



EDINBURGH GEOLOGICAL SOCIETY

Promoting public interest in geology and advancement of geological knowledge



Annual Report and Proceedings

186th Session
2019-2020

www.edinburghgeolsoc.org

Charity registered in Scotland SC008011

Edinburgh Geological Society
Report of Council for the Year Ended 30th September 2020

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Cover picture: Geological interpretation panel installed in 2020 at Cove village, telling the story of James Hutton's journey along the coast to Siccar Point (photograph courtesy of Angus Miller).

Welcome

The Council of the Edinburgh Geological Society takes great pleasure in presenting the Annual Report and Accounts for the year ending 30th September 2020.

Tom Challands, President

Council 2019-20 (Elected 24th June 2020)

President	Tom Challands
Vice-President	Emrys Phillips
Immediate Past President	Bob Gatliff
Honorary Secretary	Neil Mackenzie
Assistant Secretary (Annual Report)	Don Cameron
Assistant Secretary (Minutes)	Richard Buxton
Honorary Treasurer	Christian Ranken
Membership Secretary	Vacant*
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
Publication Sales Officer	Don Cameron
Archivist	Christine Thompson
Scientific Editors	Tom Challands Heather Stewart Romesh Palamakumbra
Ordinary Members	Con Gillen, Euan Mitchell. Stuart Monro, Daryl Sawyer Rachel Walcott

* Christine Kuhn was Membership Secretary until January 2020; Angus Miller was acting Membership Secretary for the remainder of the Session. David Graham succeeded Alison Tymon as Assistant Secretary (Excursion Bookings) from 28th May 2020.

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/

Report on Activities

Overview

Our Society's 186th Session has been like no other in recent memory. The first cases of the COVID-19 coronavirus pandemic arrived in Edinburgh in February 2020, and its progress through the community has impacted us all to varying degrees. From mid-March, the measures enforced and recommendations made by government in an effort to slow the spread of the virus have also had a major impact on the activities of our Society. Our AGM, which had been scheduled to precede the final evening lecture of the Session at the Grant Institute in March, was rescheduled to a virtual meeting on a Zoom platform in mid-summer. Our programme of field excursions was cancelled, although a slight easing of restrictions enabled limited numbers to attend a revised programme of excursions in late September. Book sales were reduced to a trickle. On a positive note, our membership reached record levels, and our enforced adoption of virtual technology for lectures will continue into the post-pandemic world, enabling remote attendance at a time and place of their choosing by those members who are unwilling or unable to travel to the Grant Institute in normal circumstances. For the third year running, Angus Miller organised a public lecture, with the theme this year being 'The Secret Life of Carbon.' Angus continued in his paid role as our Promotion Co-ordinator. Our Society and the Friends of Hugh Miller jointly hosted the Nigel Trewin Memorial Lecture on the 25th September when, with gatherings of more than 6 people prohibited, the lecture 'Chip Shops and Drain Cleaners: the Weird World of the Triassic' by Dr Nick Fraser (National Museums of Scotland) was delivered as a webinar.

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 2019-20, and to adjudicate on applications for grants in support of the Society's objectives. The Council's Promotion and Coordination Group continued to organise various promotional activities, and a Website Group developed new material and posted current news items on the EGS website.

Membership

The number of members rose by 14 (2%) in 2019-20, largely due to a significant increase in the number of Junior Associates. The Society has enjoyed a sustained increase in membership since 2016, with the number of members now at its highest level in more than 30 years.

	2019	2020	Change
Life Fellow	10	10	0
Ordinary Fellow	423	422	-1
Family Fellow	27	26	-1
Senior Fellow	106	108	2
Glasgow Associate	18	16	-2
Junior Associate	11	29	18
Distinguished Fellow	8	9	1
Corresponding Fellow	6	4	-2
Honorary Fellow	3	2	-1
TOTAL MEMBERSHIP	612	626	14

Clough Medal and Research Grants

The Clough Medal was awarded this session to Kathy Whaler, Professor of Geophysics for 25 years at the University of Edinburgh, in recognition of her exceptional record of research in the field of geomagnetism. She has published over 80 papers, using geophysical methods to understand large-scale processes in the Earth's crust and core, and even on Mars. In recent years she has been a leading light in the RiftVolc project, which has drawn together a multidisciplinary team to research crustal processes in the East African Rift. She has made a major contribution to postgraduate education, having supervised and examined many postgraduate students. She is a

world-renowned geoscientist, and as such her achievements make her a worthy recipient of the Clough Medal.

A contribution of £560 was awarded from the Mykura Fund to Anya Lawrence (University of Birmingham) towards her field expenses incurred in a project aimed at determining the emplacement and petrogenesis of the Ratagain Granite Complex, western Scotland. A second contribution of £400 was awarded from the Mykura Fund to Derek Leung (University of Edinburgh) towards his field expenses incurred in collecting granite samples to investigate the rare-element mineralogy of Ailsa Craig curling stones. Another request for field support from the Mykura Fund for a project on the island of Muck was sanctioned, but payment has been delayed until 2020-21, pending an easing of government-enforced anti-COVID 19 travel restrictions. Awards for another 2 field-based projects on Rum and in Namibia were sanctioned from the Clough Fund, but both projects were cancelled without payment.

