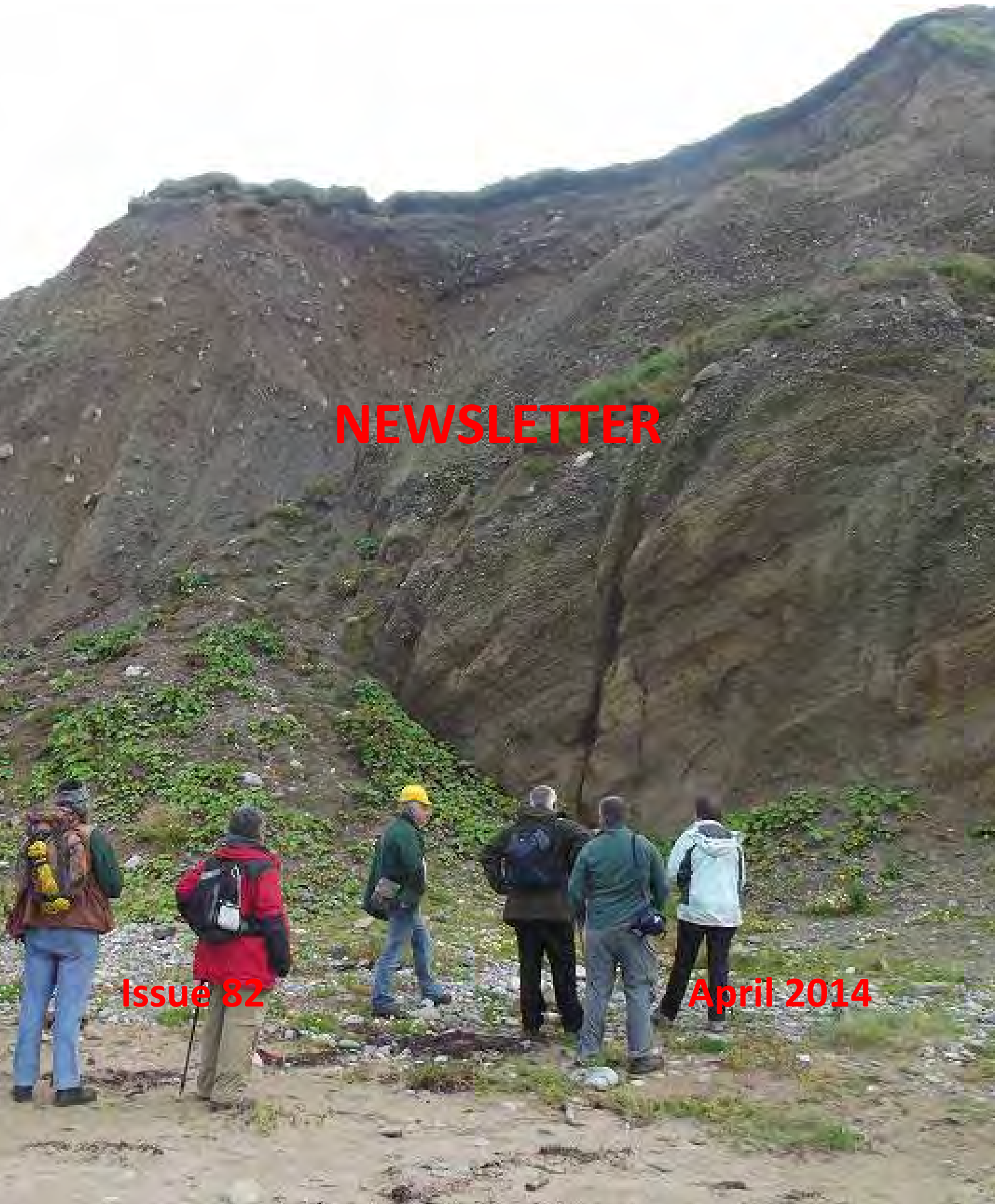
Cymdeithas Daeareg Gogledd Cymru

North Wales Geology Association



NEWSLETTER

Issue 82

April 2014

Inside this issue:

Front Cover Image:

NWGA members admire some of the finest Quaternary exposure you will see anywhere (Nefyn, Llyn). This sequence displays a thrusted imbricate stack of glacial sand and gravel, and a partially bedding controlled recent slope failure.

