Geologists' Association - South Wales Group

Cymdeithas y Daearegwyr - Grŵp De Cymru

Newsletter March 2026 ***Sixty Eighth session***

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Welcome to the Easter Newsletter. In this edition you will find the details of the Summer Field Meeting Programme, updates from SEWRIGS and BGS, Holiday Geo-snaps, plus a number of other items. As usual I thank all those who have provided articles and issue a plea for more volunteers to come forward, so please consider writing something for future editions, no matter how small and about anything that you feel might be of interest.

I am hoping to get the next Newsletter distributed in early July so would be grateful to receive items at any time up to 20th June for inclusion in that edition. Please submit any text as a Word file and any images separately as jpeg files. Please don't send a ready formatted article with inset images as these are very difficult to drop into the Newsletter format. In the meantime, I hope that you find something of interest and on behalf of the Committee wish you all a very happy Easter.

Stephen Howe

Message from the President

I'd like to introduce myself as your new President for the next two years. Many of you will know me as I've been acting as Membership Secretary for several years now and have been a member for many years before that.

As you probably know, I am one of the palaeontology curators at the National Museum, Cardiff, and have worked there now for over 40 years. When I started, everything was paper-based, and we had to research things by looking them up in books. My job is now in some ways much easier due to the advent of PCs and emails, and in other ways far more complex – due to having to learn how to work with PCs and their ever-changing software. On a day-to-day basis, I look after half a million or so fossils together with the geological archives. I am also involved with public events, enquiries, exhibitions, research, giving

talks and promoting geology and the work of the department through groups, such as the Geological Collections Group (GCG), RIGS, and the SWGA. In my private life I am a keen photographer and birdwatcher, and also enjoy choral singing.

I hope that during the next two years I can satisfactorily continue in Chris's excellent footsteps, and lead the group onwards and upwards to even better things – with the aid of course, of our wonderful committee. We are always looking for more volunteers to take up committee roles, so if you feel you'd like to share your organisational skills, or have a say in the way we run the group or its events then do please let us know.

Cindy Howells

Message from our retiring President

As we look forward from a wet winter into hopefully a more reasonable spring and summer thoughts turn to the outside and fieldwork. As the world has got smaller, and options for my own work seem to close down at a frightening pace, it is great that we have world class geology on our doorsteps to appreciate, as well as experienced guides to take us through it! World events may mean I can perhaps make the first field trip of the year after all, but however things go I am certainly looking forward to the next two field trips as well.

In December we had a super talk from David Buchs about the geology of Panama, and its profound effects on the planet. Thanks to John, Lesley and all the contributors for the fascinating holiday geology sessions in January. The variety of perspectives and locations made for a very entertaining day, and I don't seem to have shaken unconformities from my brain since then. In February we heard from Tim Astrop about the amazing project to excavate the Brymbo Carboniferous forest, now enclosed in its own building. We discussed the complexities and advantages of community projects. I'm sure a lot of our members will head up there when it opens in June. Our last talk on my watch will be by Richard Bevins about Stonehenge and its Celtic connections.

Tim at the Brymbo site © Chris Berry

I really appreciate all the hard work of the committee, much of which is not so visible, that makes the society flourish. My favourite part of our meetings is hearing the variety of activities which feed into the overall business of the Association, which includes all the RIGS works and the various Science Fairs and geology events around Wales and London which we can positively contribute to. If you want to become involved in any of these things please let us know!

It's now my duty to hand over the Chair of the committee to Cindy Howells. Cindy is already doing great things to raise the profile of geology in Wales, and I am looking forward to what we can all achieve together guided by her enthusiasm and commitment.

Chris Berry

Summer Field Meeting Programme 2026

Saturday 18th April. ***Wiseman's Bridge, Pembrokeshire***. Leaders: *Huw Williams & Paul Davies*

Meet at 10.00 am on the seafront car park at Wiseman's Bridge, SN 147 062. There is ample free parking on the seafront and adjacent wooded area behind the seafront road. There are toilets at both ends of the section we will be studying. We will be walking out along the coastal path and rocks for approximately 5 hours and will walk a total of 4 kilometres. If time allows, there is an additional optional stop which would necessitate a flat return walk across the sand of 1 km to Saundersfoot harbour. You can bring a packed lunch and/or there is a cafe, toilets and a shop at the half-way point of the trip at Coppet Hall beach (underneath Lan Y Mor restaurant). To start the trip, we will meet near the sea wall adjacent to the Wiseman's Bridge Inn. The trip will finish at the Wiseman's Bridge Inn where drinks and food are also available.

The coast at Wiseman's Bridge exposes Carboniferous (approximately 315 million year old) sediments which were deposited in a deltaic environment, similar to conditions found in the modern Mississippi delta. We will be looking at several Coal Measures sedimentary cycles (cyclothems), each separated by thin (anthracite) coal seams. There will be opportunity to search for marine goniatite (ammonoids) and other non-marine fossils as well as plant fossils, root systems and 'trees'. We will also see classic sedimentary structures, including current ripples, wave ripples, climbing ripples and soft sediment deformation. After deposition in late Carboniferous time, this area was subjected to Variscan/Hercynian compressional deformation caused by continental collision, resulting in complex thrust faulting and plunging folds which we will examine.

Saturday 16th May: ***Middle Hope, Weston-super-mare, North Somerset***. Leaders: *Sue Marriot & Paul V.Wright.*

Meet in the National Trust car park at the northern end of Beach Road (nearest postcode BS22 9UD, map below) at 10.30am. To get there from the M5 (junction 21, A370), head towards Worle and keep in the left lane on the slip road, then follow signs for Kewstoke and Sand Bay (B3440), going through Worle and Norton. From Lower Norton Lane turn right onto Sand Road, then right onto Beach Road at the T junction by the bus stop and car park in Sand Bay. Continue to the northern end of Beach Road where there is the National Trust car park. Bring a packed lunch and drink.

There are no facilities in the NT car park; the nearest toilets (payment required) are at the car park on the corner of Sand Road and Beach Road. You will pass Sainsbury's supermarket on the road to Worle and there are toilets there and refreshments can be purchased. The NT car park now uses an app for payment. This is 'Just Park' and the charge is £5 per vehicle, although National Trust Members can park 'free', your NT membership card has to be scanned into the app and there is still a 40p charge.

We will go on a circular walk from the car park to localities 1–3 (on the excursion hand-out) then return to the bottom of the steps by the car park and walk west along the southern edge of Middle Hope to locality 4. The approach to Locality 1 involves a steep climb up steps and then a walk down a grassy slope that can be slippery in wet weather. The approach to locality 4 follows the edge of the salt marsh and can be slippery after wet weather or high tide. The total walking distance is about 6 km.

