



**THE  
GEOLOGICAL  
SOCIETY OF  
GLASGOW**

# **PROCEEDINGS**

**Session 162**

**October 2019 to September 2020**



Strathclyde Geoconservation Group gave a virtual tour of the Glasgow Necropolis as part of the Scottish Geology Festival.

Registered Scottish Charity No. SC007013

**President: Dr Neil Clark**

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

**Hon. Secretary:** Walter Semple email: [sec@gsocg.org](mailto:sec@gsocg.org)

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

## SESSION 162 (2019-2020)

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## Council Members

The positions that are open for election at the AGM on December 10th 2020 are listed here along with the nominee, proposers and seconders.

Position	Nominee	Proposed by	Seconded by
Vice President	Simon Cuthbert	M Cummings	D Webster
Membership Secretary	Campbell Forrest*	R Bryce	I Veitch
Day Excursions Secretary	Roy Bryce*	B Gray	N Clark
Residential Excursions Sec	Maggie Donnelly*	N Clark	C Forrest
Librarian/Publications Officer	Vacant		
Ordinary Member	Anna Milligan	I Veitch	R Bryce
Ordinary Member	Gary Hoare	M Cummings	N Clark
Ordinary Member*	Vacant		
Ordinary Member*	Vacant		
Junior Representative	TBA		
Editor of SJG	TBA		
Editor of SJG	Colin Braithwaite*	B Bell	M Cummings
Independent Examiner	Brian O'Neill	I Veitch	W Semple

### Notes:

\* Denotes retiring postholder willing to stand again

† The Council can have up to six ordinary members.

### Retirees:

**Ian Anderson** has stood down as Independent Examiner.

**Brian Bell** has stood down as an Editor of SJG

### Continuing Officers:

The following continue in office: **Neil Clark** - President and Website Consultant, **Brian Bell** - Vice President, **Walter Semple** - Hon. Secretary, **David Webster** - Meetings Secretary and Newsletter & Proceedings Editor, **Bill Gray** - Webmaster, **Margaret Anderson** - Asst. Librarian, **Ann Ainsworth** - Ordinary Member, **Mina Cummings** - Ordinary Member.

The Council are proposing that **Ian Miller** (Ordinary Member for three years) remain on Council as Assistant Meetings Secretary with the intention he be proposed for the post of Meetings Secretary for Session 164.

### Honorary Member

At a council meeting on 22 October it was agreed unanimously to recommend to the membership at the AGM that Professor Donald Bowes should be proposed as an Honorary member.

# Reports

## a. Presidents Report

This is my second report to the membership as President of the Society and it has been a most interesting and concerning time for us all. We have had to adapt to the 'new normal' way of presenting lectures and field trips in a socially distanced way, while attempting to maintain key elements of the purposes of the Society in promoting geology through public virtual events. The Council of the Society has been challenged to organise these events online, but I feel that it has been most successful in its endeavours. The virtual nature of many of the activities have brought some of us who may have had difficulty attending events physically in the past back into the fold of the Society. It has opened up a completely different dialogue as to where the Society might go, and what it might be able to provide in the future. I would like to thank the membership for sticking with us and taking part in our virtual events. It is great to see so many of your names and faces and I look forward to seeing you all in person again once the pandemic has abated enough to allow us. The Council has worked very hard this year to bring the Society into your homes and I would like to thank them all for their ingenuity, knowledge and concern in this endeavour.

As with previous years, I would like to invite members to consider joining the Council as Ordinary Members to offer their suggestions on how we might develop the Society into the future. It is an exciting time, when technology is available for us to provide better access, and I would love for you to be more involved in how this might work.

We are all greatly indebted to our Meetings Secretary, David Webster, who brought the Society into the 21st century and organised many lectures and field trips online. Thanks to Maggie Donnelly and Roy Bryce for organising and then cancelling/postponing the physical field trips due to the pandemic. I hope that it will not be too far into the future before we can all meet and take part in field trips safely again.

Our Meetings Secretary, Campbell Forrest, has been trying to get as many members as possible to have an online presence to make the processing of memberships easier and to help members to take part in the online events. If you have not already provided a valid email, please consider it.

Bill Gray has worked tirelessly on the Society website which I hope you all visit regularly. News items and notices relating to Scottish geology and the Society are all posted here regularly, so please make sure you follow the website as well as the Facebook pages and Twitter if you have accounts with them too.

Margaret Anderson, our Assistant Librarian, has been working on an interesting

project relating to the archives, which it is hoped will be published in the near future (more on this sometime soon in the Newsletter). Please remember that the library exists for you to use, so please use it once we are back meeting physically.

I have to thank Margaret Green for her enthusiastic talk on the Necropolis that I know many of our members also attended. I hope that she will be able to take us on a physical field trip sometime too!

