



# Manchester Geological Association Newsletter ~ December 2011



[www.mangeolassoc.org.uk](http://www.mangeolassoc.org.uk)

Dear Members,

Well, what a year we have had.... fantastic trips, great lectures... and now we look forward to 2012 and more of the same.

Our **Broadhurst lecture day in October** was a sell out, and greatly enjoyed by all participants.. many thanks to all who helped to make it such a success.

On **January 14th** we shall have an afternoon devoted to **Fossil Hunters**.

**February 15th** will be our **AGM** followed by another literary **Presidential Lecture** , not to be missed.

**The AGM** is the occasion for you to give the association your ideas for the future, and also to volunteer to join the council. New council members are always welcomed to bring in new ideas, and help the association to continue to prosper and grow.

Please do consider if 2012 is the time for you to join the Council.

**The Herdman Symposium** (page 4) is always a very stimulating and informative day and well worth the journey to Liverpool - you get a good lunch too.

**USA 2012** (see overleaf). There is still time for you to join the proposed tour of Wyoming and Colorado with Drs John Nudds and Cindy Howells

On **June 9th 2012** there will be a family geology day at Park Bridge, put the date in your diary now.

**Cardiff Museum** If you are down in Wales this winter be sure to go to the National Museum to view their superb Archaeopteryx exhibition.

**Your MGA subs** are now due for next year. A renewal form is included with this mailing. Please return it with your cheque to our new membership Secretary, Lisa Abbot , ASAP .

If you pay by *S/O* only return it if your details have changed.

**Reports of field excursions** and ads follow, but it just remains for the **MGA Council**, and me, to send you all the very best wishes for a

**Merry Christmas and a Happy and Healthy New Year.**

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*Mary Howie* newsletter editor

## Quick Diary 2012

### Lecture Programme Spring 2012

Sat 14 Jan 2012 – **The Fossil Hunters** -1.30pm

Wed 15 Feb **AGM and Presidential Lecture** 7.00pm

Wed 7 March **Natural hazards in the Carribean**  
Joint lecture with Geographical Soc 6.30 pm



## An "Update Your Skills" Day... practical geology for members October 2012

I am considering putting together a Skills Day in October 2012 which will comprise 3 sessions. These are, in very general terms:

- Geological Maps,
- Making Thin Sections (the simple way)
- Microscopy.

However, before I put more effort into organising this, I would like to know whether people would be interested in attending.

So far I only have Duncan Woodcock on board (Thin Sections) as a lecturer/demonstrator - he and I have discussed the day in general and come up with the above. Each session would probably last 2 hours and everyone would have an opportunity of attending each one (ie there will be three groups).

I would be looking at the maximum number of attendees being 18-21 to ensure the groups are small. I think this could be a really exciting and informative day.

Please let me have your comments ASAP: [outdoors@mangeolassoc.org.uk](mailto:outdoors@mangeolassoc.org.uk) or 07917 434598.

Jane Michael MGA Outdoor Organiser

### America is still beckoning .....

#### Proposed MGA trip in 2012 to Wyoming and Colorado

Dr John Nudds (University of Manchester) has offered to take the MGA on a 2 week trip to Wyoming and Colorado sometime in 2012 in May or July, depending on preference.



Mount Rushmore

John says that a reasonable degree of fitness is necessary and it may well be a bit hot... but don't let that put you off joining this exciting trip.

You will be visiting Dinosaur Ridge in the Morrison formation, Laramie Geological Museum, the White River Group with the Eocene - Miocene early mammals), and the Green River Group (Eocene), famous for its fossil fish and early horses. As well as having a look at Mount Rushmore to see the presidents' heads carved in granite; or even taking a traverse over the Big Horn Mountains and a visit to the Wyoming Dinosaur Center and much more.



Hyracotherium sp.

Prices will be kept to a minimum and will include flights to Denver, hotels, minibus hire, entry fees etc.

If you are interested please let Jane Michael know as soon as possible as places are limited.

Fuller details were in the June 2011 newsletter or ask Jane Michael at [outdoors@mangeolassoc.org.uk](mailto:outdoors@mangeolassoc.org.uk) or 07917 434598.

**The final deadline for joining this trip will be the AGM on February 15th.**

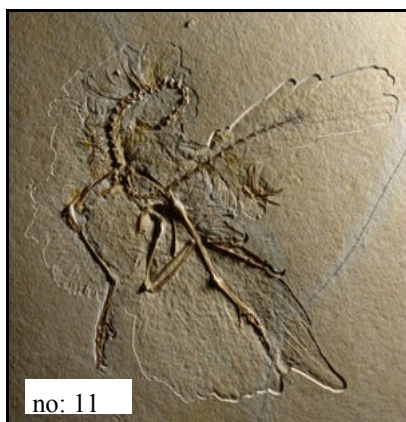


If you are down in Wales this winter be sure to go to the National Museum in Cardiff to see the fantastic Archaeopteryx exhibition....

