Geologists' Association - South Wales Group

Cymdeithas y Daearegwyr - Grŵp De Cymru

Newsletter December 2025 ***Sixty Sixth session***

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Welcome to a bumper Christmas Newsletter. In this edition you will find the details of the remaining Winter Programme, a report from the various festivals we attended, updates from SEWRIGS, BGS and the Fforest Fawr Geopark, Holiday Geo-snaps, plus a number of other items. As usual I thank all those who have provided articles without too much arm twisting! It would be nice to see articles or comments from the rest of the membership 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 before Easter so would be grateful to receive items at any time up to 1st March for inclusion in that edition. It would make the job easier if you could 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 the formatting and pictures are very difficult to drop into the Newsletter format and often go awry when transferred. In the meantime, I hope that you find something of interest and on behalf of the Committee wish you all a very Happy Christmas and New Year.

Stephen Howe

Message from the President

This autumn's talks have already been well attended (thank you!) and I have enjoyed both speaking, and also listening to a very different talk about applied geology and the use of geological materials by Kat Daniels. We have more talks lined up which will take us at least as far as Panama, and also places closer to home. Some of you will be telling us about the geology of your holidays, which is always a good way to enjoy a post-Christmas Saturday.

The committee have also been hard at work sorting out the summer's field season, and we are really grateful to those who have offered to lead these trips. Much of the jigsaw puzzle has fallen into place around limiting factors such as tides. The remaining pieces will be sorted very shortly. I hope you are looking forward to them as much as I am.

I am happy that Steve will include below a very short piece by one of my mapping students, whose enthusiasm for geology has bubbled up to the surface in the unique challenge that is a degree mapping dissertation. It's not for everyone, but it is still a fantastic way to crystalize years of study, test yourself, and can be a transformative experience for the student. I'm very proud that SWGA, through the Howard Bartlett Bursaries, can encourage and support students in this way.

Chris Berry, President

Remaining Winter Programme 2026

The remaining Winter programme is outlined below. **Please note the change of date for the February meeting**. Meetings in Cardiff take place in our usual rooms at the university and those in Swansea at the Trallwn Community Hub, Bethel Rd, Llansamlet, Swansea SA7 9QP. All of the talks will be hybrid events with Zoom available for those who are unable to attend. The meetings start at 11.00am with refreshments served from about 10.15am. To save waste please bring your own mug.

January: Saturday 10th (Cardiff)

Holiday Geology: Co-ordinator John Nudds

February: Saturday 21st (Swansea)

Tim Astrop: *Brymbo Fossil Forest*:

March: Saturday 14th (Cardiff)

Richard Bevins: *AGM & Stonehenge*

Due to the unpublished material highlighted in our President's lecture this talk is not freely available on our web site. However, members can access it by requesting a link from Chris Berry (BerryCM@cardiff.ac.uk)

Holiday Geology 2026

Our annual Holiday Geology meeting will take place in Cardiff on January 10th, 2026. We are hoping to have 6-8 short talks by members, which should be from 15-20 minutes long and prepared on PowerPoint. There are still spare slots in the programme, so please have a think about whether you could show us some of your excellent holiday slides with some informal geological comment. Send offers of talks with a provisional title to me at john.nudds@manchester.ac.uk.

We will be once again providing a buffet lunch. In order to ensure that we order an appropriate amount of food could you please contact me also to register your intention of attending. We will also be running our annual raffle and will welcome any contributions to the prizes. Thank you.
John Nudds

Summer Field Meeting Programme 2026

Work has already begun on next summer's field meeting programme and to date three meetings have been planned as follows:

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

Saturday 16th May: ***Weston-super-mare, North Somerset***. Leaders: Sue Marriot & David Case

July (date tbc): ***Sawddee, Carmarthenshire***: Leaders: Rob Hillier & Dick Waters.

Student Summer Highlights – Fossils, Conservation and Campaigns

This summer has been a busy and inspiring one! I was lucky enough to volunteer at the Lyme Regis Fossil Festival, where one of the real highlights was seeing the Mary Anning statue in person and getting out on the coast to collect and observe ammonites. The atmosphere at the festival was buzzing, with families, schools, and fossil enthusiasts of all ages exploring the stalls and talks. I also had the chance to learn about the incredible Sea Rex excavation, a giant pliosaur currently being prepared for extraction from the cliffs of the Jurassic Coast. This daring and globally significant dig aims to uncover one of the most complete pliosaur skeletons ever discovered, a once-in-a-lifetime project that could reveal new insights into these apex marine predators.

Sara with one of the many ammonites to be found in Lyme (left) and the Pliosaur skull (right) © Sara Davies

Another highlight for me was meeting so many amazing people, especially younger students and children whose passion for palaeontology was infectious. Hearing how some had already been involved with projects like the Brymbo Fossil Forest was truly inspiring. It reminded me how important it is to protect and promote Wales's fossil heritage and wider geoconservation efforts, something that feels particularly relevant as I begin to shape ideas for my final-year dissertation.

I also supported *Be a Geologist for a Day* held in Penarth, which was such a joy. Seeing children and adults so excited about fossils and sedimentary features reinforced the value of making geology engaging and accessible.