Our Treasurer, Ian Veitch is also thanks for keeping the Society finances in order. Due to the pandemic, the costs to the Society were less than normal, so there is a slight surplus. To address this, we have produced an application form that can be used by folk organising events, undertaking research, student projects and so on. Please encourage people to apply. Each project will be reviewed by the Council and the applicant duly notified of the decision. I would also like to thank Ian Anderson for being our external examiner for the accounts.

I thank also the Ordinary Members of the Council who have contributed greatly to the debates we have had over the year and who have contributed in many other ways also. Thank you also to the members of the Council who have resigned their posts for their hard work and dedication over the years. In particular Jim Morrison who stepped down as Vice President and former President of the Society and Bob Diamond who chaired the publications committee.

Finally, I would not have been able to undertake the task as President without the support and encouragement of Walter Semple (Honorary Secretary) who has put so much work into the Society and other related endeavours. Many of the important projects with which the Society has been associated have been more difficult to complete, but some progress has been made on Fossil Grove and the Scottish Geology Trust appears to be going from strength to strength. With the help of the Council and the membership, we can all look forward to the Society's future with positivity and certainty.

## **b. Meetings Secretary's Report**

First up on the **10th October** was Dr. Nick Schofield from Aberdeen University who is an expert in hydrocarbon exploration in volcanic effected provinces - particularly west of Shetland and Rockall.

He explained that the UK Rockall Basin forms part of the NE Atlantic margin and is truly a frontier basin. With only 12 exploration wells, all drilled between 1980 and 2006, it is one of the most underexplored areas of the UK Continental Shelf (UKCS). Of the 12 wells, 11 were dry holes and one, the Benbecula (154/01-1) well, discovered a sub-commercial gas accumulation. This low historic success rate, together with the harsh NE Atlantic operating environment and the lack of infrastructure have created a negative view of the exploration potential of the

UK Rockall Basin. Exploration in the basin is perceived by the industry at large to be high risk and low reward. However, considerable advances have been made in the understanding of Atlantic Margin geology since the last well was drilled in the Rockall Basin. Re-evaluation of drilling results in light of the current understanding of NE Atlantic Margin geology reveals that previous drilling efforts may have been hampered by a misunderstanding of the geological development of the basin and that viable untested plays may exist within the basin.

On the **14th November** we welcomed Peter Ledingham who is Managing Director of Geoscience Ltd. He is leading the development of the United Downs Deep Geothermal Project in Cornwall, which is the first development of its kind in the UK. It is located near Redruth in west Cornwall and is part-funded by the European Regional Development Fund and Cornwall Council. Two wells have been drilled to intersect a target fault structure that, it is hoped, will provide enough natural permeability to allow circulation between the wells and the generation of between 1 and 3MWe.

Drilling began in November 2018 and was completed at the end of June 2019. The production well reached a depth of 5,275m (MD) and the injection well 2,393m (MD), and the project is now in its evaluation phase.

Peter outlined the geothermal resources in Cornwall, described the development of the UDDGP project and gave an update on its progress.

Our speaker for the **12th December** lecture was Professor Gawen Jenkin from Leicester University who gave us a very topical talk on 'Green Gold' - describing how to get metals out of the ground in a more sustainable way.

Gawen explained that we need mineral resources to underpin a good quality of life for the still-expanding population of planet Earth. Although we might ultimately develop a "circular economy" where all resources are recycled, this is a long way off and we will need to continue to extract minerals for many years to come. However, the mining industry is under a variety of pressures, both geological and anthropogenic, which make it ever harder to operate economically. The industry needs to be moving to more sustainable operations, in particular reducing carbon emissions and ensuring it earns the consent of the local and global communities – the so called Social Licence to Operate.

At Leicester, he and his colleagues have developed an exciting breakthrough technology using ionic liquids that has the potential to revolutionise the processing of mineral ores to metals in a green and environmentally-friendly way. The team believe they have the potential to replace the use of cyanide in industrial gold extraction and the uncontrolled use of mercury by artisanal gold miners – one of the biggest sources of mercury contamination on the planet. Ultimately, the mine of the future, might not involve a hole in the ground or people going underground and consequently might have a considerably smaller

impact on our environment.

Into the New Year. On the **9th January** John Brown, a senior engineer with Arup in Edinburgh, gave us a talk about the engineering geology of the Queensferry Crossing. John explained that field mapping of the geology of the area along with inspection of rock cores recovered from below the seabed identified good quality rock across the Firth of Forth. Therefore all foundations bear on top of the rock, eliminating the need for expensive and time-consuming piling onto the hard rock that underlies the whole crossing.