From October 18th 2011 until the end of February 2012 there is an exciting opportunity to see side by side representations of all 10 known Archaeopteryx specimens in the National Museum of Wales, Cardiff.

This exhibition was put on to honour the 150th anniversary of the finding and describing of the first specimen, but is also proud to be able to show for the first time in the UK, the original specimen of no.8 - The Phantom. Kindly loaned by its owner, this specimen is usually housed in the Bavarian State Collections in Munich, but has not been seen on display anywhere since its initial unveiling at the Munich Show in 2009. It is displayed here along with casts of the London, Berlin, Eichstätt, Haarlem and Thermopolis specimens, and life size images of the other four.

Also on show are several other exquisite Solnhofen fossils, including a pterosaur, dragonfly and shrimp also loaned for the occasion.



Entry to the museum and this display is free. The museum is closed to the public on Mondays.. Have a look at the website :- <http://www.museumwales.ac.uk/en/cardiff/>

If you'd like any more information, please contact Cindy Howells, GCG membership secretary, Collections Manager (Palaeontology), Department of Geology, National Museum of Wales, Cathays Park,,Cardiff, CF10 3NP  
Phone 029 2057 3354

**And now another one has been found and displayed in Munich!**

This new fossil, complete except for its head, is only the eleventh Archaeopteryx skeleton ever discovered. Like every other, it was found near Solnhofen in south Germany..

Have a look at the New Scientist , Short Sharp Science Blog :-

<http://www.newscientist.com/blogs/shortsharpscience/2011/10/stunning-new-archaeopteryx-fos.html>

Buxton Museum has asked if anyone would like to help in documenting their fossil collection. They have an extensive collection of Peak District fossils, many collected by MGA members in the past. Their Derbyshire igneous rocks were organised and catalogued by our ex-treasurer some years ago. If you would like to help them in this interesting task, please contact Ros Westwood, Derbyshire Museums Manager, Buxton Museum and Art Gallery, Terrace Road, Buxton, Derbyshire, SK17 6DA, 01629 533544, [ros.westwood@derbyshire.gov.uk](mailto:ros.westwood@derbyshire.gov.uk) .

The next newsletter will be in March. Copy to me by the end of February please.  
Mary Howie - [newsletter@mangeolassoc.org.uk](mailto:newsletter@mangeolassoc.org.uk) or Snail Mail to Kinder View,  
118 Glossop Road, Marple Bridge, Stockport SK6 5EL. Tel: 0161 427 2965

Views expressed in the Newsletter are not necessarily those of the Association or its Council.



**Earth and Ocean Sciences**  
**HERDMAN SYMPOSIUM**  
**18<sup>th</sup> February 2012**

**List of Guest Speakers & Titles**  
(alphabetic)

Prof Jon Gluyas (Durham) 'Carbon dioxide: friend or foe? – Storage, sequestration and utilisation'.

Dr Bryan Lovell (Cambridge) 'A pulse in the planet: hot blobs in the mantle and yo-yo tectonics'.

Prof John McCloskey (Ulster) 'Evolution of stress on the Sunda megathrust, West Sumatra: Implications for future earthquakes and tsunamis'.

Dr Clive Oppenheimer (Cambridge) 'Mount Erebus: an exceptional volcano laboratory in Antarctica'.

Dr Richard Shaw (British Geological Survey) 'The disposal of radioactive waste – a geological perspective'.

Dr Jan Zalasiewicz (Leicester) 'Exploring the Anthropocene'.

The Herdman Society is the undergraduate society of the Earth and Ocean Sciences Department at Liverpool University; William Herdman was the founder and benefactor for the original Department of Geology.

The full programme with abstracts, times, location of the Sherrington Lecture Theatre and ticket charge will be circulated in December. The charge to non-students will, subject to sponsorship, probably be ~ £10, which includes programme, buffet lunch, tea/ coffee and wine reception.

Persons interested in attending should contact Helen Kokelaar, e-mail: [herdman@liverpool.ac.uk](mailto:herdman@liverpool.ac.uk)

**The Field Study Council** are offering geology courses for individuals and families in the Lake District, Pembrokeshire and Yorkshire.

