



THE GEOLOGICAL SOCIETY OF GLASGOW

Registered Scottish Charity No. SC007013

President: Dr. Neil Clark

www.geologyglasgow.org.uk

December 2020

163/2



The discovery of a new fossil bird skull in 2018 dates to the very end of the Cretaceous Period—the final 700 thousand years of the Age of Dinosaurs. It gives us an important glimpse of how birds looked 66.7 million years ago, during the narrow interval of time just before a giant asteroid struck the Earth. Come online on the 10th December to hear Daniel Field's talk on the 'Wonderchicken'

In this newsletter:

- Lecture details for December, January and February 2021
- AGM Information

Lecture Programme 2020-21 (Session 163)

This session continues to be different. The Covid-19 pandemic means we have to organise our lectures on-line. We aim to keep to the usual dates of the second Thursdays of each month. The programme is organised for the next few months, but is subject to change.

All lectures this session will be held online using Zoom. Invites will be emailed to members a few days prior to the meeting. The lectures will commence at 7.30 pm. Lectures will last about an hour plus there will be time afterwards for questions and a vote of thanks.

If you have access to an email address but have not given it to the Society and wish to view these lectures please contact meetings@gsocg.org

The speakers may grant permission for the lecture to be recorded. In these cases it will be posted on Youtube and a link emailed to members.

Thursday 10th December 2020

Dr. Daniel Field, University of Cambridge.

“Bird evolution from the Late Cretaceous onwards”.

Daniel will talk about evolution of birds across mass extinctions, and the timescale of the modern bird radiation. The end-Cretaceous (K–Pg) mass extinction dramatically affected vertebrate life worldwide. He, and his colleagues are trying to decipher how this event affected birds and other vertebrates through fieldwork and lab-based studies. When in Earth history did the first evolutionary divergences among modern birds take place? How old are the major avian clades?



Daniel is an evolutionary palaeobiologist at the University of Cambridge (Department of Earth Sciences). He hails from Alberta, Canada and is a graduate from the University of British Columbia. He did his PhD at Yale and worked at the Smithsonian and Denver before coming to Cambridge in 2018. He uses the vertebrate fossil record to help answer questions about how, where, and when Earth's modern biodiversity arose. He is passionate about natural history, evolution, and science outreach, and enjoys studying and photographing Earth's vertebrate biodiversity in the field.

Further Reading:

Field, D.J., Benito, J., Chen, A., Jagt, J.M.W., Ksepka, D.T. 2020. Late Cretaceous neornithine from Europe illuminates the origins of crown birds. *Nature*, **579** 397-401.

Field, D.J., Berv, J.S., Hsiang, A.Y., Lanfear, R., Landis, M.J., Dornburg, A. 2020. Timing the extant avian radiation: The rise of modern birds, and the importance of modeling molecular rate variation. PeerJ Preprint of in-review manuscript: <https://peerj.com/preprints/27521/>

Thursday 14th January 2021

Dr Tim Kearsey *British Geological Survey, Edinburgh*

“Palaeosols as evidence of terrestrial climate change at major Palaeozoic vertebrate evolutionary events”

Climate change is a major driver of evolution. Palaeosols (fossil soils) are one of the few direct indicators of terrestrial climate and provide a record of climate changes and landscape architecture, and are critical in understanding the terrestrialization of vertebrates in the Carboniferous and the Earth's largest mass extinction at the end of the Permian.



Tim is a survey geologist and sedimentologist with BGS in Edinburgh. He has research interests in Palaeozoic stratigraphy and sedimentology; palaeosols and palaeo-environmental reconstruction; and geostatistics.

Further Reading:

Otoo, B, Clack, J, Smithson, T, Bennett, C, Kearsey, T & Coates, M . 2019. A fish and tetrapod fauna from Romer's Gap preserved in Scottish Tournaisian floodplain deposits. *Palaeontology* **62**, 225-253.

