow.

Following the brief business of the Annual General Meeting, our speaker for the evening will be:

**Dr Jim Hansom**  
University of Glasgow

who will speak on

### **What has Geodiversity Ever Done for Us? Answers from a Coast Near You!**

*Geodiversity* is a relatively new term that has not captured the recognition that *Biodiversity* currently enjoys. Ask in the street about geodiversity and you are likely to get a blank response at best, and an “aye right” at worst. The myriad ways in which a healthy biodiversity supports us is well understood, yet without geodiversity there would be no biodiversity, since all life depends on the variety of surface environments provided by rocks, landforms and the processes that form them. With an enhanced rate of climate change now upon us and surface processes and ecosystems increasingly in a state of flux, we need to publicise the value of geodiversity to science and society. Using examples from the coastal zone, this presentation aims to show how an understanding of coastal geodiversity can help society better adapt to changes that are under way and may increase in the future.

Papers for the **AGM** are appended to this Newsletter. We look forward to a healthy attendance at this meeting, which is an important event in the Society's calendar

## January Meeting

In the second meeting of the session we will be hosting the **Joint Celebrity Lecture with Edinburgh Geological Society**, which will take place on **Thursday 9<sup>th</sup> January** at 7.30 pm in the Gregory Building, University of Glasgow, Lilybank Gardens. The speaker will be:

**Professor Chris Hawkesworth**  
University of St Andrews

who will speak on

### **The Evolution of the Continental Crust – the Isotope Legacy**

The discovery of radioactivity changed our understanding of the thermal evolution of the Earth, and provided ways to determine the age of the Earth and time scales of geological change. Isotopes were first described by Soddy in 1913, and much later the high precision measurement of radiogenic isotope ratios markedly changed the study of the continental crust. The discussions shifted from the movement of continents, and how they once fitted together, to models for when and how the continents formed, and the evolution of the Earth's crust and mantle. The continental crust is characterised by peaks in the distribution of U-Pb crystallization ages, and these coincide with the ages of super-continents. Such peaks may reflect periods of high magmatic activity or, as argued here, the preservation potential of magmatic rocks in different tectonic settings. The peaks marked times of increased preservation within the crust, rather than times of anomalously high volumes of magma generation. Even though <5% of present continental crust is older than 3 Ga, there is increasing evidence that ~60-70% of the present volume of the continental crust had been generated by that time.

## February meeting

This will take place on Thursday 13<sup>th</sup> February at 7.30 pm in the Gregory Building, University of Glasgow, Lilybank Gardens. The speaker will be **Dr Peter Treloar** of Kingston University, who will speak on **Minerals – from Mines to Mountains**.

## Topical article:

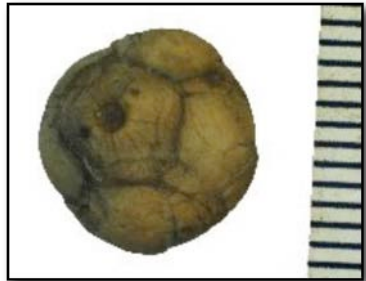
### Ayrshire Crinoids

by Gary Hoare

People often ask me why I choose to look for crinoids when they are “only stems and easily found”. The reason for collecting them is that although stems are easily found the cups (calyx) and arms are not common.

Crinoids are a group of the echinoderm family. The easiest way to describe them is a “stalked starfish”. These animals appeared in the Cambrian period and are still exist in the present day, although they are sometimes different in appearance from their fossil ancestors. Living forms provide valuable evidence on how the fossil species must have lived. An array of branching arms (brachials) is arranged around the top of a globe-like structure called the cup or calyx; this contains the main body of the crinoid. Many had a flexible stem which anchored them to the sea floor. The heyday of crinoids was the Carboniferous period around 358-298 million years ago. Roughly 5000 species of fossil crinoids have been discovered to date.

In my local Ayrshire limestone quarries the rocks from which I collect are mainly of the mid-Carboniferous Dockra (Blackhall) Limestone. Most of my finds are uncovered by the usual approach of searching through scree and splitting open shale blocks with a hammer and chisel, but to collect the smaller and more interesting small remains I have been collecting sediment samples to wash through sieves; this has proved really effective for isolating remains and I have made many new discoveries with this method, including juvenile remains. Crinoid stems are relatively abundant in all the beds but, in a few, complete cups have been preserved.



*Ureocrinus bockschii* calyx (photo by Gary Hoare).



*Rhabdocrinus scotocarbonarius* stem (photo by Gary Hoare).

Very little literature has been written on these animals and I could only find reference to two species that I had collected. However, some other finds did not fit in with these. After a lot of study and questions I discovered that I had nine species in total. A few of them are just broken cups and plates but are distinctive enough to identify the species. The next challenge was to piece together what fragments belonged to which animal (not an easy task when most of them are closely related), but with the help of James

Wright's *Monograph of the British Carboniferous Crinoidea* it has been possible to reconstruct what they looked like in life.

My interest has grown into looking at sites where "just crinoids" are found and trying to properly describe these fascinating creatures. Scottish geology is perfect for this as the limestones and shales from which they come from are easily located. Dr Neil Clark of the Hunterian Museum and Dr Steven Donovan of Naturalis Biodiversity Centre, Leiden, have been a great help with these projects including showing me specimens in the Museum's collection, even though some of them have not been described as yet.

*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, Simon Cuthbert. Articles should be no longer than 300 words. Colour images are welcome but should reproduce well in monochrome; all images must comply with copyright and information from other sources should be acknowledged.*

## **Notices:**

### **Proposed increase in subscription:**

Council of the Society has been discussing the level of subscription fees. The Society has experienced significant increases in costs over the last few years relating to hire of University rooms for meetings, lecturer travel expenses, postage and the running of the website. It is also nearly 10 years since the last increase. Hence Council proposes *a global 20% increase in all subscription rates*. Approval of the membership will be sought at the AGM on 12<sup>th</sup> December.

### **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). If you have any problems with access to the Lyell Collection, please contact the Hon. Secretary, Simon Cuthbert.

