THE GEOLOGICAL SOCIETY OF GLASGOW

Newsletter - March 2025

Lecture Programme

Lectures continue to held in Room 407 of the Boyd Orr Building (unless otherwise noted). Note: Meetings commence at 7.00 pm. Room 407 is on the 4th floor. We will record the lectures but not the Q&A and will not be offering a live zoom.

Thursday 13th March 2025

Dr. Simon Cuthbert, *University of Krakow*

"Eclogite Shangri-La: Vestiges of the Grenville orogen in the northwest Scottish Highlands (and some heroes of Scottish geology)"

This presentation focuses on a rare and beautiful variety of metamorphic rock called "eclogite", which has been the subject of my research interests for over 40 years. Such rocks form at very high pressures, corresponding to depths in the solid Earth below the normal base of the continental crust. Importantly, by the use of modern analytical and computational techniques, they allow us to determine qualitatively the depth inside the Earth to which these rocks have been transported by tectonic processes, giving us crucial insights into the processes of subduction and continental collision. In the northwest Highlands of Scotland we are very lucky to have exposed some excellent examples of eclogite and other associated high-pressure metamorphic rocks. Adding to their interest and importance is the fact that they are usually old for such rocks – Mesoproterozoic or even Palaeoproterozoic – so they can tell us about tectonic processes that led to the construction and development of the North Atlantic continental crust.

The NW Highland eclogites are part of the crystalline basement under the Wester Ross Supergroup metasediments in the lower part of the Moine Nappe. They broadly resemble the Lewisian Complex to the north. Outcropping among the spectacular mountains and sea-lochs between Loch Hourne and Loch Carron, they emerge from under the Morar Group "Moines" within the Glenelg-Attadale Inlier, the largest of the well-known "Lewisianoid" inliers of the north Highland Caledonian nappes. The eclogites have resulted from the metamorphic reworking of this Lewisian-like rock assemblage. Remarkably, this has happened during two quite separate, major orogenic episodes. In the east they record early events during the enormous Grenville-Sveconorwegian orogeny, better known in North America and Scandinavia. In the west they are significantly older at around 1750 Ma, similar to the Laxfordian events in the main Lewisian Complex and metamorphism in the Rhinns basement complex of the Grampian block, but also major orogenic events in Canada, Greenland and Scandinavia.

These rocks have had a long and complex evolution since the eclogites formed including major folding and thrusting events during the Caledonian orogeny, so unravelling their early history is challenging. Recent research on the eclogites and related rocks has unveiled fascinating new information about the Proterozoic assembly of the northern Scottish crust, leading to contrasting models for its causes that will need to be resolved in the coming years. Some of the great practitioners and innovators of Scottish and worldwide geology have worked on these rocks; I will tell their part of this story going back over 100 years. And if you find all the complications of petrology and structure bewildering, you'll still have the opportunity to see some stunning rocks and great Scottish scenery!

The Glenelg area will be the subject of a residential excursion of the Geological Society of Glasgow this September. This talk will, hopefully, be a useful introduction to the area for those who intend to join the trip.

Dr. Simon Cuthbert is currently Research Professor in petrology and geochemistry at AGH University of Krakow. He is researching the evolution of mountain belts, especially in Scandinavia and the British Isles. Previously he was Lecturer in Earth & Environmental Sciences at the University of The West of Scotland. He was President of the Geological Society of Glasgow from 2021 to 2024.

Recordings of past lectures

St Andrews students' Greenland Expedition https://youtu.be/giy1WE9L-Cw

Stuart Haszeldine: Carbon Capture & Storage https://youtu.be/oXiIQD7eHdk

Heather Stewart: The Abyss Gazes Also Into You https://youtu.be/-6b9bi-AehM

Paige dePolo: Pantodonts from New Mexico https://youtu.be/RWamAw6uo10

Luisa Hendry: Promoting geology through social media https://youtu.be/ksMcrrTyCg8

Alex Dunhill: Ecology and Mass Extinctions https://youtu.be/uR3zB0XpyQM

GSG YouTube channel https://www.youtube.com/channel/UCfNSIvgEbUfLWMsCeNiRm1w/

Next talks

April 3*	Ella Davis	Tectonic transport directions and timing of metamorphism in the southern part of the Northern Highlands Terrane, Scotland	Zoom Event*
May 8	Members' Night	see note below	St Andrews Building.