Thursday 11th February 2021

Professor David Beerling, *University of Sheffield*

“Large-scale CO₂ removal via enhanced rock weathering”

Enhanced silicate rock weathering (ERW), deployable with croplands, has potential use for atmospheric carbon dioxide (CO₂) removal (CDR), which is now necessary to mitigate anthropogenic climate change. ERW also has possible co-benefits for improved food and soil security, and reduced ocean acidification. The talk will discuss the challenges and opportunities of ERW deployment, including the potential for excess industrial silicate materials (basalt mine overburden, concrete, and iron and steel slag) to obviate the need for new mining, as well as uncertainties in soil weathering rates and land–ocean transfer of weathered products



David is the Director of the Leverhulme Centre for Climate change mitigation and Sorby Professor of Natural Sciences in the Department of Animal and Plant Sciences (APS) at the University of Sheffield. David has written two popular science books - ‘The Emerald Planet’ and ‘Making Eden’.

Further Reading:

Beerling, D. J. 2020: Potential for large-scale CO₂ removal via enhanced rock weathering with croplands. *Nature* **583**, 242–248

Thursday 11th March 2021

Dr. Dave Schofield, British Geological Survey, Edinburgh .

“Terrane evolution of southern Great Britain.”

Thursday 8th April 2021

Dr. Queenie Chan, Open University.

“Meteorites, comets and the origin of Earth’s water”.

Thursday 13th May 2021

Members Night.

AGM

December 10th 2020

The AGM of the society will be held directly after the lecture on Thursday 10th December at approximately 8:45. It will be an online Zoom meeting. Annual reports from Council officers and proposals for Council will be distributed to members in the Proceedings Booklet prior to the meeting. This newsletter contains the Agenda and Previous Minutes.

The Society is always looking for members to join the Council - as ordinary members - so if you are interested please contact any Council member.

Agenda

1. Welcome
2. Apologies
3. Approval of Minutes of the Annual General Meeting of Session 162 held on Thursday 12th December 2019 and any Matters Arising.
4. Approval of Accounts for the year ended 30th September 2020.
5. Venue for Lectures
6. Reports from Council Officers (see Proceedings)
7. Nominations and Election of Office Bearers (see Proceedings)
8. Proposal to award Honary Membership to Donald Bowes
9. AOCB

Minutes of the Annual General Meeting of Session 162

held on Thursday 12th December 2019 at 7pm.

1. WELCOME

The President welcomed all present

2. MINUTES

The minutes of the AGM of Session 161 which was held on 13th December 2018 had been distributed with the newsletter. These were approved by the meeting.

3. ACCOUNTS FOR THE YEAR ENDED 30TH SEPTEMBER 2019.

The Treasurer presented these Accounts. They had been independently examined by Ian Anderson. He referred to the reasons for the deficit. There was an unusual expenditure on upgrading the website, and the gift aid claim did not appear in this year's Accounts. There was a significant amount available for charitable benefit in the Endowment Fund. The Accounts were approved unanimously.

4. REPORTS

The President went through the reports of the various office bearers, copies of which had been sent out to members in the newsletter prior to the AGM.

The reports were as follows: -

The President's report

Meeting Secretary's report

Day Excursions report

Residential Excursion report

Librarian's report

Publications Officer's report

Proceedings Editor's report

Scottish Journal of Geology Editors' report

Website report

Membership Secretary's report

Strathclyde Geoconservation Group

Geodiversity: Argyll and the Islands

Treasurer's report

The President asked for any comments – there were none. He then thanked all Council Officers for the hard work and effort which they had expended during the Session.

5. NOMINATIONS AND ELECTION OF OFFICE BEARERS

The President asked for applications from members to stand for election as Council members. The Society depends for its future on the service of its members on Council. :

Jim Morrison has stood down as Vice President. Bob Diamond has stood down as Librarian/Publications Officer. The president thanked them warmly for their long service.