### **Subscriptions:**

Thank you to all those members who have renewed their subscriptions for the current Session. A separate reminder note accompanies this newsletter for those who have yet to renew their subscriptions, or is sent to you by e-mail if you receive your newsletter by e-mail. If you require to set up a Banker's Standing Order as your routine method for future payments (which is the Society's preferred arrangement), please notify the Membership Secretary. A form can be sent to you electronically or by post.

**Annual subscriptions** for Session 156 were due from 1 October, 2013 at the following rates:-

- **Ordinary Membership** (Including Scottish Journal of Geology): £20
- **Associate Membership** (available to those over 60, or spouses of Ordinary Members, or members of the Edinburgh Geological Society): £10
- **Junior Membership** (available to those under 25, or full time undergraduates, or recent (4years) graduates): £5

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'. Note that the Scottish Journal of Geology is only sent to Ordinary Members and to those Junior members who pay an annual supplement of £5.

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

**Membership Card:** The membership card that you should have received with the previous newsletter 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, which is printed on the right of the mailing label used for the newsletter. The number will also be repeated on the label for the next newsletter or can be obtained from the Membership Secretary by phone, e-mail or post. When joining the University Library, proof of identity e.g. photo driving license, passport, travel card, matriculation card (through an adult education class) will also be required.

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

Mrs T Kerr	Newmilns
Mrs R Stewart	Kirkcudbright
Mr S Doherty	Glasgow
Mr R H MacBride	Glasgow

**Membership Secretary: Dr. R A Painter**

**To obtain the postal address of the Membership Secretary please e-mail**

**[gsgmemsec@ntlworld.com](mailto:gsgmemsec@ntlworld.com)**

### **Bookshop:**

The Society's bookshop stocks a large selection of geology-related books, maps and pamphlets. It is open to browse and make purchases after the winter lecture meetings. Selected titles are listed in the Society website (<http://www.geologyglasgow.org.uk/bookshop/bookshop/>). Most of the books in this list can also be purchased from [www.Amazon.co.uk](http://www.Amazon.co.uk) through the website's customised Amazon bookshop. If you want to purchase a book that is not on the list, or any other item that Amazon sell, you can help the Society by making your purchase from the Amazon home page using the link from the Bookshop page. The Geological Society of Glasgow is a participant in the Amazon EU Associates Programme, an affiliate advertising programme designed to provide a means for sites to earn advertising fees by advertising and linking to [Amazon.co.uk](http://Amazon.co.uk). Each purchase that takes place through the customised Amazon bookshop or the link to the Amazon home page generates a commission of approximately 5% of the sale price (excluding VAT) for the society. Further information is available from GSG Council Member Bill Gray ([books@gsocg.org](mailto:books@gsocg.org)).

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

<http://www.gla.ac.uk/courses/openstudies/>

- *Lunar Geology: Origin and history of the Earth's moon* – Simon Cuthbert - 09.30-16.00 Saturday 1 February 2014 (one meeting).
- *Volcanoes and the environment* – James MacDonald – 19.30-21.30 Wednesdays from 5 February 2014 (6 meetings).
- *Scottish gold* - John Faithfull and others - 10.00-13.00 Saturday 8 March 2014 (one meeting).
- *Geology in the field* – Chris Burton & James MacDonald - 10.00-13.00 Wednesdays from 23 April 2014. Introductory meeting + 5 full day excursions.
- *Geological study tour to south east France* - Judith Lawson and Mike Keen (spring 2014; dates to be announced, contact COS to be placed on mailing list).

### **Events from other geological societies:**

#### Edinburgh Geological Society

For information about the lecture and excursion programme see

<http://www.edinburghgeolsoc.org>

15 January: Dougal Jerram (Earth Consulting) *In the footsteps of Powell: The Grand Canyon Geology by wooden boat!*

29 January: Professor Zoe Shipton (University of Strathclyde) *UK Shale gas: frack on, frack off or frack well?*

12 February: John Crone (formerly Development Geologist, Scottish Coal Company Ltd) *The geology and history of surface mining in east Ayrshire.*

26 February: Professor Tony Fallick (SUERC) *Clough Medal Lecture: Planet Earth's Mid-Life Cri-*

sis Joint Mining Institute of Scotland lecture hosted by the MIS in the Murchison House Common Room.

12 March: Professor Jane Evans (NIGL) *Tracing visitors to our shores: the application of isotope analysis to archaeological human migration studies.*

26 March: Dr Kathryn Goodenough (BGS) *The global critical metals hunt*

Aberdeen Geological Society

<http://www.aberdeengeolsoc.org.uk/>

28th November: David Cornwell (University of Aberdeen) *Seismological snapshots of the birth of a new ocean in Ethiopia.*

12th December: Christmas Lecture and Party Alan Crane (University of Aberdeen) *Aotearoa - a plate margin journey.*

30<sup>th</sup> January: Chris Jackson (Imperial College) *Impacts of igneous intrusions on hydrocarbon prospectivity in sedimentary basins; concepts and examples.*

6<sup>th</sup> February: Anne Mather (University of Plymouth) *The Atacama; landscape evolution on a Geological timescale* (to be confirmed).