The crossing is built on varied geology. An igneous intrusion, Beamer Rock Island, is a dolerite pinnacle, a very strong rock, which provided a suitable foundation to support the 210 metre high central tower.

The foundations for the North and South towers are founded on 25 to 30m diameter circular steel caissons sunk to the top of the bedrock some 40-50m below water level. Once positioned they were sunk into the seabed by a combination of precision dredging and ballasting with concrete to guide the caisson to its desired level and position. A thick concrete plug was then poured underwater within the cylinders to enable the construction of a reinforced concrete base for the foundations towers. The caisson approach is not that dissimilar to how 19th Century engineers approached the foundations that support the original Forth Bridge.

The geological information gathered prior to construction was translated into 3D numerical models to design the foundations. Each foundation excavation was rigorously inspected with remote camera domes developed to carry out detailed underwater inspections up to 50m below sea level. The engineering expertise of the designer and contractor enabled the delivery of a complex set of foundations in a safe and efficient manner.

We welcomed Amanda Owen on **February 13th**. Amanda is a sedimentologist at Glasgow University and her talk was entitled "Understanding the spatial variability of sedimentary deposits". Amanda explained that sedimentary systems are under the influence of a variety of process that can vary considerably in time (seconds to millennia) and space (from the grain to basin scale). The talk covered her research into the spatial variability in fluvial response to the Paleocene-Eocene Thermal Maximum (PETM). The PETM occurred ~56 Ma and was a geologically abrupt global warming event in which temperatures increased from 5-8°C over ~200, 000 years due to a global release in carbon, making it a close analogue to today's global warming trends.

The PETM has been interrogated at a number of terrestrial and marine localities across the globe, however, the majority of these studies are not placed within a well-defined spatial and temporal context, with study often limited to single successions and the deposits that lie immediately above and below the event.

She explained that it is imperative that background ‘normal’ conditions are understood in order for an assessment of response magnitude and extent to be made. Her talk made use of sedimentological observations from multiple PETM localities within the Bighorn Basin, Wyoming, and presented them within a newly defined quantified basin context.

We hosted this year’s Joint Celebrity Lecture on **12th March** with colleagues from the Edinburgh Geological Society. Professor Andrew Scott, from Royal Holloway College, University of London is an expert on the very topical subject of fire and the subject of his talk was the same as the title of his book *Burning Planet. The story of fire through time*.

Andrew’s talk covered the past, present and future of wildfires and their environmental effects and especially the role of fire in Earth systems processes. In particular he concentrated on modern and ancient fires, their products (charcoal) and effects, including the rise of fire in the Devonian, the evolution of late Palaeozoic fire systems and evidence for fire at the Paleocene-Eocene Thermal Maximum (PETM).

Charcoal preserves the anatomy of the plants that have been burnt. Scanning electron microscopy is routinely used to study their morphology and anatomy and new methods of obtaining temperature of charcoal formation using reflected light microscopy have been developed. This has implications for both studies of natural wildfires as well as for our understanding of the human use of wood and charcoal as a fuel.

Biogeochemical modelling suggests significant variation of atmospheric oxygen in deep time. Using a charcoal proxy for atmospheric oxygen over the past 350 million years there is evidence for significantly high levels of oxygen in the late Palaeozoic and in the Cretaceous suggesting high levels of fire at that time. This resulted in the rapid spread of weedy flowering plants in the Cretaceous.

Studies of palaeocharcoal can also delineate changes in fire over the past 20,000 years. He concluded that there is a strong link between fire and climate with increased fire during periods of rapid climate change.

Andrew finished the talk by signing copies of his various books.

Unfortunately the Covid-19 Pandemic took over our lives at this point and the planned lecture on the **9th April** was cancelled. It was to be given by Dr Jenny Collier from Imperial College when she was due tell us all about the breaching of the Dover Strait and the creation of “Island Britain”. We did manage to find a YouTube video of Jenny giving the talk and this was sent out to members. This gave us inspiration to try and setup virtual talks at Members night on 14th May. This was a new venture for the Society and was introduced by the Hon. Secretary, Walter Semple. The first talk was virtual field trip to Jura entitled “A sea kayak



trip to the West Coast of Jura” by David Webster. This was followed by a talk on the some other Scottish Islands: “Contrasting islands: The Geology of Eigg and Rum” by Angus Miller. The evening was concluded by Simon Cuthbert, who gave an entertaining presentation of his new board game in a talk entitled “The Carbon Game: Adventures of a globe-trotting carbon atom”. A vote of thanks to all presenters was given by the President, Neil Clark.

In September the Society hosted three virtual events for the Scottish Geology Festival setup by the Scottish Geology Trust. These were David Webster on the Fossil Grove (21/9), Angus Miller of Geowalks on the Braid & Blackford Hills (24/9) and Margaret Greene on the Glasgow Necropolis (30/9).