The list of officers coming up for election with nominees, proposers and seconders had appeared in the newsletter and was presented to members:

Position	Nominee	Proposed by	Seconded by
Secretary	Walter Semple	Mina Cummings	Neil Clark
Archivist / Assistant Librarian	Margaret Anderson	W Gray	Neil Clark
Proceedings Editor	Post discontinued		
Publications Officer	Vacant		
Webmaster	W Gray	Campbell Forrest	Mina Cummings
Website Consultant	Neil Clark	Ian Millar	Jim Morrison
Ordinary Member	Simon Cuthbert	Mina Cummings	Walter Semple
Ordinary Member	Mina Cummings	Margaret Anderson	Neil Clark
Editor of SJG	Brian Bell*	Neil Clark	Walter Semple
Editor of SJG	Colin Braithwaite*	Neil Clark	Walter Semple
Indep Examin	Ian Anderson*	Neil Clark	Walter Semple

There were no questions. Council now comprises the following:

President	Neil Clark
Hon. Secretary	Walter Semple
Vice President	Brian Bell
Vice President	vacant
Vice President	vacant
Treasurer	Ian Veitch
Meetings Secretary	David Webster
Membership Secretary	Campbell Forrest
Excursions Secretary (day)	Roy Bryce
Excursions Secretary (residential)	Maggie Donnelly
Librarian	vacant
Asst Librarian and Hon. Archivist	Margaret Anderson
Proceedings Editor	vacant (see note below)
Publications Officer	vacant
Webmaster	Bill Gray
Web Consultant	Neil Clark
Newsletter Editor	David Webster
Junior Representative	Matthew Staitis
Editor of SJG	Brian Bell
Editor of SJG	Colin Braithwaite
Ordinary Member	Mina Cummings
Ordinary Member	Ann Ainsworth
Ordinary Member	Simon Cuthbert
Ordinary Member	Ian Millar
Ordinary Member	Elaine Shaw

7. RESIDENTIAL EXCURSIONS

Maggie Donnelly who had apologised for her absence had noted that the following excursions were planned for 2020.

Islay: David Webster: April 24 to 27. Places were available.

Ardnamurchan: Con Gillen: May or June

Snowdonia: Simon Cuthbert: September

West Greenland: Iain Allison: end of June.

6. POSSIBLE CHANGE OF LECTURE VENUE.

The President explained that the costs paid to the University of holding our lectures in the Gregory Building were so high as to absorb an entirely disproportionate amount of our annual expenditure. An alternative venue within the University was being explored.

7. MEMBERS SURVEY

David Webster spoke to the Reports of the Members Survey carried out during the year and of the Council discussion on it.

The following points were raised.

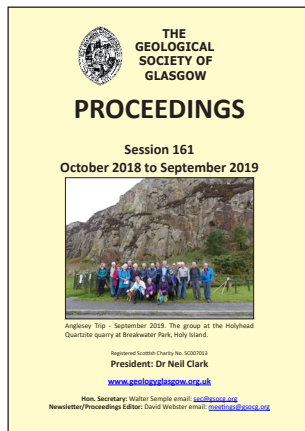
- Should the published Proceedings be discontinued? Mina Cummings and David Webster explained the reasons for the Council's decision to discontinue it. Following discussion the President agreed to take the matter back to Council for further consideration.
- The need to engage more with academic members of staff and students.
- A review of the links with the Strathclyde Geodiversity Forum. These needed to be improved.
- The future of the library
- The need for new Council members to contribute to the work of the Society.

There being no other business, the President closed the meeting and introduced the speaker, Professor Gawen Jenkin who addressed the meeting on the subject of "Green Gold? How to get Metals out of the Ground in a "Green" and Sustainable Way".

Postscript.

The Council subsequently considered the matter of the Proceedings and decided that in future it should be produced prior to the AGM and contain all the officer's reports and any field trip notes and reports. It would be sent to members as a pdf rather than posted to all, but printed copies sent to those without email and on request. David Webster offered to take on the role of Proceedings Editor and integrate it with his existing role as Newsletter Editor.

A Proceedings Booklet for Session 161 was subsequently produced and distributed.



News and Topical Articles

Scottish Geology Trust

The SGT has launched a crowd-funding campaign aiming to raise at least £35,000 to keep the charity running into 2021. One of their first priorities is to secure some core cost funding which would cover staffing requirements. They need to guarantee that their projects have dedicated members of staff who will help deliver their plans. By having these core costs funded, the Trust can then focus on delivering some of the many exciting projects that they have identified as priorities for geoparks and other partners.