All localities are best visited on a falling tide. Care should be taken on the beaches due to uneven pebble ridges near to the cliff on the northern side (localities 1–3) and slippery mud and seaweed in the intertidal zone. Be aware that tidal creeks run through the marsh on the southern side (locality 4) and these can be obscured by vegetation. Rockfalls are a hazard at localities 1 and 4. Hard hats should be worn if approaching the cliff faces. All localities visited are on land belonging to the National Trust and are SSSIs so hammering is not permitted.

Grazing is part of the management strategy for the National Trust land here so, at certain times of the year, cattle may be present on the grassland between localities 1 and 3. There should be a notice in the National Trust car park if this is the case.
Maps: OS Explorer 153 Weston-super-Mare & Bleadon Hill 1:25 000; BGS Sheet 279 Weston-super-Mare (solid and drift edition) 1:50 000

Saturday 13th June: ***Lavernock, Vale of Glamorgan.*** Leaders: *Chris Berry & Lesley Cherns*

The field trip will examine the coastal section from just north of Lavernock Point south into St Mary's Well Bay. This will encompass the transition from Late Triassic terrestrial sediments through rising sea levels into the marine Jurassic. Notable features include gypsum mineralisation, the locality where the Penarth dinosaur was collected and the first appearance of Jurassic ammonites.

The walk will meet at the cliff top car park at the south end of Penarth beach at 10 am. We will walk along the cliff top path to Ranny Bay and descend the quite steep path onto the beach. It is also possible to drive to Lavernock Church and take the slippery path down onto the beach but parking cannot be guaranteed. Low tide is 11.49am. Note that there are cliff sections which, if safe to approach, can only be studied while wearing a hard hat. The coastline is rocky and slippery. We will return by 2pm. There are no toilets on the coastal path or section.

Saturday July 18th: ***Sawdde and Carn Powell, Carmarthenshire***: Leaders: *Rob Hillier & Dick Water*

Meet at 09.30am on the common land 0.7km south of Llangadog (SN 706 276). Car parking at Carn Powell and in the Sawdde Gorge is restricted, so we will need to car share onwards from Llangadog. The first section we will visit is Carn Powell 8 km to the SW (SN 684 221). Access to the hilltop exposure is along the Beacons Way track for c. 500m- boots and wet weather clothing will be required. The trip will then drive to a number of sites in the Sawdde Gorge approx 9 km to the east from Carn Powell. Wellington boots will be required for this section. A packed lunch will be needed as unfortunately there are no options available for refreshments during the day. Return to Llangynog approx 4.30 pm.

We will examine the late Silurian (Ludlow age) delta systems that bordered the southern margin of the Lower Palaeozoic Welsh Basin, in what is known as the Myddfai Steep Belt. The 30 km SW-NE outcrop lies oblique to the NNE delta progradation direction. Delta slope deposits are overlain by delta platform deposits and then by shoreline delta lithofacies. We will examine the complex facies and environments as the basin margin evolved in the SW Tract at Carn Powell, and in the NE tract in the Sawdde Gorge.

Saturday 15th August: ***Penarth Family Day***. Leaders: *John Nudds & Cindy Howells.* (1pm-4pm)

Meet at our gazebo, which will be on the beach just south of the RNLI slipway. We will be setting up from about 12.15pm. Anybody interested in helping out, if only for a short time, please contact Cindy (Cindy.Howells@museumwales.ac.uk). Please note that there is two-hour maximum car parking on Cliff Hill and the esplanade but you can park all day in the Cliff Top car park. However, charging for car parking may affect both areas so it would be advisable to check before setting out.

September (date tbc): ***Cwm Dyer, Clydach Gorge***. Leader. *Alan Bowring.*

Notes from the AGM

The 2026 AGM took place on Saturday 14th March and was followed by a fascinating talk by Prof. Richard Bevins on searching for the sources of the various 'foreign' stones, such as the famous 'Bluestones', found at Stonehenge.

The AGM followed its normal format with a series of reports from the Officers followed by the election of Officers and Committee Members. Hazel was able to report that, as well as having a very healthy balance sheet, the Group had moved its bank account and now had on-line access, thus allowing members to pay their subscriptions by bank transfer. She also reminded the meeting that the old Lloyds Bank account will be closed by the end of the month so any member who hasn't moved or cancelled their membership Standing Orders from the Lloyds account needs to do so now.

Cindy reported that the membership numbers were much the same as the previous year, 151 as against 156 the previous year, but that there were still 12 people who had not renewed yet. Last year we gained 2 new members and lost 3 through resignation. Rhian reported on the progress of the SE Wales Guide, which may hopefully appear towards the end of the year. Dilys Harlow is currently updating and revising *The Land of the Beacons Way*, work on which it is hoped will be finished this summer. She also reported that many of the on-line geological walks leaflets, some of which are over 30 years old, have been updated and revised.

Finally, the President thanked the committee for all of its hard work during the year before moving on to the election of the new officers and committee members. There had been no new nominations from the membership so the proposals went ahead unanimously. The changes are as follows; The new President is Cindy Howells (see profile at the beginning of this Newsletter) and the new Vice-President, Alan Bowring. Chris Berry becomes the new Past President, in place of John Nudds who, along with Kath Ficken, becomes an ordinary Committee member. With Cindy becoming President Geraint Owen becomes the new Membership Secretary. Unfortunately, there were still no volunteers for either the role of Programme Secretary or Publicity Officers so these posts remain vacant. If there is anybody out there who would be willing to take on one of these roles, if only for a short time, we would be **extremely** grateful!

Programme Secretary role.

Once again, our AGM has passed without anyone putting themselves forward to stand as Programme Secretary. This is starting to become a little concerning, as our monthly meetings are the essence of what this group is all about. Field meetings in the summer and indoor talks during the winter have been held throughout the entire existence of the South Wales Geologists' Association. In the last few years, the committee as a whole have been managing to pull together a programme for you, but this is alongside the other roles we fulfil, and many of us have daytime jobs as well. It would also be great to have a fresh new outlook on our events.

The role of Programme Secretary is not all that demanding really. The committee will continue to help suggest and discuss speakers and leaders, at committee meetings, and Nick Pollock does a great job in coordinating and communicating the details of the events. Ideas for future talks and speakers can often be gathered from checking programmes of other societies and groups, and likewise fieldtrip suggestions. We try to have a balanced programme, with talks on different themes throughout the year rather than all palaeontology, for example. Maybe one historical, one palaeontology, one on minerals, one on geophysics, one on planetary geology, etc, etc.