*David Webster*

### **c. Day Excursions Secretary’s Report**

I had arranged our usual programme of six excursions for the summer and all seemed to be well as we issued the booking forms with the February newsletter. However, by the end of the month it was becoming obvious that this was not going to be a normal year and very few people had chosen to send me their cheques.

By the end of March, I took the decision to cancel the programme for the summer. Luckily, I had not booked any buses for the trips, so there was no financial loss. My intention is to contact the people who had agreed to lead the excursions and try to rearrange the same programme for 2021.

I have heard in the tearoom after lectures that some people have been put off coming on the day excursions because they felt under pressure to “volunteer” to write up the trip for the proceedings. I also felt that people were in a great mood when they got on the bus, but the gaiety rapidly disappeared when I tried to get someone to agree to spend their day writing notes. I had admittedly also pondered that when you spend money on tickets to the theatre, nobody ever asked you to write a review afterwards at your own expense.

I therefore offered to take over the reporting of excursions to the extent of providing several photos and a short non-technical description of the sites visited. The intention being to upload this to the website immediately after each trip rather than formal descriptions of the excursions being prepared for the proceedings as has been previous practice. Hopefully we will be in a position to offer a full programme of day excursions again in 2021 and this will give us a chance to try out the new reporting arrangements.

*Roy Bryce*

### **d. Residential Excursions Secretary’s Report**

Three excursions were planned for this Session

1. Islay: 24 – 27th April. 14 members had applied but there was space available for up to 20. Accommodation had been booked in the Lambeth Guesthouse, Bowmore. Leader – David Webster. This was mainly, but not exclusively, for those people who had been unable to take part last year because the trip had become fully booked very quickly.

2. Ardnamurchan: 8 – 11th May. Accommodation was very limited but had been booked in the Kilchoan Hotel. Leader – Dr Con Gillen. This was mainly, but not exclusively, for those people who had been on the Islay trip last Session.

3. Snowdonia: 11 – 14th September. This was in the planning stage.

However, Covid-19 then arrived and we were all put into ‘total lockdown’ on 23rd March for an unspecified period of time.

We were forced to cancel the first two trips and eventually also the one planned for Sept, with the proviso that we would run these excursions next Session. The Meetings Secretary then arranged a number of virtual field trips, using the ‘Zoom’ facility online.

21st May 2020: North Islay: David Webster

28th May 2020: Port Askaig and Ballygrant: David Webster

13th July 2020. South East Islay: David Webster

13th August 2020. Southern Rhinns of Islay: David Webster

These were excellent and were each attended by an audience of about 80. The Society’s appreciation of the outstanding work done by David Webster was recorded.

*Maggie Donnelly.*

## **e. Membership Secretary’s Report**

The successful exercise to update membership records, and improve the links between the Membership Secretary, Treasurer and Meetings Secretary continued over the 30 September end of Session 162. The figures below represent the status at 17 November 2020.

New members are thanked for their patience during delays in receiving and processing membership requests due to the disrupted mail system this year.

Thanks are due to the Treasurer for assuming the main responsibility for handling subscriptions. This has simplified the processing system greatly.

Members are also thanked for their helpful (and generally pleasant!) responses to requests to update subscriptions.

Terminations and deaths recorded were 49, the majority being historical non-renewals. New members welcomed total 18.

It must be noted that there are about 40 “current” members who have not yet

paid their subscriptions.

	Session 162	End Session 161
	Extended 17 Nov 2020	30 Sep 2019
Honorary Members	3	5
Ordinary Members	229	253
Associate Members	84	70
Junior Members	8	19
Institute Members	3	3
TOTAL MEMBERS	327	350
Incl New Members	22	13

*Campbell Forrest*

## **f. Librarian's Report**

There has been a decreasing number of visitors to the Library over the course of the past few years, perhaps due in part to the availability of alternative sources of information on geological and palaeontological subjects. In the six months (October to March) of Session 162 before the COVID-19 pandemic resulted in closure, the Library was as usual open from 6.40 until 7.25 on each lecture evening. However, during those months, only four books were borrowed from the Library's wide range of books, guides and maps. The books that were borrowed were on the following topics: Isle of Man; Yorkshire; Greenland; Scotland's geology and landscapes.

