Geologists' Association - South Wales Group

Cymdeithas y Daearegwyr - Grŵp De Cymru

Newsletter September 2023 ***Sixty fifth session***

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Welcome to the September Newsletter that, amongst a host of other things, contains the winter lecture programme for the new session. I hope that you find something of interest amongst the varied topics on offer. We still have at least one summer field meeting left but are still in desperate need of someone to take on the role of Programme Secretary to make the process much easier and less prone to mistakes! If you might be interested in helping the Group out in this role please do get in touch.

A big thank you to all who have submitted articles/reports for inclusion in this issue. Being electronic there is still plenty of room for more so if anyone has anything that they feel might be of interest no matter how small please send it through. I am planning to get the December Newsletter out before Christmas so could I have any contributions by 1st December please. Thanks.
Stephen Howe

Message from the President

It's been good to see many members and friends enjoying our summer programme of fieldtrips. And as something of an innovation we have had two joint meetings this year - the first, to Ogmore-by-Sea which was run by SWGA, invited members from the Cheltenham Mineral and Geological Society and the Bristol Naturalists Society, while the second, to the Jurassic oolite quarries around Leckhampton in Gloucestershiree, was run by the Cheltenham Mineral and Geological Society and in turn invited our members. This has been a successful partnership which we hope will continue and takes some of the pressure off the committee whilst we are still lacking a Programme Secretary. It also has the advantage of getting us to areas we otherwise might not visit. The annual Family Fossil Fun Day at Penarth was a huge success, with over 100 visitors attending, with many children collecting fossils and enjoying a walk along the beach to see the alleged dinosaur footprints. Reports of some of these trips will be found later in this Newsletter.

All too soon the summer seems to be ending, and soon we will be back indoors for our Winter programme which starts on October 14th in Cardiff University when Dr Ricardo Ramalho will be talking about GeoEnvironmental Hazards. All our lecture meetings will be hybrid with Zoom attendance possible, but please do come along in person, if at all possible, to ensure a healthy turnout for our speakers. This year we have quite a variety of talks, so I do hope to see you all sometime over the winter. And very soon I will be pestering you for talks for the Holiday Geology Meeting in January, so please start getting your holiday snaps together!

John Nudds, President

Remaining Summer Programme 2023

After a very successful series of excursions to date and, despite the lack of a summer, we have generally been blessed with reasonable weather.

The remaining field meeting programme is as follows:

Saturday September 23rd: *Martley, Worcestershire*; *Leader: Prof. Ian Fairchild*

Meet at 9.30 - 10.00am at Martley Village Hall, Berrow Green Road, Martley, WR6 6PQ for an introduction to the meeting and toilets. Bring a packed lunch.

The morning will be spent examining Martley Rock (Precambrian, Malverns Complex and several other geological horizons) and the Nubbins (Triassic, Helsby Sandstone Formation), which will involve a circular walk of about 1 mile. Lunch will be taken in the garden at Scar Cottage, which is another Helsby Sandstone quarry in the same outcrop.

In the afternoon we will travel about 3/4 mile by car to Penny Hill Quarry (Silurian, Wenlock Limestone Formation), which is highly fossiliferous, and then undertake a circular public footpath route around the quarry including another Wenlock site and views across the Lower Ludlow Shales Group and Aymstrey Limestone Formation topography to the Bromyard plateau (Devonian, St Maughan's Formation).

Probable finish by about 4pm.

For those interested to learn more about some of the things to be seen on this excursion before we visit it is worth looking at the following paper:

Barclay, W.J., Hay, S., Payne, M.J.P., Jenkins, M. & Olver, P. 2023, New date on the stratigraphy, structure and petrology of the Precambrian/Cambrian inlier at Martley, Worcestershire. *Proceedings Geologists' Association,* **134,** 77-85

October: tbc.

At the time of writing we have failed to find a replacement field meeting for the original planned trip to Big Pit (that has been postponed until next year). However, we are still looking and if we manage to arrange anything we will contact you by email to let you know the details.

