



# EDINBURGH GEOLOGICAL SOCIETY

Promoting public interest in geology and  
advancement of geological knowledge



## Annual Report and Proceedings

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188<sup>th</sup> Session  
2021-2022

[www.edinburghgeolsoc.org](http://www.edinburghgeolsoc.org)

Charity registered in Scotland SC008011



# Edinburgh Geological Society

## Report of Council for the Year Ended 30th September 2022

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*Cover picture: Graham Leslie, leader for our Long Weekend excursion, providing an overview from a wind-blasted ridge on the flank of Sron a' Choire Ghairbh of the imminent Coire Glas electricity hydro storage scheme (photograph courtesy of David Blythe). The scheme straddles the Great Glen Fault Zone north of Loch Lochy. On completion it will more than double the UK's electricity storage capacity.*

## Welcome

The Council of the Edinburgh Geological Society takes great pleasure in presenting the Annual Report and Accounts for the year ending 30th September 2022.

Mike Browne, Acting President

## Council 2021-22 (Elected 16th March 2022)

President	Tom Challands/Mike Browne*
Vice-Presidents	Angela Mathis, Mike Browne*
Immediate Past President	Bob Gatliff**/Tom Challands**
Honorary Secretary	Neil Mackenzie
Assistant Secretary (Annual Report)	Don Cameron
Assistant Secretary (Minutes)	Katie Strang
Honorary Treasurer	Christian Ranken
Membership Secretary	Euan Mitchell
Lectures Secretary	Graham Leslie
Excursions Secretary	Ian Kearsley
Assistant Secretary (Clough/Awards)	Graham Leslie
Assistant Secretary (Excursion Bookings)	David Graham
Assistant Secretary (Geoconservation)	Mike Browne
Assistant Secretary (Fellows Night Co-ordinator)	Chris Lofthouse
Assistant Secretary (Publications)	Patrick Condon
Publication Sales Officer	Don Cameron
Archivist	Christine Thompson
Scientific Editors	Tom Challands*, Heather Stewart, Romesh Palamakumbra
Ordinary Members	Con Gillen, Daryl Sawyer, Katie Strang, Bob Gatliff**

\*Tom Challands stood down as President and Scientific Editor on 24<sup>th</sup> May to be replaced as Acting President by Mike Browne (until then joint Vice-President). \*\*Bob Gatliff was replaced by Tom Challands as Immediate Past President on the same date, remaining on Council as an Ordinary Member.

Charity Name: Edinburgh Geological Society

Scottish Charity Number: SC008011

Official Contact Address: c/o British Geological Survey, The Lyell Centre,  
Research Avenue South, Edinburgh EH14 4AP

Website Address: [www.edinburghgeolsoc.org/](http://www.edinburghgeolsoc.org/)

## Report on Activities

### Overview

The global Covid-19 pandemic had blighted EGS activities during our 187<sup>th</sup> Session and the latter part of the previous 186<sup>th</sup> Session. However, measures enforced and recommendations made by government in an effort to slow the virus's spread began to relax at last. This enabled us to host a Public Lecture at Our Dynamic Earth in October 2021 on the theme of "Climate Change in Edinburgh: Past, Present, Future". For many of our small but appreciative socially-distanced audience this was their first attendance at a large indoor gathering since before the pandemic started. Nevertheless, ongoing University of Edinburgh restrictions prevented our return for evening lectures at the Grant Institute until March 2022. Even then attendance was restricted and had to be pre-booked. The pre-March fortnightly lectures were held as webinars only, whereas the March lectures were held as hybrid webinar and live-attendance meetings.

On a positive note, our membership reached record levels yet again. Ian Kearsley and his team devised a programme of 11 Wednesday and Saturday excursions, though attendance at these remained lower than in pre-pandemic years. Our Promotion Co-ordinator Angus Miller and his team of volunteers entertained 175 participants in 4 drop-in beach pebble events for the Edinburgh Science Festival. Well over 100 participants also joined EGS volunteers for a guided walk at Barns Ness during Dunbar Civic Week. Events such as these are encouraged to fulfil the key objectives of our Society as summarised below.

*The Edinburgh Geological Society was founded in 1834 and its objectives are the stimulation and encouragement of public interest in geology and the advancement of geological knowledge. Its governing document is The Laws of the Society, which serves as its constitution. The Society is an unincorporated association with charitable status. Its membership elects the members of its Council as the Charity Trustees at the Annual General Meeting of the Society.*

*The Council is the management body for the Society and there are a number of Committees which manage particular aspects of the Society's work and report to the Council. These include the Finance and Planning, Clough, Excursions, and Publications Committees and also the Lothian and Borders GeoConservation Group and Tayside Geodiversity Group. The Scottish Journal of Geology is owned jointly by the Society and the Geological Society of Glasgow. The Society is affiliated to the Geologists' Association.*

## Council

The Council met five times during the year to maintain an overview of the full range of activities of the Society. The Finance and Planning Committee met once to compile and monitor a budget for the financial year 2021-22. The Council's Promotion and Co-ordination Group continued to organise various promotional activities.

## Membership

Despite the ongoing challenges posed by the Covid-19 pandemic, EGS membership rose yet again this session to a new record of 678 members, the highest level in more than 30 years. Junior Associate membership rose by 22 (55%) and Senior Fellows by 15 (13.9%), whereas numbers of Ordinary Fellows decreased for the first time since 2019. Our Society has now enjoyed a sustained increase in membership every year since 2016.

	2021	2022	Change
Life Fellow	13	12	-1
Ordinary Fellow	430	418	-12
Family Fellow	29	23	-6
Senior Fellow	109	124	15
Glasgow Associate	24	25	1
Junior Associate	40	62	22
Distinguished Fellow	9	8	-1
Corresponding Fellow	4	4	0
Honorary Fellow	2	2	0
<b>TOTAL MEMBERSHIP</b>	<b>660</b>	<b>678</b>	<b>18</b>

## Lectures Programme 2021-2022

Government restrictions associated with the ongoing Covid-19 pandemic began to be relaxed during the Society's 188<sup>th</sup> Session. This enabled Our Dynamic Earth to host our first Public Lecture for two years (see below). With its large student population, the University of Edinburgh understandably delayed an easing of its restrictions until March 2022. This also allowed a hybrid delivery for the last three evening lectures, with a limited number of pre-booked participants in attendance at its Grant Institute and simultaneous broadcast of these lectures as webinars. All of the pre-March evening lectures and our Fellows Night were delivered as

webinars only. As in recent years, our Lectures Secretary Graham Leslie organised the evening lecture series, and Chris Lofthouse organised the Fellows Night.