Alongside all this, we've been preparing to officially launch the #GeoTagABag campaign, with a target of collecting 1,000 bags of litter while raising £1,000 for charity. We've already started strongly with 100 bags collected and £100 raised. It's been wonderful to see the campaign building momentum, and we're excited for the year ahead.

And finally …. this year also brought a very special highlight for me personally and professionally: the **Swansea University Geoscience Society was awarded Best New Society 2025** at the Students' Union Awards! It was an incredible way to finish my time as President and a testament to the hard work and enthusiasm of our members.

Sara Davies – 3rd Year Environmental Geoscience Student (Yikes) – Swansea University

Field Meeting Report

Huntsman's Quarry, Naunton, Gloucestershire. 18th September 2025

On arriving at the quarry, we were given a talk by the quarry manager on the history of the quarry and its geology. The rocks exposed belong to the Taynton Limestone Formation (Jurassic, Bathonian Stage, Great Oolite Group). Recent events include the discovery of pterosaur remains and dinosaur footprints. After the talk we walked to the western part of the quarry and to the upper sections. The first stop was to examine the limestones of the Ardley Member, where a few bivalves were collected. The next stop was in the highly fossiliferous Eyeford Member. The floor in this section was covered in hundreds of brachiopods with two species identified, *Stiphrothyris tumida* and *Epithyris oxonica*. Also found were the bivalves *Pholadomya lirata*, *Pholadomya deltoidea*, *Lucina depressa* and the echinoid *Clypeus ploti*, which was quite common. This section was probably the most fossiliferous locality I have ever seen on quarry visits. We stayed for about 4 hours before returning to the quarry offices where we thanked the quarry management for an outstanding visit.

Peter Hodges

Events 2025

It's been a busy autumn for the group supporting a number of events around south Wales. Over the weekends of 27th/28th September and 11th/12th October the Fforest Fawr Unesco Global Geopark celebrated its 20th Anniversary with two weekends of activities and walks. The first took place at the National Park Visitor Centre (Mountain Centre) at Libanus and the second at Craig-y-nos Country Park. A report on these can be found in the SEWRIGS section below.

The group also participated in the Swansea Science Festival over the weekend of 25th/26th October. This was a very popular event as Lynda Garfield explains below.

Swansea Science Festival

Following the Merthyr Tydfil Science Festival in July, at which we showed the *Minerals in Your Smartphone* display (see September's Newsletter), we were invited to exhibit the display at the Fforest Fawr Geopark's 20th birthday celebrations at the National Park Visitor Centre at Libanus and at the Craig y Nos Country Park in September and October. We accepted this invitation on behalf of The Russell Society.

Then came another invitation, to show the display at the Swansea Science Festival at the National Waterfront Museum in late October, on behalf of the SWGA. Together with committee member Kath Ficken, we found ourselves working almost flat out for two days. The Festival attracted around 5,000 visitors, most of whom must have passed our table. There were many families, many children, some geologists, knowledgeable people, people really interested in knowing more, and many understanding the message that smartphones need minerals which come from rocks which come from the ground, with all that that entails.Since last showing the display in 2019 it has been updated, with information about "Critical Minerals" ie minerals critical to the UK's livelihood. Of the 12 minerals we show in the display (out of around 70 in a Smartphone), nine (Al, Graphite, Fe, Li, REEs, Si, Sn, W, Zn) are "critical". The display has also been updated for health & safety, given that we encourage people to be hands on and touchy-feely (with tissues and cleaning fluids, cleverly devised by Elen Statham).

By the end of the second day, we had given away all our free samples (Taffs Well calcite, Australian haemetite, south Wales coal), we had given away almost all our handouts, we had no *Minerals Treasures of Wales / Trysorau Mwynol Cymru* (NMW) booklets left, we had very few SWGA leaflets left, and we were hoarse and exhausted. We returned home with appreciably less than we had set off with. It was challenging, but rewarding. One of the best moments was a c.9 year old who wanted to be a geologist and had already started his rock collection. By the time we had finished chatting, his mother was almost in tears with the help we had given them. Needless to say, he went home with a few more treasures for his collection!

Our Treasurer Hazel Trenbirth, who had made the arrangements on behalf of the SWGA as part of the Swansea University's Geography Department's contribution, was herself involved with the other part of its contribution, about plastic debris in beach sands. And on the other side of us was a display of

medical maggots, in action on (imitation) wounds and injuries. Again visitors were encouraged to touch and feel! We did manage to leave with three very pleasant huge woolly stuffed maggots!

Although we were extremely busy, we did manage a quick look at other exhibits, which embraced a wide range of scientific disciplines, including one on the manufacture of silicon chips from beach sand, using virtual reality technology. But sadly, ours was the only geological display in the whole festival; given the number of people with an evident interest in science, surely this is something to be worked on for future festivals.

Lynda Garfield.

Howard Bartlett Geological Field Training Bursary winner.

This summer I spent 25 days in North Wales with two friends completing our dissertation mapping fieldwork. Our area was just to the northeast of Yr Wyddfa (Snowdon) in the shadow of the very recognisable ridge of Tryfan. Faced with 50mph winds on our first night, and a rodent intrusion on the third, this experience was definitely not for the faint hearted. In the field, deep bogs, steep hills and classic Welsh weather patterns made for a very different set of field conditions to those we had enjoyed during our Spain mapping field course. In spite of these factors, the time I spent in Cwm Tryfan was one of the most enriching experiences I have ever endured. Every day surrounded by the enormous scale of this ancient mountain range gave me the unique opportunity to appreciate the real scale of the geological concepts we had been taught in lectures.

