

**Cymdeithas Daeareg Gogledd Cymru**

**North Wales Geology Association**

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**Issue No 72**

**NEWSLETTER**

**October 2012**



## **Chairman's Message:**

### **The Rain not in Spain:**

You can believe it or not, but I do not (under normal circumstances) read the newsletter a great deal sooner than you do, and as I was going through my copy I wondered if Keith is picking up references to the weather because of the woeful Summer and associated widespread commentary.

Adam Sedgwick was much occupied during the Summer of 1846 by "*miserably damp weather*" succeeded by "*merciless rain*" according to his letters from both North and South Wales. This effect is compounded by a modern description of the "Torrent Walk" at Dolgellau, which would be much less interesting during a prolonged drought. We should ask whether the pattern of recent cool and wet summers constitutes change, or just part of the rich and complex variety that our climate imposes. This year there has been much said about the record minimum of ice cover in the Arctic Ocean and displacement of the Circumpolar Vortex (or Jetstream). I record outdoor and greenhouse temperatures at my house in Deganwy, and note that while last year's Summer was also very wet, September and October were warm. A cold night the equal of last weekend's (22nd-23rd Sept) did not occur until the second week of November last year. I was very nervous during the wet week leading up to our September field meeting, but low cloud and drizzle early that morning burned off as hoped (or expected) and by lunch time we were basking in glorious sunshine. At Nefyn we mingled

with bathers and deck-chair loungers as we walked along the superb beach. It was an excellent meeting, and we were most ably led by Geoff Thomas. I remain of the opinion that the view of the coastal mountains as seen from either Nefyn or Clynnog is one of the most pleasing in North Wales, and any excuse to visit at any time of year is worthwhile.

We have held our first indoor meeting of the Autumn programme, which was very well attended and enthusiastically received. We look forward to meetings at Chester and Bangor in coming months, and urge you to go the extra mile for these collaborative ventures.

Your committee is now working hard at the programme for 2013, and you will soon see the dates published for Spring meetings. I am pleased to say also that the AGM is at the final stages of organisation, and returning to a very successful venue from the past. We look forward to seeing you at our forthcoming meetings, and I hope that there will be something for everybody in the programme.

*Jonathan Wilkins*

## **Articles:**

### **A letter from Sedgwick (iii)**

In 1866 Ramsay's Memoir "*The Geology of North Wales*" was published by the Geological Survey of Great Britain. On reading this there is an unusual section apparent in the early pages entitled "*The Colouring of the*

*Maps*". This discussion seems a little incongruous, given the fact that the "colouring" had happened as a consequence of mapping work done nearly twenty five years previously:

*"In 1841 the Geological Survey began to map the Silurian rocks at Haverfordwest in Pembrokeshire...."*

Ramsay then describes the faunal finds in south west Wales, of 1841 and 1842, that led the Survey to classify what he terms "so-called Cambrian ground" as "Lower Silurian". As they progressed northwards they eventually "reached the barren purple and green grits and slates of Merionethshire lying below the Lingula flags that we mapped (as Cambrian) any formation distinct from the great fossiliferous Lower Silurian series".

Many of you will of course recognise in this text an explanation, from the Survey's position, of the events that led to that great falling out between (for the Survey) Sir Roderick Impy Murchison, and the Reverend Adam Sedgwick. Basically, rocks considered by Sedgwick to be part of "his" Cambrian outcrop had been annexed, by an aggressive Silurian neighbour.

But how it is that twenty five years on from the events in question, this detailed explanation was still necessary in a formal Memoir? A quarter of a century later on was the wound still sore? Perhaps a clue to how this came to endure can be found in the depth of anger and bitterness that is evident in Sedgwick's writing. In 1853, in a letter to his past close friend and former

collaborator Murchison, Sedgwick wrote as follows:

*"Two or three things helped to set my back up. I know that I am a great procrastinator – partly from temperament, partly from multitudinous engagements that pull hard at me, and chiefly from a condition of health which, for months and months together, makes writing very irksome, and almost impossible. Still though a man is behind time with his rent, he rather grumbles when he finds on coming back to his premises, that a neighbour has turned out his furniture, taken possession and locked the door upon him. This was exactly what you did; and so completely, unexpectedly, and without notice, that the first time I ever heard of your having Silurianized the map of Wales was from that parasitic geologist Knipe. He it was that told me you had bought his map – that you had talked about the colours – and that under your direction he had laid on the colours etc. He was urging me to buy his map, which I did not do at that time. I do not remember the exact year but it was a considerable time – several years – after the Silurian System was out. I confess that this both surprised and vexed me. But I had no real anxiety about the result. Good cards were in my hands, if I could only play them; and neither then nor ever afterwards, had I the shadow of a doubt that I could make good my classification and nomenclature. I was the only man in England who had all the cards in hand and knew how to sort them, so as to tell on the whole case. I was content with the old nomenclature, and anxious only about one or two points relating to the demarcations.*