Safety Policy

Please note that although full Risk Assessments are undertaken prior to each field meeting members are reminded that they attend the excursions at their own risk. They are expected to take reasonable precautions to ensure the safety of themselves and other participants and to behave in a responsible

manner at all times. The Group has a Safety Policy and Safety Fieldwork Code that all participants should have read prior to attending a meeting. Copies can be found on the Group's web site.

Winter Programme 2023-2024

Despite the continued absence of a volunteer to take on the role of Programme Secretary the committee has worked hard to produce a winter lecture programme for the coming indoor session. These meetings will be hybrid meetings, held both in person and also available live on Zoom. Those in Cardiff will be held in our usual rooms in the university while those in Swansea will be in our new venue at the Trallwn Community Hub, Bethel Rd, Llansamlet, Swansea SA7 9QP. The programme is as follows:

2023

Saturday 14th October: (Cardiff). ***Ricardo Ramalho:*** *Global Tonga tsunami explained by a fast-moving atmospheric source*

Saturday 11th November: (Swansea). ***Katie Preece:*** *Volcanology. (Title tbc)*

Saturday 9th December: (Cardiff). ***James Cresswell:*** *The Geology of Antarctica*

2024

Saturday 13th January: (Cardiff). *Holiday Geology*

Saturday 27th January: (Swansea). ***Joe Botting/Lucie Muir:*** *Castle Bank: Wales' answer to the Burgess Shale.*

Saturday 10th February: (Cardiff). ***Jeremy Hucker:*** *The Legacy of Coal Mining in South Wales*

Saturday 9th March: (Swansea). *AGM* followed by the Presidential Address by ***John Nudds***: *Probably the Best Lagerstätten in the World: Exceptional Preservation of Fossils*

Subscriptions 2023-2024

Subscriptions for the new session become due on 1st September. The rates are once again the same as the previous year; Ordinary £10, Optional Concessionary £5 and Family £10 plus £5 for each additional family member. Many of you pay by Standing order so won't need to worry about this, but if not send a cheque to the Membership Secretary (Cindy Howells) at the Department of Natural Sciences, National Museum of Wales, Cathays Park, Cardiff, CF10 3NP or ask her for our bank details so that you can do it via BACS.

Field Meeting Reports

Ogmore-by-Sea: 16th July 2023: *Leaders John Nudds & Cindy Howells*

We had a fantastic trip to Ogmore led by John and Cindy. I have walked this stretch of beach many times and have often wondered about the curious rocks. The day started with torrential rainfall but when we arrived the skies cleared and we had a mostly dry trip. John and Cindy pitched the level perfectly, from basic explanations to detailed description of the corals. John's PhD thesis was on these Carboniferous fossils and he provided fascinating descriptions of their internal structures.

The local geological history is described below. It has been taken, and paraphrased, from John and Cindy's comprehensive field trip notes. If anyone would like the complete field trip notes, I am sure John and Cindy would be willing to share their document.

"*The oldest rocks seen along the Glamorgan Heritage coast are folded Lower Carboniferous limestones which make up the low inland hills and are also present at beach level. These limestones show evidence of monsoonal storms and many of them are packed with fossils.*

During most of the Triassic this area was a low-lying arid landscape but, despite the arid climate, there were also some extreme storm events with extensive rainfall. The environment is reflected in the red Triassic rocks seen in the area, including flash-flooded wadi conglomerates cutting through the Carboniferous limestones here at Ogmore.

The limestone uplands reveal fissure deposits filling ancient cave systems. A few of these fissure deposits can be seen at Ogmore as reddened, water eroded vertical channels. Some of the fissures contain pockets packed with the bones and teeth of tiny lizards, sphenodontids, dinosaurs and early mammaliforms.

Rising sea-levels during the Rhaetian, associated with the break-up of the supercontinent Pangaea, led to flooding of the area, firstly by coastal lagoons, and as sea level rose, a warm, shallow sea. The rising sea briefly turned the Carboniferous Limestone hills into islands with sea-level erosional platforms cut into their sides, on which Rhaetic/Liassic beach deposits were preserved. The Ogmore section shows these rare marginal facies of near-shore and coastal environments with much lateral variation.