All we need is someone (or two) to take a lead on making suggestions to be discussed, contacting speakers to confirm availability and details, and booking the Swansea Hall, etc. It would even be possible to split this role so that we had one person for field-trips and another to do the talks programme. We could even have a position for a technical manager to help with the Teams meetings at Swansea, and setting up the equipment on the day.

If anyone feels that they could spare a little of their time to join us on committee and help with any of these roles then please do get in touch with any of us and we can talk it over with you.

Cindy Howells, President

Holiday Geology 2026

If you didn't manage to get to our annual Holiday Geology meeting in Cardiff on January 10th, you missed a very entertaining day! Ten members gave us a varied programme of talks, all illustrated with some excellent photos of exotic parts of the world, such as the Galapagos Islands, Svalbard, the Ionian Sea, Cape Town, North America, Malaysia and Malta, not to mention some more local gems.

Alan Bowring kicked off with a reminder to us that this year is the 300th anniversary of the birth of James Hutton, often called the 'Founder of Modern Geology', and took us to Hutton's classic unconformity at Siccar Point in Berwickshire. Alan then showed some of our own lesser-known conformities in south Wales and suggested that we should celebrate these during the coming year.

Neil Baker then took us to the Gulf of Corinth, where he has been undertaking some detailed geological mapping as part of his degree, and explained how the westward movement of the Anatolian Plate had influenced the geology of this region. Excellent mapping Neil - I'm glad that some universities still teach it!

Next up was Macy Campbell, who continued her annual university field trip report to dinosaur country in North America, where this year she was on the hunt for remains of the basal ankylosaur dinosaur *Gastonia*. Macy charmed us with a photo of herself as an eight year-old on holiday and looking for dinosaurs in Dinosaur National Monument!

Taking us up to lunchtime, Jeremy Hucker then transported us to the Galapagos Islands in the Pacific Ocean, off the coast of Ecuador, and reminded us why Charles Darwin had found so much inspiration in the biodiversity of these islands. I don't suppose many of us will get the chance to visit this remote area, so it was great to see Jeremy's excellent photos.

As a bonus talk, Lynda Garfield then introduced members to the Virtual Microscope, an online tool marking a step change in the teaching of Earth Sciences by broadening access to rock collections held around the world without the need for high-cost microscopes and thin section facilities. You can even look at Darwin's rocks from the Galapagos Islands, not to mention meteorites and moon rocks!

An excellent buffet lunch (thanks to Lesley and Chris) was followed by our usual raffle which made £47 for the Group. We then sailed off to the realm of the polar bear in Svalbard, in the Arctic Ocean, with Edward Cooper, who gave us a fascinating insight into another part of the world that few of us will visit. Coincidentally, during the talk our President, Chris Berry, realised that he had been staying on the island at exactly the same time that Edward had sailed past! They probably waved at each other!

Then we were off to Malaysia, to Sipadan Island, which is located in the Celebes Sea off the east coast of Sabah, Malaysia, which Dave Wellings had visited 25 years ago on a diving holiday. Dave showed

us some fantastic underwater shots of colourful corals, fish and hot water springs, all skilfully taken prior to today's high-quality digital equipment.

New member, Saranne Cessford, then described the geology of the Cape Peninsula, illustrating various stratigraphic principles through looking at contacts, before Andy Kendall wound up the proceedings with an excellently illustrated tour of Malta, which Rhian has been mapping for BGS in recent years.

Thirty-three members attended on the day, with several more watching on Zoom. Many thanks again to all the excellent speakers – and if you're currently booking holidays for the summer, please do think about offering a short talk for next year's meeting.

John Nudds

Geology Open Day 28th March, National Museum, Cardiff

As you are probably aware, the museum is holding a networking event on 28th March, designed to bring together geologists from across Wales. We have already pretty much reached capacity for this and are now finalising plans for the day. We are hoping that this will be just the first of a series of similar events that could be held across Wales, with the intention of forming a geodiversity network. We feel that geology in Wales is currently facing a somewhat uncertain future due to lack of funding and recognition. We'll aim to write up a report for the day and circulate it to all interested groups, institutions and individuals.

If you are coming to this event, and have let me know, then please remember that there are rugby matches on in Cardiff and parking may be difficult. If you can't make it to this event, then we will of course let you all know whenever we manage to arrange another.

Cindy Howells

SEWRIGS

The RIGS group held their last indoor meeting of 2025 on November 28th at our favourite venue, Llanhennock Village Hall, near Caerleon, where Elen provided us with warm pre-Christmas hospitality, which included a lovely hot log fire. This is normally a quiet time of the year for us as our main activities are held outdoors. The recent very wet conditions will inevitably curtail our activities until a much drier spell of weather comes along (if it ever does *Ed*.).

After discussing our general business and reviewing our project progress during the last year we concentrated on our programme of activities for the coming year, where we identified five major projects.

1. A return to our established sites at Quarella Quarry, Ruperra, and the Usk group of sites at Cefn Ila, Cilwrgi, and Llandegfedd, to undertake routine annual maintenance and any other associated work that crops up.

2. To complete clearance work at Candleston Quarry, Merthyr Mawr, which we started last year on the main quarry face. This is a particularly interesting RIGS site that exposes a distinct unconformity between the Black Rock Group (Lower Carboniferous Limestone) and the overlying Jurassic marginal facies (Liassic) with associated mineralisation.

Ruperra RIGS (Left) awaiting its spring clean. Right. the Carboniferous/Jurassic unconformity at Candleston RIGS

3. A visit to the RIGS site at Glascoed, north of Llandegfedd Reservoir, where the oldest rock unit in the Usk inlier, the very fossiliferous Glascoed Mudstone Formation (Silurian), is exposed in a disused railway cutting. We will assess the potential of this site as a future clearance project.

4. We intend to arrange a joint meeting with the Clyne Valley Community Group, Swansea, to discuss issues of clearing safe access to the old clay pits in the Lower Coal Measures. This would complement work carried out, or under consideration, at the nearby Killay brickworks.

5. There are several sites, mainly in the Old Red Sandstone, in the Cefn Onn area, north of Cardiff, which have potential as clearance projects, particularly in Transh Yr Hebog quarry, as long as the current blocked access problem can be resolved.

With our limited resources this is an ambitious programme and so much more could be achieved if more volunteers are willing to come and join us for a most rewarding day out. Our next indoor meeting will take place on **Saturday 25 April at Llanfoist Village Hall, Abergavenny**. All are welcome so come and join us.