Tryfan © Emily Byrom

The geology of the area had an enjoyable blend of faults and folding within the sequence of tuffaceous sediments, tuffs and igneous intrusions. The tuffs were the most distinctive units across the area, with a very distinguishable white weathered surface, and helped define the structure of the faults and fold in the Cwm. Up close, the tuffs were generally characterised by feldspar phenocrysts, and columnar jointing in some outcrops. In one of the tuff units, we also found exemplary exposures of accretionary lapilli and fiamme.

Initially the scale of the task was definitely daunting, and at times overwhelming, but as the weeks went on the pieces began to fall into place in a very gratifying and satisfying way. After the 25 days I left feeling tired, and with a new found phobia of mice, but most importantly happy with the work I managed to achieve.

Emily Byrom, year 3 Cardiff University:

SEWRIGS

After our strange (but possibly new normal?) summer of baking heat and then drenching rain, it was with some relief that we managed to arrange a work day at Llandegfedd RIGS. The site is designated as a RIGS because it is one of the best exposures in the Usk Inlier of the Silurian, Ludlow age Upper Forest Beds, which are equivalent to the Upper Bringewood Beds of the Welsh borders. The site used to be well known as a place for collecting as the decalcified siltstones are very fossiliferous. However, some 10 years ago, it became buried under soil and vegetation during excavation for the drains for the café in the reservoir's visitor centre. For the last six years we have been trying to get access to clear the exposure but have been thwarted by the quick turnover of managers, and a succession of problems from tree felling operations to the control of antisocial behaviour. We managed to make a good start on clearing a section at the exposure. The siltstones are generally friable so many loose pieces are available for inspection. The large strophomenid brachiopods are characteristic of this site but smaller brachiopods dominate with molluscs and trilobites occurring less commonly. We hope we can integrate this site into our list of inlier sites for educational purposes.


Llandegfedd RIGS site, before and after cleaning. © Dave Wellings

In the summer, Steve Howe drew our attention to a new public footpath that had been cut at the western end of the Llandegfedd Reservoir dam. This was previously a narrow path up the bank but, because of the tree felling operations, it had been widened and straightened along its length for vehicular access by cutting into and exposing the rock along the section. It is a great exposure, starting at its lowest point with the Lower Llanbadoc Limestone Beds (Aymestry Limestone of the Welsh borders), ascending into


The new Llandegfedd section (left) and a coral from the site. © Dave Wellings

the greenish siltstones of the Upper Llanbadoc (Lower Leintwardine) Beds. The nodular limestone at the base of the section is blue grey with calcified fossils of a similar range to those in the Upper Forest Beds. However, the fossil assemblages change upwards through the succession and become dominated by the small peanut-shaped brachiopod, *Dayia navicula*, in the Upper Llanbadoc Beds, along with a variety of other brachiopods, some quite dramatic orthocones and the trilobite *Calymene puellans*. Again, there are many loose pieces and fossils are plentiful. This site has a very promising educational potential.

Our Candleston work day had to be rescheduled due to bad weather so our next foray was to the Geopark 20th Anniversary festival. This was held on two weekends in September and October, and we took a display two both events, at Libanus and Craig-y-Nos. People had travelled long distances to go on the guided walks, and we had the pleasure of a free lecture from Alan Bowring on the geology of the Geopark. Our display, aimed at junior school children, was on the physical properties of rocks with a hardness test for coal versus obsidian, and glass versus plastic crystals called “Fake or fortune”. There was a glorious gasp of amazement from a 7-year-old when he did the streak test on things he thought were the same. Again, we gave out samples and would appeal to members to donate and collect samples that we can give out to children. Among other stands were Dave Wellings and Lynda Garfield with “Minerals in the smartphone”, ably abetted by Steve Plant who brought some amazing mineral specimens. Dave even brought his microscope, which was much appreciated by all who looked down the eyepiece. Chris Byrne manned the Natural Resources Wales stand featuring south Wales geology, Sara Davies attended with a display from the Swansea Student Geological Society, and there was an arresting stand of drone footage of the Bannau Brycheiniog National Park from the National Park Society. Both venues had good facilities including café and parking. An event not to be missed.

Dave and Lynda’s stall. © Dave Wellings

Another aspect of our activities is the identification and protection of significant sites. Nant Helen, the large opencast mine near Onllwyn, has closed and is to be restored. However, there is a face that has educational potential as it exposes coal seams. Our thanks go to Chris Lee who made a preliminary visit to the site in appalling weather to discuss the possibilities with the management, but if the project bears fruit, we are looking for volunteers who live closer to the area to help out.

Not all SEWRIGS members take part in all our activities, we are more a group of people with different skills of different levels. Whether it’s using a scrubbing brush or wheelbarrow, computer or water colours, or maybe have just a persistent nature, volunteers are always welcome.