The Lower Jurassic in south Wales is represented by rocks up to the lower part of the Sinemurian semicostatum zone - any later deposits have been removed by erosion."

John investigates the 'troublesome' coral. © Rebecca Christian

Our walk began on Ogmore beach and then we walked southwards. We started at the oldest rocks, the Carboniferous Limestone, moving up from the Gully Oolite, through the Caswell Bay Mudstone to the High Tor Limestone. We then proceeded to look at the Triassic wadi deposits, thought to be of Mercia Mudstone age, and ended with the Jurassic Lower Lias. Highlights for me included John finding a 'troublesome coral' at the first location, "that should not be there", he exclaimed. This prompted him to get down on his hands and knees to investigate.

The spectacular Triassic wadi deposits were laid down by flash flooding. We saw large angular and

Fault breccia where mineraliferous fluids have deposited calcite in between fractured rocks along a fault line © Rebecca Christian

sub-rounded pebbles in a pink matrix, in a rock known as a breccio-conglomerate. There were three such deposits seen with the last seen clearly 'draping' over the Carboniferous limestone beds underneath.

I think the most memorable images were those of the numerous corals.

Left: One of the Triassic wadi deposits draped over the Carboniferous Limestone. © Rebecca Christian

Below: Some of the many corals. © Rebecca Christian

At Black Rocks, all three units of the Carboniferous Limestone were visible. From the Field Notes, Nudds & Howells:

"The very thickly-bedded Gully Oolite is confined to the lower portion of the cliff. Above this is c. 9 m of the Caswell Bay Mudstone of basal Arundian age. The lowest unit of this is a more thinly bedded muddy limestone (Pant Limestone Member) with occasional erosional layers, followed by an obvious calcrete, and terminates upwards with approximately one metre of distinctive fine mudstone (Fairy Cave Mudstone Member). This is overlain by the High Tor Limestone (Arundian). This thickly bedded limestone contains many corals; (Syringopora, Michelinia, Caninia, Solenodendron), brachiopods (Rhipidomella, Schellwienella, and Echinoconchus) as well as pleurotomarian gastropods and frequent trace fossils (Zoophycus and Thalassinoides)."

John explained how his and Cindy's work, with colleagues from the Czech Republic, used microfossils (foraminiferans) to produce more accurate stratigraphic ages for this part of the succession.

Finally, we ended the trip, at the end of our ancient 'tropical island' and the land dropped away…the limestone disappeared into the Slade Trough. A view towards Southerndown Beach.

Rebecca Christian

SWGA/CMGS joint visit to Leckhampton quarries, Cotswold Hill Stone Quarry and Hornsleasow Quarry. 4th August 2023: Leader: Mike Milward (CMGS)

Nine members of South Wales GA, along with four members of the Cheltenham Mineral and Geology Society, met at 10am at Hartley Lane car park on Friday 4th August to examine the Aalenian to Bathonian oolitic sequence of the Middle Jurassic.

Our first stop was Limekiln Quarry (fig. 1), where we were able to examine the junction between the Lias and the Aalenian with the top of the Toarcian Whitby Mudstone exposed at the base of the quarry. The overlying Aalenian Leckhampton Member contained the bivalves *Pleuromya* and *Gresslya.* En route, we were able to look down into the famous Devil's Chimney Quarry which exposes the overlying Cleeve Cloud and Scottsquar Members, with the Devil's Chimney (fig. 2) often described as a 'quarryman's folly', but in fact serving a useful purpose of supporting the tramway, built to transport the quarried stone.

Fig. 1: Limekiln Quarry. © John Nudds

Fig. 2: The Devil's Chimney. © Cindy Howells

A short walk to Dead Man's Quarry (fig. 3) revealed a further exposure of the Cleeve Cloud and Scottsquar Members, but with the Lower Bajocian Trigonia Grit Member forming the quarry top. Bivalves, regular echinoids, terebratulids, rhynchonellids, and the scleractinian coral *Thamnasteria*, were all collected from the scree.