Lectures Programme 2019-2020

Lectures Secretary Graham Leslie organised a programme of 11 meetings, and the first 10 of these took place to packed audiences at the University of Edinburgh's Grant Institute as scheduled. Government COVID-19 restrictions led to postponement of our final lecture till October, when it will be delivered as a webinar. An additional EGS Public Lecture was organised by Angus Miller at Our Dynamic Earth on the 23rd October (see below), which attracted an almost full-house audience. Fellows' Night and the social evening took place at BGS Lyell Centre on the Heriot-Watt campus, with catering organised by Bob Gatliff. Lectures held during the session were:

2019

- 16 Oct **David McClay** (University of Edinburgh): Sir Charles Lyell: making the archives of a public man of science public.
- 23 Oct **Prof Susan Waldron** (University of Glasgow), **Tom Wagner** (Heriot-Watt University) and **Dick Kroon** (University of Edinburgh): Public Lecture chaired by Hermione Cockburn (Our Dynamic Earth) - The Secret Life of Carbon.
- 30 Oct **Stephen Brusatte** (PalAlba/University of Edinburgh): The Jurassic Hebrides: New dinosaur discoveries from the PalAlba Group.
- 13 Nov **Callum Strong** (University of Edinburgh): Dating the source of the Nile.
- 27 Nov **Gilbert Camoin** (ECORD): Coral reef records of sea level and climatic changes during the last glacial cycle.

11 Dec **Fellows' Night**, with short contributions by **Derek Leung, Jason Gilchrist, Beverly Bergman, Andrew Bladon, Deborah Rohan** and **Kirstie Wright**.

2020

8 Jan **Bruce Lyell** (University of Oxford): The Argyll Group: two beauts.

22 Jan **Roddy Muir**: Ben Nevis - remnant of a lost volcanic landscape.

5 Feb **Claire Cousins** (University of St Andrews): Joint MIS/EGS lecture - Mineral exploration beyond the Earth.

19 Feb **Kathy Whaler** (University of Aberdeen): Clough Medal lecture - Adventures with Maxwell's equations.

4 Mar **David Jarmin** (Mountain Landform Research): Rock slope failure in the Scottish mountains.

Promotion of the Society and Public Interest in Geology

Our paid Promotion Coordinator, Angus Miller, and Council members continued to organise various promotional activities to engage the general public and EGS members. A Public Lecture 'The Secret Life of Carbon' at Dynamic Earth on 23 October 2019 was judged a success, though attendance was slightly lower than for recent Public Lectures. Events had been planned for the Edinburgh Science Festival in April, but were cancelled due to COVID-19 restrictions. The Nigel Trewin Public Lecture by Nick Fraser, 'Chip Shops and Drain Cleaners: the Weird World of the Triassic', was organised jointly online with the Friends of Hugh Miller on 25 September 2020, and attracted a good crowd. EGS also organised successful real and virtual excursions for the Scottish Geology Festival in September.

The Society has contributed to three new interpretation boards. One board, exploring the story of fish fossils at Wardie Shore in Edinburgh, was arranged in partnership with Scottish Wildlife Trust. This board includes a Carboniferous lake reconstruction by artist Jon Hoad. Although completed, its installation has been delayed. Two new interpretation boards were installed at Cove village, telling the story of James Hutton's journey along the coast, and describing the variety of local rocks. These were organised by the Cove community, with geological input from EGS. A new publication, the Urban Nature for Edinburgh, features all of Edinburgh's Local Geodiversity Sites - it received a £1,000 EGS grant towards production costs (see Grants and Awards, p.12). The map includes a summary geological map and integrates Edinburgh's geology into a range of information that aims to make nature, active travel and heritage accessible to locals and visitors. Publication of the map has been delayed but is expected early in 2021.

Excursions Programme 2020

During the winter, Ian Kearsley and his team devised an ambitious programme for 2020 featuring 8 Saturday or Sunday, 5 Wednesday evening, and week and weekend excursions. David Graham (replacing Alison Tymon) began to take bookings for many of these excursions, with Anne Burgess organising the Isle of Man Long excursion. However, it soon became apparent that the government COVID-19 restrictions introduced in March were likely to continue through most or all of the excursion season, and Council decided there was no option but to cancel the entire programme. In late August, restrictions were eased sufficiently to reinstate the Long Weekend excursion, and to instigate plans to hold 4 of the original excursion programme in September (others will be held in October). These excursions were:

- Wed 16 Sep Blackford Hill: Leader Richard Smith (7 participants)
- Wed 23 Sep Wardie shore: Leader Tom Challands (10 participants)
- Sat 26 Sep Siccar Point: Leader Angus Miller (6 participants)
- Wed 30 Sep Dalkeith buildings: Leader Tom Challands (10 participants)

The Wardie Shore and Dalkeith buildings excursions have been made available as virtual field trips at <https://www.edinburghgeolsoc.org/excursions/>. Our AGM audience were also treated on the 24th June to a virtual excursion to southern Islay by David Webster (Glasgow Geological Society), focusing on its Dalradian metabasalt sills. Angus Miller presented a virtual excursion to Edinburgh's Braid and Blackford Hills in the 2020 Scottish Festival of Geology on the 24th September.