Lectures held during the 188<sup>th</sup> Session were:

- 6 Oct **Public Lecture:** Climate change in Edinburgh: Past, Present, Future: **Katie Strang** (Scottish Geology Trust) - The past: Carboniferous rocks and climate change, **Larissa Naylor** and **Freya Muir** (University of Glasgow) - Dynamic Coast 2: Scotland's present and future coastal change and **Katriona Edlmann** (University of Edinburgh) - Utilising Scotland's geology to support our energy transition to net zero emissions: hydrogen energy storage.
- 20 Oct **Louis Howell** (Keele University & Cairn Energy): Repurposing the Carboniferous.
- 3 Nov **Eimear Deady** (British Geological Survey): Critical raw materials for the energy transition.
- 17 Nov **Jessica T Smith** (Atkins): Engineering geology: Infrastructure delivery.
- 1 Dec **Mark Wilkinson** (University of Edinburgh): Why are the Highlands high? Cenozoic uplift and erosion in Scotland.
- 15 Dec **Fellows Night**, with short contributions by **Paige dePolo** (Muck's Middle Jurassic: New Fossils from the Smallest of Scotland's Small Isles), **Paul Seaman** (Ikaite deposits in Ikka Fjord, Greenland), and **Alison Tymon** (Grooves on rocky shore platforms).

## 2022

- 19 Jan **Charles H Wellman** (Sheffield University): Life on land one billion years ago: barren wilderness or evolutionary cradle?
- 2 Feb **Florian Fussels** (University of Edinburgh): How x-rays and neutrons allow us to challenge established concepts in tectonics.
- 9 Feb **Kevin Smith** (ex-British Geological Survey): The Forties (Ratray) Volcanic Province in the Central North Sea 1970-2020.
- 16 Feb **Mark Austin** (Alba Minerals): MIS/EGS joint lecture - Clogau Gold Mine exploration, North Wales.
- 2 Mar **Tim Smithson** (Cambridge University): Clough Medal lecture: New beginnings: recent discoveries in the early Carboniferous of northern Britain reveal rapid faunal replacement following the end-Devonian extinction.

- 16 Mar **Kit Hardman** (Hull University): The geology and evolution of near-surface fissure systems in Calabria, Italy and other areas.
- 30 Mar **Mark D Bateman** (Sheffield University): The day a tsunami hit Scotland.

Attendance at our webinars was significantly lower than in the 187<sup>th</sup> Session, and Grant Institute audiences for the hybrid lectures in March were markedly below capacity. Nevertheless, the hybrid delivery of evening lectures (to live audiences and as simultaneous webinars) will be continued for the foreseeable future.

## **Promotion of the Society and Public Interest in Geology**

Our paid Promotion Co-ordinator, Angus Miller, continued to support the work of the Society across a range of activities: these included maintaining the EGS website, assisting with the online broadcast and recording when our lecture programme resumed at the Grant Institute, and co-ordinating the biannual members' newsletter and mailing.

Our Annual Public Lecture took place in-person at Our Dynamic Earth on 6 October 2021. Our theme was climate change in Edinburgh: Past, Present and Future, and we were entertained by three enthusiastic and engaging presentations from Dr Katie Strang, Prof Larissa Naylor with Dr Freya Muir, and Dr Katriona Edlmann.

Over the weekend of 15-17 October 2021, EGS welcomed the Geologists' Association (GA) for their first annual conference in Scotland for many years. The meeting was jointly presented by Vanessa Banks (President of the GA) and Robert Gatliff (EGS). Numbers were limited due to Covid-19 restrictions. A Friday afternoon visit to the National Museum of Scotland (hosted by Rachel Walcott) was followed by an evening reception at the Playfair Library. Delegates were delighted to explore some of Charles Lyell's notebooks and correspondence, kindly put on display by the University. This was followed by a full day of talks in Surgeons' Hall followed by a conference dinner in the evening. EGS acknowledges 9 talks by Angus Miller (EGS), Laura Hamlet (NW Highland Geopark), Eddie Dempsey (University of Hull), John Underhill (Heriot Watt University), Darren Jones, Jane Evans and Dayton Dove (BGS) and Rachel Wood and Tom Challands (University of Edinburgh). During the day there was an exhibition of geological prints by a group of Oxford artists and put together by Sally Levell. On the Sunday morning, there were three excursions led by Al McGowan (Fishing in the pavements of Edinburgh), Andrew McMillan with Luis Albornoz-Parra (Building stones of Edinburgh) and Angus Miller (Holyrood Park).



In April, EGS organised four successful drop-in beach pebble events for the Edinburgh Science Festival. Over four days, 175 people joined us on the beaches at Wardie, Portobello, North Berwick and Dunbar to explore the variety of beach pebbles and find out more about local geology. Emily Brown volunteered on all four days, along with several other enthusiastic volunteers.

EGS was asked to arrange a guided walk at Barns Ness for Dunbar Civic Week in June. On a sunny evening with nothing else in their programme, well over 100 people turned up and were introduced to the local geology by Mike Browne and Robert Gatliff.

## **Excursions Programme 2021-2022**

Held in early October, the final excursion of the 2021 programme was:

Sat 9 Oct      St Baldred's Cradle: Leader Fiona McGibbon.

For the first time since 2019, there were no government-enforced restrictions on excursion participation this year. Ian Kearsley and his team devised an ambitious programme of 5 Wednesday evening and 6 Saturday excursions - earlier in the season than in recent years in an attempt to reduce the impact of vegetation growth over inland rock exposures. The two earliest planned excursions were cancelled. There were insufficient coach bookings for Bob Davidson's planned 23<sup>rd</sup> April excursion to Lower Devonian fossil sites in Angus, and one of the two leaders for the 2<sup>nd</sup> May trip to Petershill Quarry, Bathgate became unavailable after contracting Covid-19.