Salterley Quarry (in which lies the Hartley Lane car park) exposes the same Cleeve Cloud Member with the underlying Crickley Member at the base. The section shows about 18 m of cross-bedded oolites, with a small fault at the northern end.

Fig. 3. Dead Mans Quarry. © John Nudds

Fig. 4. Cotswold Hill Stone Quarry. © John Nudds

Our final stop before lunch was the Cotswold Hill Stone Quarry, a working quarry producing a range of high-quality building-stone products from the freestones of the Inferior Oolite (fig. 4), including the popular 'Yellow Guiting' (Fig. 5). The un-stepped working face provides an unweathered view of the same sequence as that seen at Leckhampton. The 'birders' amongst us were delighted to see a Peregrine Falcon which had been nesting in the quarry.

Fig.5. White Guiting (left), Yellow Guiting (right). © John Nudds

A late lunch was taken at the delightful Plough Inn in the village of Ford, after which our final stop of the day, Hornsleasow Quarry, moved us up the sequence from the Aalenian/Bajocian Inferior Oolite into the Bathonian Great Oolite Group. Here is exposed the Chipping Norton Limestone Formation at its base, with the Hornsleasow Clay occurring intermittently within this. Thought to represent a freshwater channel, the green clay contains non-marine gastropods along with a fauna of fossil vertebrates including lizards, crocodiles, turtles, early mammals, and even dinosaurs. The overlying Fuller's Earth Formation includes some very fossiliferous horizons, and we collected numerous rhynchonellid brachiopods, gastropods and bivalves and the scleractinian corals *Isastrea* and *Microsolena*.

We finished at about 4.30pm with grateful thanks to Mike Milward for a superb day seeing a part of the stratigraphy rarely visited by our Group.

John Nudds

Penarth Family Fun Day, Saturday 19th August 2023. Leaders: John Nudds and Cindy Howells.

The Penarth Family Day was a great success this year, with over a hundred interested visitors turning up to look for fossils and join the geology walk led by John Nudds. The tour was conducted chronologically, with descriptions of the red mudstone, followed by the Blue Anchor Formation, the Westbury Formation, and the Lilstock Formation. In this way, it was made easy for visitors to appreciate the gradual transition from a lacustrine to a marine environment. Additionally, everyone had the opportunity to take sides in the matter of the Penarth 'dinosaur footprints.'

Crinoid ossicles © Macy Campbell

With such a great turn out, it was inevitable that some lovely fossils would be found. Just about every kid was able to leave with a souvenir from the day, with one of the most common finds being chunks of oyster and one of the more impressive finds being a beautifully preserved piece of solitary coral. I felt honoured to have been able to help; it was great fun helping to identify people's finds and learning more about local geology.

Macy Campbell

Fancy an overseas field trip?

Over the last few years I have been involved in projects in Malta and Jersey and so I wondered if members would be interested in joining me on a trip to either of these locations to explore the geology?

Jerseys bedrock geology is mostly Precambrian turbidites and volcanics with some later Cambrian to Ordovician aged igneous activity and red-bed sediments. Jersey also has an interesting Quaternary history which includes important Palaeolithic and Megalithic remains.

Malta's geological story is much younger. The rocks, fossils and landscapes of the Maltese Islands provide a fascinating insight into their past environments over the last 28 million years, including ancient coralline-algal reefs and the fauna that inhabited them. They can also inform us about the plate tectonic processes that deformed the islands in the past and the modern processes that are sculpting them into the landscape that we see today.

For either trip I propose that members arrange their own transport and accommodation and be able to get themselves to the start points each day, although I might be able to provide some coordination on sharing hire cars and information about good places to stay if needed.

Please get in touch with me at webmaster@swga.org.uk so that we can gage interest. If enough people think this is something they would like to do, we can think about putting some more details plans together.

Rhian Kendall

OTHER EVENTS

Geologists' Association *Festival of Geology*

After the disruption caused by Covid the GA's annual *Festival of Geology* will once again become a live event. This year's event will take place on Saturday 4th November at University College London, Gower Street, London and will run from 10.30am – 4.30pm. Admission is free and there will be lectures, exhibits from various groups, sales and activities for children plus much more. There will be local field trips on the following day. Full details will appear on the GA's web site (geologistsassociation.org.uk/festival) in due course. The Group is planning to attend and if anybody is interested in coming and helping out with our stand on the day could you please contact the Secretary. The Group will of course reimburse your train fare if you travel up by rail.