27<sup>th</sup> February: Gary Nichols (Nautilus) *Old Red Sandstone Rivers and Reservoirs: are we using the right models?*

6<sup>th</sup> March: Peter Kokelaar (University of Liverpool) *Caledonian volcanoes and plutons of Scotland: under-appreciated enigmas revisited.*

27<sup>th</sup> March: Brice Rea (University of Aberdeen) *Glacial wanderings on Deeside* (to be confirmed)

Highland Geological Society:

<http://www.spanglefish.com/highlandgeologicalsociety/index.asp>

4 December: Don Stewart (Highland Geological Society) *Enigmatic limekilns and limestones of Speyside.*

15 January: Mr Jim Blair (Lochaber Geopark) *The Glen Coe Volcano; an update on some recent research.*

26 February: *Annual General Meeting*

Westmorland Geological Society:

<http://www.westmorlandgeolsoc.co.uk>

18th December: *Jacob's Join and members' night.*

15th January: Prof. Barbara Maher (University of Lancaster) *Local research on Bassenthwaite.*

19th February Dr. Emrys Phillips. *AGM starting at 7:45pm followed by the Presidential Address.*

19th March: Dr. Peter Kokelaar (University of Liverpool) *(Subject to be advised).*

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**Dr Simon J Cuthbert, Honorary Secretary, The Geological Society of Glasgow,**  
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e-mail: [contact@gsocg.org](mailto:contact@gsocg.org)



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GEOLOGICAL SOCIETY  
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**ANNUAL GENERAL MEETING FOR SESSION 156**

**12<sup>th</sup> December 2013**  
**7.30 pm**

**Gregory Building**  
**University of Glasgow,**  
**Lillybank Gardens**  
**Glasgow G12 8QQ**

## Agenda

1. Welcome
2. Apologies
3. Minutes of the Annual General Meeting of Session 155 held on Thurs 13<sup>th</sup> December 2012
4. Reports
  - a. *President's report*
  - b. *Meetings Secretary's report*
  - c. *Excursions reports – day and evening*
  - d. *Excursions: Residential*
  - e. *Library report*
  - f. *Publications secretary's report*
  - g. *Proceedings editor's report*
  - h. *Scottish Journal of Geology Editors' report*
  - i. *Website Report*
  - j. *Membership Secretary's report*
  - k. *Strathclyde Geoconservation Group*
  - l. *Geodiversity: Argyll and the Islands*
  - m. *Treasurer's report*
5. Nominations and Election of Office Bearers:

The offices that have come up for election are listed overleaf along with their Council nominations.
6. Proposal to increase subscriptions (see page 5 of Newsletter 156-2).
7. AOCB

## Nominations for Council

<b>Officer</b>	<b>Nomination</b>	<b>Proposed</b>	<b>Seconded</b>
Vice President	Mr M Pell	Miss M Donnelly	Miss M Alexander
Treasurer	Dr B Browne	Mr M Pell	Dr C Burton
Archivist/Assist Librarian	M Anderson	Mrs S Leishman	Miss A Drummond
Proceedings Editor	Ms M Cummings	Miss M Donnelly	Dr N Clark
Publications	Ms M Cummings	Miss M Alexander	Dr B Browne
Residential Excursions	Katerina Braun	Mrs S Leishman	Dr S Cuthbert
Day Excursions	<i>No nomination</i>		
Webmaster	Dr W Gray	Miss M Donnelly	Dr N Clark
Web Consultant	Dr N Clark	Dr W Gray	Ms E Fairley
Junior Members' rep	<i>No nomination</i>		
Editors of SJG	Dr C Braithwaite	Dr S Cuthbert	Dr B Bell
	Dr B Bell	Ms E Fairley	Dr D Brown
Ordinary Members	Mr W Semple	Miss M Donnelly	Miss M Alexander
	Dr D Webster	Mrs S Leishman	Dr S Cuthbert
<i>1 vacancy</i>			
<i>1 vacancy</i>			
Independent Examiner	<i>No nomination</i>		

# **Minutes of the Annual General Meeting of The Geological Society of Glasgow for Session 155 held on 13<sup>th</sup> December 2012**

## **WELCOME**

The President, Ms Donnelly, welcomed all present.

## **APOLOGIES**

Apologies were received on behalf of R McNicol, P Younger, C Mills and Mr and Mrs Ferguson.

## **MINUTES**

The minutes of the AGM of Session 154 were approved and passed unanimously.

## **REPORTS**

Dr Braithwaite asked member's to note that the Editor's report in the newsletter was out of date; the correct version was in the emailed copy and there were corrected paper copies available at the end of the meeting. The President listed, for approval, the following reports, which had been circulated with the billet.

- The President's report
- Excursion report for day and evening excursions
- Residential Excursions report
- Editors' report
- Reports from the Geodiversity sub-groups
- Library report
- Meeting Secretary's report
- Membership Secretary's report
- Proceedings Editor's report
- Publications report
- Treasurer's report
- Website report

The President thanked all officers of the Society for their hard work over the past year and for their work in compiling the reports and getting them in on time.

## **NOMINATIONS AND ELECTION OF OFFICE BEARERS**

The list of offices coming up for election with nominees, proposers and seconders

had appeared in the billet. The President drew member's attention to the fact that an Excursion Secretary was urgently needed, she also noted there was now a new post of Website co-ordinator. Emily Unsworth's name was put forward as an additional Ordinary Member – Proposed by M Cummings, seconded by M Alexander. Beth Diamond was proposed as auditor by M Donnelly and seconded by B Browne.

The President thanked all office bearers who had agreed to stand for a further three years. She also thanked Dr Alan Owen as retiring Vice-President for his contribution to the Society and for his help and support to herself. Thanks went to Emily Unsworth retiring from the post of Day Excursion Secretary who organised the session's trips at short notice. The President then handed over to Dr Brian Bell as the incoming President; after introducing himself the new President introduced Ms Donnelly's Presidential talk on 'Geological Journeys'. This was very well received and at the end Alan Owen gave the vote of thanks and thanked Margaret both for her role as President and for the evening's talk.

## Reports for Council Officers Session 155 2012-2013

### President's Report November 2013

This session, the Society has a membership of 376. Eight evening meetings took place, normally on the second Thursday of each month from October 2012 through to May 2013. Speakers were: Dr Steve Jones (Birmingham University); Dr Jim Morrison (Geological Society of Glasgow); Dr Jon Mound (Leeds University); David McInroy (BGS Edinburgh); Dr David Chew (Trinity College, Dublin). Miss Margaret Donnelly gave her Presidential address in December 2012 and the T. Neville George Medal lecture was given by Professor Jenny Clack of Cambridge University on *Populating Romer's Gap: rebuilding terrestrial ecosystems after the end-Devonian mass extinction*.