*Margaret Anderson*

## **g. Treasurer's Report**

The draft accounts for the year to 30th September 2020 are shown below. These are subject to change on review and examination. Comments as follows:

### Income & Expenditure:

1. The results for the year show a surplus of income over expenditure of £518.
2. After adding in the surplus Members' funds are £17,945. In addition, we have Restricted Funds of £9,356 and an Endowment Fund of £44,576.
3. Membership income is in line with the previous year at £6,672. Gift aid totalling £2,158 has been claimed for this and the previous year.
4. Due to the Covid restrictions there were no day or residential excursions, and book sales were limited to online sales of the Madeira Guides.
5. There were savings on room hire as the April and May meetings were online. We now have a Zoom subscription.

6. Speakers expenses are higher than the previous year which was a particularly low one.

7. The final cost of the website upgrade was paid in October 2019 - £1,782.

### Balance Sheet

1. Due to Covid the Brian Bluck Prize has not yet been awarded

2. Similarly, the T N George Medal was not awarded this year

#### THE GEOLOGICAL SOCIETY OF GLASGOW

##### Income and Expenditure Account for year ending 30th September 2020

	Session 162		Session 161	
	2019 - 2020		2018 - 2019	
Income				
1. Subscription Income				
Received during year	6,984		6,564	
Deduct paid in advance this year	-362		-50	
Add received in advance last year	50		181	
		6,672		6,695
2. Investment Income				
National Savings		183		167
3. Gift aid - for S161 and S162		2,158		0
4. Publications				
In house	8		250	
Moine Guide	0	8	187	437
3. Day excursions	net surplus	0		285
4. Residential excursions	net surplus	0		31
5. Donations (coffee collections & personal)		114		438
6. Bank Charges net refund		5		0
Total income		9,140		8,053
Expenditure				
1. Meetings incl speakers expenses, etc	1,184		866	
Room Hire	2,908		3,687	
Zoom Subscription	270	4,362	0	4,553
2. Publication and postage of Proceedings		313		502
3. Library and Down to Earth		342		320
4. Affiliation fees		40		40
5. Insurance		170		213
6. Website				
Maintenance	137		338	
Upgrade	1,782	1,919	4,403	4,741
7. Admin costs - postage, stationery, etc				
Newsletter		890		584
Miscellaneous		419		9
Membership Secretary		152		212
Treasurer		15		72
Total expenditure		8,622		11,246
Surplus (Deficit) for the year		518		-3193

# THE GEOLOGICAL SOCIETY OF GLASGOW

## Balance Sheet as at 30th September 2020

	Session 162		Session 161	
	2019 - 2020		2018 - 2019	
<b><u>Members' Funds</u></b>				
Balance as at 1st October 2019		17,427		20620
Surplus (deficit) for the year		518		-3193
<b>Members' Fund as at 30th September 2020</b>		<b>17,945.00</b>		<b>17,427</b>
<b><u>Restricted Funds</u></b>				
TN George fund	340			
less engraving costs	0	340		340
Brian Bluck fund at 1/10/19	7,500			
less prize awarded	0	7,500		7,500
Conoco-Phillips fund		516		516
Nigel Trewin Legacy		1,000		1,000
<b>Total non endowment Funds</b>		<b>27,301</b>		<b>26,763</b>
<b><u>Represented by</u></b>				
<b><u>Current assets</u></b>				
Cash at Bank				
Royal Bank of Scotland	5,978			
Plus due from endowment fund	1,493	7,471	6,657	
National Savings Income Bond		12,000		12,000
National Savings Investment Account		4,491	4,307	22,964
Cash in hand				
Publications Officer		0		22
Weekend Excursion sec		165		165
Stock of Publications				
In house		2,588		2,608
Moine Guide part of stock held by Nat Mus Scot		1,007		1,007
Room Hire in advance		0	483	
<b>Add Debtors</b>		<b>27,722</b>		<b>27,249</b>
<b>Less Liability</b>				<b>50</b>
Subs paid in advance	363			416
Outstanding payments	58	421		
<b>Net assets</b>		<b>27,301</b>		<b>26,763</b>

<u>Endowment Fund</u>	Session 162		Session 161
<u>Investments</u>		Balances	
Value at 1.10.19		59,171	59,466
Loss in value in the year		-14,595	-295
Value at 30.9.20		<u>44,576</u>	<u>59,171</u>
<u>Income</u>			
Balance at 1 October 2019		4,486	1,778
Income for the year	3,141		3,083
Less Sponsorship			
to Strathclyde Geo-Conservation	200		200
to Lyell Collection	1,000		0
to Scottish Geodiversity Forum	125		125
to Friends of Hugh Miller	<u>50</u>		<u>50</u>
Total Sponsorship	<u>1,375</u>		<u>375</u>
Surplus for the year		1,766	2,708
Balance at 30 September 2020		<u>6,252</u>	<u>4,486</u>

The financial statements were approved on ..... by the Trustees and signed on their behalf by

Signed as approved by the Trustees ..... Dr Neil Clark (President)

Signed by the Independent Examiner ..... Dr Ian Anderson

3. The Endowment Fund has fallen in value as a result of the fall in share prices in March 2020 with a reduction in the value of investments of £14,595. This is a significant paper loss and the investment committee are considering future strategy.