Go to their website <http://www.field-studies-council.org> and click through via Individuals and Families to Geology and Scenery

That will take you through to the programme for **Geology and Scenery**.. or try link :-<http://www.field-studies-council.org/individuals-and-families/natural-history/exploring-the-natural-world/geology-and-scenery.aspx>

Alternatively you can view their brochure at: <http://view.digipage.net/?userpath=00000645/00015144/00070991/>

Hard copies of the brochure are also available. If you would like to request a brochure or for further information about the FSC please get in touch with Mel Cousins : Tel: 01743 852118 or [mel@field-studies-council.org](mailto:mel@field-studies-council.org)

(From personal experience I can say that the centres offer excellent accommodation and tuition.. Ed.)

The Extractive Industries are holding a conference next September.

EIG 2012 - Edge Hill University, Ormskirk Lancashire - September 5th - 7th, 2012  
There is a call for papers on their website and details of a scholarship scheme .

If you are interested have a look at their conference website -

[www.eigconferences.com](http://www.eigconferences.com)

**This may be true ...**

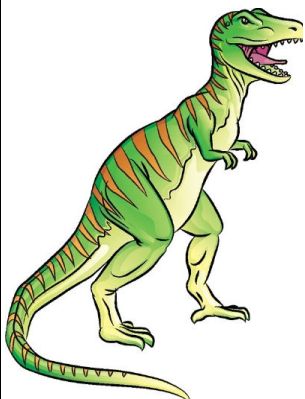
A geologist prepared a report for one of the government agencies entitled "The Ferrous Layers of Barbados" ,  
on publication he found that some wag had added the sub-title  
"Pyrites of the Caribbean"

or maybe not.....



## Join in 'Dangerous Dinosaurs and Fabulous Fossils'

June 9th 2012 at Park Bridge Heritage centre, a tribute to Fred Broadhurst



Next year on Saturday June 9th there will be a special event dedicated to Fred Broadhurst to celebrate his extraordinary ability to inspire so many people in the enjoyment of geology, especially children. The event is also supported by Fred's family.

The event will be held at Park Bridge Heritage Centre, Ashton under Lyne between 11-3.

This will be a great event aimed at children and families and much needed as there are currently very few geology based events for children in the North West. There will be a variety of fun filled activities, stalls and guided walks in and around Park Bridge Heritage Centre.

Activities will include fossil workshops, dinosaur and gemstone digs, prehistoric crafts, story telling, quizzes and many, many more.

If you would like to take part in this event there are many opportunities to get involved. Perhaps you would like to run a stall or geology themed activity or help out in one of many other ways.

If you have any fossils or minerals you would like to donate to the event these will be given to children at the end to take home and hopefully inspire them for the future.

Park Bridge is a fascinating site for geology and much of it is accessible on public land managed by Tameside Countryside Warden Service.

If you are interested in getting involved please contact Chantal Johnson on 07500 316561 or email at [eye\\_opener\\_experiences@yahoo.co.uk](mailto:eye_opener_experiences@yahoo.co.uk)

One of our members, Stephen Hurell, has a third edition of his book **Dinosaurs and the Expanding Earth** in print now. Stephen has a rather different view of earth history from mainstream ideas which members may find interesting. He writes:- "Dinosaurs were impossibly large creatures which dwarf the life of today. This third edition of Dinosaurs and the Expanding Earth continues to present a startling new theory to explain the gigantic size of these monsters from an ancient time. The book resolves the major riddle of the dinosaurs' large size by presenting convincing evidence that the dinosaurs lived in a reduced gravity."

ISBN: 9780952 26037 0, Pages: 218, Figures: 72, Publisher: Oneoff Publishing.com, Recommended Price: £12.95 UK, \$19.95 US, Publication date: 4th September 2011



## MGA Programme of Indoor Meetings

Spring 2012



**Saturday 14<sup>h</sup> January 2012 – The Fossil Hunters - 1.30 pm**

**Mary Anning (1799-1847) and Thomas Hawkins (1810-1889):**

two very different 'monster' fossil hunters - Professor Hugh Torrens, University of Keele

**James Powrie :**

Bob Davidson, University of Aberdeen

**James Frederick Jackson (1894-1966):** Boy Genius and Extraordinary Geologist –

Dr. Cindy Howells, National Museum of Wales

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**Wednesday 15<sup>h</sup> February 2012 – Annual General Meeting - 7.00 pm**

followed by the Presidential Address

**Geology and the Geologist in Crime and Mystery Fiction**

given by Dr. Tony Adams, University of Manchester

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**Wednesday 7<sup>th</sup> March 2012 – Joint Meeting with the Geographical Association,  
at 6.30 pm**

**Natural Hazards in the Caribbean: Causes and Impacts**

Dr. Servel Miller, University of Chester

MGA meetings are held in the Williamson Building, Manchester University  
on Oxford Road, opposite the Manchester Museum.