Our day excursions ran from April through to September 2013, and included the following day trips: April - Arrochar Alps (David Jarman); May - Barns Ness & Charlestown Lime Museum (Alistair McGowan); July - Carstairs Kames & the Falls of Clyde (John Gordon); July - Keltie Water & Bracklinn Falls (a Joint excursion with the Geological Society of Edinburgh) (Chris Burton); August - Cononish gold mine (near Tyndrum) followed by Glen Orchy (Chris Sangster); September - Glen Esk near Brechin.

Two residential field trips took place: The Scandinavian Caledonides in southwestern Norway, Leader: Simon Cuthbert (Saturday 22<sup>nd</sup> - Monday 24<sup>th</sup> June, 2013); and, Ben Lawers Synform and Ben Lui Fold, Leaders: John Mendum (BGS) and Graham Leslie (BGS) (Saturday 5<sup>th</sup> - Monday 7<sup>th</sup> October).

The Strathclyde Geoconservation Group (SGG), a subcommittee of the Society's Council, has continued to promote geology in the wider community, investigating a number of new sites as well as continuing work on others. Two other subcommittees, *Geodiversity: Argyll and the Islands* and *Geodiversity Dumfries and Galloway*, are also making progress and have investigated a selection of new sites. A 'hands on' geology event in conjunction with the Highland Games in Rouken Glen Park was held on Saturday 20<sup>th</sup> April.

Members of the Council attended Steering Group meetings for the refurbishing of the Fossil Grove building in Victoria Park. Progress has been disappointing due to

a lack of funds, although the Trustees have appointed Glasgow Buildings Preservation Trust to prepare a Heritage Lottery Fund bid and it is hoped that this will be ready in June 2014. Funding was provided by Glasgow City Council for urgently required repairs to the roof and other parts of the building in Spring 2013. Visitor numbers were good for the Summer 2013 season and a leaflet describing and promoting the Grove was published.

Our Society is a member of the Scottish Geodiversity Forum, which includes Geoparks, Museums, SNH, BGS, Geoconservation Groups, other Geological Societies and interested groups/individuals. The aim of the Forum is to promote Scotland's Geodiversity and its value in education, community involvement and health, tourism and the wider economy.

One new guide, on the geology of the Island of Gigha has been published, and one on the geology of Southern Kintyre is in progress. A leaflet on the *Building Stones of the University of Glasgow* has been published with the help of funding from the University's Chancellor's Fund and will be distributed free of charge. A Guide to the geology of Tenerife is being prepared for posting on the Society's website and a revised Guide to the geology of Arran is planned.

The Society's website has been further developed, to advertise our activities and to provide a platform for the promotion of geology.

*Brian Bell*

### **Meetings Secretary's Report**

The session opened with Steve Jones of Birmingham University giving the latest installment of our occasional "North Atlantic Opening" series with an excellent presentation on the Scotland-Greenland Ridge, the Iceland plume and their effects on glaciation and ocean currents.

Unfortunately, Tom Bradwell was unable to give his talk in November because of jury duty. To keep the lieges amused, your Meetings Secretary filled in some background on "North Atlantic Opening". This turned out to be a successful evening because of the enthusiasm with which the members participated with many questions and comments.

Hon President Maggie Donnelly had come to the end of her term and entertained and educated us with a talk on “Geological Journeys”, splendidly illustrated from her extensive and intensive participation in so many of the Society’s excursions. And so farewell to 2012 and hello to 2013 and Jon Mound from Leeds University with a fascinating talk about the earth’s “Complex and Dynamic Inner Core”. We were joined by members of the Astronomical Society for this talk.

In February 2013, David McInroy from BGS Edinburgh told us about the Rockall microcontinent and its progress from being part of Laurentia that was extended in pre-Palaeogene times prior to North Atlantic opening. As in the March of previous session, fossil fans were again delighted, this time by the very impressive Jenny Clack, from Cambridge University, who had been featured in the TV series ‘Beautiful Minds’. Professor Clack was awarded the Society’s T Neville George Medal, after which she gave us a very entertaining and informative talk on Romer’s Gap and the origin of tetrapods.

After last year’s December gale fiasco, Dave Chew returned from Dublin and told us about the use of new isotope techniques which have allowed very precise dating of Palaeozoic rocks. Members’ Night closed the season with the usual interesting and varied program of talks and demonstrations.

*J.M.Morrison*

### **Day and Evening Excursion Officer’s Report**

- 27/4/13 Arrochar Alps, David Jarman. 18 participants
- 11/5/13 Barnsness & Charlestown Museum, Dr Al McGowan, Univ. of Glasgow. 17 participants
- 6/7/13 Carstairs Kames & Falls of Clyde, Dr John Gordon. 25 participants
- 20/7/13 Keltie Water & Bracklinn Falls (Joint with Edinburgh Geological Society), Drs Chris Burton & Jim MacDonald. 18 participants from Glasgow, 22 participants from Edinburgh
- 24/8/13 Cononish Gold Mine & Glen Orchy, Chris Sangster, Maggie Donnelly. 16 participants
- 7/9/13 Glen Esk near Brechin, Dr Ben Harte. 20 participants

These were all very successful, probably due to early organisation, and advertising in the third (February) Newsletter. All excursions were well attended,



and trips 3, Carstairs Kames, & 5, Cononish & Glen Orchy, were full with waiting lists. Fortunately, the weather was extremely kind to us, and **too** kind for trip 4 as temperatures topped 30°C!! This was the Joint Excursion with the Edinburgh Society to Keltie Water and several professional geologists came along to revisit the different interpretations of this area. The meal in Callander was enjoyed by all. Excursion 5 to the Cononish Gold Mine was particularly popular but the maximum allowed into the mine was 16, in two groups of eight. We hope to run it again next year, to accommodate those on the waiting list, providing the mine is still open and accessible. It was a beautiful day for our first trip to Arrochar Alps, so that we were able to enjoy the magnificent scenery and topography, whilst the trip to Barnsness was a 'fossil lover's' delight and a rare chance to visit the Scottish Lime Centre. Excursion 6 was a splendid opportunity to investigate the Barrow zones north of Brechin. We used Essbee Coaches for all Excursions except 5, when we required 'off road' vehicles, and so travelled to Tyndrum in private cars and then used two range rovers, one belonging to Scotgold and one to an obliging friend, to take us up to the mine. (Volunteer minibus drivers are not forthcoming).