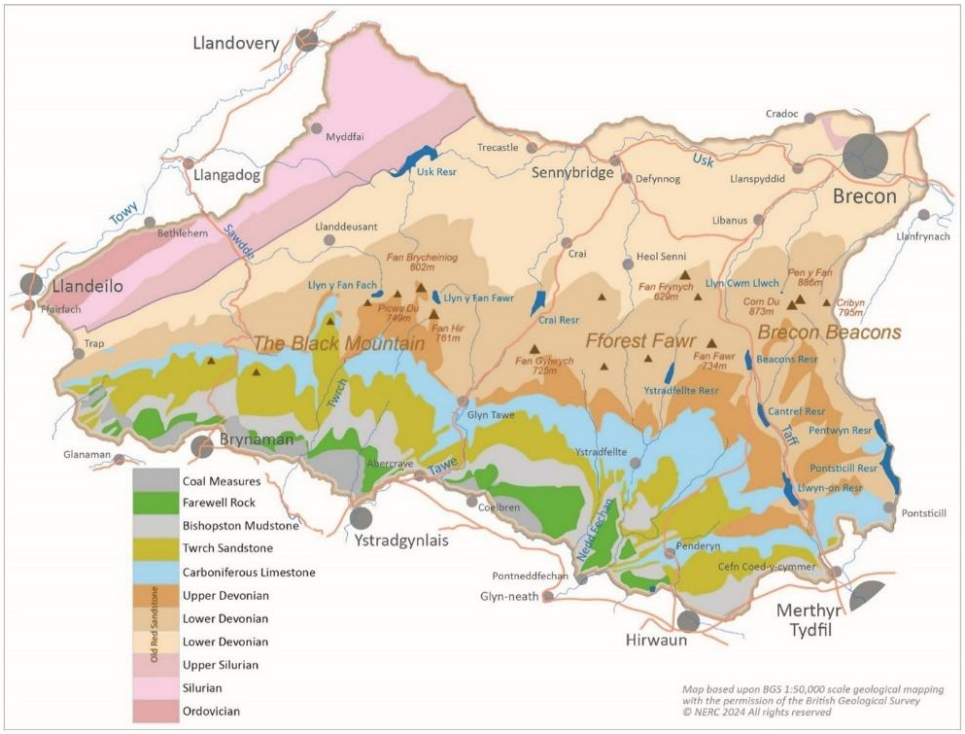
Elen Statham

Fforest Fawr UNESCO Global Geopark

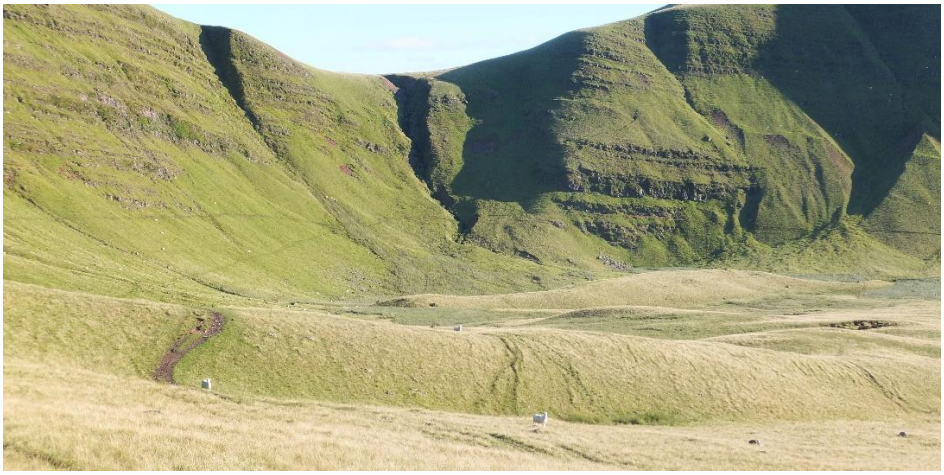
In October 2025, Fforest Fawr Geopark celebrated 20 years since it was accepted into the European Geoparks Network (EGN). It is also 10 years since it gained UNESCO Global Geopark (UGGp) status as well.

Marble Arch Caves Geopark, in Northern Ireland, was the first to be accepted into the EGN and it didn't take long for news to travel across the Irish Sea, spurring the then Brecon Beacons National Park Authority into conversation with Cardiff University, the British Geological Survey and a host of other partners, with a view to establishing a Geopark here. Although the first bid for a geopark, centred on the upper Swansea Valley, was unsuccessful, within a year the partnership met with success with the present Fforest Fawr Geopark boundaries i.e. the whole national park west of the Brecon Mountain Railway and 'Gap Road'. Today the Geopark partners include Natural Resources Wales, the National Trust, Brecon Beacons Tourism and a raft of organisations with more specific interests and expertise, such as Caving Wales and of course the SWGA.

So it was that in October 2005 over 763km² of Y Mynydd Du/The Black Mountain, Fforest Fawr (massif) and the Central Beacons, plus the surrounding valleys with their woodlands, rivers, and historic landscapes, first acquired Geopark status. It was later joined by Anglesey (as Geomôn) and beyond Wales, by a further three in England, three in Scotland and another one in Northern Ireland.