Articles correspondence etc to Newsletter Editor: Keith Nicholls 07442 495534 keithhnicholls@gmail.com

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Chairman's Message

The field season has started early this year, with a semi-official outing to the famous "submerged forest" of Borth, or Ynyslas, depending upon which end of the beach you start. We were also blessed with fine weather, which was a huge bonus. The full account is inside, but my own impression was that I had wandered onto the set for Doctor Who. The dark peat bed, and the distinctly non-vertical tree-stumps combined to create a distinct unease about the location. It was time travel in another sense, too, because in the dark days of the late 1950s my paternal grandmother took the younger members of her family to a caravan owned by one of their neighbours. Subsequently they stayed in the house of the farm where it was situated, finding it more congenial. Two items of historical note arose from discussing this with my aunt. They would be met at Ynyslas railway station, which closed in 1965, by the farmer with his tractor, and he would carry their bags while they trooped along behind. She had never heard of the "submerged forest" and was fascinated by the pictures which I had put online, and the fact that it has taken over 50 years for the circle to be closed by a younger family member. It's a lovely coast and well worth a visit. The bedrock outcrop of Ynyslas, which really is an island amid measureless marsh is intriguing, and the history of the Dyfi estuary during the Holocene would make an interesting study. Not far along the coast at Fairbourne the dread prospect of managed retreat and abandonment is being discussed as the Winter's episode of advanced erosion has highlighted the instability of the shore.

Meanwhile, back in Llandudno, the posturing of the councillors and their prosecution of the "Sand Wars" continues. At least one businessman has promised to restore Llandudno's sandy glory, and the groynes whose removal precipitated the town's decline into rank unpopularity. A great deal of fuss has attended the restoration of the rubble which was laid to protect the promenade, not least because it is a downright hostile environment for visitors, and is plain ugly to boot. The current repairs are simply to restore parts of the protection which were washed away this winter, so there is a point, whether you agree with it or not. Just as seen in the west by the long-lost Cerrig Duon, the irreconcilable functions of protection and amenity are at loggerheads. One correspondent was quoted in the North Wales Weekly as saying that the promenade occupied a shingle bar which had been there for thousands of years, and that it was manifestly "safe". If this person visited Ynyslas he/she would see that the shingle bar is actually a mobile phenomenon, which moves to and fro at the high point of an eroding shore and represents the coarser material remaining from the washing of glacial deposits by the waves. So yes, a bar has probably existed since de-glaciation, many thousands of years ago, but not necessarily in the same place, and the simple act of building the promenade ensured that the movement of sediment became a one-way process, and not in a good direction. So what do we want? Protection or a nice sandy beach in town? This week's edition also carried a letter from irate dog-walkers, who are "victimised" by rapacious wardens on a bonus scheme, pointing out that the annual clearance of sand from the boating lake at

West Shore should be halted because of the gross pollution by swan faeces, making it a hazardous substance and not fit for spreading on the denuded shore. That makes a change from dog faeces, I suppose.

We were treated to a fine, three-part exposition of fossils by Richard Fortey on the BBC in recent weeks. His chosen locations in South Wales and Canada (Cambrian), China (Cretaceous) and Messel, Germany (Eocene) covered three famous Lagerstätte with some success. Fortey is not a particularly charismatic speaker, and I am sorry to say that I dozed off during the Cambrian, but it is a story often told and the fossils can be very hard to discern. On the other hand, the Chinese dino-birds episode was much better, and Messel absolutely riveting. I did not know that the Messel pit was a fossil "maar" or phreato-magmatic explosion crater, and its association with Paleogene magmatism was an unexpected joy - an extension into continental Europe of the volcanism that attended the North Atlantic opening and the creation of so much wonderful basalt in Hebridean Scotland. The world-view is always rewarding. Well done to the programme producers, who also did a very good job according to one of the research presenters from the Senckenberg Institute whom I met in Germany a while back. Better than German TV, he said!