*Maggie Donnelly*

### **Residential Excursion Secretary's Report**

**Sat 22<sup>nd</sup> June – Mon 24<sup>th</sup> June: Western Norway.** Over the weekend of the summer equinox, 12 members of the society ventured abroad for an international excursion to Norway via planes, trains, speed boats, ferries and automobiles to indulge in all kinds of exotic Norwegian rocks. The adventure was led by Dr Simon Cuthbert of the University of the West of Scotland. The trip started for most of us with a four-hour speed-boat trip along the coastline from Bergen to our weekend base in the north in the town of Maløy. This gave excellent opportunity to whet our geological appetites with some rock spotting. The trip started on the Saturday with a brief lecture from our Leader introducing us to the regional geology before hitting the road for a three day adventure exploring evidence of a subducting continental margin in a Himalaya-type continental collision, Caledonide mountain roots, the world's biggest ductile shear zone, Caledonian allochthons, supra-ophiolitic melanges, intramontane basins and a spectacular fragment of the Laurentian sub-continental lower lithosphere. The trip included a trip to a working quarry to sample mantle lithologies where we felt the earth move and a midsummer's night

(*Sankthansaften*) excursion to the most north-westerly point of Norway where we admired the midnight sun over the sea along with a wee dram. Thanks to all those who attended this year's international weekend excursion, especially those who volunteered to write the Proceedings and the drivers. In particular, I would like to say a special thanks to our excursion leader, Dr Simon Cuthbert. I only wish the hotel food had been better...!

*Katerina Braun*

**Sat 5<sup>th</sup> October – Mon 7<sup>th</sup> October: Killin area.** Our second Residential Excursion was Joint with the Open University Geological Society and took 21 of us to the Killin area to investigate the Ben Lawers Synform and Ben Lui Fold. We were fortunate in that the weather stayed mainly fair for the whole weekend. Our leaders were Doctors Graham Leslie and John Mendum of BGS, and they *really* knew their geology!! Most of the company stayed in B&B accommodation in Killin and we had evening meals in the Killin Hotel. The excursion began in Glen Ogle where we were introduced to the local stratigraphy, and continued in the 'Lawers Road' over to Bridge of Balgie, and beside Lochan nan Lairige where the geology became more complex. On the second day we ventured north to Glen Lyon to continue our investigation of folded rocks, and to find the boundary between the Middle Argyll and Grampian Groups, previously described as the Iltay Boundary Slide, but now tentatively interpreted as a primary stratigraphic unconformity. The depleted numbers on the third day examined the Falls of Dochart, and some marvelous glacial features in Glen Dochart, before heading to Loch Katrine for a *brilliant* lesson on cleavage/bedding relationships. Our leaders were excellent, explaining the intricacies of the local rocks with great patience and fortitude.....and they were very good company too, so that altogether we had a *lot* of fun.

*Maggie Donnelly*

### **Librarian's Report 2012 - 2013**

The Society's Library has continued to provide a first-class geological resource, one of the best in western Scotland, even in these days of internet access to vast amounts of data. Words on paper are still important, especially for those many publications that have not yet fallen within the reach of Google (or for which you have to pay for access!) and which the reader might want to consult at length. So our library is a continuing and valuable doorway into a very wide range of

geological information at all levels - there's nearly always something for inquiring members, and if there isn't the Librarian can usually dig it up given some notice. So, don't neglect your library - use it!

*Acquisitions:*

There has been a healthy crop of acquisitions, both books and maps, during the session. A donation of books by Colin Braithwaite and via him the late Fred Hubbard has given us a list of classical titles in geology, including notably both volumes of Heddle's Mineralogy of Scotland, one volume of which replaces our copy which "went missing" some years ago. Other highlights include a copy of Dana's System of Mineralogy (1854). In all eleven titles have been donated.

The British Geological Survey continues to provide the Society with the latest geological maps and our collection grew rapidly during the session with maps from across Britain:

Scotland:

1:50 000 Sheet 51E/52W North Mull and Ardnamurchan Bedrock and Superficial.

1:50 000 Scotland Sheet 73W Invermoriston Superficial Deposits.

1:50 000 Sheet 74E Aviemore Superficial Deposits.

1:50 000 Scotland Sheet 84E Nairn Bedrock.

1:50 000 Sheet 101E Ullapool Superficial Deposits.

England/Wales:

1:50 000 Sheet 84 Wigan Bedrock.

1:50 000 Sheet 84 Wigan Bedrock and Superficial Deposits.

1:50 000 England and Wales Sheet 112 Chesterfield Bedrock and Superficial.

1:50 000 England and Wales Sheet 167 Dudley Bedrock and Superficial.

We now have coverage of much of Britain and, together with the maps belonging to Earth Sciences, which members can also borrow, we can provide maps for almost anywhere members might travel. All the Society's maps can be borrowed and, importantly, can be used in the field. Unfortunately the maps are not on open access, but a request to the Librarian or the Assistant Librarian will produce what you want.

*Personnel:*

Our Assistant Librarian Seonaid Leishman is standing down this session and I

would like to record my appreciation of the quite excellent job she has done over her time in office. Seonaid has been instrumental in so many aspects of the Library, not least in negotiating some of the larger donations (and transporting them to the Library!) and in applying her considerable organisational talents to the smooth running of the operation. Stepping into her place we welcome Margaret Anderson and, for a transitional period she, Seonaid and I will all be present on meeting nights. So come up and see us!

*C. J. Burton*

### **Publications Sales Report 2012-2013**

Initially the sale of publications was disappointing but improved quickly later in the year and some sales, particularly of the North West Highland Guide, were made to non-members at field trips. Several personal requests were received from members for books and maps and 5 new titles were added to the stock. Our link with the Edinburgh Society and National Museums Scotland in the publication and sale of the Moine Guide is continuing to be successful.