Tea, coffee and biscuits are served before evening meetings and during the Saturday afternoons.

**Visitors are always welcome**

### **\*IMPORTANT NOTICE: MGA INSURANCE\***

Each person attending a field meeting does so on the understanding that he/she attends at his/her own risk. The MGA has Public Liability Insurance cover (including member to member cover), for field and indoor meetings and an element of Personal Accident cover.

However, members should always ensure that they have Personal Liability cover (normally part of the standard householder's insurance policy - please check your policy) and comprehensive Personal Accident cover. These are **YOUR** responsibility. Overseas trips are not covered.

Check out our website for up-to-the-minute announcements of trips and lectures.

[www.mangeolassoc.org.uk](http://www.mangeolassoc.org.uk)

Black and white readers can see the newsletter there with  
full colour illustrations

If you would like to receive this newsletter by email, in glorious Technicolor...  
then just let me know at [newsletter@mangeolassoc.org.uk](mailto:newsletter@mangeolassoc.org.uk) ... ed.



## The MGA trip to Haigh Hall Country Park, Wigan

8th October 2011.

Leader Dr Christine Arkwright

Haigh Hall Country Park is an extensive area of mixed woodland situated within easy walking distance of Wigan town centre. The original manor house dated from the twelfth century. In the 17th Century mining of the Cannel and King Coal began, and the Haigh Sough was built for mine drainage. In 1947 it was bought by the Borough for use as a public amenity.



Chris Arkwright explains the features seen in the disused quarry. (Photo Jane Michael)

Chris explained that the strata belonged to the Upper Carboniferous Westphalian Coal Measures, part of the Pennine Basin located between the Southern Uplands High in Scotland and the Wales-Brabant High in the South when Britain was situated in the equatorial belt 300 Ma.

The UC Coal Measures are composed of many cycles of sedimentation (cyclothems), and were formed by continuous deposition and subsidence of a prograding delta, contemporaneous with global changes in sea level. This resulted in an enormous delta, (larger than the modern Mississippi and Ganges deltas), composed of swamps, peat mires between rivers, and shallow lakes. A model depositional sequence would be:- coal, mudstone, siltstone, sandstone, seatearth, coal.

The Haigh Hall area is situated on a graben formed by the St. Catherine's and Great Haigh Faults. These were caused by the Variscan Orogeny in the late Carboniferous and early Permian when the rocks were deformed into gentle folds and extensively faulted.

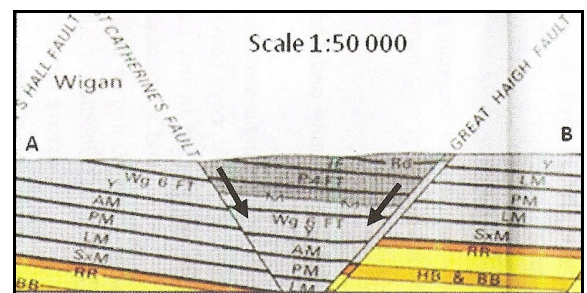
At **location 1** on the Main Drive, 50m from the Main Gate is part of the 200m length exposure of the Pemberton Rock visible on both sides of the path. We could see a 6m height of well-jointed, cross bedded, blackened sandstone with ripples; and interbedded, plant-rich siltstones. The cross-stratification is interpreted as sandbars, preserving half channels of migrating braided rivers flowing from the north east, as early as the Namurian.

Chris asked the group to use the GMRIGS access form to assess whether the site should be designated as a Regionally Important Geodiversity Site. The group agreed that the site was an excellent example of the UCCM and should be designated.

We crossed the River Douglas, turned left onto a footpath parallel to the river and followed a track to the edge of river bank and **location 2**. There, on the opposite bank, a syncline could be clearly seen. A sequence of light brown, laminaceous, carbonaceous siltstones and flaggy, cross-bedded rippled sandstone could be observed through binoculars. It is described as a hard, fine grained sandstone; unfortunately, no one was wearing fishermen's waders to verify this. A discussion ensued as to whether the syncline was structural or caused by tree growth. This requires further investigation.

A notice on the main footpath alerted visitors to possible flooding of the footpath due to the construction, about a mile downstream, of flood prevention measures to protect the town.