I am very pleased that the annual vote of confidence called membership renewal is proceeding very well, with a very high proportion of returning members. There will be a note or membership card in the envelope with this copy (or separately if by email), and I entreat you to renew if you are in arrears. We have a full programme of events sketched out until early 2015, so we look forward to seeing you at the various indoor and outdoor venues. There is also a full round-up of events from associated societies, and a conference on the subject of the Old Red Sandstone to look forward to.

Jonathan Wilkins

Articles:

QRA at 50: Top 50 UK sites

As part of the 50th year celebrations of the Quaternary Research Association it seems fitting to highlight some of the key sites and localities that have been fundamental to our understanding of the Quaternary Landscape around us.

Over 2014 we are looking to compile a list of the 50 most significant Quaternary sites within Britain. These top 50 sites will be published at the end of the year in the form of a QRA 50 full colour booklet and ultimately as a web-based resource available through the QRA website.

More information as well as downloadable recommendation forms are available from www.qra50.org. Alternatively please ensure that your application contains the following information:

- Nominator
- Address
- E Mail

- Site Name
- Grid Reference
- Photo Title and Credits
- Site Description (250 word limit not including key references)
- Key references that should be formatted following the Quaternary Newsletter Guidelines (available on the QRA website or directly from the editor of QN: Sven Lukas – S.Lukas@qmul.ac.uk

Any Quaternary site within Britain is eligible and you are welcome to submit more than one site if you have several favourites. Submissions should be accompanied by a photo if possible, including any credits.

Please submit your nomination by 30th September 2014, either by post to QRA50, c/o Dr Emrys Phillips, British Geological Survey, Murchison House, West Mains Road, Edinburgh EH9 3LA, or by e-mail to mytopsite@qra50.org.

If you have any questions, please contact either Barbara Silva (pollenbird@hotmail.com) or Emrys Phillips (erp@bgs.ac.uk).

Emrys Phillips

Geological Society of London: 100 Great Geosites

The UK and Ireland feature some of the most diverse and beautiful geology in the world, spanning most of geological time, from the oldest Pre-Cambrian rocks to the youngest Quarternary sediments. As part of Earth Science Week 2014, The Geological Society and partner organisations are celebrating this unique geo-heritage by launching a list of 100 Great Geosites across the UK and Ireland.

So what is a 'geosite'?

A geosite could be a classic outcrop or a beautiful landscape like the Giant's Causeway. The list could also include engineered sites of economic importance such as a Crossrail station, museums, structures featuring striking building stones or sites of significance to the history of geology or our industrial heritage. The only rules are that the site is in the UK or Ireland, and can be visited by the public.

We need your help!

To come up with a list, we need your help. Send us your favourite geosites on Twitter, Facebook, or by emailing us at 100geosites@geolsoc.org.uk. You can support your nomination with anything you like – be it photographs, videos or enthusiastic words. We're hoping that, as well as the classic geological sites the UK and Ireland are famous for, we'll receive some surprises!

The final list will be launched in October 2014 for Earth Science Week (13 – 19 October). We hope the final list of 100 will

reflect the huge range of geological sites that can be visited – from the countryside to the hearts of our towns and cities.

Send us your favourites via Twitter, using #100geosites, on the project's Facebook page at www.facebook.com/100geosites, or by emailing 100geosites@geolsoc.org.uk.

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Geological Society

New Llandrindod Fossil Group

A new, informal palaeontology club has been set up in Llandrindod Wells to encourage long-term investigation of the fossils of Radnorshire. The Builth Inlier is an internationally important area for Ordovician palaeontology, preserving a volcanic island sequence with rich fossil faunas from both shallow and deep-water environments. The area is famous for trilobites (which were first described from here in 1698, by Edward Llwyd), but significant discoveries are continually being made, including sites with soft tissue and other remarkable preservation. The inlier is surrounded by late Ordovician and Silurian rocks that are poorly known and in most areas barely studied except for graptolites, but with more diverse faunas also present at many sites.