International Geodiversity Day

The second International Geodiversity Day will take place on 6th October 2023. Geological groups across the country are being encouraged to host events during the week of the special day (1st - 9th October). To find out the full programme of what will be on offer and more about the event please visit the Geodiversity Day web site (geodiversityday.org)

Odds and Ends

William Smith Archive

The following article was written by Dr Kevin Privett and first appeared in the Oxford University Museum of Natural History's volunteers' newsletter.

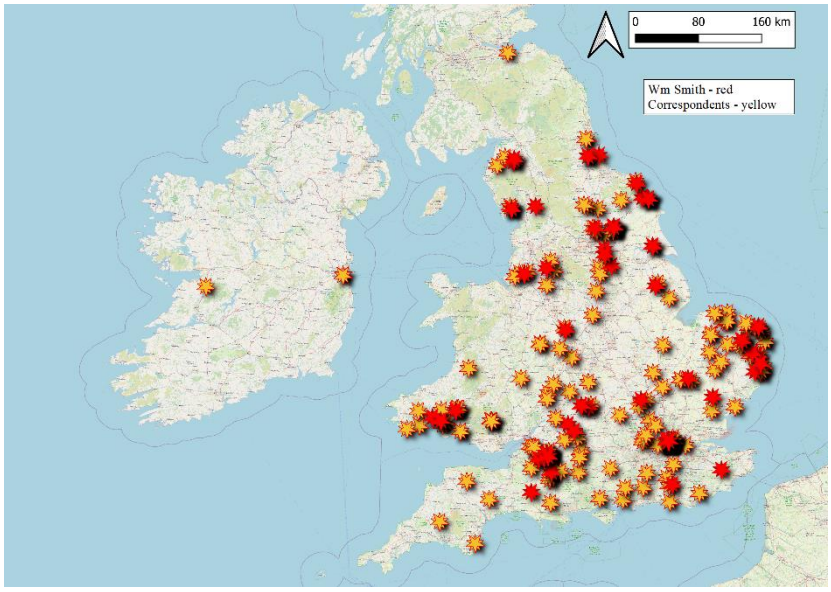
I am working with the Oxford University Museum of Natural History (OUMHN) helping to transcribe the correspondence of William Smith ("Father of English Geology") https://oumnh.ox.ac.uk/collections-online#/item/oum-catalogue-1403

Smith is a particular hero of mine. I am an engineering geologist and Smith was likely the very first applied geologist, working in the fields of minerals, mining, drainage, coastal defences, landslips, etc., whilst most other geologists of his day were only interested in collecting fossils as curiosities. Reading through his letters reminded me so much of my experiences as a consulting geologist: *Where are the drillers logs? I am still waiting to be paid. Sorry but the report will be late.*

He travelled thousands of miles for business in some years. As a personal project I set about trying to locate Smith's numerous addresses and those of his correspondents. Using various sources, including old maps and internet searches, I have determined grid references for many of the locations. Some are the exact building, but others are just the centre of the town or road mentioned.

I have put these into a Geographic Information System (Fig.1), the beauty of which is the ability to relate the points to other spatial data layers such as aerial photography, LiDAR, historic OS mapping, geology, etc. For example, Fig. 2 is a zoom-in to central London; Fig. 3 is central Bath on the 1796 map; Fig. 4 is Tucking Mill, Bath on the 1880 OS map with modern geology. A simplified version (without the licensed layers) of this GIS can be accessed at:

https://qgiscloud.com/Kevin_Privett/WmSmith_locations_online/?l=Wm%20Smith%20addresses%2CWm%20Smith%20contacts%2CWm%20Smith%20locations%2CBath%20map%201796!&bl=mapnik&t=WmSmith_locations_online&e=-481572%2C6628107%2C-81654%2C6815225



It's surprising what you can find out by browsing around.