Nigel McGaw

The Hermitage RIGS

This site has a name that conjures up the quiet mysticism of a hermit in his cave, situated, as it is, in the lonely and lovely Gwyrne Fechan valley in the Black Mountains. The Gwyrne Fechan river runs down from the highest peak of the Black Mountains, Waun Fach (811m), which as a peak, is as unassuming as its name (small bog). It runs into the Gwyrne Fawr river and thence joins the Usk just north of Gilwern.

Access is from Crickhowell, 6km along a single-track road with passing places and potholes, which requires concentration not to be wasted on the landscape of steep green valley sides, scattered farms and woodlands. The destination is a widening in the road near the bridge at the confluence of the Gwyrne Fechan and Gargwy Fach rivers where the road ends. The RIGS site isn't immediately apparent, but an information board catches the eye, and tells the story of "The Hermitage", the ruined house that appears half seen through the trees. The house was built in the early 1800's by one John MacNamara, who, by his own admission, "spent his youth whoring, drinking, gambling and dueling" and had bought the Llangoed estate of 54,000 acres, which included the Gwyrne Fechan valley. The main residence was Llangoed Castle (now the Llangoed Hall hotel between Builth and Talgarth).

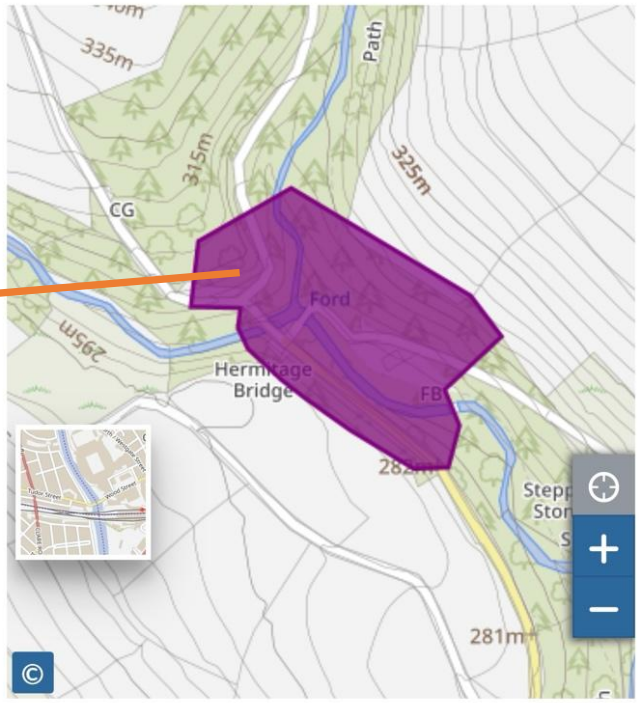
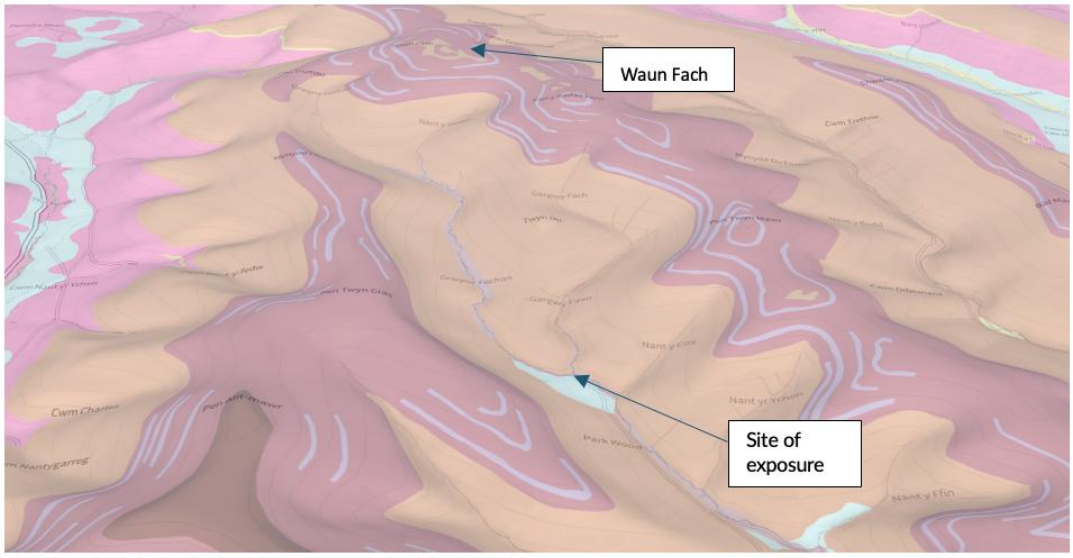


Fig 1. (Left) The Gwyrne Fechan valley looking northwestwards (Google satellite); Fig 2 (Right) The Hermitage RIGS- Datamap Wales-RIGS map viewer

The RIGS site is a short way beyond The Hermitage, on the north side of a private woodland track. It is one of our Quaternary sites, part of a network that inform the rate and timing of the recession of the last ice sheet. When first reported, it must have been fairly fresh as the track was cut to manage

Figs 3 and 4. The Hermitag,e a four-square Georgian style building with timber panelling and extensive cellars". Quite why he built it in this difficult place is uncertain. According to his wife's letters, "giving way to an impetuous temper marred everything he did". Local legend has it that it was built for a mistress. His wife had him buried in the grounds of Llangoed Hall; she is buried in Wimbledon.

woodland as part of a Welsh Government woodland management scheme. When surveyed in the SEWRIGS audit 2009, it was already overgrown.



Contains British Geological Survey materials © UKRI [2026]".

	Till, Devensian-Diamicton. These sedimentary deposits are glaciogenic in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary.
	Brownstone Formation--Red, brown and purple fluvial sandstones with subordinate red mudstone interbeds of fluvial origin(significant mudstones:)
	Senni Formation.- **Mainly green and green-grey (locally red-brown and purplish green), very fine to medium-grained, micaceous sandstones, mainly channelised, cross-bedded and parallel-laminated, with green and red-brown siltstone and mudstone interbeds, some calcretes and intraformational conglomerates; characterised by the presence of vascular fossil plant remains**

The importance of the site is that there is some uncertainty as to whether the mid Wales ice sheet covered the Black Mountains in the Devensian. The section here consists of loose diamict composed of Devonian Old Red Sandstone clasts in a loose sandy matrix. No material specific to mid Wales has been found, and the cobbles have a downslope orientation with some pods of deposit suggesting subaerial debris flow processes. The suggestion is that these sediments are a dissected alluvial fan formed in late glacial times, rather than evidence of the extension of the mid Wales ice sheet over the north escarpment of the Black Mountains.