* Please note that the April Lecture is the 1st Thursday of April - not the second and will be a zoom-only lecture for home-viewing.

Members' Night

Our annual Members' Night meeting in May might seem some way off but these long winter evenings are ideal for musing over your geology adventures last summer - and thinking about how you could share your finds with fellow Glasgow geologists! Members' Night is just what it says on the tin - every member's chance to give a go. It can be an informal, 10 minute illustrated talk, a poster or a table-top exhibit. It doesn't have to be highly technical or polished - basic and simple are best. It might be a travelogue, or you could even ask "What's this - it looks interesting but I've no idea!". If you'd like to offer a contribution, please email meetings@gsocg.org with a title for your topic. If you'd like some advice or assistance, please do ask. We look forward to sharing your discoveries in May!

Day Trips Excursion Programme

Full details of day trips and booking will be published soon on the website, and you will then be able to book and pay through webcollect. To help with your planning here are the details so far:

9 April – Kelvin Valley from Dawsholm to Kelvinbridge. ***Leaders: Iain Alison and Katie Strang***

This guided walk will use the Strathclyde Geoconservation Group's leaflet but in the reverse direction. This half-day trip will take an entirely off-road route along the Kelvin Walkway taking in the geology along the way. Many exposures can be seen only across the river but there are some we can get close to. The rocks are mainly in the Limestone Coal Formation but getting up into the Upper Limestone Formation at Dawsholm – all middle Carboniferous. With a bit of scrambling through vegetation, some plant fossils may be seen at the Dawsholm end. We will see fluvial sandstones, some channels and some finer grained beds.

2 May – Portencross. ***Leaders: David Webster and Austen Brown***

The rocks exposed around Portencross are mainly sandstones (known across the UK as the 'Old Red Sandstone' or) dating back to the Devonian Period (420 to 360 million years ago). The 'Lower Old Red Sandstone' was deposited in desert environments in the aftermath of the Caledonian Orogeny when Scotland (on part of the North American continent called Laurentia) collided with England and Wales (on part of the European continent called Avalonia), closing the intervening Iapetus Ocean. The collision was marked by major strike-slip faulting and considerable local volcanism. Later in the Devonian there was a further period of mountain building (the Acadian Orogeny) when Iberia collided into Avalonia further south. This resulted in more uplift and renewed sandstone deposition (the 'Upper Old Red Sandstone'). On the walk we will examine, compare and contrast the Lower and Upper Old Red Sandstones and also look at some of the igneous rocks.

17 May – Loch Ardinning. ***Leader: Simon Cuthbert***

This excursion is for anyone who wishes to develop their skills in the description of rock exposures in the field and making simple large-scale geological maps ("exposure maps"). No previous experience is necessary - complete beginners are welcome! Students of geology who'd like a bit of extra experience in fieldwork are also encouraged to

join in. The exercise will take place in a small area just south of Loch Ardinning near Mugdock. We shall describe and map some sedimentary and volcanic rocks along with an igneous intrusion. By the end of the day you will have enhanced your abilities to practice geology autonomously in the field, gained insights into the methods and uncertainties involved in geological mapping and enjoyed the rewarding, creative process of making your own map! For those who are interested, the leader can give a brief introduction to using digital mapping tools on a tablet computer or smart phone.

11 June – Glasgow Necropolis. ***Leader: Margaret Greene***

Necropolis Hill is one of the highest points of Glasgow. It stands proud simply because it is the outcrop of an intrusion of more resistant igneous rock into the surrounding weaker sandstone. The igneous rock is a type of basaltic lava, known as dolerite. This can be seen in the quarry at the southern side of the Necropolis. The present landscape has been extensively remodelled during the ice ages over the last 2 million years. Broad ice sheets have repeatedly moved out from the mountains to the Firth of Clyde, moving across the Glasgow area scouring the landscape and depositing sand and gravel from west to east. This gives Necropolis Hill its characteristic shape of a steep side due to the harder rock on the side facing the Cathedral, then tapering out to the east. This afternoon trip will explore the geology of some of the remarkable monuments in this cemetery. The architecture, sculpture, views and stories continue to amaze.