Leaving the main path we turned left into Receptacle Quarry, **location 3**. The north west quarry face is a sequence of very fine grained, hard, cross-bedded, blocky, jointed sandstone of the Pemberton Rock Sandstone, and here we found lenticular, hard, red/brown ironstone nodules; between the sandstones are small siltstone bands containing carbonaceous plant debris. The sandstones at the West face are capped by flaggy siltstone, grading into a greyish white seatearth, again containing ironstone nodules. A thin coal seam (Ince Four Foot) exists above this, but difficult to find due to plant growth; however, we found coal fragments on the quarry floor. We could not find any blasting marks in the quarry suggesting that the rock was quarried



Cross section of strata below Haigh Hall showing the two major faults that form the graben.



by prising open the well developed joints by wedges driven in by sledgehammers. The hard fine grained sandstone would have been used for building, and the thinner flaggy beds near the top of the quarry for flagstones.

Fred Owen told us that, beyond the path, evidence of early mining of the Ince Four Foot seam can be seen – an outcrop working, an adit, a shaft and traces of a tramway.

At **Location 4**, the now disused Whelley Loop Railway Cutting, the exposure of inter-bedded sandstones, siltstones and coals is 180m long, parts of which are obscured by vegetation. We found fine-grained, jointed and cross bedded sandstones and siltstones that were micaceous, laminated and cross-bedded with carbonaceous plant debris. Chris cleared leaf litter to show us part of the Clarain coal of the Ince Yard Mine, which puzzlingly, did not have shale above it, just sandstone. The Ince Yard Mine was allegedly bricked up during the 1926 Miners' Strike, so is only partially visible, and the Bulldog Mine is totally obscured by the blue/grey engineering bricks.

After covering up the coal seam with leaf litter we left the railway cutting to our left and followed the path to **location 5** - the site of the defunct Alexandra and Lindsay Pits' slag heaps, bygone playground of errant children searching for fossils and coal, and now the site of the Haigh Sough mine-water treatment scheme, and Canon Sharples Primary School.

Haigh Sough was built in 1670 by Sir Roger Bradshaigh to provide drainage from the mining of the King and Cannel coal seams. Over the years the area became a network of old mine shafts, soughs and abandoned workings. Pumping ceased when the Alexandra Pit closed in June, 1955 and the workings became flooded. The groundwater that was channelled out to join Bottling Brook was stained bright yellow because of leached pyrites from the rocks forming iron-oxyhydroxide. Iron oxides were deposited on the stream bed making the mud and anything that fell into the water eventually become bright yellow. This watercourse is still known as the Yellow Brook.

In the 1980's the Alexandra became an opencast site. Later, the Coal Authority and Environment Agency, who assess mine discharge sites in the UK, prioritised Haigh Sough for one of their water treatment schemes and in 2003 work began. Water is now diverted at the Haigh Sough and pumped by pipe to three settlement ponds. It flows through four reed-bed ponds, and is finally discharged by a series of waterfalls, clean, into Bottling Brook. The site has been landscaped and is a peaceful amenity for the locals and wildlife.

We found abundant samples of the famous Cannel Coal around the site and David A. made sure that everyone had a sample to take home. Cannel or 'candle coal' is formed from fine plant material and humic mud, and has a conchoidal fracture. Hammer a very thin piece off and try lighting it, you will be surprised!

After such an energetic morning we were all ready for lunch but, to our dismay, we discovered that the Stables Cafe up at Haigh Hall had run out of PIES! This must be a first in Wigan's culinary history. However, the cafe served very tasty baked and chipped potatoes, delicious soup and good hot tea. Replenished, we made our way down to The Hall to admire the view across the valley to the escarpment of Ashurst Beacon and Parbold Hill. Unfortunately, the mist had descended and we could only see as far as the Liverpool-Leeds Canal.

When Wigan Technical College stopped teaching geology their extensive and valuable geological collection was scattered to the four winds. Some of it is now stored at Haigh Hall, and we spent the rest of the afternoon examining it. I found examples of Lepidodendron, Sigillaria, a German anthracite from the Ruhr Coalfield, seatearth from Ince Six Feet from Parkside Colliery, a core showing a very small coal seam, and finally a small core with some chalcopyrite. Many of the labels and samples are mixed up, and it is hoped that in the near future the collection will be sorted out.

The time went by quickly, and all too soon we were thanking Chris for a thoroughly enjoyable and fascinating day, knowing that Haigh Hall Country Park is not just a beautiful woodland, but an area with an important coal mining history too.

Marjorie Mosley





## Rocky Ramble no: 17 Rowarth to Cown Edge Saturday 24th September 2011

Jane Michael led a large group of MGA members and guests, including Rosemary Broadhurst and 3 of Fred's family, on an excursion based on a walk devised by Fred Broadhurst in his book "Rocky Rambles in the Peak District." This six and a half mile walk, from the small village of Rowarth to Cown Edge and back, takes in some typical Pennine scenery.