With 9 EGS participants, the 2020 Long Weekend excursion in south-west Scotland was led by Dr Alistair Robertson (University of Edinburgh) and organised by Ian Kearsley. Its objective was to view elements of the Ballantrae Ophiolite Complex and its sedimentary cover. The ophiolite complex contains both serpentinised ultramafic rocks representing oceanic mantle, and volcanic sequences representing the remains of oceanic crust and island arcs. It is thought that these early Ordovician rocks were obducted northwards onto a continental margin during Arenig times (early Ordovician). Craighead Quarry was our first locality on the Saturday, where we viewed the subaqueous pillow lavas and unconformably overlying late Ordovician limestones that comprise the oldest limestone reef deposits in the UK. The remainder of Saturday was spent along the foreshore between Balcreuchan Point and Bennane Head, examining the green and red oceanic mantle serpentinite and adjacent mid-Ordovician shallow marine sedimentary and volcanic rocks. In glorious sunshine on the Sunday morning, the party climbed Byne Hill to view exposures of ophiolitic gabbro and

plagiogranite. The remainder of the excursion was spent examining the sedimentary rocks that unconformably overlie the ophiolite complex on the foreshore between Kennedy's Pass and Pinbain beach - these include late Ordovician conglomerates and turbidites, the latter with spectacular folding.



Participants on the Long Weekend Excursion atop exposures of Ordovician oceanic mantle rocks on the summit of Byne Hill south of Girvan; the group is socially distanced to comply with the contemporary government anti-COVID-19 virus regulations (photograph courtesy of Anne Burgess).

Publications

Tom Challands writes: This has been a tumultuous year for many aiming to publish their research. In spite of this, the *Scottish Journal of Geology* has fared well. Twenty-nine articles were submitted to SJG in 2020, the second highest number since 2016. Of these, 16 were accepted for publication, as in 2019, while only 12 received a decision to reject, a lower number than in 2019. This reduction in rejections reflects the high quality of articles being submitted to SJG, as well as a slight decrease in the number of articles submitted.

The top three downloaded articles up to November were: Hartley *et al.* (2020) *Ice-rafting in lakes in the early Neoproterozoic: dropstones in the Diabaig Formation, Torridon Group, NW Scotland* (2,004 downloads, 1 citation); Watson *et al.* (2020) *Digging deeper: The influence of historical mining on Glasgow's subsurface thermal state to inform geothermal research* (1,217 downloads, 5 citations); Watson & Westaway (2020)

Borehole temperature log from the Glasgow Geothermal Energy Research Field Site: a record of past changes to ground surface temperature caused by urban development (868 downloads, 3 citations).

Following the success of the 2019 Early Career Researcher special issue, the coming year will see another special issue on the Geology of Scotland.

Possible contributors are urged to contact the editorial board (<https://www.geolsoc.org.uk/Publications/Journals/Scottish-Journal-of-Geology/Editorial-Board>) for potential submissions to this special issue.

With technical assistance from Bob McIntosh, Phil Stone has been our much-acclaimed editor of The Edinburgh Geologist twice-yearly magazine for the past 11 years - for his services he has been elected a Distinguished Member of the Society. After overseeing their final Spring 2019 Issue 67, Phil and Bob passed the editorial baton to Robert Gatliff for the production of the Autumn 2019 Issue 68, distributed to members in September.

Two editions (Spring & Autumn) of the EGS Newsletter were again produced by our Promotions Coordinator, 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 £1,709, book sales revenue has been the lowest for many years. Whereas sales through our EGS website have been unaffected by the COVID-19 crisis, sales to bookshops and geoparks have been almost non-existent - in recent years these have accounted for more than 50% of our book sales revenue. Due to furloughing of staff at the National Museum of Scotland (NMS) from mid-March, EGS has received no additional revenue from NMS this session for our four jointly published geological excursion guides. Sales figures for these excursion guides will be reconciled in the next Session. Stocks of the ever-popular Assynt Mecca and the geological excursion guide to the North West Highlands had been running low in 2018-19. Second reprints of both became available early in the current session.

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 a rather low-key year for Lothian and Borders GeoConservation, partly because most of our existing projects came to

fruition during 2018/19, and partly also because of COVID-19 restrictions. Our Business Committee met only once this year, but we continued limited work on the monitoring and designation of Local Geodiversity Sites. The geodiversity working groups for Edinburgh and West Lothian Councils did not meet, but they continued to raise the standard of existing documentation for designated sites.