There were 115 participants in the remaining 9 excursions. David Graham took bookings for these excursions again, and provided pre-trip information to participants. The 2022 excursions were:

Wed 18 May      Aberlady: Leader Mark Dean.

Sat 28 May      Wanlockhead: Leaders Jon Evans (Wanlockhead Mining Museum) and Ian Kearsley.

Wed 1 Jun      North Berwick Law: Leader Fiona McGibbon.

Sat 4 Jun      Eyemouth and Burnmouth coast: Leader Alastair Robertson.

Sat 18 Jun      Kinghorn Volcanic Formation: Leader David Stephenson.

Wed 22 Jun      Siccar Point/Pease Bay: Leader Bob Gatliff.

Sat 2 Jul      Burntisland: Leader Katie Strang.

Sat 16 Jul      South Queensferry to Hound Point (joint with Geological Society of Glasgow): Leader Richard Smith.

Wed 20 Jul      Whinny Hill and Dunsapie Crag: Leader Angus Miller.

A week-long excursion to the Isle of Man rescheduled from 2020 to 2021 and then to May 2022 was again unable to proceed due to Covid-19 restrictions. Four of our members took part in an alternative 7-day May excursion led by our Graham Leslie and organised by the Westmoreland and Cumberland Geological Societies.

Between 19-21 August, 12 participants took part in our traditional Long Weekend excursion, during which our leader Graham Leslie provided us with an insight into the challenges posed by geological site investigation associated with imminent construction of the Coire Glas pumped hydro storage scheme north of Spean Bridge. With a projected capacity of 1.5 GW, this ambitious scheme will more than double the UK's electricity storage capacity. The scheme will involve construction of a major dam in Glen Glas, a subterranean turbine hall, and tunnels to enable off-peak pumping from Loch Lochy into the new Glen Glas reservoir, peak gravity-fed supply of water from the reservoir to the turbine hall, and connection of electricity generated in the turbine hall to the national grid, which is at its nearest to the scheme several km to the north-east.

Much of the Coire Glas pump storage scheme will be sited in the 600-metre wide damage zone formed by 3 phases of Caledonian, Variscan and Jurassic strike-slip movements along the Great Glen Fault. On an initially showery Saturday morning, a 3 km stroll along a forestry road provided us with an introduction to the nature of the cataclastic deformation of the host Moinian strata in scattered roadside exposures. The day's main objective, however, was to gain a panoramic overview of Coire Glas ahead of dam construction by climbing high onto the mountain ridge separating Coire Glas from Loch Lochy. On the wind-blasted ridge, Graham summarised the construction schedule and pointed out the locations of smaller schemes that have been built along the Great Glen in recent years. Most of the party then proceeded to the summit of the nearby Sron a' Choire Ghairbh (937m), which for most of us was the first ascent of a Munro in many years.

Sunday was intermittently showery too, and midges made their presence felt occasionally. Our investigations were concentrated along lower level forestry trails, in road cuttings and trailside exposures. We were impressed by the complexity of the Great Glen Fault's damage zone, with original bedding often obscure, and orientations and density of fractures commonly different in exposures only a few tens of metres apart. Carbonate mineralisation and fracture infill by granite and dolerite add to the complexity. We determined that examination of these exposures provided a valuable insight into the rock properties that might be encountered in the underground constructions, but these could only be verified by drilling site

investigation boreholes into the proposed locations of the major construction units, and in particular the turbine hall.

This thought-provoking field trip was much enjoyed by all. Graham proposed that our Society might return here some years hence, when rock core from the underground investigations might become available for inspection, and we could review progress in the construction of the hydro pump storage facility.



*Fallen block of red sandstone from the Ballagan Formation, west side of the headland of St Baldred's Cradle. The stick points to a dewatering structure. (This block was in situ in the outcrop until relatively recently when winter freezing harvested it from the cliff). The photograph is courtesy of Erol Karacaoglu.*

## **Publications**

Heather Stewart writes: the composition of the Editorial Board has evolved during the reporting year with the resignation of Dr David Brown (University of Glasgow), Dr Tom Challands (University of Edinburgh) and Dr Martin Kirkbride (University of Dundee). We thank them for their service to the

Scottish Journal of Geology. We welcomed Dr Yves Candela from the National Museum of Scotland and Dr Iain Neill from the University of Glasgow to the Board - they bring expertise in the fields of palaeontology and igneous petrology respectively. Drs Candela and Neill join current Board members Dr Colin Braithwaite (Editor in Chief), Heather Stewart and Dr Romesh Palamakumbura. We are currently looking to increase our Board membership further, specifically a member with expertise in Quaternary geology and geomorphology. Recommendations from the EGS would be welcome.

There continues to be a reduced number of submissions that fall under the remit of the Scottish Journal of Geology. The journal had a total of 10 submissions in 2022 compared with 20 the previous year. Nine research articles and a book review were published across the two issues for Volume 58 including three research articles that form part of the Early Career Researcher Thematic Collection, which now comprises 15 research articles.

We continue to speculate as to why there has been a reduction in submissions to the journal, and this was discussed at length at our recent Editorial Board meeting. We will implement a dedicated social media campaign to promote or market the journal as the premier platform to publish on all aspects of Scottish Geology and Geomorphology both on- and offshore; as a first step we have created a Twitter account “@ScotJGeology”. Additionally, we will look to implement two new Thematic Collections: one collection reviewing key aspects of Scottish geology ([www.lyellcollection.org/content/geology-of-scotland](http://www.lyellcollection.org/content/geology-of-scotland)); and one in the early stages of planning dedicated to celebrating the Palaeontology of Scotland. There were a number of other initiatives discussed including invited overview papers. If any EGS members have ideas for overview and research papers or indeed ideas to promote the journal, please contact [hast@bgs.ac.uk](mailto:hast@bgs.ac.uk). All enquiries and suggestions are welcome.

The “Impact” of the journal continues to grow with our metrics improving during 2022. Our journal impact factor is now 1.556 and our 5-year Impact Factor is 2.208. There were 57,003 full-text downloads through the Lyell Collection (usage from GeoScienceWorld is not included) in 2021. We will receive the metrics for 2022 at the Geological Society of London Editorial Round Table Meeting in the early half of 2023.