The Geopark's Palaeozoic bedrock spans from the late Ordovician Abereiddian age Ffairfach Grit (just short of 470 Ma) through to the late Carboniferous Westphalian age Middle Coal Measures (about 315 Ma). These encompass shallow marine carbonate shelves, deltas, floodplains and more. The Quaternary interest extends to a significant glacial legacy. Having been situated at the southern margin of the British icesheet during the Devensian Ice Age there are plenty of periglacial landforms as well. A fine array of largely post-glacial landslips provide additional interest, as does some of the finest karst within the UK, not least a series of complex cave systems and the extensive doline fields, many of which are to be found in areas of interstratal karst.



Bwlch Blaen Twrch across Pant y Bwlch, moraines and possible PNRs © Alan Bowring

Geoparks are not simply 'geological parks', they are very much about tying other aspects of an area's natural and cultural heritage to their geological underpinnings with a view to boosting the sustainable tourism economy and contributing to education and conservation. Archaeology is an important element, not least of the industrial kind given that the South Wales was a key player in the early development of the iron industry, many of the raw materials such as, limestone (flux), silica rock (firebrick manufacture) and rottenstone (polish) for example, being sourced in what is now the National Park and Geopark. Much of the infrastructure from these industries remains, albeit in a decayed state, with tramroads, canals, kilns, quarries and mines all testament to the extraordinary developments of that era and a starting point for many a Geopark walk or talk.

The intertwined stories of the two mountain-building periods which have given character to the Geopark, the earlier Caledonian orogeny and the later Variscan, are often rehearsed. Evidence for these is seen in faulting and folding at locations like Cribarth and Dinas Rock, which lie on the Swansea Valley and Neath disturbances respectively. The regional southerly tilt of the strata means that any north-south travel through the Geopark can also be viewed as a journey through time, a useful 'hook' when engaging lay audiences whose geological journey has only just started.

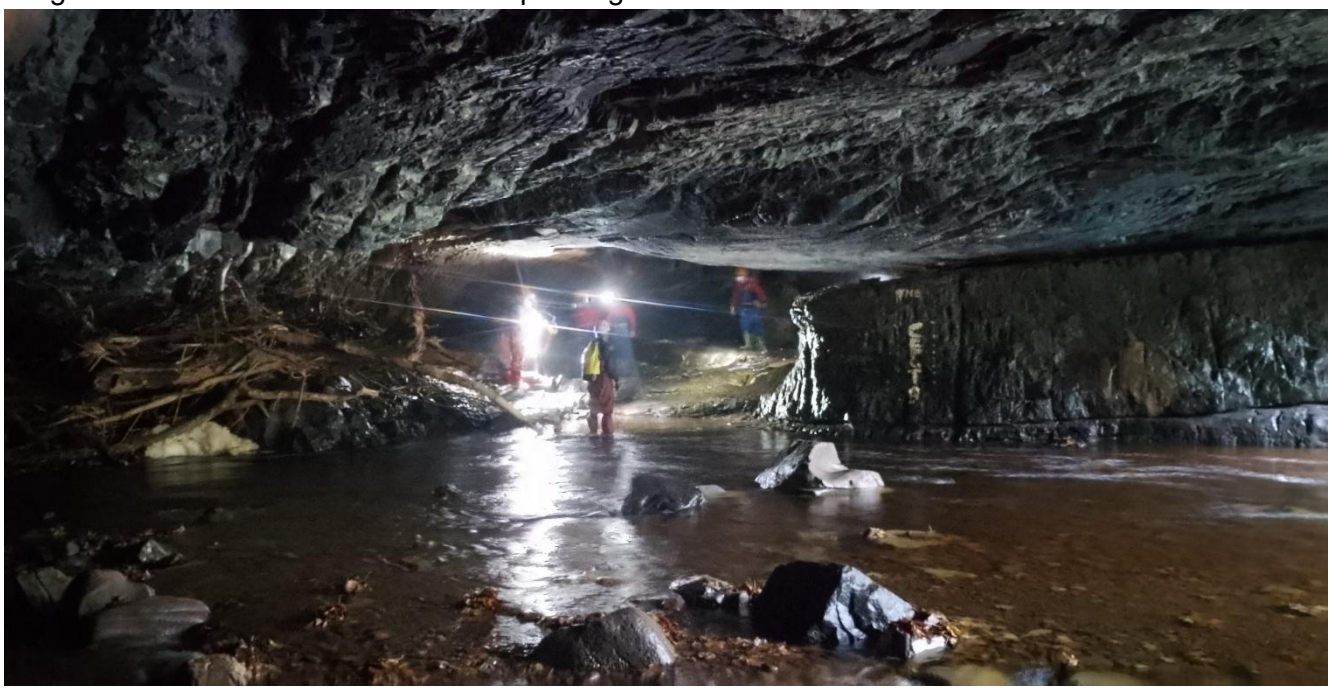
Exploring the links between the natural and the cultural within Fforest Fawr is in step with what Bannau Brycheiniog (Brecon Beacons) and other British national parks undertake. Unlike similar areas around the world, the IUCN lists them as '*category V protected landscapes'*, that's to say they are cultural landscapes and no description of them is complete without referencing the complex interplay between people and nature over an extended period of time. The twist with having a Geopark here is that it places additional emphasis on the area's rock underpinnings.