The site illustrates some of the challenging decisions we face as a RIGS group. We could, for instance, delist a non-extant site if it was deemed expendable. There may be another site showing similar features, but as this is part of a geographical network, mapping the limits of glaciation, a site with similar lithology may not supply the same evidence. There is still research being done on Quaternary sites and given refinements are being suggested to the BRITICE map, sites like this may have more to give up. Dating of Quaternary deposits has been difficult but there are new technologies that haven't been applied to all sites, eg cosmogenic radionuclide dating, optically stimulated luminescence, improved satellite imagery and digital elevation models etc. This all feeds into modelling climate change. Therefore, delisting and losing this site is not an option.


Quaternary diamict on forestry track at confluence of the Gargwy and Grwyne Fechan.

Fig 6 (Left). The original section. Fig 8 (Right) By 2026 this original exposure was not visible but there is one slightly north of this location.

We could try to clear up the exposure. However, to get our small group to travel substantial distances to reach the area, then negotiate miles of a single-track road, only to be confronted by 2 deep potholes on either side of the road, which cannot be by-passed, results in a half mile trek carrying clearing equipment up to the exposure, which is hardly a practical proposition. The exposure is on a private road so we would need to seek the landowner's permission to start work. Even if it was cleared, the softness of the deposit means it would be quickly vegetated over again.

Looking at its education potential, the presence of a noticeboard means we could negotiate a QR code sticker addition but the board itself is in a pretty poor condition. How many see it? The Gwyrne Fechan valley carries on north-westwards and a path leads up to Waun Fach. It is lovely walking country but there are hardly hoards of walkers.

Our final option is to preserve the information about the site's existence, which may be open for further investigation, and to make this information available to researchers. There is a RIGS report containing a description of the site and its significance and Natural Resources Wales, through Data map Wales, has a digital map of the location of all our sites. What is missing is the ability to search the database for different categories of sites. It would be helpful to have a short description of the particular feature exposed, and an idea of its accessibility. We have discussed providing this information on our website, but we have a lot of sites. If anyone would like to help, let us know. Otherwise, our valuable information about these sites will be as hidden and as forgotten as The Hermitage.

Elen Statham

Celebrating geological landscapes

Most of us will be familiar with the country's protected sites system, whereby locations which are held to be significant for their biological or geological interest are recognised by one or more of a series of designations appropriate to the feature/s in question. Beyond simple protection, there are also designations which seek to interpret and celebrate these sites at a landscape scale.

Statutory site protection

Of the statutory 'protection labels', perhaps the most well-known are '**Sites of Special Scientific Interest'**, more frequently referred to as **SSSIs**. This system was introduced by the *National Parks and Access to the Countryside Act 1949*, the same legislation which brought National Parks, Areas of Outstanding Natural Beauty (or AONBs) [which have recently renamed as *National Landscapes*] and definitive maps of public rights of way to Wales and England.

The system was overhauled by the *Wildlife & Countryside Act 1981* with many thousands of such sites being 'renotified'. The *Countryside & Rights of way Act 2000* made further changes. In the early years, the then Nature Conservancy Council used 'areas of search' to draw up lists of those localities which would go on to become biological SSSIs. Geological SSSIs on the other hand have been drawn from the '**Geological Conservation Review'** (so called **GCR sites**) published by the Joint Nature Conservation Committee (JNCC) which, since 1990, has brought together the UK government bodies and those of the devolved administrations.

Some SSSIs are notified both for their biological and geological interest and are referred to as 'mixed SSSIs'. A search of SSSIs on the *DataMapWales* website brings up all of the SSSIs currently notified in Wales and its coastal waters. Within our region, geological sites include the 139ha Llanfihangel moraine, the 91ha Glais moraine and the linear 36ha Cwm Gwrelych and Nant Llyn Fach streams. Mixed sites range from the 4,995ha Brecon Beacons and 6724ha Mynydd Du to the 332ha Rhossili Down and 247ha Marros-Pendine Coast.

It is worth noting that the process of notifying all GCR sites as SSSIs is not yet complete, but their appearance in the GCR inventory means that they are considered to be potential SSSIs and hence, when it comes to the planning system, are treated in similar fashion to established SSSIs. The GCR covering Porth yr Ogof at Ystradfellte is one such.

Fig 1 (Below). Porth yr Ogof, Wales' largest cave entrance is within the Geopark and has GCR and SSSI status.

Some SSSIs, whether biological, geological or mixed are also managed as **National Nature Reserves** (**NNRs**). Both Ogof Ffynnon Ddu and Dan yr Ogof are NNRs with geological components, so too the Gower Coast and Cwm Clydach in Monmouthshire. There will often be a greater emphasis on interpretation for the public of sites protected as NNRs than simply as SSSIs.

Special Areas of Conservation (or **SACs**) were introduced as part of UK laws that put into effect the *European Habitats Directive* in 1992. Though their application is to biological features, on the basis that *geodiversity underpins biodiversity*, the high level of protection afforded to the green elements of a site by this status also means that the Earth science interests are also better defended. This is especially true sites with coastal geomorphology interest e.g.saltmarsh. Examples from our region would include Coedydd Nedd a Mellte within the Waterfall Country, the glacial cirque headwalls of the Brecon Beacons and the Limestone Coast of South West Wales, which covers parts of Gower and south Pembrokeshire.

Fig 2 (Below) Craig Cerrig-gleisiad is a designated SAC, NNR, GCR site and SSSI within the Geopark.

Scheduled Monuments are a further class of protection intended to ensure the integrity of buildings and archaeological sites. Occasionally, as is the case with the Cribarth Limestone Quarries and Tramroads and the Pwll Du Limestone Quarry near Govilon, the designation effectively safeguards the geological exposures too.

Fig 3 (Left). Pwll Du quarry and balance lift are protected as a scheduled monument within the World Heritage Site. Parts of the site also have GCR and SSSI status.