*The next thing that nettled me was Warburton's strange, and as I thought suspicious conduct, when he undertook to look to the reduction of two or three of my papers. He worked away while I was at Norwich; but refused to let me see a single proof sheet. I knew that he was, in truth, very ignorant of the subject he took in hand; for the knowledge he had was one-sided – all from your book, and nothing from survey. And believing that he knew the whole case, while he had only looked into a small part of it, he set to work in ignorant confidence, and, I verily believe, thought he was doing me a favour while he was altering the names of the colours on my sketch map, which he tried to copy...By suspicious I mean that I thought he treated me as if he thought me a bit of a rogue; and I wrote to him, more than once, demanding the proof-sheets, and telling him that my reduction would pass under his eye, and that, if unfair, he might suppress any part of it, as he thought right etc etc.*

*You must remember that in my great big sketch-map I gave one colour to the upper (or true) Silurians – including therein the May Hill Sandstone, north of the Holyhead road, which is coloured yellow and called Caradoc in the Government map (assuredly one of their great mistakes). The lower Silurians, Caradoc and Llandeilo, and all the Cambrians down to the Menai had one colour; but I stated that I did this because no good demarcation had been made out between them. This great spread of one colour I called Protozoic = Lower Silurian + Cambrian. Warburton altered this and published his reduction of my papers with the title of the colours, in which he made Protozoic*

*= Lower Silurian. I believe he did this in ignorance, and not at all in treachery, and I declare, upon my honour, that for several years after, and not long after you and I began to wrangle, did I ever look at the Warburtonian explanation of the colours, or suspect that he had dared (in over confidence to himself) to make any unauthorized change. This you will find stated in my new letter. Now this fact explains what I allude to in the letter. When I called on De la Beche to get one or two of his South Welsh published sections in 1846 (before I went to South Wales and Llandeilo which I had never seen since I saw it with you in 1834) he said to me 'Sedgwick, you have given up a very good nomenclature!'. I replied that I had given up no nomenclature – that the only difficulty was in the demarcations, which, before long, would be put right, etc.*

.... to be continued

From a modern stratigraphic point of view it is probably easiest to think of Lower Silurian and “true” or Upper Silurian as equivalent to our Ordovician and Silurian periods respectively. Sedgwick considered all that we think of as “Cambro-Ordovician” as being “his” Cambrian. The Survey mapping had taken the upper part of this sequence and subsumed it into “Murchison's” Silurian. A compromise solution was put forward some years later by Lapworth, with the erection of the Ordovician Period between the Cambrian and Silurian. This proposal was put forward at the time that Clark and Hughes were writing “*Life and Letters...*”, and gave rise to the following colourful commentary:

*“Now comes a curious sequel to our story. A proposal has been made to take all Sedgwick’s Arenig and Bala Beds, and Murchison’s Llandeilo and Caradoc, and constitute not Upper Cambrian, not Lower Silurian, but Ordovician. With a view to putting an end to controversy! One shell is given to Sedgwick, the other to Murchison, but who gets the oyster?”*

The oyster was of course enjoyed by Lapworth, with the eventual global adoption of the Ordovician Period, juxtaposed between a somewhat abridged Cambrian, and Murchison’s original (or as Sedgwick had stated it, “true”) Upper Silurian.

**References:**

Clark JW and Hughes TM, (1890), *The Life and Letters of the Reverend Adam Sedgwick, Volume II*. Cambridge University Press.

Ramsay AC, (1866), *The Geology of North Wales*, Memoirs of the Geological Survey of Great Britain, HMSO.

**KHN**

## **New Planning Guidance in England**

In recent years it has become apparent that there are significant differences in the levels of protection afforded to elements of the geological natural heritage from country to country, and place to place within the UK. Two examples of this dichotomy have been described in the current edition of Earth Heritage by Colin MacFadyen (M80, Mollinsburn, Scotland) and Sid Howells and Ray Roberts (A40, Treffgarne).

Disappointingly from the NWGA’s perspective it is the A40 outcrop that comes off worst in the comparison. Howells and Roberts describe how a temporary exposure of Cambrian Lingula Flags was lost beneath (seemingly prematurely) tipped topsoil. The article by MacFadyen shows a somewhat different outcome, where a new Motorway Junction was to be built across an existing SSSI.

Whether the difference in the treatment / mitigation which the two sites received is attributable to the different planning regimes, or simply reflects the fact that the M80 was a previously designated SSSI, but the A40 site was not, remains a matter for conjecture. It does appear , at least to this casual observer, that as a nation, Scotland is some way ahead of the rest of the UK in the way it cares for its geological heritage.

Formal geoconservation, whether good, or bad, can only be applied within a legislative framework that makes allowance for the recognition of geodiversity, alongside the other elements of the natural and historical heritage, such as ecology / biodiversity, archaeology, and landscape. Planning matters in Wales UK are of course devolved to the Welsh Assembly Government, but surely as geologists we should recognise that our parochialism should not lead to us dismissing events over the border as irrelevant. After all, the rocks were laid down long before national boundaries were erected, and will remain, more or less *in situ*, long after the Anthropocene has come and gone.