To date Trust has raised about £37,500 since it started operations in early June. Of this about £18,000 is from the ongoing Crowdfunder campaign

More information at: <https://www.crowdfunder.co.uk/scottish-geology-trust>

Aberfoyle Excursion Guide

An updated version of the Aberfoyle excursion itinerary, prepared by Mike Keen, is now available on the website. This is an extensively revised version of the itinerary prepared by B.J. Bluck and James D. Lawson for Geological Excursions around Glasgow & Girvan, published by the society in 1992.

This area is best explored during the winter months, when the vegetation has died back, and this new itinerary is the ideal companion for a day out at the Highland Boundary fault. #

Podcasts

Iain Allison suggests that members may be interested in some podcasts which he has been listening to:

The first is by Julie Hollis, head of the Geology Department of the Government of Greenland who has interviewed geologists who were involved in the early exploration of Greenland from the 1950s onward. They include interviews with Brian Upton whom many of us know. They are available wherever you get your podcasts or using this link

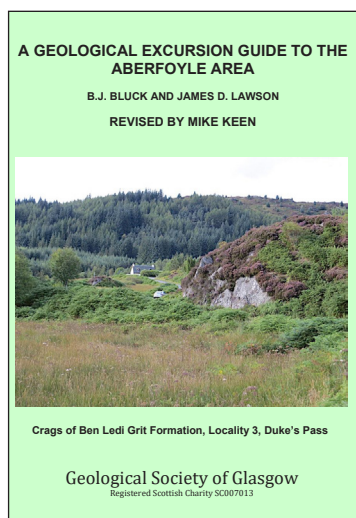
<https://polarpodcasts.buzzsprout.com>

The second series is by Oliver Strimpel who has interviewed some very eminent geologists and his website includes images to accompany each podcast. Oliver is coming on the GSG Excursion to Disko Bay next summer. They are available at:

<https://www.geologybites.com>

Fossil Grove Update

The SSSI status has been downgraded by SNH to unfavourable/partially destroyed. The FG Trust have committed c.£20,000 of their funds to maintenance as the City Council have very limited budgetary provision for the Fossil Grove. New lighting has been installed;



the roof now has ventilation grilles and the gutters and drains have been cleared. Roof repairs are in progress and improvements in water ingress is noticeable. The Friends of Victoria Park organise working parties on the first Saturday of every month to plant ferns, weed, tidy up, clear gutters etc in FG and quarry areas. A new project has been initiated to renovate the building and conserve the fossils with low-cost options. Ideally no staff will be required; the vision being that the fossils will be visible from outside. An application to Architectural Heritage Fund is at the early stages. The FGT are aiming to have a number of open afternoons next season post-Covid.

The Library of the University of Glasgow

Due to the pandemic, the University Library is currently open only to University staff and students. However, under normal circumstances, the Library is accessible to members of the Geological Society of Glasgow as follows:

Geological Society of Glasgow members are entitled to free annual membership of the University of Glasgow Library. Members must provide proof of status by bringing either their Geological Society of Glasgow membership card or a letter of authorisation on the Society's headed notepaper to the Welcome Desk to enrol and complete an application form. They are enrolled as Special Readers free of charge for the duration of the session in which the application is made, but this can be renewed each session. They are able to borrow up to 25 standard loan items.

Special Readers (i.e. members of the Library who are not University staff or students) have limited access to electronic resources. Some publishers permit Special Readers to gain access to some of their electronic publications; this access is available only at dedicated PCs in the Library building, and it is not possible to download material.

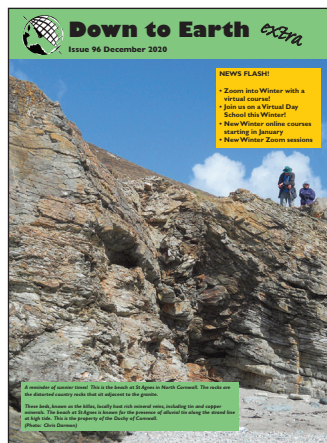
Down to Earth

The December edition now available electronically to members with email. See email newsletter for download link, or contact meetings@gsocg.org for a pdf copy

BGS launches the Big Borehole Dig

The British Geological Survey (BGS) and the Dig-To-Share Project have launched the Big Borehole Dig – a citizen science initiative to help improve the availability and accessibility of borehole data for all, and are looking for anyone with an interest in boreholes or geology to get involved.