4. The Fund generated dividends of £3,141 from which we paid sponsorship of £1,375 which, together with the balance brought forward, leaves £6,252 unspent at the year end.

*Ian Veitch*

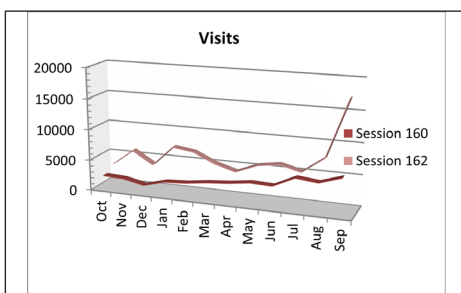
## **h. Website Report**

Session 162 was one of consolidation for the website, following the upgrade in August 2019. Several problems remaining from the upgrade were resolved and a considerable amount of new content was added. Covid-19 also made its presence felt, with the website reflecting the changes in the society's plans caused by the pandemic.

A new set of extracts from the society's proceedings for significant anniversary years (150 years ago to 25 years ago at 25 year intervals) was added to the Anniversaries page of the Archive section during the session. The Archive section is well worth exploring for the insight it gives into the society's history and for the wealth of fascinating historical material it contains. Our thanks are again due to the society's honorary archivist Margaret Anderson for producing the material for this section.

Another page that was extended during the session is the Society Presidents page. This page lists all the past presidents of the society, with links to biographical details. For earlier presidents, these details are taken from a variety of sources, while for more recent presidents they have been provided by the presidents themselves. The list of biographies is now almost complete. Again, this section is worth exploring for the insight it gives into the society's history.

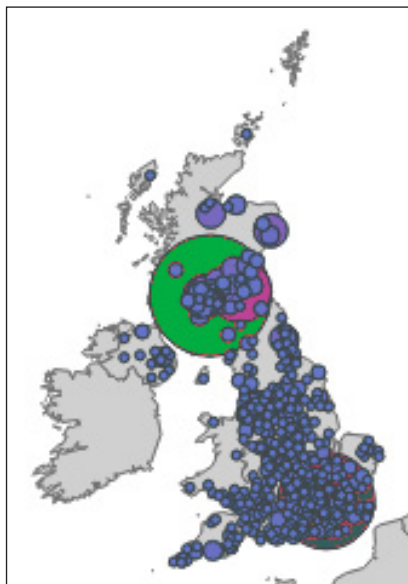
The traffic to the website has increased steadily since the website was launched in January 2011. In Session 162 there were 77,073 visits to the site, an increase of 91.5% over the total for Session 160 (40,245). (The figures for Session 161 do not provide a useful comparison, as they were affected by the website upgrade.) The number of visitors, as opposed to



visits, was 65,964, again an increase of 91.5% over the total (34,441) for Session 160. The chart shows the number of visits each month for Sessions 162 (2019-

2020) and 160 (2017-2018).

The increase in visits reflects increased traffic both from the UK and from abroad, but the majority of the increase was in visits from abroad. The number of visits from the UK in Session 162 was 12,184, which was 15.8% of the total visits and an increase of 11.4% over the UK visits for Session 160 (10,940). Outside the UK, the three most productive countries were the Philippines with 19,708 visits (8,072 in Session 160), the USA with 12,529 (5,754) and India with 11,805 (3,957). Within the UK, England accounted for 6,058 visits (4,571 in Session 160), Scotland for 5,706 (6,049), Wales for 259 (167) and Northern Ireland for 132 (143).



The map shows the amount of traffic from cities within the UK. Glasgow was the most productive city, with 2,278 visits (2,470 in Session 160), followed by London with 1,442 (1,478) and Edinburgh with 1,516 (731).

The most popular part of the website was again the Local Rocks section, with the Rock Cycle page accounting for 34.9% of pageviews, followed by the Rock-forming Minerals page (26.8%), the Metamorphic Rocks page (5.3%) and the Igneous Rocks page (5.2%). Other popular pages were the website's Home page (5.0%), the Arthur Holmes page (2.4%), the Events page (0.8%) and the Lectures page (0.8%). By far the most productive source of traffic to the website was Google, which was responsible for 63,184 visits (32,600 in Session 160). The next most productive was direct logons to the website, which produced 10,654 (4,888) visits, while the search engines Bing and Yahoo produced 808 (711) and 131 (145) visits respectively. The majority of the remaining visits resulted from referrals from other websites. The most productive source of referrals was Facebook (345 this session compared to 280 in Session 160), followed by scottishgeology.com (173 compared to 100) and thecampsies.co.uk (92 compared to 90).