The recent publication of the UK Government's National Planning Policy Framework, reducing all previous planning policy to 50 pages is therefore relevant to us all. Particular concern would have been apparent following the cool reception to the Natural Heritage white paper by the geoconservation community. The implications of the new guidance, from a geoconservation perspective, are discussed by Colin Prosser in the current edition of Natural Heritage. The conclusions reached in that article are that the new Framework offers much to the geoconservation community recording the presence of "*explicit hooks for geoconservationists to use, especially with regard to conserving locally, nationally and internationally important sites through the planning system*". This latter comment is of considerable interest to those of us who earn a living offering consulting services in one or other of the various guises of geoscience. If it is the case that our geological heritage is to occupy space "front and centre" within the planning regime then it will soon attract the attention of the wider consulting community. Are we perhaps witnessing the birth of a new branch of consulting geoscience?

**References:**

Macfadyen C, *High road to successful geoconservation*, Earth Heritage, Issue 38, Summer 2012.

Howells S and Roberts R, *Low Road to a lost opportunity*, Earth Heritage, Issue 38, Summer 2012.

Prosser C, *Reasons to be Cheerful*, Earth Heritage, Issue 38, Summer 2012.

KHN

## **New Coal Authority Web Application**

The Coal Authority recently published more of its coal mining information through an enhanced version of its interactive map viewer. The interactive viewer allows users to zoom into a particular geographical location and switch on various information layers such as mine shaft positions, areas of shallow coal workings and other coal mining related features.

### **Why have we done it?**

The Coal Authority is committed to protecting the public and the environment in coal mining areas now and for future generations. We hold and maintain the national coal mining database and are committed to raising awareness and understanding about the nation's coal mining legacy and any possible coal mining related risks and issues associated with it. Presenting information in an easily accessible user-friendly format will help people to better understand where coal has been worked, what coal mining information is available and how coal mining has affected the coalfield areas of Britain.

### **Who is it for?**

The interactive viewer is provided for the general public, householders, landowners, researchers, developers, local planning authorities and anyone else interested in coal mining information in any or all of the coal mining areas of Scotland, England and Wales.

### **Why would people use it?**

The viewer can be used, for example, to identify whether any potential surface subsidence or collapse of ground could be coal mining related and therefore needs reporting to the Coal Authority for attention. It can also assist property and land-owners identify whether any coal mining features exist within or in the vicinity of their property or places of interest. It can be particularly helpful where property development is intended when coal mining issues need to be taken into account in the design, layout and construction of the property. This tool can help people understand the broad issues within their site, i.e. whether stability could be an issue, the nature of any instability, or whether coal resources are present which the local planning authority may need to protect or require extraction as a condition of the planning permission.

### **Will this information adversely affect my property?**

The existence of coal mining does not necessarily mean that property stability will be affected. However, in the very unlikely event that coal mining subsidence damage does occur, the property owner can rely on the provisions of the Coal Mining Subsidence Act 1991 to have that damage remedied without involvement of the mortgage lender or insurer.

If you need more information the Authority provides a fast, accurate, property-specific and cost-effective coal mining report service for any property in Scotland, England and Wales.

### **Can I give some feedback?**

We'd like you to use the interactive viewer and let us know what you think! Is it easy to use? Is the data explained sufficiently? Does it work on your new laptop?! Are you able to stream the data directly to your own systems? These comments will be useful and will be taken into account as we continually look to improve the service.

### **How to use it?**

Simply click on the Location button to perform a search of your area of interest, or navigate the map using your left mouse button and/or mouse wheel to zoom. Select the Data button to define the type of data that you wish to see on the map.

The interactive viewer is an illustrative guide only. It is not designed to be a substitute for a detailed desk-study or site specific coal mining report.

### **Where can I find out more information?**

Just follow this link to our website:

<http://coal.decc.gov.uk/en/coal/cms/publications/data/map/map.aspx>

### **What else are we doing to share our information?**

#### **Web Mapping Services**

Datasets contained within our interactive map viewer available as web mapping services (WMS) for use within Geographic Information Systems (GIS) Software.

#### Free Information Downloads

GIS information and data currently available to download free of charge.

#### Dataset Sales

Information extracts from the national coal mining database available for the purpose of engineering, technical or academic studies.

#### Historic Coal Mining Records

The Mining Records Office is sited at the Coal Authority headquarters in Mansfield and currently holds three main sets of records: Coal Abandonment Plans, Coal Holdings Register and the Licence Register.

**John Delaney**  
Coal Authority

### **Grosvenor Caving Club Records**

Some may be unaware of the substantial volume of historical data relating to geology, mining and industrial archaeology available in the form of mine plans and sections. These were created as part of sales literature, promotional material, for measurement and taxation purposes, and most importantly on abandonment.

The Grosvenor Caving Club has for many years collected the records it has made, or copied, or even been given by members and supporters.

NWGA members are welcome to send any queries about real or possible shafts, adits or other underground workings to The Grosvenor Caving Club care of

NWGA member Stephen Brown at the following e-mail address:

[s\\_g\\_brown@tiscali.co.uk](mailto:s_g_brown@tiscali.co.uk)

Enquirers can call and look at the plans (near Wrexham) or Stephen will try to find the information. The Grosvenor Caving Club are also willing to arrange, or lead, visits by interested parties to suitable locations.