Botanical recorders at Ogof Ffynon Ddu NNR © Alan Bowring

Over the years several geotrails have been developed, providing the public with an introduction to a deep time history with which they are typically not familiar. A new presence for the Geopark is gradually being assembled at Craig-y-nos Country Park which acts as something of a hub for the designation. Trading on the locality's popular appeal, the Waterfalls Centre was opened at Pontneddfechan in 2008 though this Geopark hub had to close in 2016 during a time of tightened budgets, all too frequent a thing in the public sector of South Wales.

Dr Tony Ramsay has been the Scientific Director of the Geopark since its inception, with myself joining as Development Officer in 2007. We are but two of a wider team of people drawn from the public, private and charity sectors, and crucially from local communities, supporting the ongoing development of the Geopark. The expertise and efforts which each party has brought has helped shape the Geopark into what it is.

To mark the first two decades, Fforest Fawr Geopark hosted a special anniversary festival across a couple of weekends in September and October, celebrating the story of this special landscape, its people, and its future. Walks and talks explored Cribarth and the Swansea Valley, Mynydd Illtud, the upper Hepste and Craig Cerrig-gleisiad. There will be more in 2026 with more tie-ups with SWGA. And looking beyond 2026, the Geopark has plans for expansion into the fringe of the South Wales Coalfield, following positive discussions with local communities, for strengthening its popular Ambassador Programme for local businesses and expanding its educational outreach.



Porth yr Ogof with cavers and in-washed ash tree. © Alan Bowring

With 20 years of international recognition, Fforest Fawr is now firmly established as one of the UK's celebrated UNESCO landscapes, not just for its geology but for the diverse characters who have lived amongst its mountains and valleys for the last ten thousand years.

Alan Bowring

News from British Geological Survey (BGS)

Map Updates: Updates to the BGS geology 1:50 000 scale and 1:10 000 scale digital geology maps have recently been published**.** Updates include the addition of new data and slight modifications to the dataset attribution. An overview of the changes has been provided with the data release. For more information about this latest release, please visit the BGS website.

Is your region susceptible? Britain's geohazard hotspots revealed: Scientists at BGS have published UK regional hazard maps revealing the most susceptible local authority regions around the country. The maps provide regional decision makers with an overview of the relevant hazards in their local area and provide an important indication of where more detailed hazard data may be required. The analysis considers the occurrence of eight key geohazards relating to natural subsidence, the presence of the ground-gas radon, and the possibility of legacy mining in an area (excluding coal). Further information about these maps, including how to access, is available on the BGS website.

New BGS *GeoIndex* viewer released for user testing: First launched in July 2000, the BGS *GeoIndex* is a professional digital geological map application and receives over one million views each year. The refreshed and upgraded user interface has been designed to enhance the user experience, with improved find and filter tools to make it easier to access the relevant data. Direct links to full Discovery Metadata records have been added to provide deeper insights and there are expanded basemap options, including the latest Ordnance Survey maps and high-resolution satellite imagery.

The beta release also includes core geological data layers, such as 625K- and 50K-scale digital geological mapping and borehole datasets, to allow for focused user testing. BGS are looking at eventually streamlining some of the other currently available data layers as part of the review, to ensure the new platform is as user friendly as possible.

They would welcome user feedback during this beta phase, and comments can be submitted through the *GeoIndex* online feedback form.

New seabed sediment maps: BGS has developed a new national-scale BGS Predictive Seabed Sediments (UK) dataset comprising four digital maps that portray sediment composition, including a classified map of sediment types, as well as the predicted proportions of gravel, sand and mud across the UK continental shelf. These detailed maps are based on around 40 000 sample measurements, as well as numerous physical covariates that relate to the spatial distribution of seabed sediments.

You can find out more about this release and how to access the maps on the BGS website.

Extended seabed geology map of Bristol Channel published: To support policy and decision makers in the region, BGS has released an enhanced seabed geology map of the Bristol Channel, that is almost four times the size of the original, which extends from Carmarthen Bay to Newport and further south to the coast of Somerset. In addition to offshore infrastructure, these maps also directly contribute to understanding of marine ecosystems, coastal management and defence activities.

New platform highlights UK geothermal potential: BGS has launched the UK Geothermal Platform, which provides national to local-scale information on geothermal potential across shallow and deep technology options. It allows users to explore and assess the geothermal potential of an area and make more informed decisions. The platform draws together diverse information and synthesises it to deliver the information needed by heat policy, heat networks, national zoning model and planning specialists.

The platform can be used by regulators, developers and researchers. To find out more visit the BGS website.

News from the Museum

Within the museum we have always tried to maintain good relationships with local collectors, and this has in the past resulted in us gaining specimens such as *Dracoraptor*, dinosaur footprints, a mammoth jaw, and many other exciting invertebrate finds. I can now add the news that a small jaw section found by collector Jonathan Bow and donated to us, has just been created as a neotype of a species of Triassic ray-finned fish. The original holotype of this species was lost in 1940 when Bristol Museum was hit in an air-raid, so this lovely little fossil has been proposed as a neotype to represent the species. I'll circulate the paper once it's published, but X-ray tomography has revealed previously undetected developing teeth within the jaw section!

We have also recently seen photos of our lovely new juvenile ichthyosaur (see below) which preparator Alex Moore of Charmouth has been consolidating and piecing back together for us. He's done a wonderful job considering it was extracted in many chunks of soft mud! Once we actually get the specimen back in the museum we are hoping to be able to put it on display for a while.