The BGS holds a database of over 1.4 million borehole records, each containing a range of information. It is looking for help to convert these records into usable digital data that can help inform the future understanding of the subsurface. The digital scans of these open borehole records can be accessed through the BGS GeoIndex viewer. Despite being held in digital format (usually PDF), the information within these documents is not yet standardised and often requires translating before being able to be used.



The BGS believes it is essential that future generations have access to historical borehole data as Association of Geotechnical and Geoenvironmental Specialists (AGS) file format. It wants to enlist the help of the public to convert its records into AGS format, to improve the availability and accessibility of borehole information to a wider audience. This in turn will enable users to build better models, save costs on construction projects and reduce the amount of time lost due to unforeseen ground conditions. More information can be found at <https://www.bgs.ac.uk/news/join-our-big-borehole-dig/>

Lectures from other Societies

Edinburgh, Highland and Westmoreland Geological Societies are all delivering on-line lectures. Members of the Glasgow Society are welcome to join these talks - contact the relevant secretary by email to get an invitation.

Edinburgh Geological Society

6 January 2021 - Lucy McKay, Strathclyde University

Core Surprise: What's Inside a Plate Boundary Fault in Scotland

20 January 2021 - Charlie King, Scotgold

Gold: Exploring Scotland's Untapped Potential

3 February 2021 - Alison Monaghan, BGS

Drilling into mines for heat: the UK Geoenergy Observatory in Glasgow

17 February 2021 - Tony Spencer

The Port Askaig Formation in Argyll: uncovering the evidence for repeated climatic changes in a Cryogenian glacial sequence

3 March 2021 - Michael Brookfield, University of Massachusetts

Dating the earliest land biotas – Scotland was the first!

17 March 2021 - Heather Stewart, BGS

Exploring the Underworld: The geomorphology and sediments of subduction trenches

The website has links to recordings of recent lectures

Highland Geological Society

Wed 16th December, Building Stone: Making the right choice, Professor Peter Scott, Emeritus Professor, Camborne School of Mines.

Wed 13th January, In the footsteps of Hugh Miller: New fish finds from the Carboniferous and Jurassic of Scotland, Dr Tom Challands, University of Edinburgh.

Wed 17th March, The Dating Game: One Man's Search for the Age of the Earth, Dr Cherry Lewis, University of Bristol