### **S G Brown**

### **Reports:**

#### **NWGA Field Trip: Lleyn Peninsula, 2<sup>nd</sup> September 2012**

*“Long periods of total boredom interspersed with short periods of utter terror...”*

Although the weather forecast was favourable the situation as we gathered for our briefing at the beach car park at Dinas Dinlle, did not look promising; grey clouds extended to the horizon wherever we looked, and the wind coming off the sea made it feel more like a winter's day than the 2nd of September! All that however; in the very best traditions of geology in the field, was rapidly forgotten as Geoffrey Thomas from Liverpool University distributed copies of a paper he and Richard Chiverrell (also present) had published about the very area we were to see. This report therefore is written for the benefit of those who missed a really excellent day out.

We are used to measuring geological time in millions of years and gaps in rock sequences of mere few thousands of years are rarely considered important. The structures we were to be shown however, showed that glacial activity along the north west coast of the Lleyn Peninsula (by predominantly Irish Sea Ice) had come and gone within a mere thirty thousand years! During that time the ice sheet had even extended its reach as far as the Scilly Isles. The source of the Glaciation was thought to be somewhere just north of Loch Lomond. The local speed of advance was estimated to have been about 100 yards per year (about a foot, or 30cm, a day). We were also advised / reminded that the correct term is no longer considered to be "Boulder Clay", nor is it "Glacial Till", but it is now "diamict".

Geophysical evidence suggests that there are between 20 - 30 metres of diamict beneath our feet, and recent surveys of the Irish Sea floor have revealed the presence of drumlins; indicating that for an appreciable period the glaciation had completely filled the Irish Basin, although the great gouges in the tops of those drumlins from the keels of advancing icebergs, has also revealed the intermittent presence of deep(ish) water! When the Ice Sheet passed over a now submerged bank at the southern end of the Irish Sea by the Scillies, it soon broke up, as glaciers tend to do on leaving land and flowing onto open water. The speed of its retreat then, (generally found by the group to be astonishing) was averaging about 500 yards per year (about 5 feet, or 1.5m, a day). It would retreat for a few hundred metres or so, pause, and then during another colder spell; would advance

again sometimes by several hundred metres. The toe of the glacier continually oscillated backwards and forwards, but still retreating overall. By about twenty thousand years ago, the glaciation had retreated completely from the region.

Briefing over, and weather forgotten, we then went onto the beach and walked along until we were beneath the cliff side of the old Iron Age Fort. Here we were treated to a classic view of a thrust fault which was the youngest of the sequence and at an angle of about 40° (and as per all the text books, the angle of thrust reduced from that 40° as we walked along the succession to about 20° at the oldest end). The thinning upwards from coarse boulders and gravel at each thrust fault made their orientation obvious. Geoff then explained that these thrust faults were caused by the re-advancing glacier pushing the top few metres of permafrost ahead of it and up onto the bit it had pushed up earlier, and it was thought; over a mere ten years! But that was not all there was to see; Geoff showed us a nappe about halfway along, and neither did the picture stop there! Following this sequence for a few hundred yards along the beach to its end, we came to an outwash and here the size of the boulders present at the base of the fining upwards sequence indicated a high energy environment, the repetition of which as the glacier has retreated, have resulted in large alluvial terraced fans of sand and gravel right across the south of the peninsula.



**Dip / scarp topography formed by repetitions of diamict and outwash deposits (west of Dinas Dinlle)**

Into our cars then, and along to the next location further to the south west along the coast. Having sought and obtained permission to park from the owner of the caravan site we then followed a path by a deeply cut stream down to the beach. Whereupon the weather Gods relented and as the sun came out we settled for our lunch break. Unfortunately the instability of the cliff face has resulted in appreciable vegetative growth which sadly obscured any overall view of the exposure. Geoff however, had been down earlier and cleared some of the undergrowth away to give an interesting view of part of the bed of an entrapped lake, complete with distinctive braided channel cut into it. There not being much else that was visible due to all the vegetation, so it was back to the cars and on to the next location.

This was the beach at Nefyn, site of one of the more infamous North Wales landslides of recent years which regrettably involved a fatality. This event is fully described on the BGS web site at:

<http://www.bgs.ac.uk/landslides/nefynBay.html>

We walked northwards from the beach access, passed the massed ranks of boulders placed to offer at least some respite to the relentless erosion of the glacial cliffs, to view spectacular glacial sediments, thought to be at least in part caused by “jokulhuap” type outbursts of glacial meltwaters. The evidence for the ongoing retreat of the cliff face locally was evident in the form of a substantial recent collapse which our party inspected.



**Glacially polished and striated boulder (Nefyn)**

The last find of the day was a substantial glacial boulder with a spectacular polished face, and associated glacial striae which was found on the foreshore just below high water mark.



**Afternoon delight!**

With the afternoon sun warming the party we returned to the beach front café to partake of coffee, tea or ice cream. Jonathan Wilkins reflected on what had been a good field season, blessed (surprisingly perhaps) by good weather, and offered, on behalf of all the members present, warmest thanks to Geoff and Richard.

### **Frank Buxton**

#### **Reference:**

Thomas GSP and Chiverrell RC,(2007), *Structural and depositional evidence for repeated ice-marginal oscillation along the eastern margin of the Late Devensian Irish Sea Ice Stream*, Quaternary Science Reviews, Volume 26.

#### **Discursion to the Nefyn field trip write up:**

Whilst thoroughly enjoying our day out with Geoff Thomas, an excellent lecturer and field trip leader.....