Also excitingly, we have just welcomed two new members of staff into the Natural Science Department, who will have partial responsibility for helping with our geological collections. Nathan is working across the Natural Science Department, and will be curating collections from all disciplines, whilst George is to be working within the Botany section and will have partial responsibility for curating fossil plants as well. This is going to make a great difference to the three remaining geologists and give us a little hope that our staffing levels may one day improve.

And finally…

I've been pondering the state of geology in Wales and it strikes me that without maybe noticing it, we have been experiencing a steady decline. We generally get on with our own jobs, roles and responsibilities and don't always have a lot of communication with others in similar roles. Yet if we look

at the bigger picture, we have far fewer geological jobs left in Wales than ever before (at least for many decades).

The National Museum is the only museum in Wales to retain any geological posts (just three). Cardiff University is the only one in Wales to offer a straight geology degree, and there are few schools offering A-level geology (I only found two after a quick internet search). Some of our members and associates also work for the likes of the British Geological Survey, Natural Resources Wales and the Fforest Fawr Geopark – but these roles are few. News just this week of the imminent threat to all geology at the University of Leicester just adds to this dreadful decline (see below).

If this decline continues, will anyone notice, or even care, apart from ourselves? Apart from groups such as ourselves (and the Mid and North Wales groups), is anyone able to connect the dots? There are no mechanisms for us all to link up, support each other and work collectively to protect geology. Commercial geology (mining, exploration, consultancy, construction, etc.) may be doing better, but as we have so little contact with these, how do we know?

Yet, as a culture, more and more families are becoming interested in fossil-hunting (and dinosaurs), and I'm seeing more and more people using social media, AI (artificial intelligence), or website forums to find out more about their finds, rather than coming to the museum or contacting societies such as the SWGA.

I don't know what the answer is. I'm trying to push the museum to hold a Geology Stakeholders Open Day but I'm not sure if that will happen. It could certainly be a good mechanism for us to see what interest there is in building a healthy future for geology in Wales. It might be a good idea for us to think how we can all work together to re-energize the state and awareness of Welsh geology and support those who work or study within the field. Any ideas?

I also need to warn you that the display of the little Welsh dinosaur *Dracoraptor* and the lovely footprint from Barry will be dismantled in the **very** near future as the museum's entrance hall is being redeveloped. This isn't a permanent loss as we are hoping to be able to include them both in the *Evolution of Wales* exhibition within the next year. So, if you want to come along and take one last look, I'd do that fairly soon.

Cindy Howells

Geology potentially hit again

As alluded to in Cindy's article above, another university, this time Leicester, is considering removing geology from its curriculum. Their Geology/Palaeontology programmes, research groups (including the Centre for Palaeobiology and Biosphere Evolution) and their university geological collection are all under threat of closure, and many staff members, are under threat of redundancy.

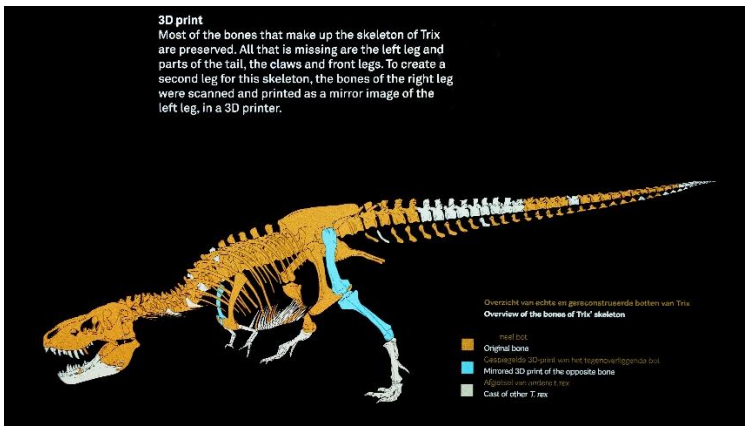
Leicester's School of Geography, Geology and the Environment has held, and grown, a significant geology collection since the founding of the Department of Geology in 1951. At the request of Professor Peter Sylvester-Bradley, the first Professor of Geology at the University of Leicester, the geological collection was organised systematically so as to reflect all areas that geology encompasses. He recognised the importance, too, of having a specialist curator in post, in order to facilitate access to specimens underpinning teaching and research. Currently, this world-wide collection comprises an estimated 250,000 specimens. Massive slabs of 450-million-year-old volcaniclastic sediments, hang in

the Foyer to the Bennett Building, documenting the geological past of what is now an area of the Lake District while the Ore Suite collection has examples from key localities across the globe. There is also a comprehensive and complementary amount of material from Leicestershire, including from the famous Charnwood Forest and Bradgate Park areas. The collection contains years of research material, that is still used and called upon by external contacts, both nationally and internationally.

This is another blow to the earth sciences in Britain and one that has raised many objections. If you would like to register your objection to these proposals there is an on-line petition at (https://www.change.org/p/save-geology-at-the-university-of-leicester), that you can support.