As academic palaeontology is increasingly focussed on high-yield, analysis-intensive research, there are now fewer professional researchers actively involved in exploratory fieldwork, especially in historical areas like Wales. This decline in fieldwork is a result of changes in funding policy and research assessment, and is not so much a reflection of what remains to be discovered. Nonetheless, it means that much of the role of discovering new fossil sites will fall, more and more, to amateurs – as it once was, over a century ago.

The crinoid Cefnocrinus samgilmouri, from the Middle Ordovician of the Builth Inlier; specimen is in the Radnorshire Museum.

The idea behind the Llandrindod Fossil Group is to develop an informal, enthusiastic group of amateur palaeontologists who are interested in documenting the fossil assemblages of our local area, both to discover important new material (hopefully), and to describe in detail the distribution of the fossils that are found. This type of approach can lead to

great benefits in our knowledge of palaeoecology: the distribution, environmental preferences and diversity patterns of most groups are still poorly known, and they are now unlikely to be achieved professionally in the current academic climate. An enormous amount can, however, be achieved by an enthusiastic group of people living locally.

The group currently meets at 10.30 am on the first Saturday of each month, at the Radnorshire Museum, Llandrindod, for an indoor discussion and/or presentation session, before heading out into the field for the afternoon. The group was set up by Drs. Joe Botting and Lucy Muir, who have academic backgrounds but now live locally. A high proportion of the members have very little geological background and a lot of enthusiasm, and there is a broad mixture of ages. New members are very welcome, whether as regulars or for occasional visits; please contact Joe at acutipuerilis[AT]yahoo.co[DOT]uk to be added to the email list and be kept informed of meetings and updates.

Joe Botting

Old Red Sandstone: Is it old? Is it red? and is it sandstone? – a conference

Venue: The Elim Church Conference Centre, Canal Road, Brecon

Cost: It is hoped to keep the symposium fee to about £30

Outline Programme:

Thursday 2nd October: Day of lectures and Conference Dinner

Friday 3rd October: Field meetings to local sites

Saturday 4th October: 'Geofest' public open day

The day of lectures will cover many aspects of Old Red Sandstone geology and the full programme is already coming into shape. There are already a number of confirmed speakers including some from Australia and France. It is hope that it will be possible to publish the proceedings of the symposium in due course.

Two field excursions by coach will be on offer to areas around Brecon to look at various aspects of Old Red Sandstone geology.

The public open day on the Saturday is aimed at being a festival of geology bringing geology to the attention of all. Local geological groups and other organisations will be putting on displays, public talks, hands-on activities and building stone walks around the town.

To express an interest in attending the meeting and to put your name on the mailing list please contact Dr John Davies, Fforest Fawr Geopark, Brecon or email sion_cwm_hir@hotmail.com.

Stephen Howe

Abstract:

"The BRITICE-CHRONO Consortium Project"

Professor James Scourse, Bangor University.

Meeting Room, Pensychnant, Conwy.

Meeting to commence at 19:30h

The recent Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) highlighted uncertainty over the potential collapse of major ice sheets (West Antarctic, Greenland) as a significant problem in predicting future major, potentially catastrophic, rise in global sea level. Though the physical understanding of the major processes and feedbacks involved in rapid ice sheet collapse is improving, no such event has been observed and this lack of empirical evidence inhibits the development of ice sheet models capable of simulating rapid deglaciation. Geological analogues for the collapse of marine-based ice sheets such as the West Antarctic Ice Sheet (WAIS) are therefore valuable. The recently-funded five-year BRITICE-CHRONO Consortium Project is building on pilot study data that indicates that the last British-Irish Ice Sheet, a marine-based ice sheet with many similarities to the WAIS, deglaciated very rapidly indeed and therefore provides an analogue useful for the development of ice sheet models.