Our Volunteer Group met three times during the winter. COVID-19 stalled the start of work on rewriting the Calton Hill (with fieldwork) and North Berwick (cancelled fieldwork) trails until 2020/21. Volunteers ran a stall on local geology at the Earth, Space and Rocks science gala during the Midlothian Science Festival in October 2019, and distributed copies of the newly published Dalkeith Building Stones leaflet there. Members of the Volunteer Group also helped with planning the Society's revised September excursions programme. Tayside Geodiversity Group is still carrying out site surveys in Perthshire and Angus.

Finally, we wish to record our appreciation of Elspeth Urquhart, our Treasurer between 2012 and 2019, who died of ill-health only weeks after resigning her post. We remember her as an excellent treasurer and financial manager and contributor to many of our leaflet projects, especially as co-ordinator of Stones of Scotland and the Canongate Wall in the early 2000s. We also wish to record our appreciation of her immediate predecessor as treasurer between 2004 and 2012, Angus Macpherson, who passed away in April this year.

Donations to Scottish Geology Trust and Lyell Notebook Appeal

In late 2019 EGS Council approved a donation of £5,000 seed funding towards the setting up of a Scottish Geology Trust - the Trust was formally launched in early 2020 - and our Society's role in the setting up of the Trust was reported in the 2018-19 EGS Annual Report. EGS Council also approved a donation of £5,000 to the Sir Charles Lyell Notebook Appeal. Sir Charles (1797-1875) was highly regarded and recognised as one of the outstanding geologists of his age, and as one of the founders of modern geology. His collection of 294 geology notebooks had been approved for export after auction, but a temporary export bar enabled a successful appeal brokered by the University of Edinburgh to raise sufficient funds to purchase them. The purchase will enable the notebooks to be conserved and digitised, and thus to be fully accessible for research in historical geology.

On 19th February EGS received a generous bequest of £10,000 from the estate of the late Ian Hogarth. This bequest has effectively subsidised our Society's contributions to both the Scottish Geology Trust and the Sir Charles Lyell Notebook Appeal.

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 were approved in 2018/19 to a total of £1,500, but had not been withdrawn until the current session:

Derek Leung (University of Edinburgh)	£1,000	Contribution to high-resolution microscopic images of samples of curling stones
Tom Gernon (University of Southampton)	£500	Installation of interpretative panels on the geology of Elie Ness and St Monans, east Fife

The following table records 3 awards (total £2,380) made to external (non-EGS) recipients:

Amanda Owen (University of Glasgow)	£500	Girls into Geoscience one-day symposium - payment made, but symposium postponed to 2021
Euan McIntosh (University of Glasgow)	£880	Mineralisation and eastward tectonic correlation of the Loch Maree Group = major and trace element analysis of 16 samples of mafic/ultramafic material
Rob Bushby (Urban Good CIC)	£1,000	Creating Urban Nature Map for Edinburgh

Two further grants were awarded in the current session, but have not been withdrawn as yet. Richard Batchelor (University of St Andrews) was awarded £260 towards the publication of a self-guided leaflet about the geological features of the area around Elie, Fife. Allan Audsley (University of Stirling) was awarded £889 towards radiocarbon dating and chemical analysis of shells in sea-bed pockmarks to determine the timing of sea-bed methane leakage.

Lily K Von Gayer (The Community School of Auchterarder) was the 2019 winner of the EGS Science Prize, awarded annually for top marks achieved in the Scottish Environmental Science Higher examination - Lily received an award of £200.

The Clough Memorial Award (£300) was made to Stephen Brusatte (University of Edinburgh) for his outstanding research in palaeontology and his contribution to public engagement.

Financial Review

The Society produced a deficit in 2019-20 of £3,449. This deficit was the result of several factors that included:

- Lower than anticipated income from excursions due to cancellation of these events.
- Enhanced expenditure on Events and Initiatives together with Grants and Awards.

The deficit was compounded by losses in the value of the Society's investments, as global stock markets reacted to uncertainty resulting from the coronavirus pandemic, such that total Reserves decreased from £139,822 to £124,504.

The Council's policy is that it should maintain a minimum level of Unrestricted Reserves of £50,000 (in previous years £35,000) to guard against financial risks. The current level of Unrestricted Reserves comfortably exceeds that at £86,747. Council has determined that it can continue to fund the Promotion Coordinator costs from its Reserves for the time being. Other initiatives may be similarly funded, although the Council's overall Strategy requires it to keep the level of its Reserves under regular review.

Within the total funds of £124,504 are two Restricted Funds, the Clough and Mykura Funds, which are described in Note 6 to the accounts. These Funds make up the remaining £37,757 of the Reserves, having decreased by £3,479 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:**