In addition to the website, the society uses its Facebook page and Twitter account to engage with the public. At the end of Session 162, the society's Facebook page had 169 followers, which represents an increase of more than 30 from the start of the session. There was also a large increase in the number of

people reached through posts on the page, with over 350 reached in September 2020. The most popular posts during the session were those about the Scottish gold nugget, evidence of a previously unknown ice age in Torridon rocks and dinosaur footprints in Skye; over 90 people were reached with each of these posts. The majority of people visiting the page were in the 25-34 age group. Perhaps this suggests that more students are engaging with us virtually than engaged with us physically in pre-pandemic times. If you have a Facebook account, or use other social media, please “like” and share any society posts that you find particularly interesting.

The society’s Twitter account (@GeoSocGlasgow) has steadily been gaining in popularity and now has 103 followers. (It had 31 followers a year ago.) If you have a Twitter account, please follow us and retweet any of our tweets that you like. In my role as webmaster I am assisted by three society members who join me in the website working group: Neil Clark, Maggie McCallum and Maggie Donnelly. I am grateful to all three for their continuing support. The website requires a continuing input of news items and event details to keep it fresh and topical. I am grateful to society members who have provided such material in the past and again encourage all members to continue to send relevant articles and information to [web@gsocg.org](mailto:web@gsocg.org).

*Bill Gray*

## **i. Strathclyde Geoconservation Group**

Following on from the request to bring geology to the Lodge above Aberfoyle run by Forestry and Land Scotland, Margaret Greene has provided the visitor centre with a number of samples of local rock: a sample of local slate donated by Dr Joan Walsh, samples of serpentinite, Ben Ledi Grit and limestone donated by Dr Chris Burton and a quartzite pebble from High Dounans. The staff were also provided with information on these rocks and an outline of the local geology. The ambition is that SGG will produce a leaflet covering the geology from the Highland Boundary Fault to the recent glacial period. The information centre, in common with many other buildings, is shut for the duration of the Covid crisis.

Paul Carter and Mike Browne had sent Louisa Maddison, South Lanarkshire Biodiversity Officer, audit reports, complete with photographs, for Calderglen Country Park and also Rotten Calder. BB of SGG typed up these reports as she had done for previous hand written reports by PC. Covid restrictions have halted work in South Lanarkshire in the meantime. PC and MB started visits to Falkirk in May. They concentrated on sites described in the Excursion Guide to Stirling and Perth edited by Browne and Gillen, and updating them. Most sites were in a poorer condition than from when the Guide was prepared and vital paths have been shut in Muiravonside Country Park. They had yet to contact and meet Falkirk Council staff. PC thanked BB for typing the first batch of Falkirk



reports and indicated there would be more!

Fossil Grove: SSSI status has been downgraded by SNH to unfavourable/partially destroyed. High humidity from water ingress causes condensation to drip onto fossils. The resultant salt formation is damaging fossils. Historic Scotland carried out studies on salts, damage and water ingress. Glasgow City Council is not in a position to fund further maintenance and building has not opened this season. The FG Trust have committed c.£20,000 of funds to maintenance. New lighting has been installed; the roof now has ventilation grilles and the gutters and drains have been cleared. Roof repairs are in progress and improvements in water ingress is noticeable. The Friends of Victoria Park organise working parties on the first Saturday of every month to plant ferns, weed, tidy up, clear gutters etc in FG and quarry areas. A new project has been initiated to renovate the building and conserve the fossils with low-cost options. Ideally no staff will be required; the vision being that the fossils will be visible from outside. To this end an application to Architectural Heritage Fund is at the early stages. The FGT are aiming to have a number of open afternoons next season post-Covid.

Local Authorities information: North Ayrshire have information on local geodiversity sites provide by MG and Chris Burton. There was a request for photos for inclusion in the Local Biodiversity Action Plan: Gary Hoare supplied photos of Trearne Quarry which MG forwarded to N Ayrshire. The Local Development Plan for East Dunbartonshire is out for review: MG to comment on behalf of SGG. There will be a virtual meeting in relation to Renfrewshire Local Biodiversity Action Plan on 26th November.

The booklet on geology in Glasgow Necropolis was printed last year and over 300 copies were given to Glasgow Cathedral for distribution. None have been handed out this year due to Covid, but as part of the Scottish Geology Trust's Geology festival in September MG 'led' a virtual trail around the monuments in the Necropolis featured in the booklet; this resulted in a number of requests for the booklets. This geological trail is also now available on the Glasgow Geology Society website.