Bob Gatliff compiled and edited Issues 71 and 72 of our twice-yearly Edinburgh Geologist magazine, and these were distributed to members in September and May. Two editions (Spring & Autumn) of the EGS Newsletter were again produced by our Promotions Co-ordinator, Angus Miller. These were distributed to members as hard copy, but are also available online, via the Society’s website. In addition to keeping members informed about the

Society's activities, the Newsletter is proving useful in promoting the Society to a wider readership of non-members. The GeoConservation Groups continued to work on leaflets; a full list can be found on our website, see: <https://www.edinburghgeolsoc.org/publications/geoconservation-leaflets/>.

At £3,083, EGS book sales revenue was more than 70% higher than in each of the two previous Covid-blighted years. An additional £288 was gained as the Society's share of proceeds from our four excursion guides published jointly with National Museums of Scotland (NMS). £878 of the EGS revenue was from the EGS-published geopoetry volume Earth Lines, and Alan McKirdy's new James Hutton book also sold well. EGS members received their book orders made from our EGS website postage-free throughout the year, but this arrangement will cease in the new session when they can make their purchases at EGS lecture evenings once more. The entire stock of EGS excursion guides and geoconservation leaflets remains housed in secure rental storage in Leith. Storage continues to cost the Society approximately £1,200 per year, and the search continues for a cheaper alternative - ideas from the membership would be most welcome.

### **Geoconservation Groups** (report by Mike Browne, chair)

This has been another low-key year for Lothian and Borders GeoConservation, despite the lifting of Covid-19 restrictions. Our Business Committee met once this year by Zoom with active support from all five local councils. The only council that had not got a full suite of Local Geodiversity Sites yet was Midlothian. Now our key volunteers (Alison and Barry Tymon) have almost finished their site surveying there. The 19 site documents will be presented at our winter Business Committee meeting for final approval and listing in the next Midlothian Local Plan. We have also continued limited work on site condition monitoring, and a fieldwork-based workshop was held in East Lothian on Kilsplindie Beach.

EGS and our group previously wrote a letter to Scottish Borders Council objecting to the proposed Slipperfield gravel working between Carlups and Dolphinton, based on the excellence of the local glacial landscape and landforms. The Council refused planning consent citing our evidence. The company has appealed the decision, so the outcome is now with the Scottish Government Reporter. We will write again.

Our Volunteer Group met six times during the year by Zoom. Members of the group undertook limited fieldwork in support of compiling and writing new leaflets for the Two Laws (North Berwick and Traprain) and Edinburgh New Town. A short leaflet for the Courtyards at Dalkeith Palace was prepared for online publication. The St Abbs leaflet was reprinted following very high demand, and given the lack of our human resources currently, we intend to

do limited reprints of out-of-print leaflets such as Calton Hill, Corstorphine Hill and North Berwick Trails. Members of the Volunteer Group also helped with planning the Society's excursions programme for 2022. Tayside Geodiversity Group is still carrying out site surveys in Perthshire and Angus. Finally, we wish to record our sincere appreciation of Cliston (Cliff) Porteous. He was an active member of the group from 2001 to 2018 (see his Obituary, page 26).

## **Clough Medal and Research Grants**

The Clough Medal was awarded this session to Dr Tim Smithson (Cambridge University) in recognition of his paradigm-shifting research on early limbed vertebrates and his outstanding contributions to the geology and palaeontology of Scotland and northern England. Throughout his career, his interests have diversified, and he continues to produce seminal papers on the taxonomy, phylogeny, palaeoecology and environment of early tetrapods, while maintaining an active interest in the geology and sedimentology of the sites that he has intensely prospected for well over five decades. In addition, his long-standing interest in palaeoichthyology has borne fruit in the form of numerous research papers on Carboniferous sharks and lungfish. As a result of his painstaking efforts, much valuable material is now available for in depth research and has provided the impetus for PhD projects in Cambridge. He is renowned as a dedicated and inspirational teacher and mentor. His contribution and achievements make him a worthy recipient of the Clough Medal, in recognition of his stalwart efforts, immense vision, and great dedication in advancing and disseminating vertebrate palaeontology, geology and stratigraphy.

A contribution of £940 was awarded from the Clough Fund to Emily Madoff (University of St Andrews) in support of research into layering mechanisms and tectonics at Ilimaussaq, South Greenland. This project will improve the understanding of layered alkaline intrusions which host critical Rare Earth Element (REE) deposits, contributing to securing the critical metal supply chain. A contribution of £160 out of a request for £1,000 was made to Nicholas Mappin on behalf of 5 University of St Andrews MGeol students - Council agreed that the balance of £840 be awarded as an EGS grant (see page 13). The research grant supported their investigation of the potential of Rare Earth Elements within the local nepheline syenite and carbonatites at Stjernøya, Norway. No awards were made this session from the Mykura Fund.

The Clough Medal prize and all of the approved research grants were paid out in full this session.

## Grants and Awards

The EGS Grant Scheme supports projects which further the aims of the Society, namely to encourage public interest in geology and to advance geological knowledge. Council considered grant applications on one occasion during the year. The following had been approved in 2020/21 to a total of £1,134, but were eventually paid out during the current session:

James Gilgannon (University of Bern, Switzerland)	£864	Testing of grain-size palaeopiezometry in mylonites
Richard Batchelor (University of St Andrews)	£270	Publication of a self-guided leaflet: 'Building Stones of Dunfermline'

The following table records three awards made in 2021-2022, and all were paid out this session:

Nicholas A Lucas (University of Cambridge)	£1,000	Investigating the formation of Mesoproterozoic crustal eclogites in the Grenville orogen, as exposed in the Glenelg-Attadale Inlier of NW Scotland.
Nicholas Mappin (University of St Andrews) - balance of award made from Clough Fund (see page 16)	£840	High-resolution mapping of Stjernøya, Norway: Rare Earth Element potential of metamorphosed alkaline systems
Ri Cao (University of Edinburgh)	£804	Massive volcanic domes on Venus and the mobilisation of crystal mush: insights from Troodos Ophiolite, Cyprus

In recent years a £200 EGS Science Prize has been awarded annually for top marks achieved in the Scottish Environmental Science Higher examination. Council has agreed to increase this prize to £250. No prize was awarded this session, because Covid-19 restrictions had prevented national school examinations from being held in 2021. The Clough Memorial Award (£300) was made to George Guice (Smithsonian Institution, Washington DC, USA) for his outstanding research into mineral ore genesis - this has been paid out in full.