The highlight of the bookshop year was the publication by the Society of a new Field Guide written by Dr J. G. MacDonald which explains the Geology of the island of Gigha and its smaller neighbour Cara. This adds to our other production, A Field Guide to the Geology of Madeira, also written by Dr MacDonald along with Dr C. Burton. The inclusion of our booklist on the internet has resulted in 18 e-mail requests for the Madeira guide from both mainland Europe and within the U.K. and 2 requests for the newly published Gigha and Cara field guide from Scottish sources.

During the year we received a gift of books belonging to a former well-known member, Rosemary McCusker, which we offered to members for a small contribution and we thank her family for the donation. Unwanted books, maps etc. are always welcome for resale.

Finally, I wish to say a big thank you to everyone who has helped me so much especially on Society nights, with finances and with the internet and also to those who have supported the bookshop with their purchases throughout the years.

*Muriel Alexander*

### **Proceedings Editor's report for AGM**

Another very enjoyable year was recorded in the proceedings for session 154. Panda Print produced 400 copies at a cost of £298 with their usual complete efficiency. The trip reports are a highlight of the proceedings and many thanks are due to those members who provided such excellent records and lovely photographs for inclusion.

*Mina Cummings*

### **Scottish Journal of Geology**

This has been a difficult year for the Journal. Our structural/metamorphic editor, Ian Alsop, after several years of service, found that he was unable to continue because of pressure of work. He was replaced after a brief hiatus by Maartin Krabbendam. Our Secretary, Alistair McGowan, who has also given good service, has experienced similar difficulty with his work load and has announced his intention to resign in the New Year, in which we will have to find not only a new stratigraphical/palaeontological specialist but also a new secretary.

Members will have noticed a relatively thin issue for part 1 of volume 48. This has reflected a downturn in the number of submissions to the Journal that the Board has attributed to a policy in Universities where staff are currently encouraged to submit their work only to relatively high profile Journals. Over the years we have seen a number of similar periods where the submission rate have been low but this is first time where we have been able to identify a specific influence. The good news is that we have a substantial number of papers in progress for the next issues.

Members will be aware of the efforts made by the Board to better publicise the material that we publish in order to gain wider exposure for our authors, thereby encouraging more submissions. We are happy to acknowledge at this point the work of our publishers, the Geological Society Publishing House (GSPH), in publicising the Journal, both on-line and in widely distributed printed material. Our initial foray into on-line publishing was via the company Ingenta, where we were able to make current issues accessible to members and to some searches. We were then invited to join the Geological Society's Lyell Collection. This is the largest Geological Database in the UK and generated a much wider interest in the journal, indicated by the number of reported 'hits' for articles viewed and

downloaded. Our profile here includes the entire archive of the Journal, from 1965. In the last few months, through the good offices of GSPH, we have also been incorporated into the Geoscience World (GSW) database in California, the largest of its kind in the world. Searches in Google and similar search engines will now find relevant articles in the Journal whether or not the person searching is aware of the SJG. As part of the same agreement we have also been engaged in reproducing the entire archives (from 1860) of the Transactions of both the Edinburgh Geological Society, launched on-line within the last few weeks, and the Geological Society of Glasgow, which is expected to launch early in the New Year. The Journal was first proposed in 1964 as a joint venture between the Edinburgh and Glasgow societies. Next year, 2014, is therefore our 50<sup>th</sup> anniversary.

*Colin Braithwaite*

### **Report on the Geological Society of Glasgow's website**

<http://www.geologyglasgow.org.uk/>

Officers: *Dr Neil DL Clark, Emma Fairley, Bill Gray, Maggie Donnelly*



The website is up and running and has been now for nearly three years. It has not been without its share of difficulties though with crashes, mailing problems, and problems with the formatting. However, despite the problems, which have been mostly ironed out, we have had nearly 7,000 visitors since last November – an increase of nearly 900 visits (November 4<sup>th</sup> 2012 – November 5<sup>th</sup> 2013). This is a substantial increase in traffic to our website which has grown substantially since we converted to the new website in 2011. As in previous years, most of the visitors come from the UK with 5,658 visits – an increase of 20.5% (Scotland 3,122 (2,625 in 2012),

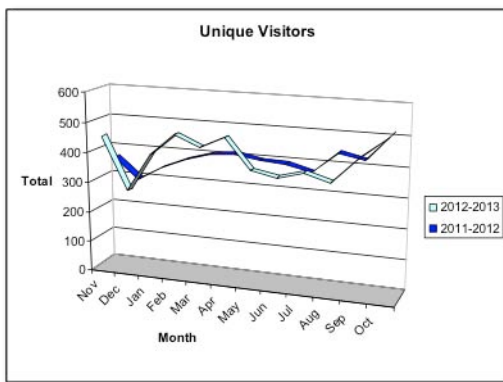
England 2, 284 (1,872), Northern Ireland 205 (136) and Wales 43 (39)). In terms of the cities our visitors came from, the majority came from Glasgow 1,546 (1,406),

Edinburgh 608 (679) and London 894 (552). We also welcome the 1 visitor from Uganda.

The most popular pages on the website other than the homepage are the excursions page (4.4% of pageviews) and the events page (3.8%). The lectures, membership, Strathclyde Geoconservation and bookshop pages all have over 2.2% of pageviews. Referrals are up from the Edinburgh Geological Society (147 this year compared with 115 last year) and scottishgeology.com (138 this year and 89 last year), although slightly down from the Geological Society (London) (48 this year and 61 last year). New this year has been the production of the social media presence by Emma using both Twitter and Facebook. Referrals from Facebook (246) alone this year has been more than these other sources except Google (3,414).

Regular meetings of the website group have helped to resolve a number of issues relating to the running of the website and identified potential new avenues enhancing our internet presence. The Facebook page has been a runaway success with 102 'likes' since February 2013. Please remember to 'like' the Facebook page (<http://www.facebook.com/GeologicalSocietyOfGlasgow/>)!