*JB: "I'm enjoying this so much, if your lectures were at five pm on Friday afternoon, I'd still turn up for them",*

*GT: "If my lectures had been timetabled for five pm on Friday, I would have held them in the pub"*

...thus completely establishing his credentials as a proper old school geology university academic, sorry, where was I?

At our second stop, parking at Bryn Yr Eryr (Eagle Hill, to the monoglot), we walked down to the beach for lunch and to look at some more glacial leftovers. Having been to Switzerland to see the glaciers before they completely disappear, I knew what to expect, as the whole aspect of the areas below the snouts of the Aletchsgletscher and the Rhonegletscher is one of a very big drunken giant randomly driving a very big bulldozer around on a very big pile of gravel. BTW as young people apparently say, the best way to see the Rhonegletscher is by the Furkebahn, einer schone Zahnradampfbahn, or teeth wheel steam train, look it up, its well worth seeing if you find that kind of thing strangely exciting.

So we parked up at the farm and walked down to the beach, I was slightly suspicious that the pathway to the beach was on such a smooth gradient, and I then paid some attention to evidence on the beach, the large sections of rough broken concrete made up with mixed local beach stones, the sea twisted lengths of rail, and the large angular clasts of one particular flavour of hard igneous rock close to the bottom of the path. Could this be a loading jetty?

Back home at the ranch, after a lovely afternoon, even if we had to make do with coffee at the beach café rather than a pint in the Ty-Coch at Porth Dinllaen, I opened a large dusty book and found out the following:-

Looking directly south east inland from the beach are the north western slopes of Gyrn Ddu, rising to 500m, into which one can see that two quarries approximately 1 km apart, have been

cut, one with three and the other with two galleries. Not being a proper geologist, I can't define the exact type of granite stuff that was being extracted. The book says syenite granite, but the book is more interested in gauges and fishplates than igneous petrology. The Great Leader (JW) did tell me, but I unfortunately forgot to write it down. Cath says it's a "*porphyritic something or other*", so she doesn't know and she's really clever, and we don't have a thin section set up in the garden shed yet. <sup>[1]</sup>

The majority of the quarries on Pen Llyn were for sett production, but almost all of them ceased production before the First World War, with some, including these, having an afterlife in producing crushed stone for road surfacing or railway ballast. Most quarries shipped their products out from timber jetties, of the kind I would not want to hang around with my boat for a moment longer than necessary due to the exposed nature of the coast. Those on the north coast had a degree more protection than the south coast, and were also nearer to the customers on the Mersey.

Tan Y Graig (Under Cliff) is the more south western of the quarries, opened in 1864, at an altitude of approximately 300 m and had its own incline and pier system about 1 km along the beach from where we were. There were various crushing and chipping plants, driven by the delightfully named Ransome, Sims and Jefferies portable steam engine built in 1873 and purchased in 1905 – cheapskates buying a second hand engine, but just how do you port that up the hill to above 100 m to run the machinery?



**Tyddyn Hywel quarry, main incline is on the far left, picked out by the vegetation running towards the bottom left corner**

Tyddyn Hywel (Hywel's Cottage) Quarry began life in 1877, before merging with Tan Y Graig in 1915 to become the Enderby and Stoney Stanton Granite Co. Ltd. This smacks of Leicestershire, so the profits from river and glacial gravels in the East Midlands must have been sufficient to warrant burning money on some madcap Welsh scheme, the company was wound up in 1928. From 1930 until 1934 both quarries were owned by Thomas W. Ward, before it all went quiet for the last time. Tyddyn Hywel had a similar system where stone came down the mountain on an incline as far as the main road, picking up the products of Tan Y Graig on the way.



**Incline winding drum from Tan Y Graig quarry, brake mechanism on the left end of the drum**

Between the main road and the minor road, where the land was flat, the load was locomotive worked, by a Lester 0-4-0 which saw out its days back in the East Midlands, before the final incline that we walked down to the beach. However in the 1920s this final section of tramway was abandoned and replaced by an aerial ropeway to the pier, just to waste some more money. The pier had storage hoppers, allowing a 500 ton ship to be loaded in two hours.

**Reference:**

Boyd, J.I.C., *Narrow gauge railways in North Caernarfonshire*, 1990.

**Julian Bridges**

Editor's note [1]

A review of the readily available technical literature has not allowed the nature of the rock in question to be established. It is worth noting that to the nineteenth century quarry man anything that wasn't slate is likely to have been called granite (just as today all natural stone kitchen tops seem to be either granite or marble). General comments regarding the petrology of these rocks suggest that granite, tonalite or felsite have all been applied from time to time, and location to location, along the Peninsula. If any of our readers are aware of a specific, authoritative, description please let us know.

**Further brief discursion to the Nefyn field trip write up**

This trade in "granite" setts to the English urban areas was apparently substantial. The following extract comes

from Clough Williams-Ellis' (founder of the Italianate village of Portmeirion) autobiography:

*"...later still (I persuaded) the skipper of a minute little steamer – a primitive "puffer" of about a hundred tons, to take me on an actual voyage. We were only four, the indulgent master, the engineer, a deckhand and myself, bound with a cargo of granite paving setts from Trevor in Caernarfon Bay to Manchester up the newly opened Ship Canal"*.