Tom Challands, President
Xxx 2021

**Statement of Financial Activities including Receipts and Payment
Account for the year ended 30th September 2020**

	Note	Unrestricted £ 2020	Restricted £ 2020	Total £ 2020	Total £ 2019
<u>Receipts</u>					
Voluntary Income					
Members' subscriptions		10,526	0	10,526	9,807
Gift aid		1,544	0	1,544	2,890
Donations and Grants		11,194	0	11,194	1,988
Investment Income		2,116	978	3,094	3,539
Income from Charitable Activities					
Excursions	3	1,990	0	1,990	4,696
Fundraising trading					
Sales of Publications		1,709	0	1,709	3,882
Total Incoming Resources		29,079	978	30,057	26,802
<u>Payments</u>					
Investment management costs					
Storage		1,188	0	1,188	1,188
Fundraising trading:					
Cost of sales		3,551	0	3,551	978
Charitable activities:					
Lectures		850	0	850	532
Newsletters		1,660	0	1,660	1,596
Edinburgh Geologist		1,982	0	1,982	1,930
Excursions	3	360	0	360	5,413
Events/Initiatives (net)		1,748	0	1,748	1,496
Grants and Awards*		4,080	960	5,040	2,500
Charitable donations		10,000	0	10,000	0
Promotions		4,034	0	4,034	2,952
Administration		2,144	0	2,144	1,506
Governance		1,234	0	1,234	1,371
Total Resources Expended		33,350	960	34,310	21,822

Continued overleaf

Net incoming/(outgoing) resources before investment sales and (purchases)	(4,271)	18	(4,253)	4,980
Proceeds from sale of investments	10,783	0	10,783	10
Purchase of investments	(9,979)	0	(9,979)	0
	804	0	804	10
Surplus/(deficit) for year	(3,467)	18	(3,449)	4,990

Statement of Balances as at 30th September 2020

	2020 £	2019 £
Cash Funds		
Cash and bank balances at start of year	28,476	23,486
(Deficit)/surplus shown on receipts & payments account	(3,449)	4,990
Cash and bank balances at end of year	25,027	28,476
Stock		
Stock of publications	4,179	2,457
Other stock	284	425
	4,463	2,882
Investments - Analysis of Movements of Investments		
Market value at beginning of year	105,849	
Add: additions to Investments at cost	9,979	
Less: disposals at market value	(11,281)	
Net loss on revaluation	(10,567)	
	93,980	

The notes on pages 16-17 form part of these accounts.

Approved by Council and signed on its behalf by

C Ranken, Treasurer xxxx 2021

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:-

	2019/20		2018/2019	
	Contributions £	Cost £	Contributions £	Cost £
Day Excursions	0	0	846	1,361
Weekend Excursions	0	0	0	0
Long Excursions	1,790	197	3,610	3,875
Fellows' Night	200	163	240	177
TOTAL	1,990	360	4,696	5,413

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 incurred in entertaining lecturers after the public lectures (£596.95) were refunded to 2 members of Council, and other costs totalling £72.62 incurred on behalf of the Society were refunded to 3 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. One medal was awarded, but no grants were made from the Clough Fund during the year. Two grants were made from an additional Mykura Fund, which supports fieldwork in Scotland (see page 6).

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 Clough £ Mykura £		Total £
Investment income	2,116	490	488	3,094
Other Incoming resources	26,963	0	0	26,963
Total incoming resources	29,079	490	488	30,057
Grants and awards	4,080	0	960	5,040
Other outgoing resources	29,270	0	0	29,270
Total outgoing resources	33,350	0	960	34,310
Gain/loss on Investments	(7,568)	(1,751)	(1,746)	(11,065)
Net movement in funds	(11,839)	(1,261)	(2,218)	(15,318)
Funds brought forward	98,586	21,008	20,228	139,822
Funds carried forward	86,747	19,747	18,010	124,504
Represented by:				
Investments	64,277	14,873	14,830	93,980
Current assets	22,470	4,874	3,180	30,524
	86,747	19,747	18,010	124,504

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

For the year to 30th September 2020

I report on the Accounts of the Charity for the year ended 30th September 2020 which are set out on pages 14 to 17.

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)(a) to (c) 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

2021

Obituaries

During the year we recorded with the greatest regret the deaths of Dr Benjamin Browne, Prof Dennis Dean, Dennis Dickins, Hugh Docherty, Prof Robert Dott Jr, Dr David Gavine, Prof Ken Glennie, Dr R Angus Harkness, Eddie Harvey, David Horsley, Ian Jackson, Angus Macpherson, Dr David McMahon, Dr Elspeth Urquhart and Dr Chris Wigglesworth. They will all be sorely missed.

Benjamin (Ben) Browne was a long-standing member and latterly an honorary member of the Glasgow Geological Society. Their Society has published a full obituary for Ben at <https://geologyglasgow.org.uk/wp-content/uploads/2019/10/ben-browne.pdf>. Having also been a member of EGS for 5 years, Ben attended our recent Norway, Skye and Cornwall Long Excursions. He passed away on 25 May 2019.

Professor Dennis Dean of Evanston, Illinois in the USA was an EGS Corresponding Fellow from 1997-98 until he passed away on 28 June 2019.

Dennis Dickins passed away on 3 June 2020, having been an EGS member since 1993-94. Since 1992 Dennis had been variously a near-surface geophysical consultant with Reynolds International and a consultant at Cumbria Environmental and Geological Services.