In this talk I will provide an overview of these pilot study data, including Bayesian analysis of geochronological data (radiocarbon, optically-stimulated luminescence, cosmogenic rock exposure age dating) from the Irish Sea Ice Stream sector, including evidence from North Wales. These will be combined with evidence on the flux and sources of ice-rafted detritus from the adjacent deep ocean, and with cosmogenic rock exposure dating from montane environments indicating ice sheet thickness, to reconstruct the pattern and timing of ice sheet retreat. Likely mechanisms controlling deglacial style will be highlighted. The rationale underpinning the ongoing BRITICE-CHRONO work programme will be presented.

This talk is a perfect, local complement to the presentation at the AGM on research into the history of Antarctic ice by Mike Hambrey, and should not be missed. We are grateful to James for stepping in at short notice to maintain our programme.

Please note that **THURSDAY** 8th is not a typographical error. James was unable to address us on any Wednesday in May.

Reports:

North Wales Geology Association

Wednesday 2nd April 2014
"Rhenium –Osmium – a chronometer for the oil industry"
Alex Finlay – Chemostrat

With his opening remarks "*other than Keith, who on earth cares about the Hirnantian Extinction event*" my interest was immediately aroused! Alex detailed work which arose from his Doctoral and post-Doctoral research work at Durham, and delivered a fascinating and highly entertaining talk.

The Dob's Linn Hirnantian / Llandovery boundary stratotpe GSSP

Despite being unashamedly steeped in the finer points of geochemistry (yes – lots of graphs), Alex was able to hang the chemistry on a geological framework accessible to us all. He explained how osmium isotopes could be used to identify weathering influxes in sedimentary basins, and showed persuasively how the osmium isotopes in the boundary section at Dob's Linn (see above) could be explained by the widespread regression / transgression episodes that bookend the Hirantian extinction episode at the end f the Ordovician Period. As would be expected from a primarily hydrocarbon funded research programme Alex eventually moved away from the Lower Palaeozoic,. Drawing on examples of hydrocarbon fields in North America, and in the UK North Sea Alex described how the methods could be applied to age hydrocarbon resources and to detail as a consequence the sometimes convoluted geological contingencies that have given rise to our hydrocarbon reserves.

A lively Q & A session followed Alex's talk – replete with tales of exploding pressure vessels, and images of researchers crawling around laboratory floors trying to recover spilt or dropped samples of lovingly prepared eluate. A vote of thanks was proposed by Jonathan Wilkins and was warmly given by the small, but wonderfully informed group of members (and a few guests) present.

KHN

Sunday 30th March
***"Borth"* – Informal Field Visit**

A dozen or so members and their guests took advantage of a glorious spring day and visited the recently exposed Borth Neolithic? Fossil Forest. Situated within a stone's throw of the beach front car parking this is a truly remarkable site. However the amount of ongoing erosion of the peat substrate, and the trees rooted within it shows that in the long run this will be lost to the sea.

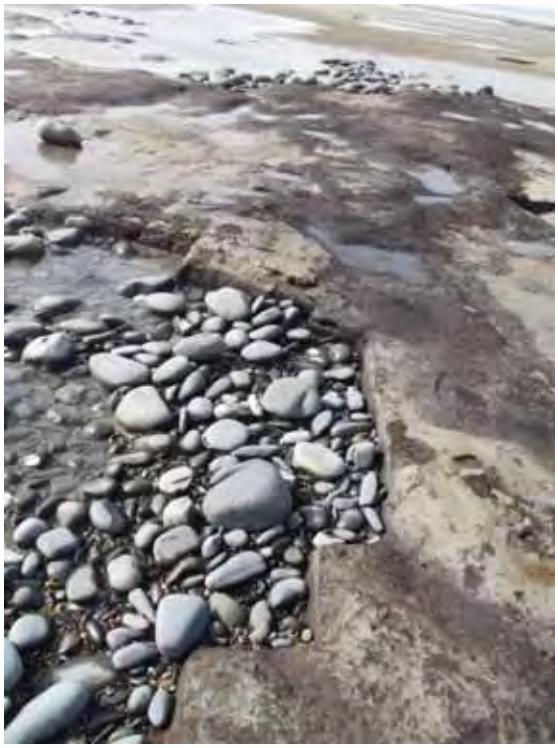
Fairly confident identification was possible of pine, alder and birch woodland, until recently buried beneath the storm beach and wind blown dune sands.