## **Financial Review**

The Society produced a surplus in 2021-22 of £3,650 being the result of several factors that included:

- Continuing enhancement of membership and membership subscriptions.
- Increased publication sales.

The surplus was restricted by losses in the value of the Society's investments, as global stock markets became volatile exacerbated by Russia's invasion of Ukraine as well as being influenced by concerns over inflation and further increases in interest rates in the UK, US and Europe, such that total Resources declined from £143,849 to £135,839.

The Council's policy is that it should maintain a minimum level of Unrestricted Resources of £50,000 (in previous years, £35,000) to safeguard against financial risks. The current level of Unrestricted Resources comfortably exceeds that at £97,469. Council has determined that it can continue to fund the Promotional Co-ordinator costs from its Resources for the time being. Other initiatives may be similarly funded, although the Council's overall Strategy requires it to keep the level of its Resources under regular review.

Within the total funds of £135,839 are two Restricted Funds, the Clough and Mykura Funds, which are described in Note 6 to the accounts. These funds make up the remaining £38,370 of the Resources, having declined by £4,034 during the year.

The Council is guided by its Strategic Plans for EGS 2015-19 and 2019-23, and by an annual budgeting process under which it allocates and controls expenditure. Its investments are managed by Rathbones.

**Approved by the Council of the Edinburgh Geological Society  
and signed on its behalf by:**

Mike Browne, Acting President

Date:



**Statement of Financial Activities including Receipts and Payments**  
**Account for the year ended 30<sup>th</sup> September 2022**

	Note	Unrestricted £ 2022	Restricted £ 2022	Total £ 2022	Total £ 2021
<b><u>Receipts</u></b>					
<b>Voluntary Income</b>					
Members' subscriptions		13,398	0	13,398	14,018
Gift aid		3,021	0	3,021	0
Donations		2,017	0	2,017	5,193
<b>Investment Income</b>		1,861	860	2,721	2,977
<b>Income from Charitable Activities</b>					
Excursions	3	1,795	0	1,795	350
<b>Fundraising trading</b>					
Sales of Publications		3,371	0	3,371	1,850
<b>Total Incoming Resources</b>		<b>25,463</b>	<b>860</b>	<b>26,323</b>	<b>24,388</b>
<b><u>Payments</u></b>					
Investment management costs		847	0	847	480
Storage		1,188	0	1,188	1,188
<b>Fundraising trading:</b>					
Cost of sales		876	0	876	1,647
<b>Charitable activities:</b>					
Lectures		1,590	0	1,590	275
Newsletters		841	0	841	1,847
Edinburgh Geologist		2,130	0	2,130	2,034
Excursions	3	1,664	0	1,664	305
Events & Initiatives		551	0	551	1,983
Grants and Awards		4,078	1,100	5,178	2,524
Charitable donations		0	0	0	2,000
Promotions		2,323	0	2,323	2,940
Administration		3,802	0	3,802	2,631
Governance		1,339	0	1,339	1,345
<b>Total Resources Expended</b>		<b>21,229</b>	<b>1,100</b>	<b>22,329</b>	<b>21,199</b>

*Continued overleaf*

	Unrestricted £ 2022	Restricted £ 2022	Total £ 2022	Total £ 2021
<b>Net incoming/(outgoing) resources before investment sales and (purchases)</b>	<b>4,234</b>	<b>(240)</b>	<b>3,994</b>	<b>3,189</b>
Proceeds from sale of investments	108,656	0	108,656	8,162
Purchase of investments	(109,000)	0	(109,000)	(6,636)
	<b>(344)</b>	<b>0</b>	<b>(344)</b>	<b>1,526</b>
<b>Surplus/(deficit) for year</b>	<b>3,890</b>	<b>(240)</b>	<b>3,650</b>	<b>4,715</b>

#### Statement of Balances as at 30<sup>th</sup> September 2022

	£ 2022	£ 2021
<b>Cash Funds</b>		
Cash and bank balances at start of year	29,742	25,027
(Deficit)/surplus shown on receipts & payments account	3,650	4,715
<b>Cash and bank balances at end of year</b>	<b><u>33,392</u></b>	<b><u>29,742</u></b>
<b>Stock</b>		
Stock of publications	4,287	5,650
Other stock	325	0
	<b><u>4,612</u></b>	<b><u>5,650</u></b>

#### Investments - Analysis of Movements of Investments

Market value at beginning of year	108,610
Add: additions to Investments at cost	109,000
Less: disposals at market value	(108,610)
Add net gain (loss) on revaluation	<u>(12,050)</u>
	<b><u>96,950</u></b>

The notes on pages 18-19 form part of these accounts.

Approved by Council and signed on its behalf by

C Ranken, Treasurer

2023

## Notes forming part of the Financial Statements

### 1) Accounting Policies

The accounts have been prepared on a receipts and payments basis.

### 2) Geoconservation Groups

Lothian and Borders GeoConservation and Tayside Geodiversity groups are constituted as committees of the Society, but have their own office-bearers and bank accounts. Their financial results are included in these accounts.

### 3) Excursions

Particulars of the Society's excursions etc are as follows:-

	2021/22		2020/2021	
	Contributions £	Cost £	Contributions £	Cost £
Day Excursions	1,345	1,660	350	305
Weekend Excursions	0	0	0	0
Long Excursion	450	4	0	0
Fellows' Night	0	0	0	0
<b>TOTAL</b>	<b>1,795</b>	<b>1,664</b>	<b>350</b>	<b>305</b>

### 4) Publications

Stocks of publications have been valued at cost.

### 5) Trustee Remuneration and related party transactions

No members of Council received any remuneration during the year. Costs totalling £380.87 incurred on behalf of the Society were refunded to 2 members of Council.

No trustee had any personal interest in any contract or transaction entered into by the charity during the year. One member of the Society entered into a contract for services to provide promotion activity to the Society.