19 July – Burnmouth. ***Leader: Katie Strang***

The rocks exposed along the foreshore at Burnmouth in the Scottish Borders are early Carboniferous in age and belong to the Ballagan Formation. They were deposited in a low-lying vegetated coastal wetland around 350 million years ago, when Scotland as we know it was a very different place! During this time we were situated at low latitudes close to the equator and experienced a hot and humid climate. The area was subject to vast droughts and flooding, sea levels fluctuated and sandy river channels meandered across the land. It was in this setting that we also saw the first tetrapods (four-limbed animals with backbones) making their way on to the land. Originally these rocks were laid down on a relatively flat surface and they stayed this way until a period of significant tectonic activity and continental collision known as the Varsican orogeny, which happened around 200 million years ago. These intense tectonic forces caused the rocks at Burnmouth to be uplifted, tilted and faulted, eventually resulting in the striking near vertical orientation we will see on the shore today!

2 August – Girvan. ***Leaders: Neil Clark, Katie Strand and Gary Hoare***

A jaunt over to Girvan with our friends from the Edinburgh Geological Society to explore Mid-Ordovian to Early Siluran fore-arc sequences. We will examine stratigraphical sequences ranging from shallow to deep marine, viewing the cyclical and fault-controlled deposition investigated to guide the understanding of the palaeo-environment. We will also have a chance to look at interesting rocks and fossils on the foreshore.

September

Details to be confirmed. Events to be part of Scottish Geology Festival. Ideas being discussed include Linn park, Hunterian tour, Pavement geology, Rock Doctors, Building Stones of George Square.

Residential Excursion Programme

8-12th May 2025 – Garvellachs. ***Leader David Webster***

Trip postponed to May 2026. email sec@gsocg.org to go on the waiting list

4th-8th September 2025 – Glenelg, and Kintail: ***Leader: Simon Cuthbert.***

This four-day excursion visits part of the northwest Highlands opposite the Isle of Skye that is well known for its dramatic scenery and human stories, encompassing the dramatic fjord of Loch Duich and Lochalsh, Eilean Donan Castle, the hidden gem of Glenelg and Sandaig Bay. Exposed in these hills and shores, emerging from under the Wester Ross Supergroup (the "Moines"), is an enigmatic complex of ancient gneisses - the Glenelg-Attadale Inlier (GAI), the largest of the so-called "Lewisianoid" basement Inliers of the Northern Highlands Terrane. The rocks resemble the Lewisian Complex further north, but enclose a beautiful garnet-pyroxene rock-type - eclogite - that formed at extreme pressure when this continental crust was subducted during continental collisions. This is the only example in the British Isles of well-preserved eclogite and is unusually old for such rocks - early to mid-Proterozoic - and were formed long before they were caught up in the Caledonian orogeny and thrust westwards along the Moine Thrust system. This area is where some of the great figures of Scottish geology have worked and we can admire their insights and originality.

For further information please contact excursions@gsocg.org

Fossil Grove

Renovation Project: In late 2023 GCC earmarked a sum of £450k for building renovations and to stabilise the fossils. The funds are retained within GCC and City Building are nominated lead contractor. There have been a number of site meetings with GCC architects to develop a plan, which is continues to be finalised following further clarifications with City Building. A pre-start meeting with City Building, GCC architects and the FGT took place on 4th February. The Trustees submitted a significant number of detailed issues, and a revised set of drawings and written specification of the works is awaited. No start date has been agreed. Discussions are ongoing with Victoria Park Community Trust and Friends of Victoria Park regarding modifying the derelict west canopy into a pergola and further enhancing the quarry area with appropriate and related planting.

Trustees: The FGT now has a new constitution and is formally now registered as a SCIO. Part of this process was to formalise the membership of the Board, which now has Trustees appointed by the Geological Society (4), Victoria Park Community Trust (2), Whiteinch Community Council (1), Glasgow City Elected Ward Councillors (3) and 1 co-opted member. The four GSG Board members are currently: W Semple (chair and secretary), I Veitch (Treasurer), C Forrest and D Webster. However there is currently a vacancy for a GSG Trustee as D Webster has since been appointed as a Victoria Park Community Trust representative.