Jane explained that the rocks hereabouts were laid down in middle and late Carboniferous times, when a large river deposited vast amounts of sediment into a basin on the southern edge of the Laurentian continent. The rocks were subsequently folded to form the structure we know as the Pennine Anticline, which here has a number of lesser folds – the Goyt Syncline and Todd Brook Anticline - on its western limb.

The walk began at the car-park in Rowarth and proceeded on a long public footpath, slightly west of north, up the shoulder of Cown Edge. With the gain in height a good view was obtained, on looking back along the Goyt Valley, of the Goyt Syncline. The river itself lies near the fold axis and the hill-slopes to either side of it define the limbs.

Continuing along the path onto the top of the hill the dip of the rocks had altered approximately from southward to westward and Cown Edge Rocks was seen to be a scarp slope formed in a sandstone unit, the Rough Rock. There are good views from here over the plain but the low cloud obscured this to some extent. A fault runs across the path here cutting a small gully in the Edge.

At Coombes Rocks there is a major landslip, pollen-dated to ca. 8,000 years ago. The slumped ground is quite extensive with tongues of sediment reaching as far as Charlesworth. There are a large number of landslips in the Pennines and this one provides a good example of the 'standard model' – beds of thick dipping sandstones start to slip when water flowing over the underlying mudstones lubricate the motion.

After lunch, eaten overlooking the landslip, we walked along a holloway back to the scarp of Cown Edge where there are two small disused quarries in the thick sandstones. The outcrops in the quarries display a variety of sedimentary structures – cross-bedding, planar bedding, etc – and in the second quarry there are large spherical concretions.

The last locality was a spoil-heap of a coal mine exploiting the Simmondley Coal seam. The spoil-heap contained weathered coal and mudrocks, and some time was spent looking for fossils. Thanks to Jane for arranging a most varied and interesting day.

Jim Spencer



Holes left by concretions in the sandstones on Cown Edge (photo J Michael)

Members will be pleased to know that a new home for "Percy", Fred Broadhurst's plesiosaur, is nearly ready in Manchester Museum. We shall have a ceremonial viewing when Percy is finally installed in his new case.



Percy and pal were drawn by Fred B



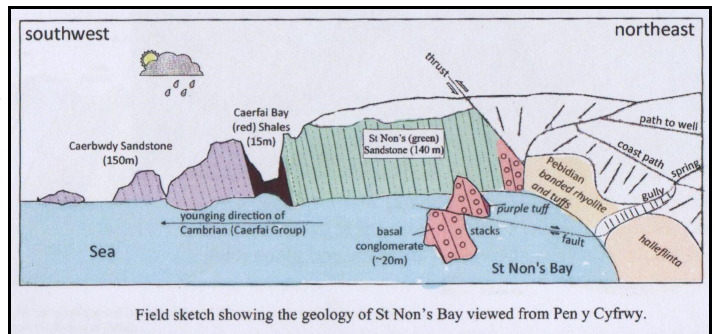
## A Wonderful Weekend in Wales.... Friday 26th - Monday 29 August 2011

August bank holiday weekend saw .. MGA members on their way down the motorway to Wales in appalling wet weather and heavy traffic.. OH NO! .. But it was OH WOW!

We met our two leaders, Dr Cindy Howells and our own Dr John Nudds at Cardiff Museum for lunch and a look round the excellent geological displays.. Dinosaur panoramas: beautiful minerals: stunning fossils ... you name it they have it....and then on to DB& B at our hotel in Pembroke.

Saturday morning dawned bright and clear and we set off for the coast near St David's. Armed with a very comprehensive and colourful field guide prepared by Cindy we began our look at the fossils and structures in Pembrokeshire, starting in the Cambrian and seeking the fine-

grained green St Non's sandstone.. We found it exposed in the path and then our organiser tried to cure her aches and pains by dipping her knee in St Non's Well. The surroundings were magnificent.. high cliffs, blue sea and fantastic views in the clear air! Pressing on along the coastal path to Caerbwddy bay we passed the deep cleft in the cliffs caused by the softer Caerfai Bay shale. The main party went down into the bay to look for trace fossils, older members sat on the cliff top and drank in the views.



Our lunch stop was Porthgain, once a thriving industrial harbour with brickworks and quarries, now there's just a pub, an art gallery and a fish restaurant. Driving further north to Abereddy bay we walked round to the old quarry where after some searching we found the famous tuning fork Graptolites *Didymograptus murchinsoni* , the young folks plunging into the "Blue Lagoon" seemed rather mystified at our activities!