Hugh Docherty had been an EGS member since 1994-95 until he passed away on 17 March 2020. Mike Browne writes: Born in 1937, Hugh started working in local pits for the National Coal Board in 1954. In his early career at the Ramsay Colliery he learned skills including loco driver, withdrawing pit props underground and working the coal seam. Between 1963 and 1966 he was a Pit Deputy at Bilston Glen. He then moved to Monktonhall where he gained a Higher National Diploma in mining in 1969, becoming Assistant to the Pit Manager there until leaving the coal mining industry in 1986 to work for the Law Society in Scotland - he retired in 2002. Hugh was an enthusiastic member of our Society until declining health prevented him from attending field trips initially, and eventually our evening lectures too. Hugh was also a volunteer with Lothian and Borders GeoConservation.

Professor Robert (Bob) H Dott Jr was an EGS Corresponding Fellow from 1997 until he passed away on 27 February 2018. Born on June 2 1929, Bob held a faculty position at the University of Wisconsin from 1958 until he retired in 1994. His academic career focused primarily on sedimentology, tectonics and the evolution of the Earth, having conducted research in Wisconsin, Oregon, Tierra del Fuego, South Georgia and Antarctica. Later in his career and post-retirement he also published extensively on the history of geology.

David Gavine had been an EGS member since 1991-92 until he passed away on 2 January 2020. Born in 1937, David was awarded the JF Scott Prize in Geology from the University of St Andrews, where he gained his BSc in 1960. In 1969 he also gained a degree in geography from the University of Aberdeen, which led him initially to teaching geography and geology at Grove Academy and Fort Augustus Abbey School. However, David had a lifelong passion for astronomy, so he made a career move to teaching navigational astronomy and meteorology at Leith Nautical College. Following its transition to a Further Education College, David changed direction again to teach maths and science. After his retirement in 1995, he continued to teach evening classes in geology, astronomy and meteorology.

Professor Ken Glennie = John Underhill writes: The phrase “standing on the shoulders of giant” is an apposite phrase to describe Ken Glennie’s massive contribution to geology.

Ken Glennie was born in 1926 in Somerset to Aberdeenshire parents and educated at school in London. Following army service, he attended Edinburgh University where he received his BSc in Geology in 1953. He stayed on to study for an MSc under the supervision of Donald McIntyre that was awarded in 1955. Entitled “The Structure of the Skiddaw Slates in the north-west Lake District,” that was supported by a grant from Shell. Ken subsequently joined the company and enjoyed a thirty-three year career in international exploration. He remained technically focused throughout and reached the esteemed position of Company Chief Geologist before retiring in 1987.

His first assignment with Shell was to New Zealand, where he worked on the Tertiary of the North Island before being sent to the Canadian Arctic and then Rocky Mountains for three years’ fieldwork to understand thrust systems. However, it was his subsequent posting to Oman in 1960 that was the major pivot and provided the stimulus for his greatest contributions.

So much of what we now know about the North Sea in general and the Anglo-Polish or Southern Permian Basin is founded on the work Ken Glennie undertook and insights he brought from his experiences working in Oman. The work he undertook in the Arabian Peninsula went far beyond helping Petroleum Development Oman (PDO) find oil in block 6. It also included ground-breaking work on modern desert environments. The latter led to publication of the highly influential Desert Sedimentary Environments in 1970 and The Desert of Southeast Arabia in 2005. He also authored the seminal publication entitled Geology of the Oman Mountains in 1995, which remains the starting point for anyone working in the area.

Ken was one of that rare breed of modest, humble and outstanding individuals that influenced a generation of geologists. In addition to the

aforementioned research he undertook or directed, Ken was committed to the transfer of knowledge ably demonstrated by his record of publication and training. His drive to further and share knowledge on the North Sea led him to convene the Petroleum Geology Congress (PGC) covering the petroleum systems of NW Europe in 1986 - the first to be held at the Barbican Centre - that led to a landmark publication (Brooks and Glennie, 1987).

He also instigated a training programme that covered the petroleum systems of the basin and became the mainstay of long-running Joint Association for Petroleum Exploration Courses (JAPEC) and subsequent Petroleum Exploration Society of Great Britain (PESGB) training programmes. The course was hugely influential, and hundreds of young industry professionals benefited from the presentations from the experts that Ken brought together. In the end, four editions of the Petroleum Geology of the North Sea were published between 1985-1998. That the publication was continually updated reflects Ken's commitment to continually keep up with new concepts and ensure its knowledge-base was kept ever-green.

I count it as my considerable good fortune to have attended the course in the late 80's and a great honour to then be invited to present and publish the Structural Overview (jointly with Ken) and the Jurassic parts in Glennie (1998) and having the privilege of being asked by Ken to take on the convening of the course thereafter, when he opted for a quieter life in Banchory, and it has continued to be delivered on a regular basis and dedicated to Ken. Thus, I acknowledge that I have been a direct beneficiary of Ken's selflessness, something I will always be eternally grateful for.

In addition to the professional training programmes that Ken led and contributed to, he also showed a devotion to the next generation of geoscientists by delivering modules on the Petroleum Geology Masters' Programme at The University of Aberdeen, where he took on the role as Honorary Professor in 1985. He was in his element sharing experiences with students, who appreciated the friendly advice and informed opinions about what a career in petroleum geology entailed.