We are now seeking interest in the vacancy from amongst the total Society membership and if more than one person notifies an interest, then the Society's Council will make the final decision. The candidate needs to a member of the Society and have a recognised geological qualification (or equivalent experience). Desirable criteria would include knowledge of Carboniferous flora and fauna, and geological artefact conservation. If you are interested in becoming a Trustee of the Fossil Grove please contact sec@gsocg.org

Outreach: Monthly Open afternoons will not commence on 20th April as planned given the delays in the renovation programme. June 15th is more likely and is in the Glasgow Science Festival programme. A school programme is being developed in conjunction with a secondment internship of a Glasgow University Masters student. Glasgow University Earth Science student Field Trips have recommenced. We now have an Arthroplura model as well as a Bearsden shark replica for use in outreach events. Thanks to Gary Hoare for organising this.

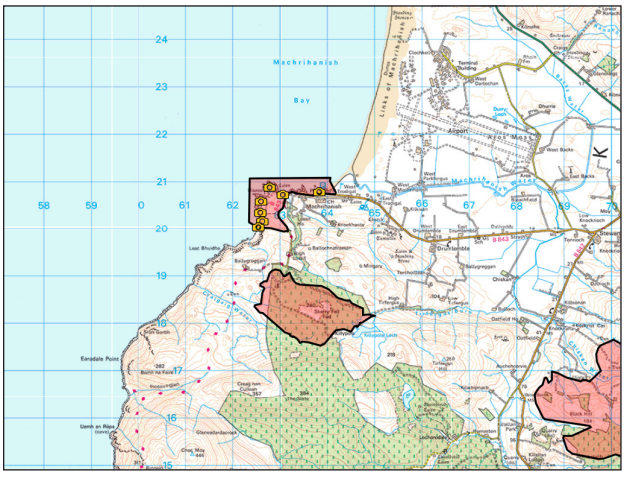
Geonatter

Next dates: 5th Mar, 2 April, 7th May

SGG News

Glen Roy: In response to the letter regarding destruction of part of the Parallel Roads of Glen Roy SSSI, the Group have writen letters to the local Council, NatureScot and MSP and Police Scotland, expressing disquiet about the destruction of this major part of Scotland's geology.

Leaflets: Linn Park, Gleniffer Braes, Mugdock Park, Pavement Geology and Kelburn CP in various stages of production.



Geosites: Scotland has over 1000 sites that are designated as important for geology and geomorphology at a national or local level, but the value and importance of these sites is often not recognised, it is hard to find information about them and systematic monitoring is under-resourced. The Scottish Geology Trust's Geosites project aims to bring information about all these sites together in one place, to make it easy for people to report issues with sites, and to share information.

SGG are responsible for the project in this area, but we now recognise that it requires a temporary Project Manager to input initial data for sites (initially in the Greater Glasgow area), and to liaise with BGS and the Scottish Geology Trust. Grant funding from the Society is available for a suitable candidate. Training in the system and in use of GIS will be provided.

If you are interested in this initiative please contact sec@gsocg.org for more details

New Members

We welcome the following new members who have joined the Society recently.

Stuart Munro	John MacBrayne
Louise MacBrayne	Thea MacBrayne
Fergus Slater	Zim Anderson

Subscription Reminder

Nearly all members have renewed their subscription for this session and the Society thanks them for their support. A few however, have yet to do so. Now is your last chance to do before your membership of the Society ends.

If you choose to renew you can do this by signing into your membership account with WebCollect. If you have forgotten how to do this or your password please advise memsec@gsocg.org and a password reset link will be sent to you.

Our preferred method is by direct debit which allows you to pay now and future payments will be collected automatically on the due date. Alternatively, if you would not like to use that method a number of other payment methods are available such as standing order, bank transfer, PayPal or cheque. If you have any problems with this, or if you don't intend to renew this year, again please advise memsec@gsocg.org.

Deceased Members

We are saddened to report the deaths of the following Members

Roy Bryce	Died 03.02.25 aged 74. Retired project manager. Joined the Society in 2016. A former Council member who was day and latterly residential excursions officer.
Robert (Roy) McLeod Smart	Died 28.10.24 aged 95. Retired Civil Servant. Joined in 1991. From 1994 to 2007 he was the Society's Publications Officer. He remained a member of the Society until 2023
Evelyn Mary Lennie	Died early 2024 aged 96. Retired Housing manager and past director of the Willowcare Trust.
Dr John Gordon Adamson MB, ChB	Died in November 2023 aged 87. Retired GP, member of the Highland Geological Society and past member of local RNLI. Past director of the Eilean Ban Trust.