*Didymograptus murchinsoni* from Abereddy bay

Then off to Marloes Sands via St David's to look for Silurian basalts, tuffs , corals and sediments of Llandovery age. Unfortunately the tide was right in by then, so these delights and their associated complex structures had to be viewed from the cliff top.

Sunday morning - another lovely day - after an early breakfast we set off for Freshwater West on the Angle peninsula. We managed to beat the wind surfers and bathers on to the beach and here we had a veritable feast of Devonian sandstones.... massive conglomerates, fine-grained channel sands, we even found some big *Beconites* burrows, but unfortunately not the rare *Holoptychius* fish scales which date the strata to the Upper Devonian.

After lunch we walked to the north end of West Angle bay and traversed a big, faulted, plunging syncline in the Carboniferous to reach the Devonian headland. From the cliffs we could see the periclinal folding at the margin of the major fold. Back on the beach we had to make our way through holiday makers to get right close to the rocks, where we found a wealth of fossils.

Our last stop on Sunday afternoon was to see the famous Green bridge of Wales, very





West Angle bay: north headland (Dev.) and periclinal folding (Carb)

impressive .. and very airy.. There is even a viewing platform so that you don't have to go too near to the cliff edge. Then back to a very convivial group dinner down the road at the other hotel.

Monday was another very full day.. Our first stop was at Ogmore-by-Sea where the Carboniferous limestone is unaffected by the Variscan folding seen further north, and is flat lying with more fossils: huge corals, abundant brachiopods and great gastropods!



MGA members photograph the Green bridge of Wales

We moved reluctantly on to Southerndown . At the sides of a new road down to the cove were broken rocks, packed with Jurassic fossils... everyone found several *Gryphea* and some found big ammonites.



*Solenodendron horsfieldi* on the foreshore at Ogmore-by-Sea

Lunch was taken at the Fox and Hounds, and then a drive to Barry, no, not the pleasure island, but to Bendricks Rocks.... A sea side location on the edge of an industrial estate. We fought our way down through the brambles and thorns and onto the foreshore. We were standing on the marginal facies of the Mercia Mudstone where layer upon layer of red sandstones and mudrocks were criss-crossed with dinosaur footprints. Big ones and little ones: tridactyl theropod tracks, tetradactyl tracks and even some quadrapedal tracks... Dinosaurs must have been coming here to a

lake shore or river bank for hundreds of years.. .. truly an amazing location.

But at four o'clock it was time to go home, some straight back to Manchester, others had another day in Wales or the Midlands... what a weekend!



MGA members tracking the dinosaur tracks at Bendricks Rocks Barry Island

This is just a short account of an action packed weekend .. All the participants enjoyed it hugely and said a very big thank you to John and Cindy for sharing their expertise with us.

Our thanks went also to Jane Michael our organiser. Jane will do a full report of this trip for next year's North West Geologist, based on Cindy's excellent guide.

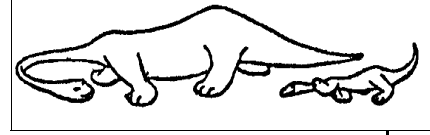
Mary Howie

(Photos Mary Howie, field sketch Cindy Howells)

Stop Press: John Nudds has just told me that samples collected on the MGA trip at Ogmore-by-Sea provide the first evidence for an Arundian age of the Caswell Bay Mudstone ! More next time.....