National Park status does not confer any additional protection of geological heritage *per se* but it does provide a strengthened context within which the other protections operate. In particular, each park has defined its own 'special qualities', and policies are developed which seek to avoid them being harmed, and indeed to enhance them where feasible. The Local Development Plan for Bannau Brycheiniog (Brecon Beacons) notes that "*the National Park's* ***sweeping grandeur and outstanding natural beauty*** *observed across a variety of harmoniously connected landscapes, [includes] marvellous gorges and waterfalls, classic karst geology with limestone pavement, caves and sink holes, contrasting glacial landforms such as cliffs and broad valleys carved from Old Red Sandstone and prominent hilltops with extensive views in all directions. A landscape that provides a sense of time depth and timelessness."*

RIGS

Developed since 1990, **Regionally Important Geodiversity Sites** (or **RIGS** in short) supplement the SSSIs. Several of the largest RIGS within Wales are to be found within the Bannau Brycheiniog (Brecon Beacons) National Park. Citations for at least some of the Welsh RIGS can be found at the Local Environmental Records Centres (LERC) Wales website. East of Offa's Dyke, the equivalent designation is the Local Geological Site, whilst north of Hadrian's Wall, it is the Local Geodiversity Site. A RIGS is the broad geological equivalent of a SINC (Site of Importance for Nature Conservation) which can be designated in respect of the biological interest of a locality. Both are non-statutory and, in planning and conservation parlance, fall under the generic heading of Local Sites. A few RIGS cover those GCR

sites like Porth yr Ogof, Cusop Dingle and Machen Quarry, which haven't yet achieved SSSI status. The South East Wales RIGS (SEWRIGS) Group regularly comments on planning applications affecting RIGS in south-east Wales.

Their protective aspect comes from PPW12, which states that "Regionally Important Geodiversity Sites (RIGS) are non-statutory site designations that recognise locally or regionally important geological and geomorphological landscape features. RIGS are selected for their educational, scientific, historic and aesthetic qualities, to and designated through development plans".

International recognition

Each of the above is a part of the UK and Welsh governments' statutory framework for protection of sites. Beyond these are a couple of international designations administered by UNESCO which, for sites large and small, go beyond mere protection and seek to celebrate them with a wide audience.

The longer established of the two is that based on the *World Heritage Convention of 1972*, with the landmarks and areas thus identified being known as **World Heritage Sites**. UNESCO defines these as where their '*cultural and natural heritage is considered to be of outstanding value to humanity'*. Most are defined on either their cultural or natural grounds but, as with SSSIs, a few have been selected in respect of both, the St Kilda Archipelago being a British example.

In Wales four sites have been 'inscribed on the world heritage list' since 1986. All four are 'cultural' rather than 'natural' sites and yet geology is significant in each of them, not least *The Slate Landscape of Northwest Wales* and, in our own region, the *Blaenavon Industrial Landscape*. At the heart of any World Heritage Sites are its **OUVs** or features of Outstanding Universal Value; those at Blaenavon include Big Pit – Wales' National Coal Museum - and the ironworks, one of the best preserved in the world from its period of operation up to 1902. Critical too, and hence afforded protection, are the extraction sites within the overall boundary; exposures of coal, claystone iron ore, silica rock and limestone.

The planning system takes account of the OUVs of a World Heritage Site and seeks to protect and enhance them. In the case of the Blaenavon Landscape that includes the views over the area to protect the integrity of the site from for example, the visual intrusion of wind turbines just outside its boundaries.

Several books have been published on Blaenavon with the most recent commissioned to mark the passage of more than two decades since its inscription in November 2000 (John Rodger 2024, *Blaenavon: building a Future on the Past*, Torfaen County Borough Council). It charts the progress from the bold decision to make a submission to UNESCO around coal mining and ironworking, through almost to the point of last year's 25th anniversary. The town's past was forged from its geological underpinnings and Torfaen Council together with partners such as the Town Council and National Park Authority pinned their hopes for its future on celebrating that legacy.

The other UNESCO designation is the **UNESCO Global Geopark (UGGp)** of which there are two in Wales. In the north is GeoMôn, which makes the most of the complex tectonic history behind the landscape of Anglesey, whilst in the south Fforest Fawr celebrates a diverse Palaeozoic rock succession framed by two orogenies, together with a significant glacial legacy and abundant karst. The visible evidence of extractive industry is another key part of the Geopark's 'offer'. Though sibling UNESCO projects, Global Geoparks contrast with World Heritage Sites in that they are essentially 'bottom-up' affairs rather than top-down; UGGp's emerge from local interest within communities in conversation with a range of partners from the different sectors whilst World Heritage Sites are put forward by governments.

Geoparks are not planning designations; one of their strengths lies in providing interpretation and education around the geological and other heritage assets which they encompass, thereby engendering support amongst the local populace and visitors.

Fforest Fawr is managed by a partnership led by the National Park Authority. The SWGA is one of the nearly two dozen partner organisations which sit on the management group. Key to the Geopark approach is that it is '*about more than just rocks, it's about people too'*, that's to say whilst each geopark is physically and metaphorically built upon its geology, its links with history, archaeology and mythology are actively pursued as are ties with ecology and other disciplines.