One of the more spectacular root bases

One notable aspect of the trees present is an apparent prevalence of fallen logs orientated in a south-westerly to north-easterly direction. This suggests that then, as recently, it was the south westerly gales

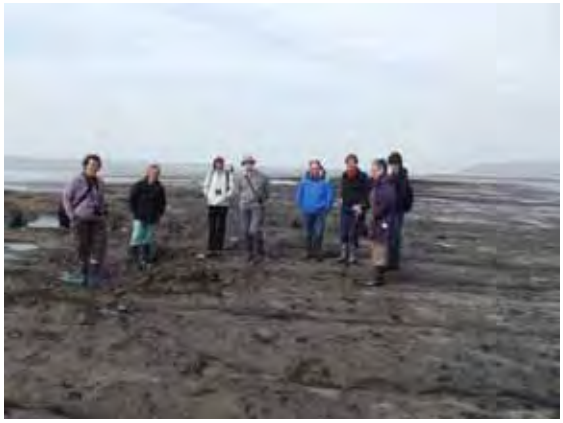
that wreaked havoc on the Western coast of Wales.

It is evident that the peat substrate has been exposed previously, as is shown both by the presence of “square work” peat extraction, and by the memories of one or two of our (dare I say) more senior members.



Historic “square work” peat extraction

Beautifully preserved birch bark



A delighted group of modern day hunter gatherers make hay while the sun shines (and the tide is out)

KHN

Dates for Your Diary:

NWGA: Evening Lectures

Thursday 8th May, 2014
Professor James Scourse – Bangor University

"The Brit-ice Project" (see abstract elsewhere)

Pensychnant, Conwy 7:30PM (committee meeting before hand at 6:15PM – all members welcome to attend).

Date to be confirmed September 2014
(Hopefully a Joint Meeting with Geoscience Wales)
Alastair Welbon

"Influence of shelf instability and marine landslides on hydrocarbon exploration".

Wednesday October 8th 2014
Joe Botting (As old as the hills)

A talk related to" Palaeontology of the Builth inlier"

Wednesday November 12th 2014
Joint Meeting with Geological Society of London (North West Regional Group) and Department of Biological Sciences, Chester University

Chester University 7:00PM (Tea and Coffee from 6:30PM)

Professor Barry Thomas, Aberystwyth University

"The preservation of plants as fossils - with particular reference to the Brymbo Fossil Forest"

NWGA Summer Field Visits

June 2014 (Date to be confirmed)
"Porth y ceriad, Llyn Peninsula" **(Leader Lynn Relph)**

July 2014 (Date to be confirmed) ***"Gwydyr Forest"*** **(Leader Jan Heiland)**

Geological Society of London – North West Regional Group

17th April 2014, *"Geological factors in major landslides and slope stability"* by **Professor Steve Hencher,** The Swan, Winwick WA2 8LF

Fforest Fawr Geopark

2nd – 4th October 2014, *"Old Red Sandstone – Research Symposium"*

See article elsewhere.

Manchester Geological Association

Sunday 1st June Field Visit

"Tegg's Nose, Peak District"

Saturday 14th June

"Macclesfield Building Stones"

Details available from the Society's web site at:
http://www.mangeolassoc.org.uk/indoormeetings.htm

Liverpool Geological Society

Friday 16th May to Sunday 18th May

Weekend Field Visit – *"North Yorkshire Coast"*

Details available from the Society's web site at:
http://liverpoolgeologicalsociety.org.uk/index.php

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Geologists' Association

...for all geologists and earth scientists, both professional and amateur.

Call for Papers

2014 Annual Meeting – University of Leicester

"Palaeo' to the People! – Fossils in the service of Man"

6th September (Conference), 7th September (Field Trips)

Conference themes:

Applied Stratigraphy;
Archaeology;
Engineering Projects;
Forensic micropalaeontology;
Hydrocarbon exploration & production,
Museum Collections

Organisers:

Haydon Bailey and Mark Williams

Contact: conference@geologistsassociation.org.uk