During 2011, I was visiting the Glamorgan Records Office, probably looking for information on Sully Island and doing some family history as well. In a spare moment I thought, have they got anything on the school in Bargoed that I used to attend during the 1950's? Searching on their computer index I found "The Story of Bargoed Grammar and Technical School, 1910 to 1960" which I then requested to view. Although I did not attend this school, when I stated to read the story, I noted that there was a school geology group which reported several yearly geology trips. This interested me so I photocopied the relevant parts and, on returning home, probably part read what I had copied and filed it away and forget about it.

A few months ago, in 2023, I found this report again and was thinking of throwing it out when I gave it another read. This time two names immediately came to my attention, a Mr G Askey, and Mr D Emlyn Evans. George Askey was the first Secretary of our group in 1960 holding the position until 1966 when he became Vice-chairman in 1967. He also attended our fiftieth anniversary lunch at the Park Plaza Hotel in Cardiff on the 23rd January 2010. D Emlyn Evans was our group Chairman from 1974-to 1976.

But what were they doing at Bargoed Grammar School? George Askey must have been the Head of the Geography and Geology Departments, probably from before 1956 and up to his departure at the end of 1958 when he was appointed Museum Schools' Service Officer for Geology at the National Museum of Wales. George Askey, whilst at the museum continued to take part in school geology trips with a Mr J Morris, now head of the school geology group, at least up to1963. Emlyn Evans, was an old boy of Bargoed Grammar School and also went on to join the National Museum of Wales as Assistant Keeper of Geology, where he stayed until his retirement.

The reports themselves are written by the school girls and are quite amusing to read. They certainly got around with trips to the North Crop of the South Wales Coalfield, the Vale of Neath, Penarth, and West Wales, traveling to venues by train and bus. If you would like to find out more detailed information a visit to the Glamorgan records office will be required. There is also a Facebook group on the internet.

Dave Wellings.

Mike Bassett and the SWGA

Following Bob Owen's excellent obituary to Mike Bassett in the last Newsletter, Lynda Garfield felt that members might like to be made more aware of his extensive involvement in the Group that led to him being given Honorary Membership at the forty-fourth Annual General Meeting on Saturday 29th March 2003. The certificate presented to him on the day states:

"The Committee and members of the Geologists' Association South Wales Group have great pleasure in awarding Honorary Life Membership of the Group to:

Michael G Bassett

in recognition of his outstanding support for and contributions to the Group in his capacity as Keeper of Geology at the National Museum of Wales and as member, Committee member, Field Excursions Secretary (1968 - 1974), Editor (1974 - 2002), editor of Geological Excursions in Dyfed, South-West Wales (1982), co-editor of Geological Excursions in South Wales and the Forest of Dean (1971) and Geological Excursions in Powys, Central Wales (1993), Vice-Chairman (1990-1992 and 1994-1999)

and Chairman (1992-1994), and in recognition of his many contributions to the interpretation and understanding of geology, particularly in Wales."

At the presentation Alun J Thomas [Mike's teacher, also a longstanding and Honorary Member of the Group] gave an account of Mike's achievements and contributions to the Group over 35 years, before Mike was presented with a framed certificate by the President, Allan Cuthbertson.

On-line Geological Events

- The Geologists' Association have their ***Geology from your Sofa*** section on their website which is packed full of information and can be found at the following link: https://geologistsassociation.org.uk/sofageology/
- **Earth Heritage Magazine** This is now only available as an electronic copy, which can be found at: http://www.earthheritage.org.uk/wp/wp-content/uploads/EH-53_final.pdf
- 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) and Twitter account (@swgeologists). With Facebook and Twitter, anyone can join in and the more that do, the better it is!

Contacts for other local geological organisations

- ***Russell Society, Wales and West Branch***: Contact: Tom Cotterell. Tel: 01594 845935 before 9 pm
- ***Welsh Stone Forum (Fforwm Cerrig Cymru***): Contact Jana.horak@museumwales.ac.uk or www.museumwales.ac.uk/en/welshstoneforum
- ***Open University Geological Society***: 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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