Once based back in his native land north of the border, Ken made a number of significant contributions to furthering knowledge of Scottish Geology, especially that of the Hopeman Sandstone in and around the Elgin and Lossiemouth area and he regularly ran fieldtrips to see the exposures along the Moray coast.

The major contribution he made to geoscience was recognised by a number of prestigious awards and accolades along the way. Ken was awarded an Honorary Doctorate (DSc) by his University of Edinburgh *alma mater* in 1984. He was the recipient of the Geological Society of London's Major John Coke

Medal (1986), the Silver Medal of the Petroleum Group (2000) and the William Smith Medal (2001), the European Association of Geoscientists and Engineers (EAGE)'s Alfred Wegener Medal (2000), and the Royal Geological and Mining Society of the Netherlands (KNGMG) gave him the Van Waterschoot van der Gracht Medal (1999). Notably, the American Association of Petroleum Geologists (AAPG) bestowed the Sidney Powers Award (2005), the first time the award was ever made to a non-US citizen living outside the USA.

Ken was a great family man, who is greatly missed by his three children, Alison, Elizabeth and Peter, their three offspring, Samantha, Alick and Guy and by his four Great Grandchildren, Kayleigh, Sean, Freyja and Tavia. Ken passed away peacefully at Aboyne Hospital on Saturday, November 23, 2019 with his daughter and son-in-law by his side and was laid to rest at Baldarroch Crematorium, Crathes on Wednesday 11th December 2019.

Not only is the geological world a much poorer place for Ken's death, but so too is society. Ken was one of a very rare breed who combined intellect with respect (for data and people). Ken will be missed by all those who knew or encountered him.

R Angus Harkness had been an EGS member since 1993-94 until he passed away on 20 August 2020. Born in Stockton-on-Tees, Angus qualified as a Bachelor of Medicine and Bachelor of Surgery in 1955 and with a PhD in 1962, all from the University of Edinburgh. His early career was with the Medical Research Council (MRC) in Edinburgh; then from 1966-76 he was a consultant with both the University of Edinburgh and the National Health Service. After 1976 Angus rejoined MRC as an honorary consultant medical pathologist in Harlow, Middlesex. After retirement, Angus moved to Balerno, and he served as an Ordinary Member on EGS Council between 1996 and 1999. He enjoyed many of our Society's excursions in recent years, and was notably adept at keeping excursion leaders on their toes with incisive and always relevant questions.

Eddie Harvey passed away in April 2020. Eddie was a geography teacher, hill runner, orienteer and mountaineer and he loved the outdoors. Geology was a particular interest, and he had been an EGS member since 1998-99.

David Horsley - his daughter Elizabeth writes: David Horsley was born in Newcastle upon Tyne in 1925. Delicate as a child, his early education was delayed, but nonetheless in April 1939 he started at Sedgwick (yes that Sedgwick) House, Sedbergh School, in Yorkshire. David revelled in running on the Howgill Fells and in 1943 'discovered' geology in the local terrain, including the many rock exposures around Sedbergh, and the Dent Fault. It remained his overriding passion.

David was called up to the RAF in 1944, when he trained as a navigator.

From 1945 to 1947 he was posted to various RAF stations in the UK, from where he visited all the local quarries within bicycle, bus or train reach. He obtained a degree in English from Cambridge in 1950 and in 1951 married Susan Trought. In 1955 he joined the Security Service where he was to remain until retirement, becoming a director in 1982.

In 1969 David joined the Geological Association and his learning curve grew steeply, fuelled by field meetings and the intellectual excitement of the 'plate tectonics' revolution. He served on the GA Council on three occasions - 1979-82, 1989-92 and 1996-2004 and was a co-founder of Rockwatch. During the 1960s and 70s he methodically visited all the quarries (mainly in the chalk) in north and west Kent. However, a series of holidays on the Isle of Mull aroused an interest in igneous, and especially volcanic rocks, which lasted for the rest of his life.

During retirement David attended many field meetings, particularly those of the EGS but also of the Yorkshire and Westmorland Geological Societies, both of which he joined in the 1980s. He also produced two popular pamphlets, 'Outcrop Britain' and 'Outcrops for Oldies'. Although the Lake District was David's main area of study in later years, Scotland remained his favourite terrain. He once observed to a fellow member of EGS, standing on Ardanish beach in Mull during the Long Field Meeting of 1995, 'I think this is what Heaven must be like'. Having been an EGS member for 32 years, David passed away on 8 March 2020.

Ian Jackson had been an EGS member since 1980-81 until he passed away on 28 June 2020. Born in 1947 in Burnley, Lancashire, Ian was educated at Burnley Grammar School, and he graduated in geology at Christ Church, Oxford University in 1968. Joining the Institute of Geological Sciences (IGS, now BGS) at its Princes Gate office in London later that year, he spent field seasons working on the Aberystwyth and Abergavenny sheets. In the early 1980s he transferred to the IGS office in Grange Terrace, Edinburgh to join its nascent Hydrocarbons Unit. He gained expertise in mapping subsea geology by interpretation of 2D seismic data, and he was soon promoted to lead a small team investigating for undrilled gas and oil prospects in the Irish Sea Basin. He was lead author in the seminal 'The Geology of the Irish Sea', published by BGS in its Offshore Regional Report series. Ian decided to take early retirement from BGS in 1993 aged only 46 during a large cut in government funding to its programme supporting the petroleum industry. However, his renowned expertise in Irish Sea geology soon led to further employment as a consultant to the oil industry.