## 6. Funds

### Endowment Funds

The purpose of the Clough Memorial Fund is to provide a medal annually to a geologist whose original work has materially increased the knowledge of the geology of Scotland and the North of England, and to award grants for fieldwork. A medal was awarded, and two grants were made from the Clough Fund during the year (see page 13). No grants were eligible from an additional Mykura Fund.

### Accounting

The gross income from investments and bank interest received during the year, together with net gains (losses) on disposal or revaluation of investments, has been apportioned to the various Endowment funds in the ratio of their opening balances.

The assets of the Society have been apportioned to the various Endowment funds in the ratio of their closing balances.

	Unrestricted Funds £	Endowment Funds		Total £
		Clough £	Mykura £	
Investment income	1,861	431	429	2,721
Other Incoming resources	23,602	0	0	23,602
<b>Total incoming resources</b>	<b>25,463</b>	<b>431</b>	<b>429</b>	<b>26,323</b>
Grants and awards	4,078	1,100	0	5,178
Other outgoing resources	17,151	0	0	17,151
<b>Total outgoing resources</b>	<b>21,229</b>	<b>1,100</b>	<b>0</b>	<b>22,329</b>
Gain/loss on Investments	(8,210)	(1,900)	(1,894)	(12,004)
Net movement in funds	(3,976)	(2,569)	(1,465)	(8,010)
Funds brought forward	101,445	21,935	20,469	143,849
<b>Funds carried forward</b>	<b>97,469</b>	<b>19,366</b>	<b>19,004</b>	<b>135,839</b>
Represented by:				
Investments	66,308	15,343	15,299	96,950
Current assets	31,161	4,023	3,705	38,889
	<b>97,469</b>	<b>19,366</b>	<b>19,004</b>	<b>135,839</b>

**Independent Examiner's Report to the Trustees of the  
Edinburgh Geological Society**

**For the year to 30th September 2022**

I report on the Accounts of the Charity for the year ended 30th September 2022 which are set out on pages 15 to 19.

**Respective responsibilities of trustees and examiner**

The charity's trustees are responsible for the preparation of the accounts in accordance with the terms of the Charities and Trustee Investment (Scotland) Act 2005 and the Charities Accounts (Scotland) Regulations 2006 (as amended). The charity's trustees consider that the audit requirement of Regulation 10(1)(d) of the 2006 Accounts Regulations does not apply. It is my responsibility to examine the accounts as required under section 44(1)(c) of the Act and to state whether particular matters have come to my attention.

**Basis of independent examiner's statement**

In the course of my examination, no matter has come to my attention:

- 1) which gives me reasonable cause to believe that, in any material respect, the requirements:
  - to keep accounting records in accordance with Section 44(1)(a) of the 2005 Act and Regulation 8 of the 2006 Accounts Regulations
  - and to prepare accounts which accord with the accounting records and comply with Regulation 8 of the 2006 Accounts Regulationshave not been met, or
- 2) to which, in my opinion, attention should be drawn in order to draw a proper understanding of the accounts to be reached.

Jessie W Craig MA, CA  
33 Braehead Avenue  
Edinburgh  
EH4 6QN

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2023

## Obituaries

During the year we recorded with the greatest regret the deaths of Richard Batchelor, Professor Donald Bowes, Dr Peter Brand, Rennie Frazer, Dr Alaric Hopgood, Professor Dick Kroon, Dr Victor Loudon, Clifton Porteous and Dr Peter Sabine. They will all be sorely missed.

**Richard Batchelor** joined our Society in 1973 and died in February 2022 aged 72. Rosalind Garton writes: Richard was brought up in Manchester, the only son of parents who met in wartime Italy. With his English father and Italian mother, Italian was the language spoken at home, and starting primary school was quite a shock for him. However, he did well enough to win a place at Stretford Grammar School, and become the first member of his family to go to university.

At the University College of Wales, Aberystwyth, Richard studied chemistry and geology and geochemistry became his great love. After university, he did summer volunteering with the Institute of Geological Sciences, working on the Stream Sediment Sampling Project with Mike Gallagher and Angela Anderson to find rock deposits to improve UK sufficiency in important minerals. During this time Richard discovered a uranium vein in Invernesshire, and his meticulous sample preparation skills sufficiently impressed Mike Gallagher to gain Richard a post in 1972 as geochemical analyst in the Department of Geology at St. Andrews, the first graduate level technician at the university.

His original work involved a considerable enlargement of the Department's geochemical analytical facilities for staff and student research. In his early days, analytical facilities included atomic absorption spectroscopy and gravimetric analysis. As automated systems of X-ray analysis replaced classical geochemical techniques, his skills moved increasingly towards computer manipulation of geochemical data.

Richard was also an enthusiastic researcher. In 1984 he completed a substantial research MSc on the geochemistry of the Loch Etive granite. Being on the technical staff, his research was carried out almost entirely in his own time. Over the years he published 41 papers, focussing particularly on ancient volcanic ashes, which can be difficult to recognise in the field. In 2005 he resigned from his technician's post to become a Leverhulme Research Fellow, and enjoyed three years of pure research at the end of his university career. This was followed by the honour of a Leverhulme Emeritus Fellowship, during which he worked on controversial Moine calc-silicate rocks, showing that originally they had indeed been volcanic ash deposits.

Richard shared a mutual enthusiasm for geology with his wife, EGS Fellow Rosalind Garton. She accompanied Richard on field collecting trips for his research, and he helped her with field reconnaissance for her adult education classes. Together they founded *GeoHeritage Fife*, a charity that publicises the interesting rocks of Fife through geological trail leaflets, the St. Andrews Geological Wall, and the cast of fossil footprints of a giant water scorpion which is now a feature in the university's Wardlaw Museum, and to which Rosalind led an EGS excursion. Richard was grateful to the EGS for funding some printing costs of the leaflets. His latest "Building Stones of Dunfermline" will be published posthumously by our Society.