Library

We currently have the newly released (Aug 24) book "The Geology of Scotland, 5th edition" available to borrow. With a price tag of up to £130, it's an excellent chance to get your hands on a copy to read for free. email library@gsocg.org

The Society's library collection in the Molema Building continues to be catalogued and sorted. We have agreed with the main University Library (GUL) that a significant number can be transferred to them. This will still leave a collection of around 800 books in Molema. Work continues ...

GUL will arrange for storage boxes and transport to take our donations initially to the library research annex in Maryhill where they will be catalogued etc. Some will make their way onto the shelves in the library and others will be available as reference books only. Identification marks showing "GSG" would remain inside the covers and we will make sure that all are marked before transferring. We also have the opportunity to name our collection within the library database which would then be searchable as a sub-section on their website. This is a great facility as members will still be able to search for any books specifically held by the society.

Geological Society of London - Free Lectures

The Geological Society hosts public lectures throughout the year to share knowledge with the geoscience community. These monthly lectures are open to everyone and free to attend. The lectures are ordinarily held at Burlington House in London and virtually via Zoom. Details on their website here

18 March: The Stegosaurian Dinosaurs - Dr Susannah Maidment. https://www.geolsoc.org.uk/03-PL-stegosaurian-dinosaurs

20 May: Re-storifying Planet Earth: narratives and storylines for publics and policymakers

17 June: Forged by fire - How can volcanoes shape out landscapes, lore and lives

Geology Bites

New episode on building stones. This episode is about the excellent geology you can see displayed within urban building stone. Over the past 15 years, Ruth Siddall has scoured many city streets, mostly in London, identifying a plethora of geological gems that can be seen externally from street level and within accessible lobbies. She has compiled nearly 50 urban geology-themed walks and has developed a database of 4,300 urban localities of geological interest throughout the UK. Although you can't do any geology that requires knowledge of the original orientation of the rock, that still leaves a great deal of geology, from petrology to palaeontology. And, as she points out in the podcast, you can often see structures and other features more clearly on the polished faces of building stone than you can in overgrown quarries or weathered outcrops.

Go to https://www.geologybites.com/ruth-siddall-1-1

Edinburgh Geological Society

12th March Doug Benn Glacier surges in Svalbard and Scotland

More information at: https://edinburghgeolsoc.org/lectures/

There are also lots of past lecture recordings on the EGS website

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NWH Geopark

March 11: Dr Stephen Davison on new Microfossils from the Stoer Group Limestones at Enard Bay

The Torridonian rocks of NW Scotland are amongst some of the oldest sedimentary units in Europe and form a significant part of the NWH Geopark. The Stoer Group is the oldest part of the Torridonian sequence and has been dated as approximately 1.2 billion years old. Most of the Stoer Group is composed of red-brown sandstones and mudstones, interpreted as being deposited by large-scale fluvial and lake systems which infilled an ancient landscape developed on the exposed Lewisian Gneiss. However, the lowermost part of the Stoer Group, which includes the type section at Stoer Bay and the rocks at Enard Bay, contains thin limestones which are not found anywhere else in the Torridonian.

The limestones have been studied for more than 50 years and have a disputed origin, having variously been interpreted as microbial stromatolites, inorganic chemical crusts, deep burial diagenetic precipitates and re-worked Palaeoproterozoic limestones. Poorly preserved organic microfossils have been recovered from the limestones and associated grey shales at Stoer Bay, but until recently, no identifiable organic remains have ever been recovered from the rocks at Enard Bay.

The talk shows some of the organic microfossils recently extracted from the limestones at Enard Bay, including examples of *Lophospheridium sp.* and *Leiosperidia sp.* which are probably the best preserved microbial remains ever recovered from the Stoer Group. These have important implications for the origin of the limestones and are amongst the oldest, possibly the oldest, microfossils ever found in the UK. The work is ongoing, with some microfossils and other possible organic structures yet to be identified.

More info at: https://nwhgeopark.com/events/list/

Down to Earth

Latest episode of Extra here

Geological Society of Glasgow

https://geologyglasgow.org.uk/

President: Margaret Greene pres@gsocg.org

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