Post-retirement, Ian became a willing volunteer to EGS, serving variously on Council between 1998 and 2012 as Honorary Treasurer, Assistant Secretary (Excursions) and Publication Sales Officer, and he also compiled the

obituaries in our Annual Report for many years. He loved the outdoors and was a keen orienteer, fell runner and hill-walker in both Scotland and in the Lake District. Ian attended many EGS excursions. He also attended most of our Grant Institute lectures, where he took copious notes in his small but neat handwriting, and where it was a delight to hear his stories in his ingrained Burnley accent, unchanged despite his 40 years sojourn in Edinburgh.

Angus Macpherson passed away on 10 April 2020 at the age of 88. His son Randal writes: Angus was an Oxford graduate and enthusiastic amateur geologist. He reached the highest echelons of the UK Civil Service, but retained close links with his native village of Tong on the Isle of Lewis.

Angus was born in Glasgow, the only child of Dr Eric Macpherson from Greenock and Jane Thomson, a teacher in Tong. Spending his earliest years in Glasgow, Angus lost his father at the age of six. Angus and his mother returned to Tong where Angus received his early education in the local school. With the onset of the Second World War, his mother was appointed to a teaching post in Edinburgh and Angus became a pupil in Leith Academy, achieving distinctions in all his school subjects. In 1945, he was awarded a place at Fettes College. He had a successful academic career, winning an Open Scholarship to read Modern History at Worcester College, Oxford. He was called up for National Service in the Royal Artillery, and was commissioned as an Artillery officer at the age of nineteen. He later served in the Territorial Army and joined the Honourable Artillery Company in London.

Angus was a keen runner and represented his College in athletics and cross-country, at a time when Roger Bannister and Christopher Chataway were leading Oxford athletes. Angus graduated in 1955 and went on to obtain a Post-Graduate Diploma in Public and Social Administration in 1956. That year in Oxford, Angus met Una Jamieson. They were married in Peebles in September 1961. Meeting and marrying Una was for Angus by far the most important consequence of his time at Oxford.

Angus was among the few candidates for the Civil Service to win the Civil Service Commissioners' Competition in 1956. He was seconded to the Cabinet Office in 1972. Amongst other posts, he was secretary of the committee on civil emergencies, (now 'COBRA'). He later worked on the provision of medical services, during which he helped to develop the government's response to the HIV/AIDS crisis. Angus took early retirement in 1987.

In retirement, Angus enrolled in the Open University to study geology and earth science, graduating as a Bachelor of Science in 1997. He became a member of the Edinburgh Geological Society, of which he was President

from 2010 to 2012. Angus enjoyed singing among many hobbies and interests. Between 2005 and 2011 he sang in seven successive Royal National Mods with Lothian Gaelic Choir. He maintained close links with Lewis and took great pride in his Lewis heritage and his fluency in Gaelic. Angus is survived by Una, by his two children, Ranaid and Catherine, and by four grandchildren.

David McMahon had been an EGS member since 1982-83 until 2019; he passed away in February 2020 in a nursing home in the north of England. He had attended many of our Society's Long Excursions, the most recent being to Ireland in 2014.

Elsbeth Urquhart had been an EGS member since 2003-04 until she passed away in February 2020. Elsbeth was a micropalaeontologist, with her specific expertise being in radiolaria. She obtained a PhD from University College, London in 1992, Elsbeth spent much of her career as an independent consultant to the oil industry, but during the late 1990s and early 2000s she was employed as international liaison officer for JOIDES, the international ocean drilling programme.

Chris Wigglesworth had been an EGS member since 2006-7 until he passed away on 4 April 2020. A pre-retirement obituary for Chris has been published at <https://www.theguardian.com/global-development/2020/jun/14/chris-wigglesworth-obituary>. In summary, Chris obtained a degree and doctorate in geology at Durham University and a degree in theology at New College, Edinburgh. He worked as a hydrogeologist in both Maharashtra, India and in south-east Sudan refugee camps. He was also a minister for seven years at the Scots' Kirk in Bombay (now Mumbai). In later years, he lectured in practical theology at Aberdeen University before returning to Edinburgh as general secretary in charge of international work for the Church of Scotland, and he had also been active in the anti-apartheid movement. After his retirement in 1999, Chris was a City of Edinburgh councillor for Tollcross ward, and he was an activist in both the Tollcross and Merchiston community councils.



EGS 23rd September excursion party examining the Lower Carboniferous outcrops on the foreshore at Wardie, Edinburgh, with Leith Waterfront developments in the background (photograph courtesy of Angus Miller).

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.