Richard was a talented, largely self-taught musician, playing the organ and enjoying choral singing with Rosalind during their 46 years together. He was also well known locally as a railway enthusiast, publishing the *East Fife Railway Album*, and a volume on *The Cults and Pitlessie Limeworks Railway*. In retirement, as an Honorary Research Fellow at St. Andrews and in spite of failing health, Richard continued researching. His last paper was an interdisciplinary collaboration with statisticians about the mysterious depressions in the Blackbyre Limestone on the shore near Dunbar, over which EGS Fellows have puzzled for many years. Just two weeks before his death the paper was accepted for publication by the Journal of the Royal Statistical Society. Although frail by this time, Richard was absolutely delighted.

**Donald (Don) Bowes** was a life member of EGS, having joined in 1958. Obituaries for Don have been published by the University of Glasgow, and by the Geological Society at <https://www.geolsoc.org.uk/About/History/Obituaries-2001-onwards/Obituaries-2021/Don-Bowes>. An Australian, after completing a PhD at Imperial College London and lecturing in Adelaide and Swansea, Don became a senior lecturer in Glasgow University in 1958 and professor in 1975. He authored or co-authored more than 300 papers. Apart from important contributions to unravelling the Lewisian geology of north-west Scotland, he also published on the Precambrian complexes of Finland, Bohemia, Wyoming, Australia, India, China and Siberia. Another important research interest was in the medical problems of dust mineralogy, and especially of talc and asbestos. He was a contributing editor to the American Journal of Industrial Medicine for 23 years, and he was also executive editor of the Transactions of the Royal Society of Edinburgh from 1978-1985. Don passed away in November 2021 aged 95.

**Peter Brand** was a life member of EGS, having joined in 1957. He spent his career in Edinburgh as a palaeontologist with the British Geological Survey (BGS), specialising in Carboniferous macrofauna. Peter provided many

important contributions to publications on the Carboniferous palaeofacies of central Scotland and northern England, including in the recent paper by David Millward *et al* on the palaeogeography of northern Britain during the early Mississippian ‘Romer’s Gap’. He continued his macrofaunal studies as an honorary research associate with BGS post-retirement, and also completed a catalogue of fossil specimens in the BGS collections from the Tournaisian strata of Scotland and of the Northumberland-Solway Basin. Outside of his professional life, Peter had been an enthusiastic member of the Scottish Rock Garden Society and Edinburgh Philatelic Society. He also played a prominent role in the worship of St John’s Episcopal Church in Edinburgh, where he celebrated 60 years as lay preacher in 2021. Peter passed away in April 2022.

**Rennie Frazer** joined our Society in 2004. He was an agronomist by profession, and post-retirement he had been secretary of the Esk Valley Trust. He passed away in October 2021 aged 77.

**Alaric Hopgood** was a member of our Society, having joined in 1965. Ed Stephens writes: Alaric passed away in August 2022 aged 91. A New Zealander, he completed his BSc at the University of Auckland before joining the academic staff of the University of St Andrews in the 1960s. He completed a PhD on the structure and tectonic history of Lewisian gneiss in the Isle of Barra, with Professor Charles Davidson as his supervisor. Alaric served the University first as Lecturer in Geology and then as Reader until he retired towards the end of the millennium.

Alaric had wide interests in geology, but his main contributions concerned the reconstruction of the structural histories of gneisses and migmatites in the Archaean and Proterozoic of the Baltic Shield. He also made significant contributions to the geology of Scotland, including several papers on the geology of islands in the Inner and Outer Hebrides. Many of his papers were published with his good friend and research collaborator, the late Professor Don Bowes of Glasgow University. Alaric’s research in this area led to his 1998 publication *Determination of Structural Successions in Migmatites and Gneisses*. This monograph was the first to describe procedures for the analysis of structural relationships in these highly deformed rocks.

For his scholarship and contribution to geology, Alaric was recognised by election in 1980 to a Fellowship of the Royal Society of Edinburgh. He was deeply loyal to the Department of Geology at St Andrews. With just a handful of colleagues he willingly took his share of what was a heavy academic and administrative load in mounting a full degree programme with substantial field and laboratory training components. Welcome respite came



in summer vacations when he undertook field studies in Greenland and Scandinavia, although some impairment of his mobility resulting from surgery became a frustrating constraint on this activity.

Many alumni of Geology at St Andrews will have been taught structural geology by Alaric and might remember his magnificent sample collection illustrating the complexities and differing styles of deformation, particularly in high grade metamorphic rocks. Indeed, more than two decades after Alaric retired his collection is still used in the undergraduate teaching course.

In retirement, Alaric supported his wife Jenny in her tireless campaign to preserve the character of the town of St Andrews and to protect it from unsympathetic and damaging development. Without their efforts St Andrews may now have looked very different. Alaric is much missed in the School and in the wider community.

**Dick Kroon** passed away on 24 May 2022, aged 64: Simon Jung, Gilbert Camoin, Antony Morris and John Reijmer write: We were deeply saddened and shocked by the recent passing of our dear friend and colleague Professor Dick Kroon, Regius Professor of Geology at the University of Edinburgh.

Dick began his journey in Earth Sciences at the Vrije Universiteit Amsterdam in 1977 and completed his BSc six years later. Supervised by Prof. Jan van Hinte, he submitted his PhD, jointly with G.J.A. Brummer, in 1988 entitled "Distribution of extant planktic foraminiferal assemblages in Red Sea and northern Indian Ocean surface waters by G.J.A. Brummer, D. Kroon (Eds.), Planktonic foraminifers as tracers of ocean-climate history." Around this time, Graham Shimmield, who sailed with Dick on ODP Leg 117, suggested Dick to apply for the lecturer job at the University of Edinburgh. During his first period in Edinburgh (1989-2001), his scientific success led to a quick rise up the ranks, culminating in his being promoted to full professor (Personal Chair of Palaeoceanography) in 2000. Soon after, he successfully applied to succeed Jan van Hinte as professor in Palaeoclimate and Palaeoecology at the Vrije Universiteit Amsterdam in 2001. During this time, he maintained his link with Scotland and the University of Edinburgh by organising annual excursions with Dutch students to Scotland and continuing collaboration with peers from the School of Geosciences. The final leg of his journey in Earth Sciences commenced with his appointment as Regius Chair in Geology, prompting the start of his second period in Edinburgh.