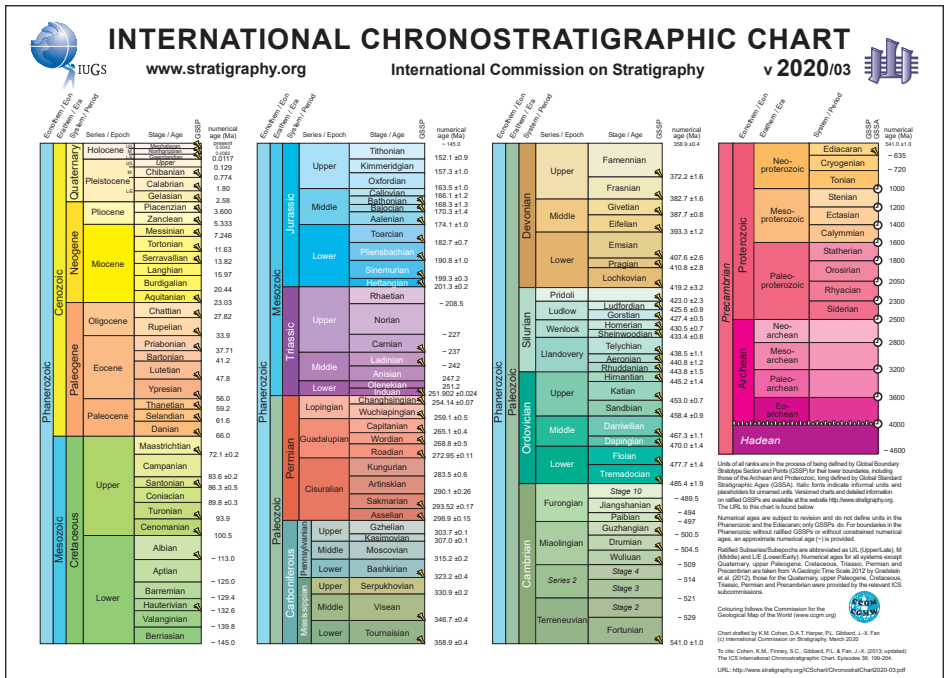
Westmorland Geological Society

20 Jan Hugh Tuffen - University of Lancaster Looking inside Icelandic volcanoes

17 March Prof Pete Burgess - University of Liverpool Some of my Favourite Outcrops from Around the World: A GeoVisual Tour

Past lectures on youtube channel https://youtube.com/channel/UC6uVPL3DMpqJXyTS-Z_6ADA

The latest version (v2020/03) has just been published by the International Commission on Stratigraphy. Its a fascinating insight into geological history. Its downloadable - and an A3 print adorns my study wall.



<https://www.geologypage.com/2020/11/international-chronostratigraphic-chart-v2020-03.html>

It shows all the GSSP (aka Golden Spikes) that define the key subdivisions. We have one in Scotland - at Dobbs Linn, near Moffat - the official base of the Silurian, and two candidate GSSPs - at Floddigarry in Skye (base Kimmeridgian) and on the Garvellachs (base Cryogenian). A list of GSSPs is on wikipedia.

If any members have visited a GSSP then I suggest we post some pictures etc in the newsletter. My starter-for-ten is Green Point in Newfoundland - the official base of the Ordovician. I was there in June 2018. The section comprises some inverted deep marine sediments (i.e they young to the left). I am standing on the GSSP with Ordovician strata (O) above the Cambrian (C).



Anniversaries page updated

The Anniversaries page in the website's Archive section has been updated, and now contains entries for the session of 150 years ago (Session 13, 1870-1871) and all the sessions at 25 year intervals since then up to the session of 25 years ago (Session 138 1995-1996). The entries consist of extracts from the society's Proceedings for the session in question, along with editorial commentary on the extracts and links to relevant documents.

Our thanks are again due to the society's honorary archivist, Margaret Anderson, for researching the archive, selecting the extracts and preparing them for posting on the website. The extracts for previous anniversary years are also available on the website.

Subscriptions & Memberships

There are still a number of members who have not paid their subscriptions for the current session. Membership will lapse unless you bring any arrears up to date. Please contact the Membership Secretary if you need details on how to pay or renew your membership

The uncertainties surrounding the lecture programme renders the usual membership card somewhat obsolete, however if you require evidence of membership please contact the Membership Secretary: email : memsec@gsocg.org

Keeping in Contact

If you have access to an email address but have not given it to the Society you are likely to miss out on much of the planned geological events during this pandemic. If you do wish to get online then please let us know your email address.

News of Deceased Members

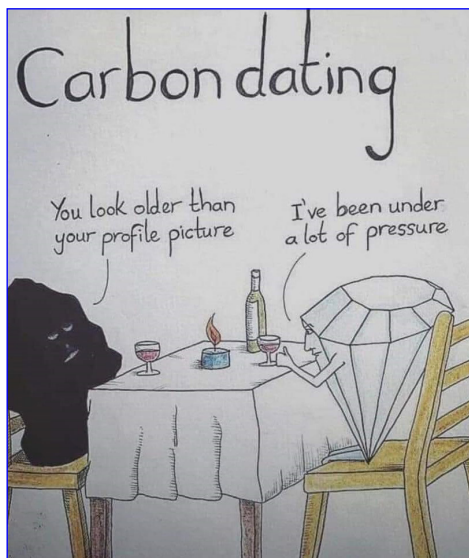
We are aware of the following:

Grace Page (Obituary in Proceedings 162)

Dr. Tony Fouracre

Colin Kinloch

NB Please inform the Newsletter Editor if you know of others or have an obituary to share.



Hon. Secretary: Walter Sample

email: sec@gsocg.org

Newsletter Editor: David Webster

email: meetings@gsocg.org