CW-E was born in 1883 and undertook this voyage, whilst on holiday from school at Oundle, before "going up" to Trinity College to study Natural History. It seems likely therefore that this description related to events in about 1898.

No doubt there were any number of small quarries producing setts in the area, and other harbours and quays from which they could be exported. However there is no reason to discount the possibility that we were on the remains of the quay side from which CW-E embarked with his cargo.

This story has not yet gone full circle however – as a dozen or so years ago I was working on a development site in Manchester where old granite setts were being dug up with the tarmac that had been placed over them, and tipped into a spoil heap, prior to hauling off site to take up space in some English landfill. A small number were "rescued" into the back of my car, and now form a hard wearing path in my lawn. So they have made it back to Wales, if not quite (yet?) to Trefor.

**Reference:**

Williams-Ellis, C., *Architect Errant*,  
Portmeirion Limited, 1991.

KHN

**NWGA Evening Meeting**

19<sup>th</sup> September 2012

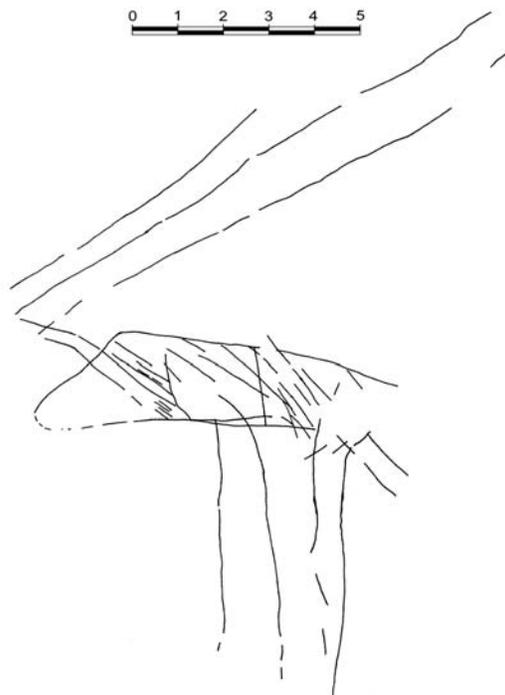
Dr George Nash, (Dept. of Archaeology  
& Anthropology, University of Bristol;  
Assoc.Prof. University of Spira Halet  
Bucharest; Senior researcher, Museum  
of Prehistoric Art Macao Portugal)

*“Mud and Meandering: finding Upper  
Paleolithic rock art in South Wales”*

Two years ago, Dr George Nash, took  
twenty minutes out from an  
undergraduate fieldtrip to act on a hunch  
and shone his torch on the back of  
Cathole cave on the Gower. Etched into  
a natural niche, he found the image of a  
reindeer(?) 10 x 17 cm.



**Close up image of the cave art**



**Sketch of the reindeer? Traced from a  
stitched digital image of the original**

Dating and verification of rock art is  
necessarily a collaborative affair  
requiring a multidisciplinary approach.  
The presence of inactive flow stone  
(stahl) deposits encroaching on part of  
the reindeer image enabled dating the  
covering of the image using Uranium  
series dating techniques. Two dates  
place the image no younger than 12 572  
(+/- 600) yrs BP or 14505 (+/- 558) yrs  
BP.

Dating of bone fragments found in the  
detritus on cave floors in the locality  
suggests dates for human occupancy as  
far back as 28-30,000BP. Further  
research is likely to add more  
corroboration on dates. The data is  
providing evidence of the colonisation of  
Wales following the retreat of the ice.  
The evidence is some of the oldest  
evidence of human activity and culture

in Europe. More rock art, once thought unlikely to be seen in Britain, is being discovered as Dr Nash is exploring more caves. The location of images in relatively hard to reach corners suggest that the images were separate from the everyday life of cave occupants. We can only speculate as to their importance or purpose.

There is possibly the first British evidence of haematite applied as a pigment underlying flow stone deposits. Further research would be required to determine this and attempt to date it. The prospect of more discoveries is tantalising but it is clear that careful recording and management of sites is necessary as they are vulnerable. The reindeer image, filmed by the BBC and publicised locally, was unprotected and has been erased: by whom and why is unknown.

**Reference:**

Nash G. et al, *A discovery of possible Upper Palaeolithic parietal art in Cathole Cave, Gower Peninsula, South Wales*, Proc. Univ. Bristol Spel. Soc., Vol 25(3), 2012.

**Judith Jenkins**

**GSoL (North-west Regional Group)**

Dr Laurance Donnelly (Wardell Armstrong)

In the surroundings of the MMU Physics Department Dr Donnelly gave a thorough, and clearly argued, case for recent movements of the large moorland fault scars which cross South Wales,

being caused by a combination of both subsidence reactivation of faults, and post-glacial disturbance, primarily associated with stress relief. These features are frequently associated with potentially damaging landslips and sometimes unpredictable subsidence. The talk was vividly illustrated by reference to the subsidence and settlement damage throughout the UK, with particularly impressive structural damage recorded in and around parts of Staffordshire.

To the relief of the small number amongst the 30 or so in the audience who had travelled from North Wales, Dr Donnelly stated that no similar features have been recorded in the North Wales Coalfield Area, to date at least.