There was a major crash on the 19<sup>th</sup> September that resulted in problems with the website and email that took four weeks to fully resolve. Further improvements are being planned for the coming year including a geological map of the Glasgow area with possible links to self-guided field trips to selected localities.



The responsibilities for the web services will change after the AGM. Bill Gray will be standing for election as Webmaster and Neil Clark will be standing for election to the office of Web Consultant. The officers of the Society are thanked for continuing to update pages relevant to their duties and letting the web-team

know of any issues they are having with the site, so that members can have information available as soon as is possible. The website will continue to improve and inform, but we rely very much on the members of the Society for content.

### Membership Secretary's Report

	At end Session 155 30 Sep 2013	At end Session 154 30-Sep-2012
Honorary Members	5	5
Ordinary Members	289	27
Associate Members	66	70
Junior Members	16	16
<b>TOTAL Members</b>	<b>376</b>	<b>362</b>
 New Members	 24	 18
	(joining in Session155)	(joining in Session154)
 Memberships Closed	 15	 40

Overall membership numbers in Session 155 has increased slightly (2.5%) from the previous Session. The new members joining rate in Session 155 was a little higher than in Session 154. There was a significantly lower number of memberships closed than in Session 154 (memberships are closed either by resignation, non-payment of fees or death).

*R A Painter*

### Subcommittee Reports:

#### **Strathclyde Geoconservation Group**

**The East Dumbarton** subgroup of SGG is working closely with EDC to provide data for Information Boards at selected sites. This includes communication with Historic Scotland with a view to having geology included in a new information board at Barr Hill. These Boards are almost complete and funding has been arranged with 'Civic Pride'



**West Dumbarton** has provided assessments and descriptions of selected sites for inclusion in the WDC Local Plans. WD has recently produced a map of Nature Conservation sites and has included a new symbol for Geodiversity sites within the area. Margaret Greene replied to this latest consultation and suggested that the next step may include the borders of the geodiversity sites.

**The state of Boyleston Quarry, Barrhead**, has been brought to the group's attention by a new member of the group and will be investigated early in 2013. This site is a SSSI but has been fenced off by the owner.

**The Building Stones of Glasgow City Centre:-** Margaret Greene has almost completed the leaflet . It now only needs profession layout and printing

**Glasgow City Geology Audit:-** A list of localities was sent to Glasgow City Council for inclusion in the BGS audit of the city. BGS have completed this audit and MG has contacted GCC requesting access to it.

**The Booklet 'The Building Stones of Glasgow University** produced by Barbara Balfour and Alison Drummond is now in print and has been very well received. Copies have been made available to members of SGG and council and have been placed in several places around the University.

**Fossil Grove:-** A new leaflet has been produced by Margaret Greene and is now available in printed form at various venues and on the website. MG is attending meetings of the Trustees and the Steering group. A contract has been drawn up with Glasgow Buildings Preservation Trust. They have been asked to put forward a bid to the Heritage Lottery Fund; this should go in in June 2014.

**Rouken Glen:-** Several members of SGG assisted with the very popular Geology stand at the Highland Games event in April. A short report is posted on the website.

**Overtoun Glen and Ballagan Beds:-** A group visit was made to this site and there is concern about the density of planting being undertaken by the Woodland Trust. It is feared that the views of the Beds will be completely obscured once the trees are mature. MG, after consultation with N Everett of SNH, will write to the

Woodland Trust in regard to this potential problem. It is hoped that the WT will agree to the thinning of the planting in this area

**Archive for SGG data:-** SL will be preparing a list of documents etc. reflecting the work of the SGG for archiving. The Action Plan has been separated into Current Projects and Completed Projects documents that may assist her in this endeavor.

**SGG Geodiversity Leaflets:** Rachael Ellen has contacted 'Visit Scotland' and arranged to have our Fossil Grove leaflet included in their website. She is still in communication with VS with respect to having more of our leaflets included on their site.

**Scottish Geodiversity Forum** – MG and SL continue to be on the Forum executive. An up-to-date version of the Charter has been produced. The Forum is involved in an SNH Sharing Good Practice event on 17<sup>th</sup> December 2014.

### **Geodiversity: Argyll & the Islands**

Little more has been heard about the Argyll and Islands Coast and Countryside Trust since the Council became beset with their political problems. We hope more may emerge in more positive times in 2014.

After our previous AGM, members held a field meeting at Barnacarry near Kilninver, visiting the exposures in the bay accessed by a private road to Barnacarry House. The bay is divided by a fault between Dalradian slates to the west and late Silurian/Devonian rocks to the east. Attention was focused on the latter, and studied in some detail, and the site has good potential for a Local Geodiversity Site. The group went on to study the Barnacarry road cutting, formed when the road was rescued from collapse some 10 or so years ago. Unfortunately hopes that this would also produce a possible geoconservation site were not supported by the results of the examination, but it nevertheless remains an interesting site for some clearly exposed basic geological features.

There was little field activity this summer due to other pressures on members of the group.

The idea of producing a simple Roadside Geology guide to one of the main through routes of Argyll as a first step in bringing the geology of Argyll to the attention of the tourism market will be discussed at the GAI AGM on 29 November. Some preliminary ideas for sites along the road have been identified. We are grateful to Seonaid Leishman for producing a most attractive leaflet for the Knapdale area, at a standard of presentation that sets a very high standard for others to match.

The Scottish Association for Marine Sciences (SAMS) Centre, part of UHI, recently opened their Ocean Discovery Centre on the campus at Dunstaffnage. As part of the associated public engagement, they held an initial public outreach field event, including a visit to a useful exposure of Devonian conglomerates. It was a very useful occasion, which hopefully will lead to further cooperation in future.