Holiday Geo-snaps

Trix the T. Rex



The Naturalis Biodiversity Center in Leiden, The Netherlands, like all good natural history museums, has an impressive dinosaur exhibit. This is a photograph (left above) of a female *T.rex* named Trix. Museum staff travel each summer to the 'Jurassic Mile' fossil site in Wyoming (USA) to excavate fossils in collaboration with the Children's Museum of Indianapolis. According to Wikipedia the specimen was found in the Hell Creek Formation in 2013 by a amateur palaeontologists. Estimated to be over thirty years old when she died, she is the oldest known example and one of only two *Tyrannosaurus* specimens on permanent exhibit in mainland Europe. It is considered to be the third most complete Tyrannosaurus found, with between 78% and 80% of its bone volume recovered (right above). The second photograph is a display board in the museum showing what is original bone, 3D printed mirror image of another bone in the specimen, or cast from another *T. rex* specimen. The specimen was named Trix after the former Queen Beatrix of the Netherlands. You can read the full story at https://en.wikipedia.org/wiki/Trix_(dinosaur)

Kevin Privett

Rhodes

The island of Rhodes in the Aegean Sea exhibits a complex geology. Much of the island is dominated by folded Mesozoic 'basement', deposited prior to the Alpine Orogeny when the African Plate began to subduct beneath the Aegean Plate. This basement is dominated by Jurassic and Cretaceous limestones (Fig 1), which often have a thin cover of Pliocene with a common and distinctive molluscan fauna (Fig 2). However, in the central and northern part of the island, the basement is covered by extensive deposits of ?Oligocene molasse - coarse conglomerates which were rapidly eroded off the

recently uplifted mountain chain immediately following the orogeny and deposited in a continental setting (Fig 3). A colleague has suggested to me that the large stratified slabs might be olistoliths [water lain blocks of rock that differ considerably from the surrounding rock], but I think these form in a submarine environment? Any comments appreciated!

(Left) *Lindos Acropolis, built on an outcrop of steeply dipping, dark Cretaceous limestone - the Mesozoic 'basement'*. (Right) Pectenid bivalve in thin Pliocene cover seen on top of the limestone in Fig 1.Both © John Nudds.

Thick deposits of steeply dipping molasse with stratified slabs of finer material. © John Nudds.

John Nudds

St. Francis 2009

There is a granite sculpture called *St. Francis 2009* carved into a block of granite/basalt by Ronald Rae at the National Trust for Scotland Threave Gardens, Dumfries and Galloway. It is 1 x 1.5 x 3.4 m in size, weighing 6 tonnes and is on long-term loan from George and Sue Thomas, the owners.

The work depicts St. Francis lying in retreat on “that rugged rock twixt Tiber and Arno” as Dante described La Verna. The sculpture shows the saint surrounded by birds that he loved and preached to.

Brother Wolf is carved on the other side. Legend has it that St. Francis saved the village of Gubbio from being ravished of its flocks by persuading the people to feed the fierce, hungry wolf. In return for this kindness the wolf became a friend to everyone and a follower of St. Francis and thereafter was called Brother Wolf (https://www.ronaldrae.co.uk/st-francis/).

Both sides of the St Francis Stone © Kevin Privett

The St. Francis stone is from the Correnie Granite from Tillyfourie, Aberdeenshire. An intrusion of Ordovician age (c. 450 Ma) when Scotland was south of the equator at roughly the same latitude as Angola today. It is one of the Caledonian "Newer Granites", common in the Scottish Highlands. A medium-grained biotite granite that crystallized slowly, it is salmon pink in colour because of the alkali feldspar content.

Intruded into the granite are basaltic intrusions of a dark, iron- and magnesium-rich mafic magma. It is fine-grained showing it cooled quickly. The Grampian Highlands terrane contains multiple phases of igneous activity, reflecting the subduction and partial melting of ocean crust beneath the continental margin of Laurentia. When hot, basic magma is injected into a cooler, felsic magma chamber or pluton, several geological features can result:

- Magma mingling: the two magmas do not mix readily because of their different compositions, densities and viscosities. This creates distinctive textures such as mafic microgranular enclaves (blobs of basalt suspended in the granite host rock when pockets of basaltic magma are quenched by the cooler granitic magma) and larger pillows and globules of basalt formed as it cools.
- Xenoliths: if the basaltic magma is intruded into already solidified granite, it can tear of and incorporate fragments of the granite.
- Hybridization: where there is mixing of mineral grains along the contact zone such that dark grains appear in the lighter rock and vice versa.
- Heat transfer: the intrusion of hot basaltic magma can prolong the cooling process and influence the final crystallization textures of both rock types.

Kevin Privett

GemRock, Dumfries & Galloway

Dumfries and Galloway in southwest Scotland is off the beaten track in terms of tourism. One of its attractions is a small, privately-owned museum called Gem Rock, in Creetown. According to the literature it is the leading independent museum of its kind in the UK and is renowned worldwide. Owned

by the Stephenson family it is a collection built up over the past 95 or so years by father and son. Whilst the collection contains some rocks and fossils, it is the minerals that are impressive. The diverse range

of specimens is a match for many large museums I have been in and a visit is well worthwhile. There is a gift shop and tearoom and it has its own car park. It gets four stars from the Scottish Tourist Board. https://www.gemrock.net/

Kevin Privett

- 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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