**KHN**

**Institute of Quarrying North Wales Branch**

18th September 2012  
Evening Lecture – Lyndale Hotel, Old Colwyn  
*“Geotechnical Process Management”*

Ian Brown of Lafarge Aggregates described the change in Health and Safety Culture that had taken place in the quarrying industry since the turn of the Millennium. At Lafarge Aggregates a fatality in 2003 caused a sea change in systems management – with the attitude being expressed by their leadership (Dyfrig Jones) that *“No job is that important...”* and establishing a *“no injury”* target, leaving behind an attitude that quarrying was a tough industry, and injuries inevitable as consequence of what was done, and where.

Lafarge had introduced formal geotechnical design processes, compliant with the Quarrying Regulations, for tips, lagoons, stockpiles and of course, their working faces. Planning of working systems now involve finance, planning and geotechnical considerations with a more holistic approach bringing substantial benefits commercially as well as with respect to Health and Safety.

It is not all good news however, and Ian noted that it is always important to expect the unexpected when dealing with the vagaries of geology. He reported a “near-miss” event at Mount Sorrel Quarry (Leicestershire) where the (previously not anticipated) presence of a low friction chloritic mineral coating on a daylighting planar joint, led to a collapse which trapped one of the quarry workers, fortunately in this instance, without serious injury.

**KHN**

## **Book Review: John Piper: The Mountains of Wales**

The mountains of Wales have long been a draw to artists, who have found inspiration from the landscape, historic monuments, and indeed the Welsh weather. From Joseph Turner, through L.S. Lowry to Sir Kyffin Williams, we enjoy a rich legacy of art work which reflects the changing moods, and rich variety of our scenery. It is perhaps unfair to suggest that any one artist is the foremost exponent of the North Wales Landscape, but John Piper, who worked during and in the years following the Second World War is one

of those with a claim perhaps to be “first among equals”. Piper’s work is discussed in the current issue of Earth Heritage (Munro and Bevins, 2012) and anyone interested in following up his background should read that article. Earlier this year the National Museum of Wales put on an exhibition of many of Piper’s works. Following the exhibition, the National Museum has published a soft cover collection of paintings in a near A5 size landscape format book. The book includes biographical details, a brief review of his art, and unusually perhaps, a glossary of geological terms, reflecting Piper’s acknowledged eye for geological detail. For the professional geologist this glossary is perhaps a little inaccurate at times, but anything that helps draw the layman’s attention to the existence of “microgranite” and “rhyolite” can only be applauded. The bulk of the book comprises 32 very high quality plates with, on the facing page, accompanying notes, bibliographic details and in many cases a photographic comparison with a modern photograph.

All in all, at a price of less than £10, this is a very interesting book, particularly for those interested in both the geology as well as the art. A hardback version, in A3 size would be a welcome, but rather more expensive, adornment to any coffee table, but what this smaller version loses in reproduction quality, is more than made up by the ease with which this format can be thrown in a rucksack and taken on a field trip. This book is perhaps the ideal Christmas present for the North Wales geologist in your life?

**KHN**

**References:**

Jenkins DF and Munro M. (2012), *John Piper: The Mountains of Wales*, Amguedda Cymru – National Museum Wales, 2012, 95pp.

Munro M and Bevins R.(2012), *Piper's North Wales Paintings*, Earth Heritage Magazine, Issue 38, p22-27.

**RECENT PUBLICATIONS  
RELATING TO THE GEOLOGY OF  
WALES AND THE BORDERS**

Snelling et al, *Carbon isotope composition of graptolite periderm and whole-rock from the Aeronian (Silurian, Llandovery) in Wales and Scotland and its use in chemostratigraphy*, Proceedings of the Geologists' Association, Volume 122, Issue 1, 2011

Morris J et al, *Further insights into trilete spore producers from the Early Devonian of the Welsh Borderland*. Accepted Manuscript Review of Palaeobotany and Palynology, available on line August 2012.

Robinson K et al, *Seabed habitats of the Southern Irish Sea*, in Seafloor Geomorphology as Benthic Habitat, <http://dx.doi.org/10.1016/B978-0-12-385140-6.00037-2>

Bendle J and Glasser N, *Palaeoclimatic reconstruction from late Glacial (Younger Dryas Chronozone) cirque glaciers in Snowdonia, North Wales*. Proceedings of the Geologists' Association, Volume 123, Issue 1, 2012

**Dates for your Diary:**

**NWGA**

**Autumn Evening Lectures**

(see abstracts in Issue 71)

**Oct 25<sup>th</sup> (Joint Meeting with the North West Group of the GSoL and UoC Department of Biological Sciences)**

Keith Nicholls (University of Chester)

*“The Big Chill – Life, death, and destruction, a story from the end of the Ordovician”*

Venue: Beswick Lecture Theatre (CBE017), Parkgate Campus, University of Chester. Refreshments at 6:30PM, Talk commences at 7:00PM. Map of venue at:

<http://www.streetmap.co.uk/map.srf?x=340120&y=367335&z=120&sv=340120,367335&st=4&ar=y&mapp=map.srf&searchp=ids.srf&dn=689&ax=340120&ay=367335&lm=0>

**November 7<sup>th</sup>**

Nigel Brown (Bangor University)  
*“Plants through the ages”*

Venue: University of Bangor, Treborth Botanic Garden Laboratory, 7:30PM. Tea, coffee and biscuits available.