## Who's Who in the MGA Council 2011 ~ 2012



President	Dr Tony Adams	SEAES University of Manchester
Past President	Dr Christine Arkwright	
Vice President	Peter del Strother, MBE	
General Secretary	Sue Plumb	20 Ridge Crescent, Marple, Stockport, SK6 7JA 0161 427 5835 <a href="mailto:secretary@mangeolassoc.org.uk">secretary@mangeolassoc.org.uk</a> 8 Borrowdale Crescent, Didsbury, M/cr,M20 2XU, 07789 767732 <a href="mailto:membership@mangeolassoc.org.uk">membership@mangeolassoc.org.uk</a> 07785 778 250
Membership Secretary	Lisa Abbott	
Treasurer	Niall Clarke	07785 778 250
Indoor Meetings Organiser	Jim Spencer	0161 434 7977
Field Excursions Organiser	Jane Michael	07917 434598
News Letter Editor	Mary Howie	0161 427 2965
Web Site	Peter Giles	<a href="http://mangeolassoc.org.uk">mangeolassoc.org.uk</a>
RIGS Group	Marjorie Mosley	<a href="mailto:gmrigs@hotmail.com">gmrigs@hotmail.com</a>
Minutes Secretary	Jane Michael	
Archivist	Dr Derek Brumhead, MBE	
Other Council Members	Nicola Fowler, James Jepson. Chantal Johnson	
President Manchester University Geol. Society (ex officio)		
<b>MGA email addresses :-</b> To contact our President or Membership Secretary email <a href="mailto:membership@mangeolassoc.org.uk">membership@mangeolassoc.org.uk</a>		
	for Sue Plumb MGA General Secretary	<a href="mailto:secretary@mangeolassoc.org.uk">secretary@mangeolassoc.org.uk</a>
	for Jane Michael and field visits -	<a href="mailto:outdoors@mangeolassoc.org.uk">outdoors@mangeolassoc.org.uk</a>
	for Jim Spencer and indoor meetings -	<a href="mailto:lectures@mangeolassoc.org.uk">lectures@mangeolassoc.org.uk</a>
	for Mary Howie and the newsletter -	<a href="mailto:newsletter@mangeolassoc.org.uk">newsletter@mangeolassoc.org.uk</a>

### Other Societies

**MGA members are welcome guests at other Geological Societies' events, some of their events are below.**

#### Black Country Geological Society

Mon 23 Jan 'The geology and geoarchaeology of Jordan'. Dr. John Powell, BGS  
Sat 28 Jan: Coln Quarry and other Cotwolds quarries :fossil hunting ~ Neville Hollingsworth.  
Mon 20 Feb The Geological Photo Archive of the GA.  
Dr. Jonathan Larwood, Natural England,  
Mon 19 Mar 'The Permafrost'. Dr. R. Waller, Keele Uni.  
**Contact** [andrew\\_harrison@urscorp.com](mailto:andrew_harrison@urscorp.com)

#### Lancashire Geological Association

**Contact** Jennifer Rhodes [s\\_j\\_rhodes@hotmail.com](mailto:s_j_rhodes@hotmail.com)

#### Leeds Geological Association

No details yet for 2012 but lectures are held on a Thursday at 7.15pm in the Rupert Beckett Lecture Theatre in the Michael Sadler Building at Leeds University campus.  
**Contact** [anthea.brigstocke@zen.co.uk](mailto:anthea.brigstocke@zen.co.uk)

#### Liverpool Geological Society

Tue 17th Jan – Dr Jeff Harris – 'The Geology of Ardnamurchan'.  
Tue 7th Feb - *Distinguished Member's Address* by Prof. Tony Harris –The Enigmatic Geology of the SW Highlands of Scotland.  
Tue 21st Feb - Practical Session on Brachiopods with Joe Crossley.  
Fri 24th Feb - *The Society Dinner* at The Mandarin Restaurant, Victoria Street, Liverpool.  
Tue 6th Mar - Prof James Scourse on 'The Medieval Climate Anomaly and the Little Ice Age'.  
Sat 10th Mar - National Science Week Event - Rock Around William Brown Street with Joe Crossley & Hazel Clark.  
Tue 20th Mar - *Distinguished Visitor's Address* by Prof. P.Styles.  
Sat 31st Mar - Rock Around Wirral with Hilary Davies.  
**Contact** **Joe Crossley** 0151 426 1324

#### North Staffs GA

Thur 12 Jan Ediacara: 'The Evolution of Earth's first complex life' by Dr Michael Montenari (Keele University)  
February meeting To be confirmed  
Thur 8th Mar AGM and Chairman's Address. 'The Statfjord Field' by David Osborn  
**Contact** **Eileen Fraser** [frasers@netfraser.me](mailto:frasers@netfraser.me)

#### Oldham Geological Society

**Contact** **Jo Holt** 01457 874095

#### Open University Geological Society NW Branch

Sun 4 Dec ~ Lecture afternoon in Euxton, Lancashire  
Sat 28 Jan ~ NW Branch AGM and Dinner, Leyland, near Preston  
Sun 26 Feb ~Beginners in the Field Day, Chris Arkwright  
Introductory Field Trip, Clitheroe, Lancashire  
Mar 25, Wirral Geology with Hilary Davies (OU tutor)  
Wirral, Merseyside  
**Contact** **Jane Schollick** 01704 565 751

#### Russell Society (mineralogy)

The North-West Branch - meets in the Warrington area.  
**Contact** **Alan Dyer** on [Aldilp@aol.com](mailto:Aldilp@aol.com) or Harry Critchley, Tel: 01204 694345

**Ring the contact given for further details, or link to their websites and others via ours.**