*Alastair Fleming*

**THE GEOLOGICAL SOCIETY OF GLASGOW**  
**Income and Expenditure Account for year ending 30th September 2013**

	<b>Session 155</b>		<b>Session 154</b>	
	2012 - 2013		2011 - 2012	
<b>Income</b>				
1. Subscriptions				
Received by Bankers Order	4619		4902	
Received by payment to Memb Sec.	1470		1140	
Deduct paid in advance this year	-80		-40	
Add received in advance last year	40	6049	40	6042
2. Investment Income				
Dividends	525		495	
National Savings	377	902	184	679
3. Tax refund (gift aid payment accrual)	900		900	
Over accrual on 2012 gift aid	-9		160	
4. Conoco-Phillips prizes (EGS in advance for 2014)	83		133	1193
5A. Publications	<b>Note 1</b>	551	473	
5B Moine Guide net profit	<b>Note 2</b>	200	1725	50
				523
6. Saturday excursions income	2042		496	
Expenditure	-2026	16	-277	219
7. Week end excursions income	5418		1850	
Accrual	0		430	
Expenditure	-5718	-300	-2310	-30
8. Donations (coffee collections)		280		264
10. Miscellaneous income	<b>Note 3</b>	58		55
<b>Total income</b>		<b>8730</b>		<b>8945</b>

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<b>Expenditure</b>		
1. Meetings incl. speakers expenses, etc.	645	515
Meeting Secretary expenses	514	446
Room hire session 155	<b>Note 4</b> 2913	2200
2. Publication of Proceedings	1044	420
3. Dumbarton Rock Leaflet sponsorship	0	150
3A Sponsorship	0	850
4. Library and Down to Earth	112	104
5. Insurance	187	180
6. Conoco-Philips prizes 2012	800	400
7. Website	826	552
8. Affiliation fees	350	416
9. Admin costs - postage, stationery, etc.		
Hon Secretary expenses	500	245
Membership Secretary	332	707
President & VP	122	46
Treasurer	93	88
10 Miscellaneous expenditure	62	143
<b>Total expenditure</b>	<b>8500</b>	<b>7462</b>
<b>Profit/(loss)</b>	<b>230</b>	<b>1483</b>

## THE GEOLOGICAL SOCIETY OF GLASGOW

### Balance Sheet as at 30th September 2013

	Session 155 2012 - 2013		Session 154 2011 - 2012	
<b>Members' Funds</b>				
Balance as at 30/09/2012	62457		60974	
Surplus/(deficit) for the year	230		1483	
Revised valuation fund for investments	0		0	
<b>Balance as at 30th September 2013</b>		<b>62687</b>		<b>62457</b>
<b>Restricted Funds</b>				
TN George fund		380		380
<b>Total Funds</b>		<b>63067</b>		<b>62837</b>
 <b>Represented by:</b>				
<b>Current assets</b>				
Cash at Bank				
Royal Bank of Scotland	2884		2959	
National Savings	33039	35923	32662	35621
Cash in hand				
Publications sales officer	0		35	
Membership Secretary	200		200	
Hon Secretary	95		95	
Meetings Secretary	0		0	
President/VP	161	456	98	428

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National Savings Income Bond		12000		12000		
Current Valuation of Charifund investment	<b>Note 6</b>	8355		8355		
Debtors -						
Gift Aid		900		900		
Ben Lawers hotel deposits		270		430		
Gigha sales not paid yet		210	21525	42	21727	
Stock of Publications - In House		4593		<u>3988</u>		
- Moine Guide		<u>1146</u>	5739	<u>1293</u>	5281	63057
<b>LESS LIABILITIES</b>						
Subscriptions paid in advance		-80		-40		
Conoco Phillips prizes		-83		0		
Ben Lawers paid in advance		-413		0		
Insurance		<u>0</u>	-576	-180		-220
<b>Net assets</b>			<b>63067</b>			<b>62837</b>

These financial statements are prepared in accordance with the special provisions of part VII of the Companies Act 1985 relating to small companies.

The financial statements were approved on 8th December 2011 by the Trustees and signed on their behalf by

Signed as approved by the Trustees

.....  
President

.....  
B Bell (Dr)

Signed by the Independent Examiner

.....  
Beth Diamond (Mrs)

## Notes to the Financial Statements for the Year Ended 30<sup>th</sup> September 2013

### Accounting convention:

The financial statements have been prepared under the historical cost convention, and in accordance with applicable accounting standards. The accounts are also set out to comply with guidance from OSCR.

The principal accounting policies adopted in the preparation of the financial statements are as follows:-

- All income from membership subscriptions, excursions, publications, bank interest and donations is accounted for on an accruals basis.
- Resources expended are accounted for on an accruals basis and are recognised when there is a legal or constructive obligation to pay for expenditure.
- All costs have been directly attributable to one of the functional categories of resources defined in the Statement of Financial Activities.
- Expenditure on equipment is charged to Revenue in the year of purchase.

### Notes on entries:

1. Calculation of surplus on Publication sales.

2.

Opening stock value	3988
Purchases	<u>1398</u>
Available for sale	5386
Closing stock	<u>4593</u>
Stock sold	<u><b>793</b></u>

Income received (bookshop)	1103
Income via Paypal	331
Less cost of sold stock	<u>793</u>
Profit	641
Less postage expenses	<u>(90)</u>
Final surplus	<u><b>551</b></u>

3. Moine Guide. The publishing costs for the Moine Guide were shared



between the National Museums of Scotland, Edinburgh Geological Society and the Geological Society of Glasgow on a 50%/25%/25% basis and any profits are shared accordingly. GSoG have no control over the majority of sales nor stock management so accurate reporting of sales activity is difficult. Income received this year is £377 but we are advised by EGS that sales are effectively being made at around cost level. A conservative estimate of the profit level at £200 has been made and the GSoG share of the closing stock recorded accordingly in these accounts.

Opening stock value	1293
Cost of stock sold	<u>-147</u>
Closing stock	<u>1146</u>

4. Miscellaneous income of £33 has been received from Amazon Associates as a commission on sales made on Amazon through the Society's website.
5. Room Hire for lectures this year has been paid for at £384 per evening.
6. No Sponsorship has been granted this year.
7. The Stock Market has performed better this year and the value of investments is slightly higher than in 2011. The Balance Sheet value of £8355 has been retained and is still a cautious assessment.

*Michael Pell, Treasurer*