The location maps for the venue are available from the garden web site at <http://treborthbotanicgarden.org/> or from a link on the NWGA website.

**January 26<sup>th</sup> (Saturday)**

**Advance notice of AGM**

Venue TBC but likely to be “Felin Wen, Abergwyngregyn 10AM for 10:30AM – talk to follow the AGM (Speaker to be confirmed but likely to be on Irish Sea Glaciers).

**OTHER ORGANISATIONS’  
EVENTS**

**GeoMon**

**Wednesday 14 November**

Llanddwyn Island

Meet at 11.45am for 12.00pm start. Start from Newborough Beach Car Park

**Wednesday 12 December**

Llanddwyn

Meet at 10.15am for 10.30am start. Start from Newborough Beach Car Park

Please note that some of the GeoMon meetings carry a small fee, others require payment of a car park charge. Some of the walks are lengthy, and in some cases traverse difficult terrain. Further details are available in a downloadable pdf file at:

<http://www.geomon.co.uk/>

Geomon’s web e-contact details are available at:

<http://www.geomon.co.uk/#/contact/4533286691>

Alternatively you can write to The Old Watch House, Porth Amlwch, Angelsey or telephone 01248 810287.

**Manchester Geology Association**

**Wednesday 10 October, 2012**

**Carbonate Deposition in the Cayman Islands** - Dr Hilary Corlett, University of Manchester

Talk commences at 7pm. Refreshments From 6PM

**Saturday 10 November, 2012**

**Some Early North-West Geologists**

“Jonathan Otley, Man of Lakeland” - Dr Tom Smith, Science Historian

“The Bicentenary of the Manchester Geologist Edward William Binney” (1812-1881) - Dr John Pollard, University of Manchester

“John Cunningham & Robert Grant - the forgotten stars of 1838” - Dr Geoff Tresise, Honorary Curator Geology, National Museums Liverpool

**Saturday 8 December, 2012**

**A Tour of the Outer Hebrides**

Drs Doug Fettes and John Mendum, British Geological Survey, Edinburgh

**Saturday 12 January, 2013**

**The Broadhurst Lectures: The Palaeontology of China**

“Doushantuo Microfossils: the oldest animals in the fossil record?” - Dr John Cunningham, University of Bristol  
“The Cambrian Fossils of Chengjiang, China: the flowering of early animal life” - Professor David Siveter, University of Leicester

*Title to be announced* - Professor Paul Selden, University of Kansas  
“Exceptional Preservation of Dinosaur Eggs and Embryos from the Upper Cretaceous of Henan Province”, - Dr John Nudds, University of Manchester

Contacts for all MGA Meetings – Jane Michael through:

<http://www.mangeolassoc.org.uk/outdoorvents.htm>

**Yorkshire Geological Society**

**5-7 October, 2012**

**University of Hull**

*Sedimentology – process and products*

**Details at:** [secretary@hullgeolsoc.org](mailto:secretary@hullgeolsoc.org)

**Institute of Quarrying (North Wales Branch)**

**16th October, 2012**

**Lyndale Hotel – Old Colwyn**

*Interviews under the Police and Criminal Evidence Act*

**Debbie John (Health & Safety Executive – Wrexham)**

**6PM for 6:30PM £1 to cover buffet**

Contact: Mick Ripley on 07778494188

**Geological Society – History of Geology Group**

**22nd-23rd October, 2012**

*“Appreciating Physical Landscapes: Geotourism 1670–1970”*

The Geological Society, Burlington House, London

**The Royal Society (London) – Café Scientifique**

**19<sup>th</sup> November, 2012**

*“What’s going on inside volcanoes?”*

Dr Alison Rust (University of Bristol)

6PM for 6:30PM

First come – first served - Free

[royalsociety.org/events](http://royalsociety.org/events)

**The Palaeontological Association**

**16 – 18 December, 2012**

**University College Dublin**

56<sup>th</sup> Annual Meeting

Details at <http://www.palass.org>

**National Association of Mining History Organisations (NAMHO)**

**28 June to 1 July 2013**

*Conference: Mining Legacies - the environmental, physical and cultural impact of mining*

Venue: University of Aberystwyth

**Web News:**

NWGA

Our Facebook page is slowly attracting a select band of followers. Please take a little time to visit and “join” at:

<http://www.facebook.com/groups/northwalesga/>

The Linked-in page appears to have withered on the vine however, and will no longer be updated.

Other web sites mentioned in this edition of the Newsletter are:

<http://www.bgs.ac.uk/landslides/nefynBay.html>

and:

<http://coal.decc.gov.uk/en/coal/cms/publications/data/map/map.aspx>

Finally a reminder of the NWGA Web site itself at: [www.ampyx.org.uk](http://www.ampyx.org.uk)

The web site has been updated recently with all except the very recent editions of the Newsletter now available for direct download.

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### **Colour Hard copy reproduction by:**

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Front cover image:

*Stigmaria* found on the northern shore of the Cefni Estuary, Anglesey (see field trip review in Issue No 71).

(please note that the hammer is of "standard" hammer dimensions!)