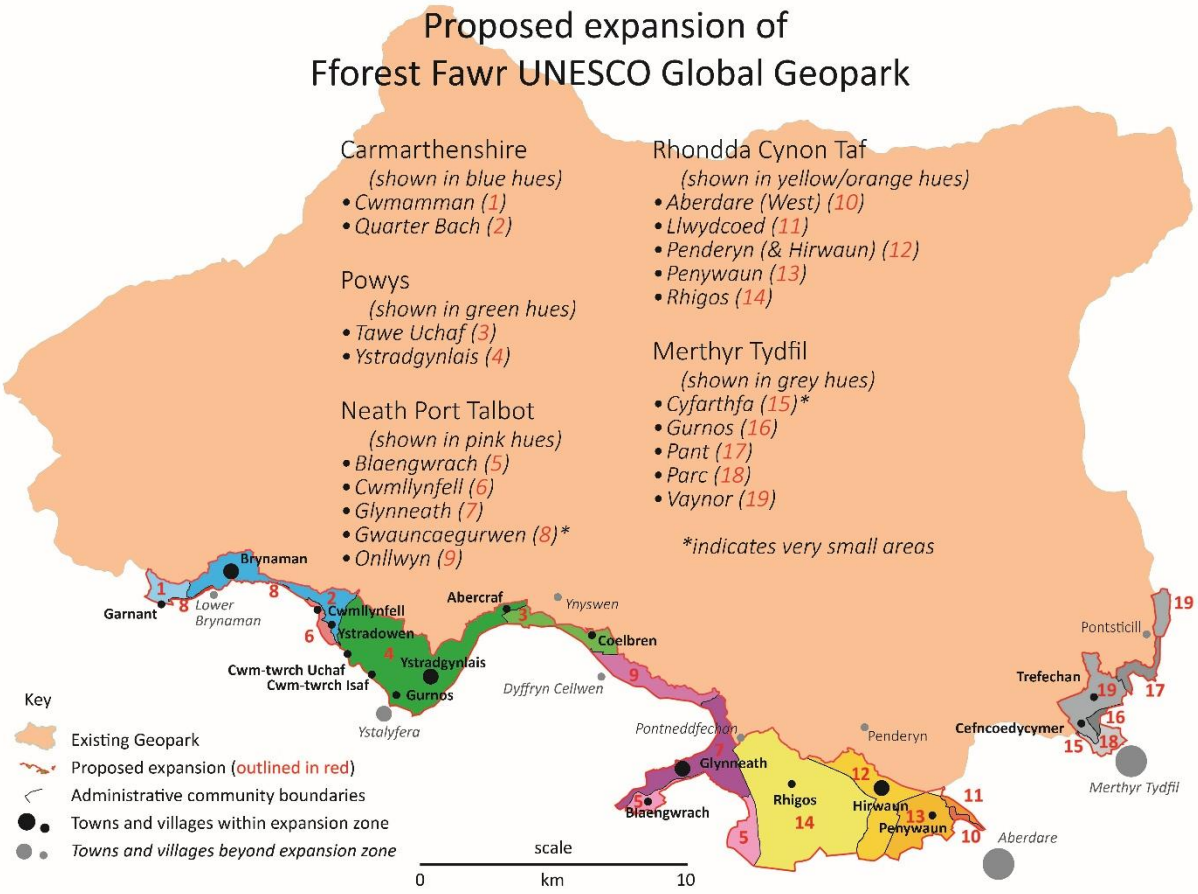


Fig 4. Fforest Fawr UGGp has been consulting on a potential expansion.

Fforest Fawr Geopark celebrated its 20th birthday in October 2025, the second decade being as a full UNESCO Global Geopark. As it embarks on its third decade, consideration is being given to extending its boundaries into the coalfield's northern margins, to better tell the stories around coal and ironworking and bring benefits to the communities in that zone.

Alan Bowring

The author gratefully acknowledges Christina Byrne who, as NRW's regional geologist, improved the article by kindly supplying additional information.

For those interested on seeking further information on the sites and legislation mentioned above this can be found at the following websites:

https://en.wikipedia.org/wiki/National_Parks_and_Access_to_the_Countryside_Act_1949
https://en.wikipedia.org/wiki/Wildlife_and_Countryside_Act_1981
https://en.wikipedia.org/wiki/Countryside_and_Rights_of_Way_Act_2000

https://datamap.gov.wales/
https://sac.jncc.gov.uk/site/UK0030141 (Coedydd Nedd a Mellte SAC)
https://sac.jncc.gov.uk/site/UK0030096 (Brecon Beacons SAC)
https://sac.jncc.gov.uk/site/UK0014787 (Limestone Coast of South West Wales SAC)
https://cadwpublic-api.azurewebsites.net/reports/sam/FullReport?lang=en&id=1050 (Cribarth limestone quarries)
https://cadwpublic-api.azurewebsites.net/reports/sam/FullReport?lang=en&id=3152 (Pwll Du limestone quarry)
https://www.beacons-npa.gov.uk/wp-content/uploads/Brecon-Written-Statement.pdf (BBNPA LDP)
https://sewrigs.wordpress.com/
http://citations.lercwales.org.uk/index_rigs
https://www.unesco.org/en/world-heritage?hub=66210
https://unesco.org.uk/our-sites/world-heritage-sites/st-kilda
http://cadwpublic-api.azurewebsites.net/reports/worldheritagesite/FullReport?lang=en&id=12 (Slate Landscape of Northwest Wales WHS)
https://cadwpublic-api.azurewebsites.net/reports/worldheritagesite/FullReport?lang=en&id=5 (Blaenavon Industrial Landscape WHS)
https://museum.wales/bigpit/
https://cadw.gov.wales/visit/places-to-visit/blaenafon-ironworks
https://www.geomon.org.uk/
https://www.fforestfawrgeopark.org.uk/

News from British Geological Survey (BGS)

Map of BGS BritPits

A new map of the BritPits shows the distribution of worked mineral commodities across the country. The BGS dataset contains more than 264,000 records of onshore mineral workings located in Great Britain, Northern Ireland, the Isle of Man and the Channel Islands. This includes active, inactive, dormant and ceased sites, as well as a range of mineral operations including mines, quarries and onshore oil and gas fields, together with facilities handling mineral products and industrial processes. Each record describes an onshore mineral working in terms of its name, operational status, geographical location, Mineral Planning Authority (MPA), operator, geology, worked mineral commodity and a range of relevant metadata. For more information and access to the dataset visit the BGS website.

Quaternary UK offshore data digitised

BGS has developed a new, national-scale, offshore dataset that shows the distribution of previously interpreted Quaternary rock layers in the shallow subsurface of the UK continental shelf. The dataset comprises a compilation of legacy BGS 1:250 000 Quaternary geology map sheets, which were first published in the late 1980s to early 1990s. Large areas of the UK offshore are covered at a scale of 1:250 000 and this is the first time these map sheets have been digitised and merged together. For more details visit the BGS web site.

News from the Museum

Unfortunately, we have recently lost a few of our excellent geological displays in the museum. The temporary exhibition of Brymbo fossils came to an end, and after a brief spell being used to store the Entomology collections (whilst their room is being upgraded), that gallery will be refurbished as a

multisensory area. So, it's good news for those who have been calling for such a useful space, but a shame we have lost it as a gallery for short term exhibitions. Also, this month, the museum's Entrance Hall has had the first in a series of 'upgrades' which has meant that the *Dracoraptor* dinosaur display, and the dinosaur footprint alongside it, have both been taken down. Again, these spaces aren't being refitted with other specimens, but rather are to be used to enhance the general visitor experience. It will be interesting to read visitor feedback.

Another blow to the geology section was hearing that our wonderful part time palaeobotanist George is leaving us after just a few months, to take up a long-awaited project that is dear to his heart elsewhere. We wish him all the best for the future, but it once more leaves us short staffed and we hope that his replacement role will cover the same responsibilities.

In better news, we are holding our eagerly anticipated Open Day for geological stakeholders at the end of March in order to showcase some of the geology department's work, and also to hopefully initiate a discussion about the future of geological sciences in Wales. I will aim to write a report of the day to be published in the next newsletter.