Scientifically, early during his first time spell in Edinburgh, he became increasingly aware of the potential of Scientific Ocean Drilling, which quickly morphed into a deep, life-long affection for the ODP/IODP

programme, lasting more than three decades. He sailed on six ODP/IODP expeditions of which he led two as Co-Chief Scientist. Dick was instrumental in pioneering palaeoceanographic and climate reconstructions from the Holocene to the Cretaceous based on stable isotope stratigraphy and planktonic foraminiferal micropalaeontology. More than 150 publications and the training of ~30 PhD graduates (most of whom now hold academic roles themselves), are included in Dick's exceptional scientific legacy, which will continue to influence, inform, and stimulate research well into the future.

Dick played a central role regarding the two last scientific ocean drilling programmes. Initially he served as Chair of IODP-Netherlands (2002-2006) followed by taking on the Co-Chair role of the IODP Science Evaluation Panel for five years (2012-2016). The pinnacle of his contribution to ocean drilling was his role as Chair of the IODP Forum (2019-2021), which represents the highest-level entity within the current program. In this role he was the face of the International Ocean Discovery Program. His unique scientific knowledge and outstanding diplomatic skills were a perfect fit for the role when working with colleagues/partners around the world. His exceptional people skills were equally useful in creating stimulating conditions, conducive to bringing out the best in everyone. His role in orchestrating the finalization of the "2050 Science Framework: Exploring Earth by Scientific Ocean Drilling" exemplifies his approach of the role as Chair of the IODP Forum, by presenting a compelling scientific vision for the future of the programme as a legacy of his influence and passion.

Dick was not only an exceptional researcher, but a gifted teacher as well. He excelled in both, delivering inspired and inspirational lectures, but also in fostering lasting fascination and interest in Earth Sciences when being in the field with students. Keeping student motivation high was paramount when running excursions. This principle may be exemplified by his first response after he broke his leg in a field location near Ullapool (Scotland). Whilst obviously being in pain, he repeatedly insisted to leave him where the accident occurred and pick him up on our way back to the car. His wish was not complied with.

Dick's limitless and infectious enthusiasm, his insightful views, as well as his rich personality and acute sense of humour will be much missed by the scientific drilling and academic community more generally. Those of us who had the privilege to work closely with Dick, and to know him well, have lost a truly special colleague and friend. His memory will last, and he will remain in our hearts and memories.

During his career, Dick's contribution to the community was recognized on a number of occasions. In addition to his professorship in Amsterdam and the

Queen-appointed, Regius Chair in Geology, he was awarded with an ECORD Award in recognition of his outstanding contribution to Scientific Ocean Drilling. Regrettably, Dick was never able to receive his award in person. In his gracious acceptance letter, Dick wrote that “Scientific Ocean Drilling is fun” and “the future looks bright”, but since his passing the IODP sky has sadly been very much dimmer.

Our thoughts are with Dick’s wife and children, Erica, Gebien and Tim, all of his family, and with his innumerable friends around the world, to whom he left these beautifully poignant words: “The situation is disconcerting we cannot do much about it. Thank you for thinking of me, Dick”.

**Victor (Vic) Loudon** joined our Society in 1981 - he passed away in October 2021. A short obituary for Vic has been published as a MediaWiki in [earthwise.bgs.ac.uk](http://earthwise.bgs.ac.uk). After graduating at Edinburgh University in 1956, Vic spent four years as a well-site geologist and subsurface mapper in Canada before completing a PhD in 1963 on the sedimentology and structure in the Macduff District of North Banffshire and Aberdeenshire. His interest in the potential for the application of computer methods in geological research led to 6 years of post-doctoral fellowships in the USA and at Reading University. In 1969 Vic was recruited to head the British Geological Survey’s Computer Unit, which was subsumed into the NERC Computer Service in 1978. He transferred to Edinburgh and spent the remainder of his BGS career and post-retirement in research into the application of spatial models for a more integrated representation of geology.

**Cliston (Cliff) Porteous** passed away on 31<sup>st</sup> March 2022 aged 90. He had been a member of our society since 1982. Mike Browne writes: Cliff was an active member of the Lothian and Borders GeoConservation (RIGS) Group from around 2001 to 2018. He was a retired chemistry teacher, and loved taking our Group’s work to school children and the general public. In Mary Erskine Stewart’s-Melville Junior School, he designed an ‘Every Wall Tells a Story’ Board using the stones to introduce the children to the basic classes of rocks (2001). He helped out at numerous public fairs and events, such as at Corstorphine Hill, Hopetoun House, Vogrie Country Park, New Hailes Quarry Park, Almond Valley Heritage Park and Lasswade Community Centre. At these, he brought his interesting and very popular rock-matching game involving both large examples of rocks and six sets of small samples for children to compare them with. In particular, he is remembered for his work in the leaflets project with Girlguiding East Lothian from 2002 onwards. He authored or edited or contributed to several of our published trail leaflets, including Ravelston Park and Wood (2001), The Witch Craig Wall (2003),

Craiglockhart and Edinburgh's Seven Hills (2008) and James Hutton (2018). He was involved in our collaboration in 2006 with the Borders Foundation for Rural Sustainability in the production of information boards, website and leaflet for The James Hutton Trail (Siccar Point-Slighhouses Farm to Jedburgh). Cliff loved researching things, and it was he who identified Hutton's friend, John Playfair's grave in Old Calton Graveyard, now marked by a wall stone. Our Group does not get volunteers of his calibre very often.

**Peter Aubrey Sabine** had been a member of our Society for more than 60 years - he passed away on 9<sup>th</sup> July at the age of 94. A full obituary for Peter has been published online by Cambridge University Press on behalf of the Mineralogical Society of Great Britain and Ireland. In summary, Peter had a long and distinguished career at Durham University and with the British Geological Survey and its predecessors, rising through Chief Geochemist to Deputy Director before his retirement in 1984. His principal research interests were in igneous petrology, but he also published seminal research into contact metamorphism and the mineralogy of stone axes. Post-retirement, he published further articles on the forensic investigations of geologists during the First World War.

### **Acknowledgements**

The affairs of the Society are organised predominantly by voluntary effort, assisted by one paid part-time independent contractor (Angus Miller). Members of Council jointly contribute hundreds of hours of time to the running of the Society, much of this in quiet ways behind the scenes. Council is supported by many other people, including lecturers, excursion leaders and organisers.