Having been informed that the information boards at the car park for Campsie Glen have been graffitied / vandalised, MG and husband cleaned the majority of the mess from the worst affected board. It has been agreed that SGG will look into replacing the perspex, which is cracked, and hopefully replacing the artwork as well.

*Margaret Greene*

## **j. Scottish Journal of Geology Report**

Notwithstanding the current difficulties in communication, the Editorial Board has continued function, working from home as necessary, and meeting

online. There have been two changes in personnel. Earlier in the year, Maarten Karbbendam retired after many years of service, citing pressure of work. More recently, Brian Bell, also after a significant period with the Board, has also announced his retirement. Our grateful thanks are due to both of them, the Journal could not exist without people prepared to devote time and effort in support. Maarten, a structural and metamorphic petrologist, has been replaced by Romesh Palamakumbura, a colleague in the BGS at Edinburgh. Discussions have taken place regarding an igneous petrologist to replace Brian, but as yet no decision has been reached.

Two issues were published in 2019, volume 56 for 2020 is in progress. This may appear as a delay, as we are reaching the end of the year, but from the authors' point of view it is less important than it once was. Nowadays, once manuscripts are accepted for publication they are immediately available (within a week) in OnlineFirst and can be accessed by authors and members through the Lyell Collection and GeoScience World. Times are changing, not least in publishing, and a pattern like this is becoming more widespread. Instead of waiting for papers of the right length to be completed and make up a part, publication is continuous and parts are only assembled when sufficient papers, copy edited and typeset, are ready and become the 'version of record'.

Total submissions are rising but we should not read too much into this as a large proportion do not relate to the Geology of Scotland and, after preliminary reading, are rejected without review. A small number of papers are now Open Access but most of our authors continue to follow the traditional route to publication.

One of the successes of last year has been the inclusion a series of papers from early career researchers, many of whom are completing MSc or PhD degrees. These were originally designed to appear in a Special Issue but the response from authors and readers has encouraged us to continue with this as a parallel stream within the Journal.

An emerging trend in production has been the difficulty of finding suitable referees to review submissions. Traditionally, taking part in this exercise has been seen as an obligation, because all authors (including those becoming referees) wish to see their work examined carefully and without prejudice in order that it can appear in the best light. Some people agree to help and then forget, others are "simply too busy" and it can take weeks to determine this and find an alternative. These issues are the principal reason for increased times between submission and acceptance of manuscripts. Increasing numbers of Journals are moving to online only publication. For the moment the SJG will continue to provide hard copies to all Society members who would like to have them and no action is required.

*Colin Braithwaite*

## Obituary: Grace Page



**19 June 1929 to 16 June 2020**

Grace Margaret Page, or Dr Dunlop, as I knew her in those more formal days, was a pioneer in geology. She was one of the first women to be appointed as a lecturer in geology, first in Edinburgh and then in London at Bedford College and Royal Holloway College. She spent her early life in Hunters Quay where her family had long had a house. She attended schools in Dunoon and Glasgow before studying at Glasgow University for a B.Sc and then a Ph.D. This was on the structural development of Carboniferous brachiopods.

While in London she met Charles Page through their mutual church activities particularly with music. They both were both members of BLOG - Bedford Light Opera Group. This was founded at Bedford College by Bill Bishop, also a geologist, in 1966 at the time of the "student troubles" (LSE, Grosvenor Square, Sorbonne etc) to bring staff and students together - rather successfully in this case!! They had a son Andrew and grandchildren Eilidh and James.

She joined and remained a member of the Geological Society of Glasgow for the rest of her life. She was appointed to a post at Edinburgh, not without comments from some! It was early days for women in geology. She then moved to Bedford College/Royal Holloway College for the rest of her professional life. She worked on the Carboniferous in Ireland and on the coast of Arran. I remember an excellent day visiting the NE coast of Arran with her. At Bedford College, as an academic resident in various halls of residence, she became interested in student welfare and devoted much of her time to this. Students could always find her a helpful listening ear. She retired in 1991.

Eventually, with her health deteriorating, she decided to move back to Hunters Quay where she could look out at her favourite view of the Firth of Clyde. She died in hospital after a fall on 16th June 2020 aged 90.

*Judith Lawson*

## Speakers - Session 162



October 2019  
**Nick Schofield**  
Oil & Volcanics



November 2019  
**Peter Ledingham**  
Geothermal Energy



December 2019  
**Gawan Jenkin**  
Green Gold



January 2020  
**John Brown**  
Queensferry Bridge



February 2020  
**Amanda Owen**  
Rivers & P.E.T.M



March 2020  
**Andrew Scott**  
Burning Planet



April 2020  
**Jenny Collier**  
Island Britain  
(YouTube video)



May 2020  
**Members Night**

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