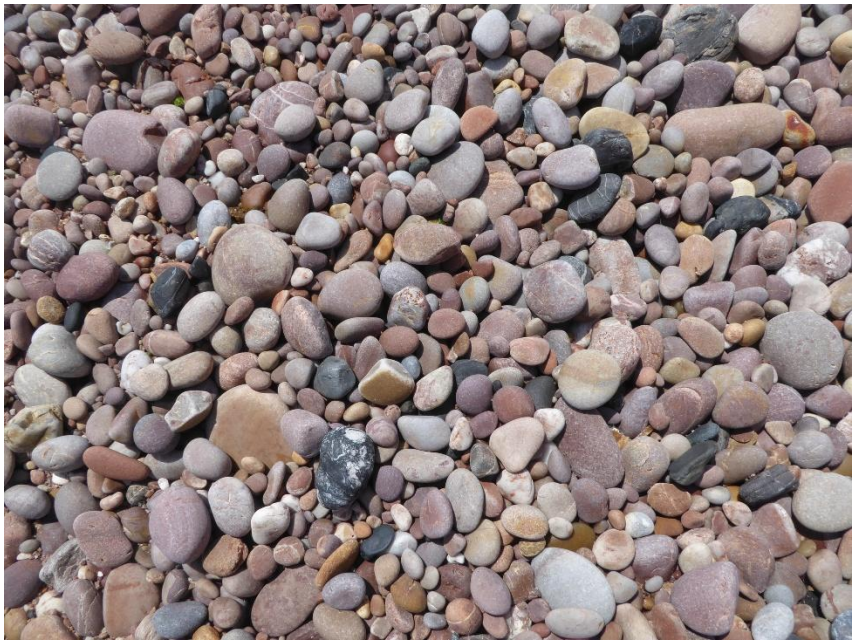
Cindy Howells

Holiday Geo-snaps

Budleigh Salterton Pebble Beds, Devon

Budleigh Salterton lies at the western end of the Dorset and East Devon World Heritage Site (better known as the Jurassic Coast), between Sidmouth and Exmouth. It is famous for the exposures of the Lower Triassic Budleigh Salterton Pebble Beds Formation. The pebbles beds are about 25m thick and contain cobbles and pebbles, dominantly of reddish coloured quartzites plus dark rhyolites and porphyry. The quartzites contain Ordovician fossils from source rocks in Brittany as well as some Devonian fossils. The beds were deposited in braided streams and rivers. They are overlain, disconformably, by the Middle Triassic age Otter Sandstone Formation that attains a thickness of about 200m thick. At the base of the Otter Sandstone is a clay-rich bed that has had the iron leached out of it and is bright yellow in colour, making the contact easy to spot against the dominantly red-coloured cliffs! Above this layer is a bed of wind-faceted pebbles, totally different to the well-rounded pebbles in the pebble beds below.

Left: The cliffs on the west side of Budleigh Salterton showing the Budleigh Salterton Pebble Beds Formation overlain by the Otter Sandstone Formation. Right: The distinctive leached clay-rich bed at the disconformity between the two formations.



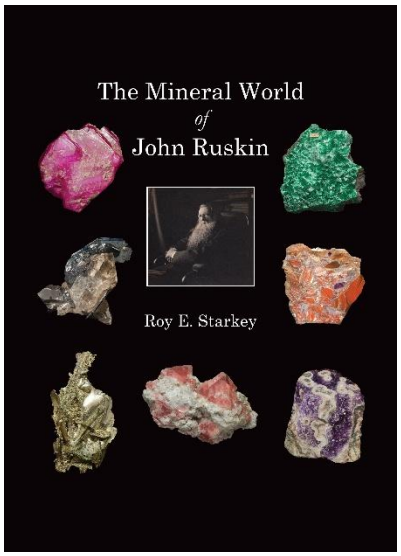
Beach pebbles derived from the Budleigh Salterton Pebble Beds Formation dominated by reddish coloured quartzites but with dark pebbles of rhyolite and porphyry.

This is one of a number of fascinating sites along this part of the south Devon coast that are worth exploring. If you do then I can recommend the Geologists' Association Guide No.73 *Geology of the South Devon Coast*, written by John Cope.

Stephen Howe

New Mineral Book

Many of you may well know Roy Starkey, who has spoken to us on a couple of occasions. Lynda Garfield has let me know of Roy's latest book, that may be of interest to members, entitled *The Mineral World of John Ruskin*. The following is taken from the advertisement for the new publication.



John Ruskin was a Victorian polymath who wielded huge influence during his lifetime as an art critic, social reformer, and writer. He was a tireless champion of natural beauty and ethical craftsmanship. He looked at mountains and nature with the eye of an artist, a diligent and trained observer of the natural world. This book explores the story of John Ruskin's passionate and life-long interest in minerals and mountains. Although he had no formal qualifications in the earth sciences, he amassed a collection numbering thousands of specimens many of which can still be traced today. Lavishly illustrated with more than 520 photographs and diagrams, including 350 previously unpublished images of specimens from Ruskin's collection, the book tells the story of his long and interesting life, delving into his passion for mineralogy and how minerals sustained him through many years of mental illness.

Privileged access to the surviving elements of Ruskin's extensive collection at Brantwood, the Natural History Museum in London, the Guild of St George Collection at the Millennium Gallery Sheffield, the Ruskin Museum, Coniston and elsewhere has enabled hitherto unrecorded connections to be made.

The book will appeal to all those interested in John Ruskin, to mineral collectors and dealers, to historians of mineralogy, museum curators, university researchers and to anyone who is simply interested in the treasures of the natural world. This is neither a coffee table book nor a biography, but rather a blend of the two that takes the reader on an absorbing journey through John Ruskin's enduring love affair with minerals and crystals.

This hardback book has 360 large format pages and 527 illustrations and costs £40 plus p&p. For more information or to order a copy visit www.bristishmineralogy.com.

- Most of our lectures are recorded and uploaded to our website (www.swga.org.uk) for a few months.
- We also have a YouTube channel as well as maintaining a Facebook presence (https://www.facebook.com/groups/179899022064977). With Facebook, anyone can join in and the more that do, the better it is!
- ***Earth Heritage Magazine*:** This is now only available in an electronic format, which can be found at: http://www.earthheritage.org.uk/wp/wp-content/uploads/EH-53_final.pdf

Contacts for other local geological organisations

- ***Welsh Stone Forum (Fforwm Cerrig Cymru***): Contact: www.museumwales.ac.uk/en/welshstoneforum
- ***Open University Geological Society*** (***Severnside Branch):*** Contact: Andy Mitchell (ougs.org/severnside)
- ***South East Wales RIGS Group***: http://sewrigs.wordpress.com/
- ***West Wales Geology Society:*** www.westwalesgeolsoc.org.uk

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The Carboniferous/Triassic unconformity on the south side of Sully Island